

OPERATING INSTRUCTIONS

VOLKMANN Powder Transfer System PPC-200VS

Customer : **NOVARTIS SINGAPORE
PHARMACEUTICAL
SG-Singapore**

Ref. : **PRO-14-0013**

Serial Nr: **14001335180**

1	Index
2	Overview
3	R & I
4	Volkman vacuum conveying System PPC170
5	Volkman Filter unit VS 250
6	Volkman MULTIJECTOR®- Vacuum pump
7	Volkman Pneutimer PT3E-S
8	Spare parts
9	Balance Mettler-Toledo
10	Electric-Drive- Pneumatics
11	Certificates
12	ATEX
13	Volkman Inspection Certificates
14	Protocols
15	Qualification and Validation IQ / OQ
16	Butterfly valves
17	Functional Design Specification

INDEX

1 Index

Content of operating instructions

2 Overview

Machine Assembly Drawings
Technical datasheet Installation
Assessment for cleaning validation PTS
Delivery note (Option)

3 R & I

R & I Diagram
List of components R & I

4 Volkmann vacuum conveying system

Operating instructions PPC-200VS

5 Volkmann Filter unit VS 250

Operating instructions Filter unit VS 250

6 Volkmann MULTIJECTOR®- Vacuum pump

Operating instructions MULTIJECTOR®- Vacuum pump

7 Volkmann Pneutimer PT3E-S

Operating instructions Pneutimer PT3E-S

8 Spare parts

Spare parts lists
Assembly drawings
Order form

9 Balance

Mettler-Toledo documentation

10 Electric / Drive / Pneumatics

Electric diagram / List of electric components
Pneumatic diagram / List of pneumatic components
Volkmann – Pneumatic Diagram PT3S_Sonder
Technical documentation:
Pressure transmitter
Magnetic rods NeofluxCleanflow

11 Certificates

EC Certificate / EC Declarations of Conformity
Certificate of Conformity EN 10204-2.2
Assembly drawing for material certificates
Material certificate EN 10204-3.1
Drawings for material certificates
FDA certificates
Certificate NSF (H1) Klüberpaste® UH1 84-201
Surface quality Certificate
Roughness measurements
Calculation of area in contact with the product
Resistance of seals Certificate
Material certificate Polyuretan (FESTO-TÜV)
Noise level Certificate
Calibration Certificates

12 ATEX (EN 94/9/EC)

ATEX Certificates

13 Volkmann Inspection Certificates

Volkmann Inspection Certificates (incl.3.1 & FDA)

14 Tests protocol

Quality Certificate ISO 9001 / ISO 14001

Test protocol Profitest 60204

FAT Protocols

15 Qualification and Validation IQ/OQ

Related documentation

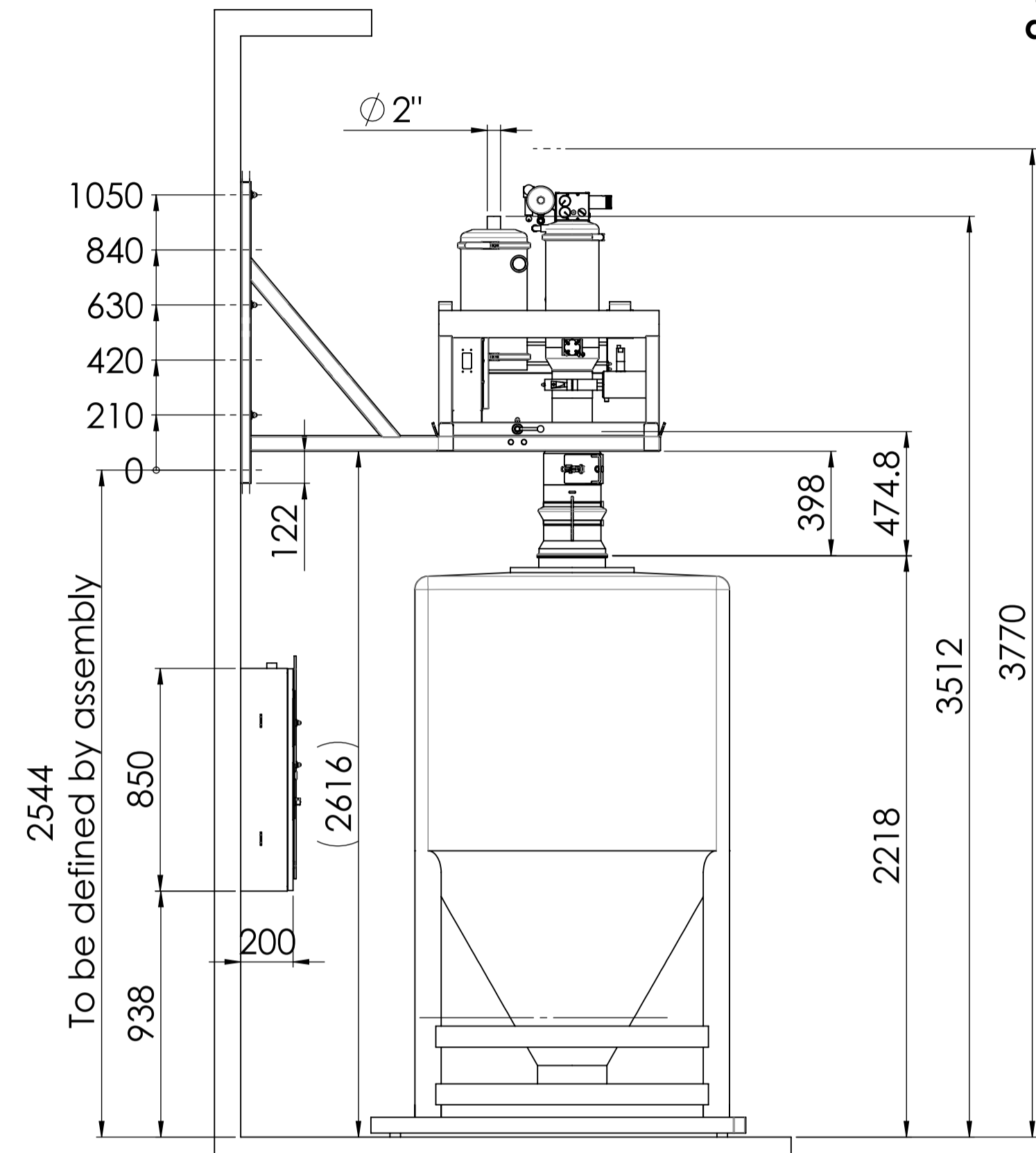
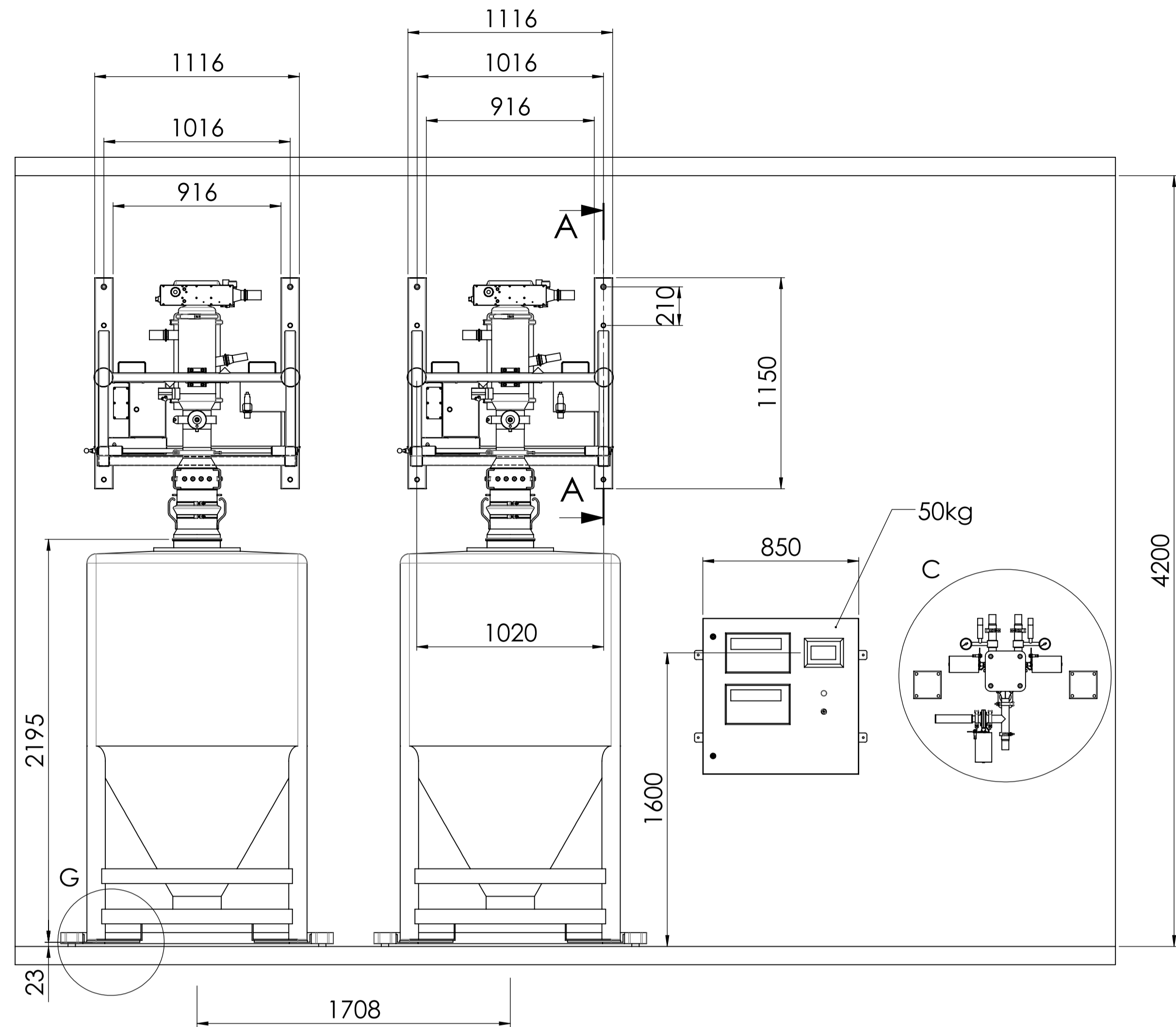
16 Butterfly valves

Cromatech-Dokumentation- Butterfly valves

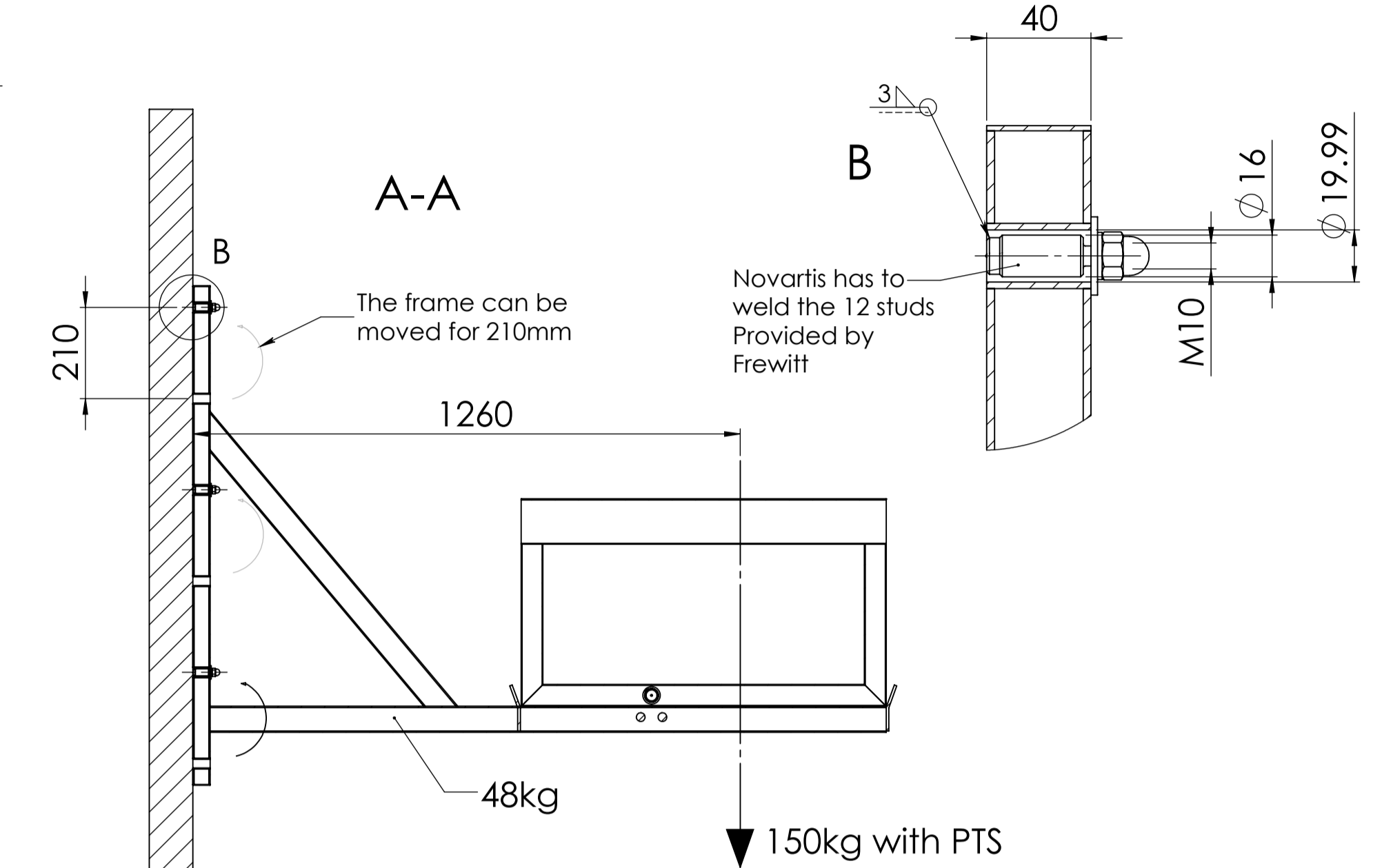
17 Functional Specification

Related documentation

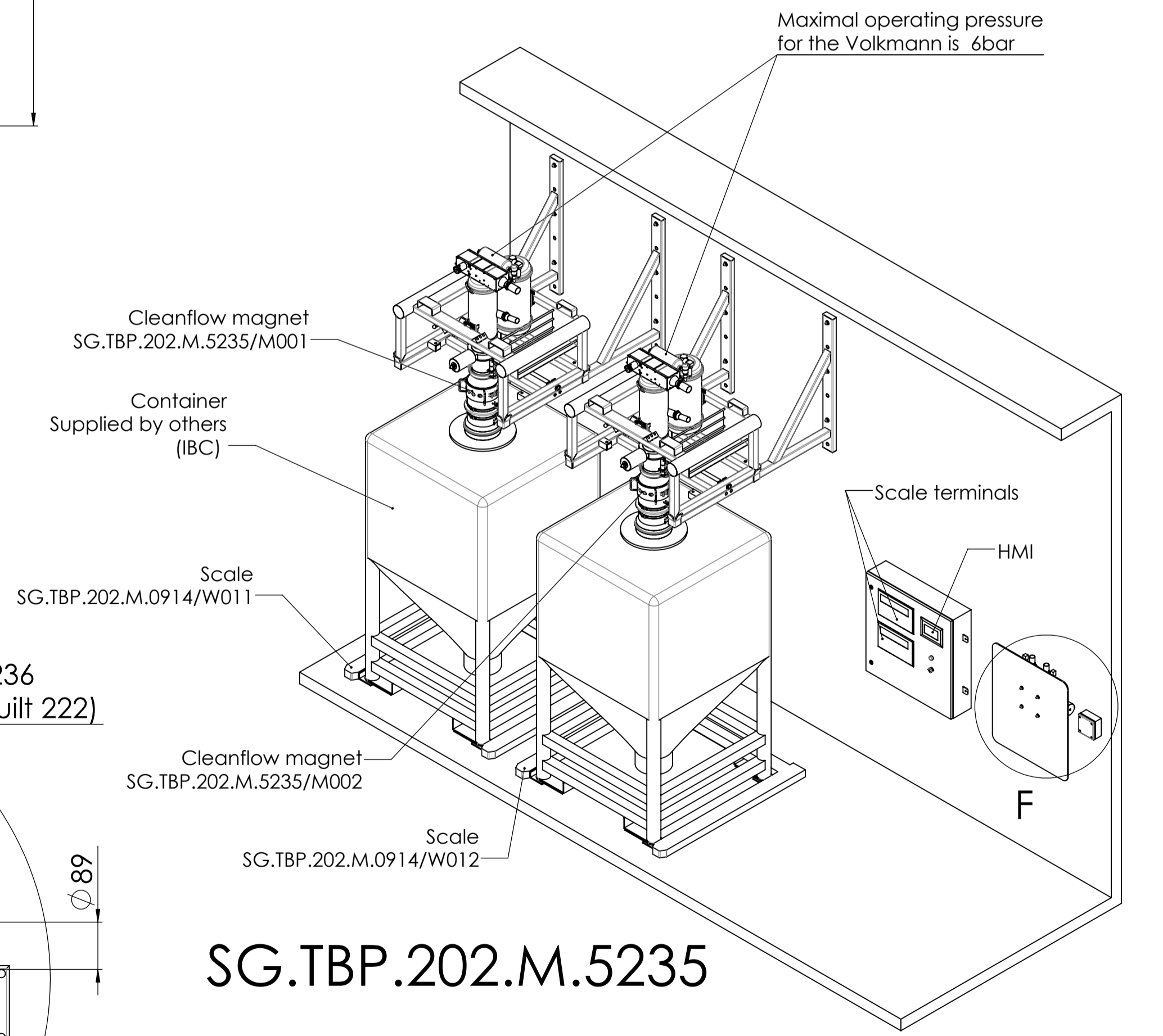
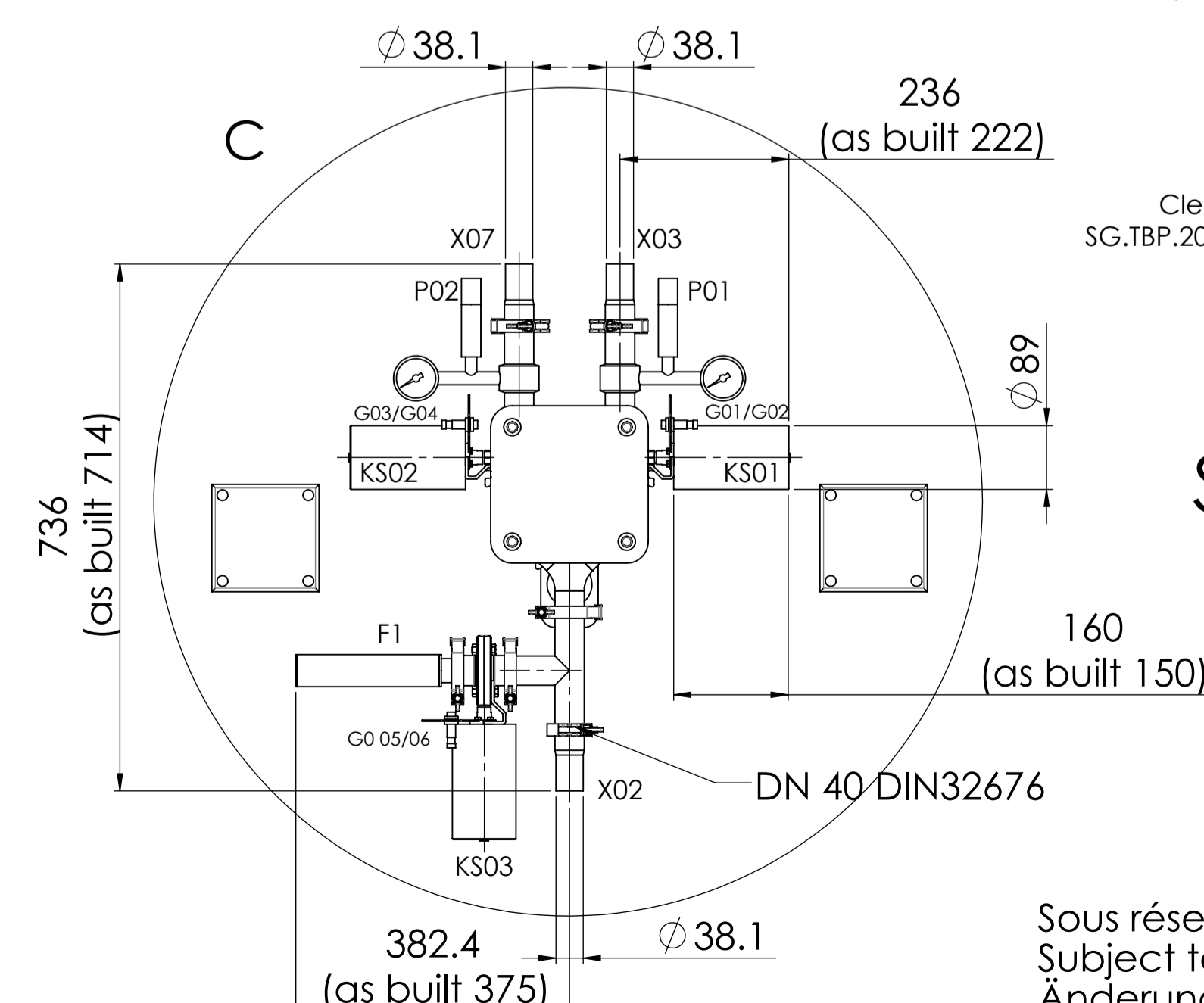
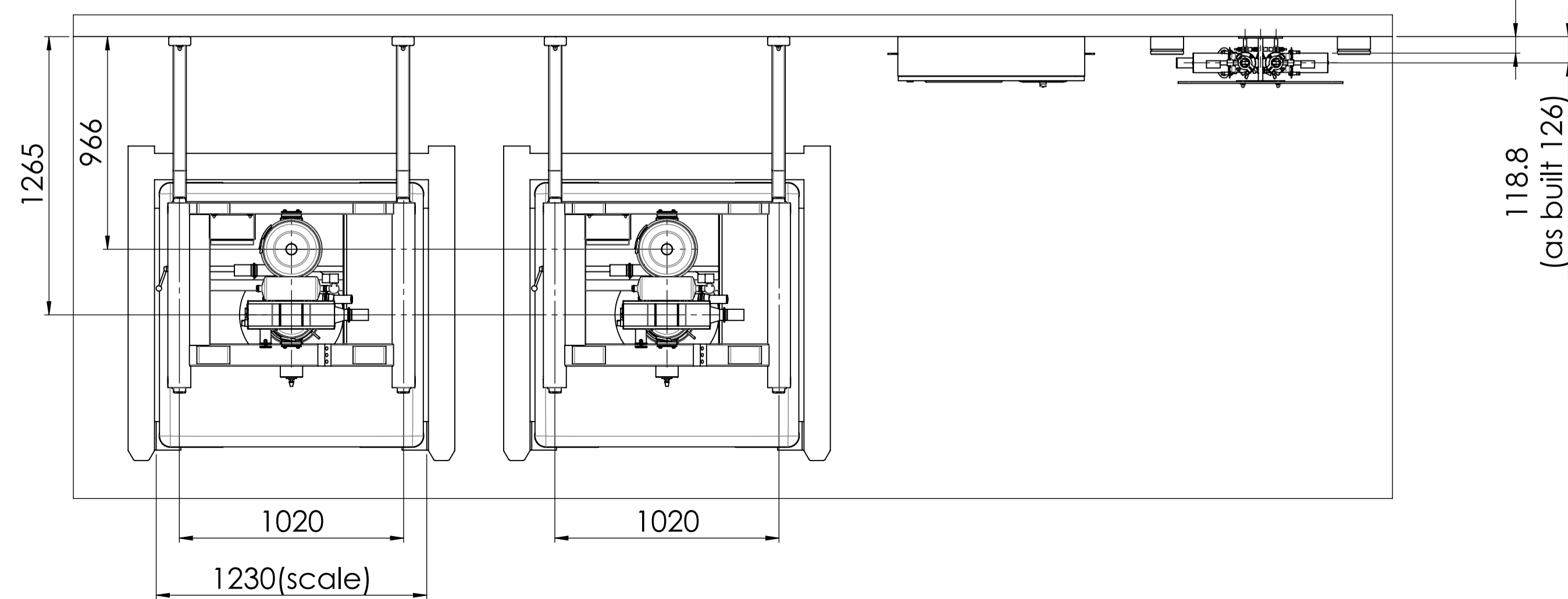
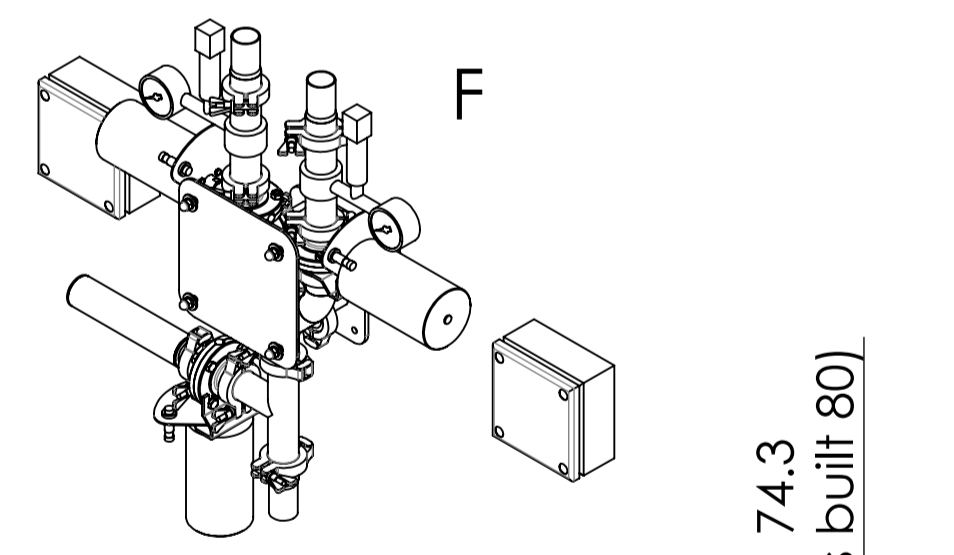
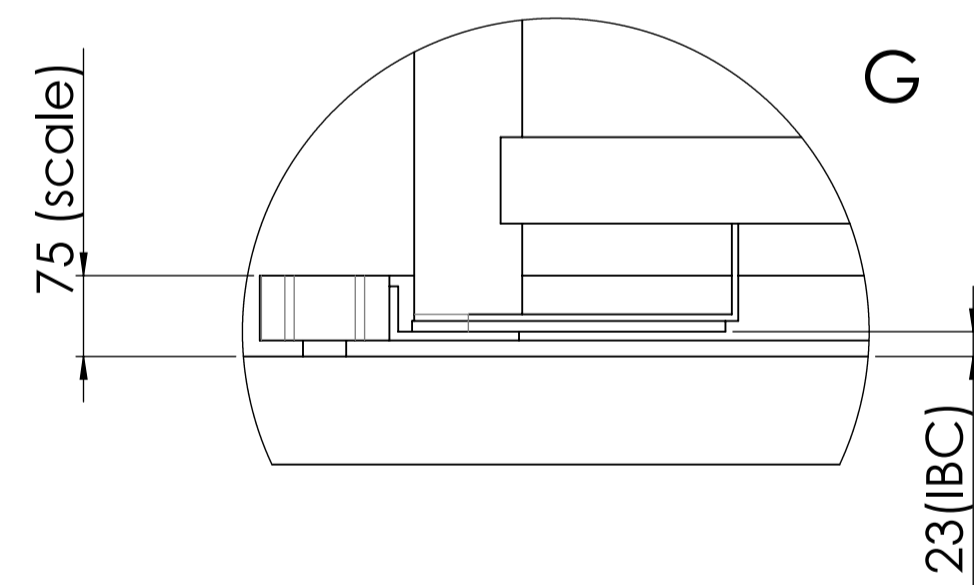
OVERVIEW



- General notes :**
- Material of construction :**
 - Product contact parts AISI 316/316L
 - Non-product contact parts AISI 304/304L
 - Surface finish :**
 - Product contact part < Ra 0.8
 - Non-product contact parts < Ra 1.4
 - All non-metallic parts in contact with product shall be FDA approved food grad**
 - Design fabrication shall comply with GMP requirement with no sharp corners, dead legs, easily drainable and crevices free**



SG.TBP.202.M.5235/C005 SG.TBP.202.M.5235/C006



SG.TBP.202.M.5235

Sous réserve de modifications
Subject to modifications
Änderungen vorbehalten

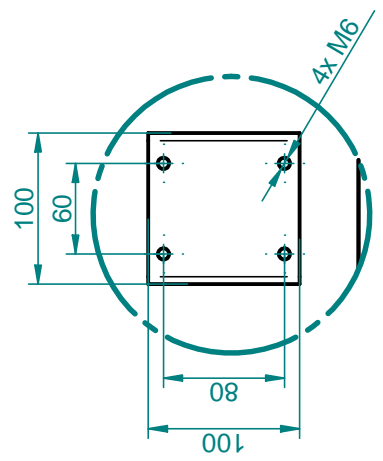
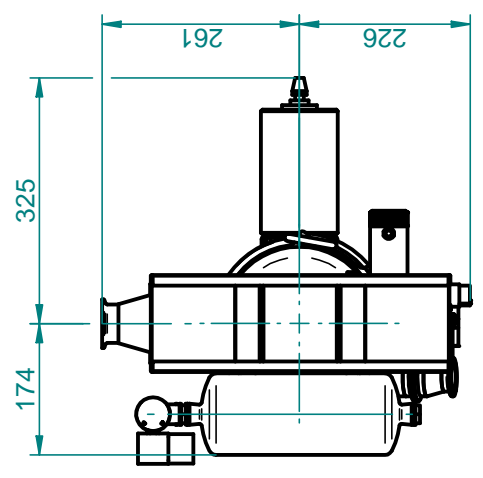
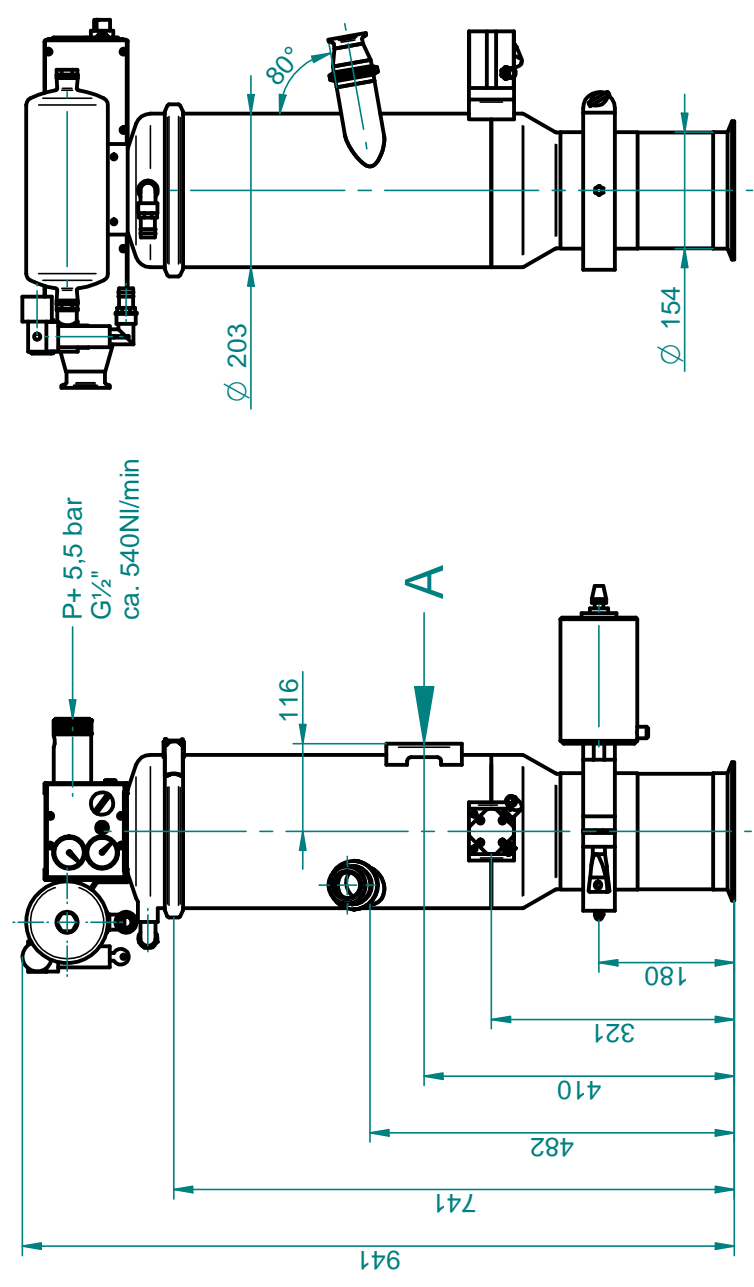
Network (V)	230-400
Frequency (Hz)	50
Serial Nr	14001335180
ATEX category (int.)	1D
ATEX category (ext.)	3D
scale %	Designed 22/01/2014 tme
AI	Controlled 21/05/2014 edgu
	Revised 21/05/2014 edgu
	Page 1/1
	Ver D

PRO-14-0013 / PPC-200VS

473515-LAY

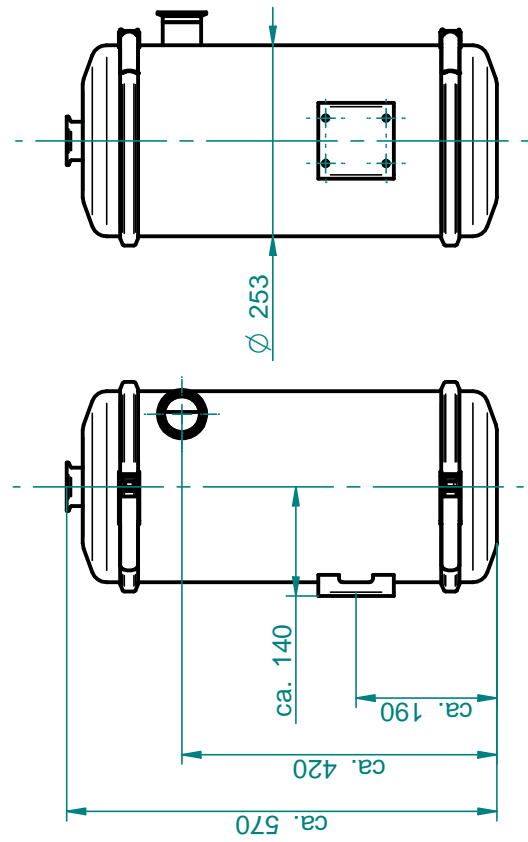
Frewitt SA, Milling and Handling of Powders
P.O. Box 815, CH-1701 Fribourg, SWITZERLAND
Tel: +41 26 460 74 00 Fax: +41 26 460 74 01
info@frewitt.com www.frewitt.com

Polzfiltereinheit VS200 (2x) Sonderausführung

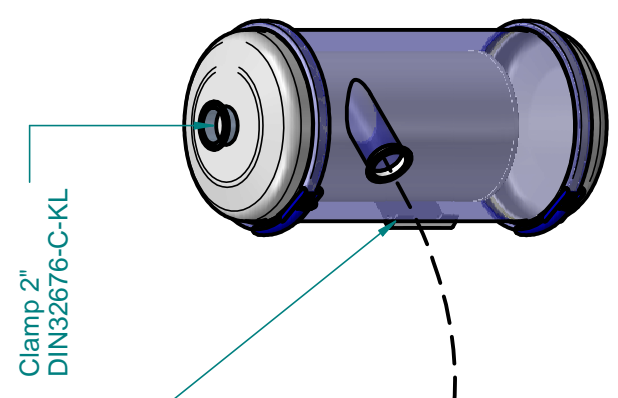
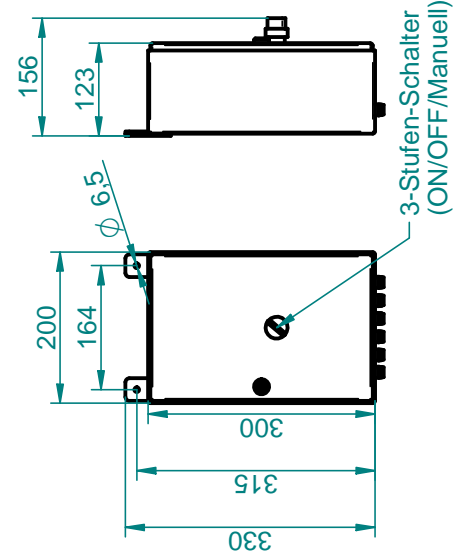


EINZELHEIT A

Polzfiltereinheit VS200 (2x) Sonderausführung



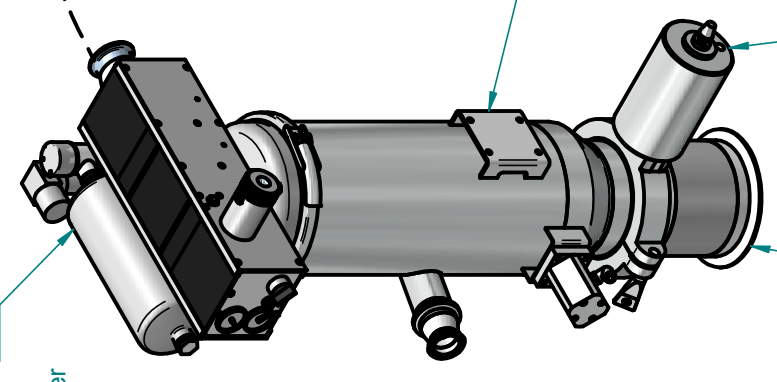
Pneutimer PT3SE (1x) Sonderausführung



Haltekonsole einseitig

Abluftschlauch PUR50-AS-FDA vergossen mit Clamp 2" DIN32676-C-KK Länge: 1,8m

GLA 2L VA p+max 3bar einstellbar über Druckregler abschließbar



Haltekonsole einseitig


Clamp DN150 DIN32676-A zur bauseitigen Befestigung

Antrieb Entleerklappe NC

Genehmigung der Zeichnung

<input type="checkbox"/>	Zeichnung ist ohne Änderungen genehmigt
<input type="checkbox"/>	Änderungen siehe Zeichnung
<input type="checkbox"/>	neue Genehmigungszeichnung erforderlich
Name:	
Firma:	
Unterschrift:	
Datum:	

Werkstoff / Material: 1.4404 / diverse		Scale: 1:10	
Benennung / Denomination: PPC200VS mit Polzfilter			
Kom.:		Original	
Via / Frewitt / Novartis		A3	
Best.-Nr.: 31-9'356/14		Blatt von/Sheet of	
Zeichnungs-Nr. / Drawing-No.: 140522-01-001-A		1 / 1	
Ersatz für / Replacement for:		Ersetzt durch / Replaced by:	
-		-	
		Name Date 11.02.14 AH 17.2.14 MP	
VOLKMAN GmbH Vakuumentchnik Schloitweg 17 59494 Soest		Name Date 11.02.14 AH 17.2.14 MP	
1 MC in NC, vergossene Schläuche Index Änderung/Modification		17.2.14 AH Date Name	
Allgemeintoleranzen Spanende Bearbeitung DIN ISO 2768 T1 - mittel Verformende Bearbeitung DIN ISO 2768 T1 - sehr grob Schutzvermerk nach DIN / ISO 18016 / 2007 beachten			

	MANAGEMENT MANUAL	Document: 167612-1-en			
		Version: 01	Established: 27 Jan 2014	by: edgu	Page: 1 de 2
Formular Datasheet		Process: PTS System			

Manufacturer

FREWITT Maschinenfabrik AG
Rte du Coteau 7
CH - 1763 Granges-Paccot

Customer

Novartis Pharmaceutical
10, Tuas Bay Lane
69115 Singapore

Type PTS System

Project number PRO-14-0013 / CDC-14-0112

Order 3000949997 / 13.01.2014

Novartis Equipment Tag SG.TBP.202.M.5235/C005, C006

PTS System

Execution

ATEX execution Inside: ATEX II 1 D
Outside: ATEX II 3D

Part in contact with the product Stainless steel AISI-316, Ra ≤ 0,4 µm,
Seals made of silicone, epdm and PTFE

other part AISI-304, Ra ≤ 1.4 µm (grain 220)

Construction According to GMP guidelines

Basic equipment

Multijector vakuüm pump. Special filter unit. Discharge through pneumatic discharge valve, with external drive, pneumatic opening and spring closing, sealing ring made of silicone. Filter cleaning device.

Safety filter for vacuum pump

Filter area about 4m²
Diameter 200mm.

Control box (pneumatimer)


For Vacuum Conveyors to control the drives. Adjustable from 1-30 seconds.

Support for PTS

To attach the vacuum conveyor. Material: stainless steel 1.4301

Docking system

Manually for connecting the vacuum conveyor with the IBC. Compensator DN200.

	MANAGEMENT MANUAL	Document: 167612-1-en			
		Version: 01	Established: 27 Jan 2014	by: edgu	Page: 2 de 2
Formular Datasheet		Process: PTS System			

Mobil frame

Mobile frame with 4 swivel antistatic castors. Centering frame for holding the vacuum conveyor.

2-Way diverter valve DN40

Fully equipped with pneumatic rotary cylinder. Solenoid valve and proximity switches for control of the position.

Scale

Weigh scale from Mettler with display

Electric control

For the above system, to control, solenoid valves, limit switches, etc. control is performed in the PLC (Siemens S7-300) with all the necessary switching and control devices.

Assessment for cleaning validation of new Melt Extruder line

Frewitt PTS to IBC 1 and 2

Projet / Projekt / Project: PRO-14-0013

Type / Typ / Type : PTS

N° de série / Serien Nr. / Serial Nr.: 14001335180

Client / Kunde / Customer : Novartis Pharmaceutical Manufacturing ; SG-Singapore

The FREWITT Powder Transfer Systems:

*Serial No.: 11007735106
(NSPM Tag No.: SG.TBP.202.M.5215/C005,C006, Frewitt Project No.: PRO-11-0077)*

*Serial No.: 12023535142
(NSPM Tag No.: SG.TBP.202.M.5225/C005,C006, Frewitt Project No.: PRO-12-0235)*

*Serial No.: 14001335180
(NSPM Tag No.: SG.TBP.202.M.5235/C005, C006, Frewitt Project No.: PRO-14-0013)*

*are of the same make, model, design & capacity. Accordingly these two equipment are identical (like for like) for cleaning requirements because they have the **same product contact surface area, material and surface finishing.***

Project Manager



Edouard Gumy

15.05.2014

R & I

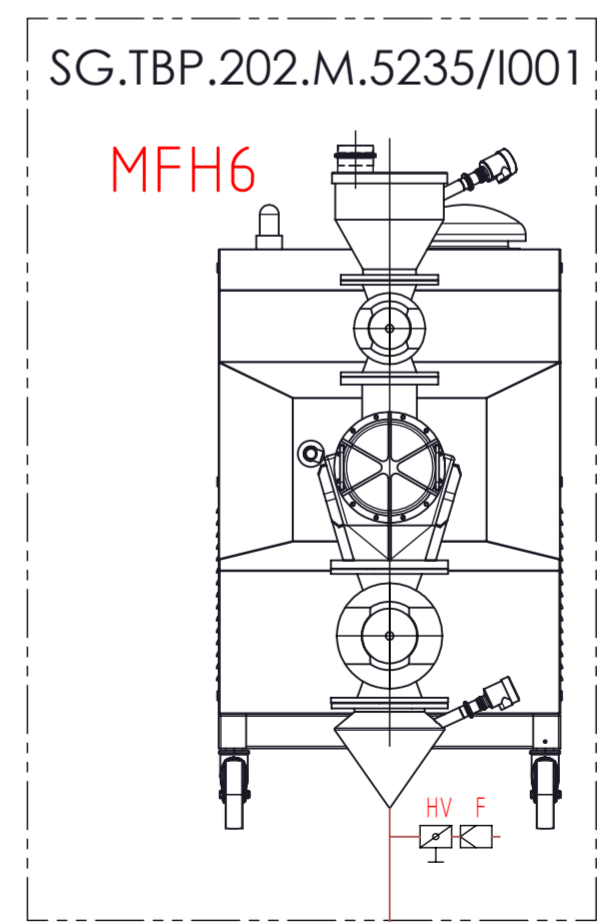
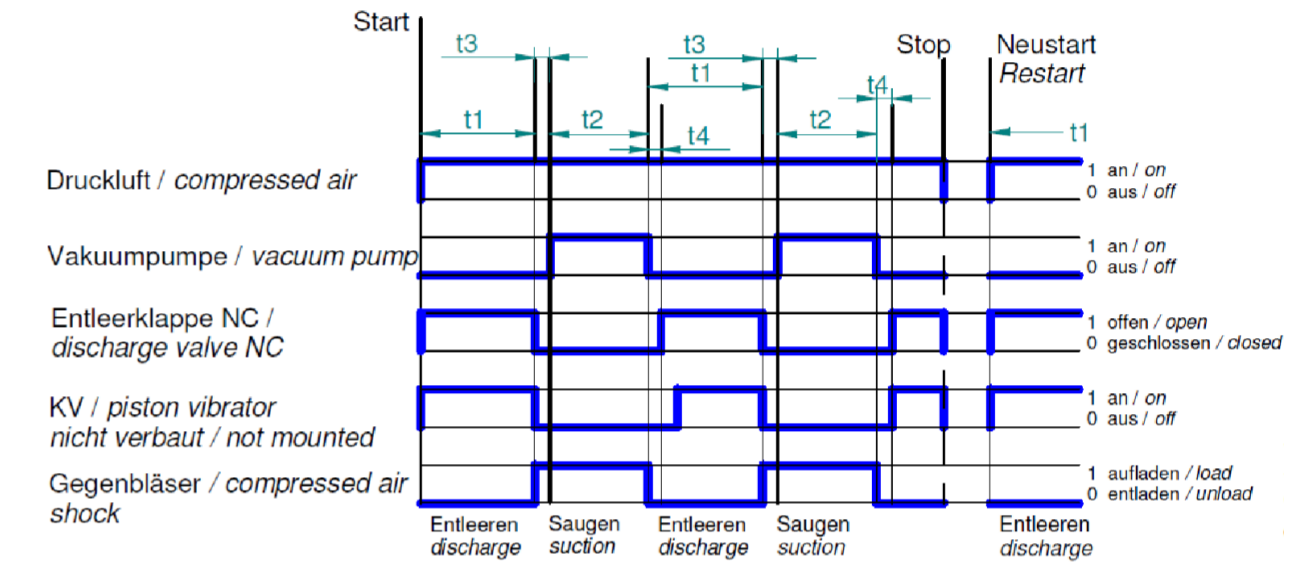
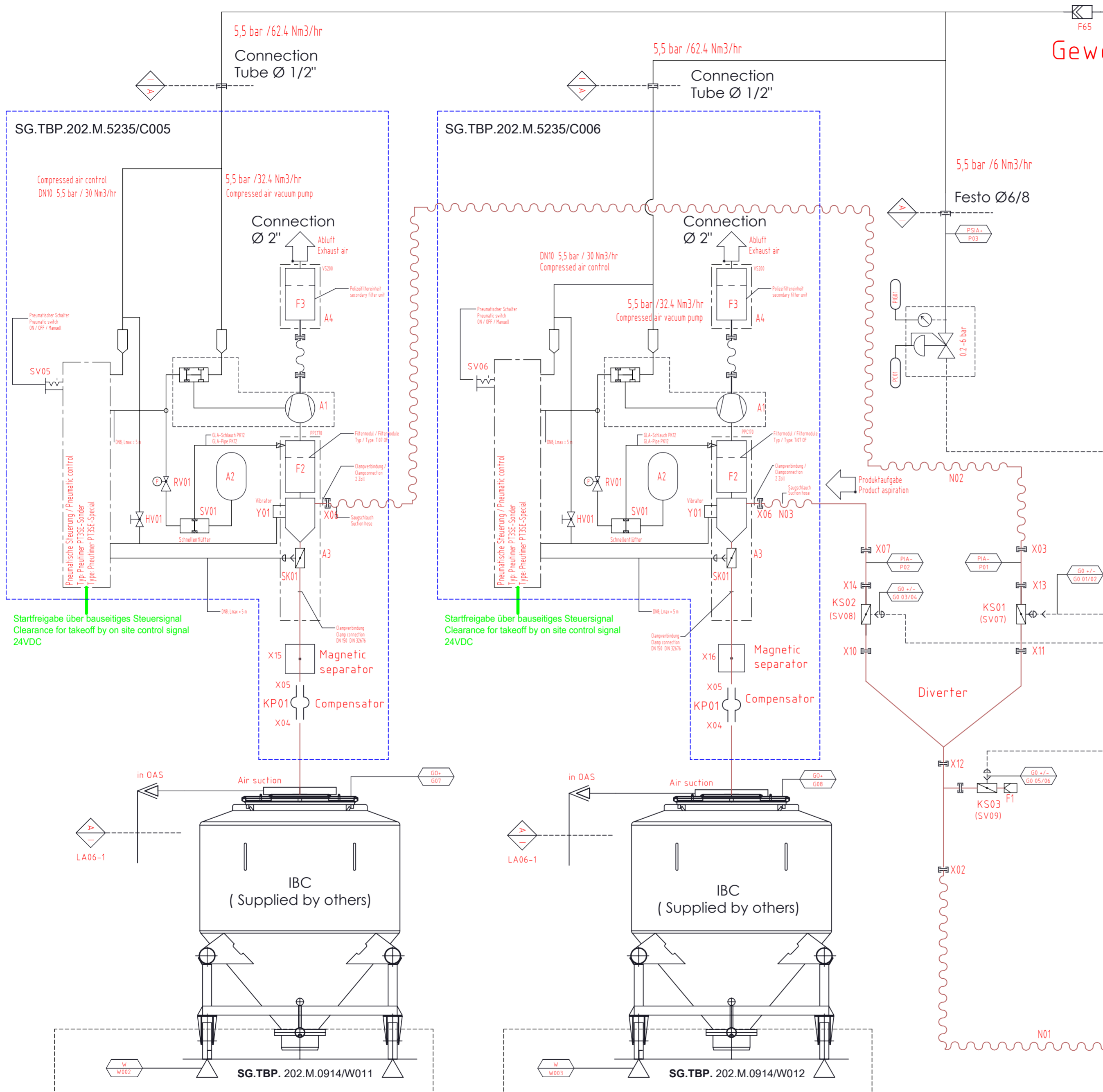
Gewerk Novartis

Maximal operating pressure for the Volkmann is 6 bar
Compressed air: 130.8m³/hr

A	Aktoren / Actuators
A1	Vakuumpumpe / Vacuum pump: M450
A2	Filter-Abblasautomatik / filter cleaning unit: GLA 0, 75 LVA
A3	Entleerklappe/ discharge valve: MC150 NC L/F
A4	Polzfiltereinheit / secondary filter unit VS200
t1	Entleerzeit / Discharging time
t2	Saugzeit / Suction time
t3	Verzögerungszeit Pumpe Delay time Pump
t4	Verzögerungszeit Entleerklappe auf Delay time discharge valve

General notes:

- 1: For legend refer the legend sheet 153395
- 2: For general arrangement details refer to GA DWG 473515-LAY



Network (V)	230-400
Frequency (Hz)	50
Serial Nr	14001335180
ATEX category (int.)	1D
ATEX category (ext.)	3D

SG.TBP.202.M.5235/C005

SG.TBP.202.M.5235/C006

R und IPID PRO-14-0013 / PPC-200VS

scale %	Designed	23/01/2014	thle
⊕	Controlled	19/05/2014	edgu
A2	Revised	19/05/2014	edgu

473527

Page 1/1 Ver. C

Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.

FREWITT SA: Milling and Handling of Powders
P.O.B. 615, CH-1701, Fribourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewitt.com / www.frewitt.com

Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. C

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
G01	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G02	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G03	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G04	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G05	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G06	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G07	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
G08	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
KS01	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS02	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS03	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KP01	437890	Compensator	JOHANNSEN	1
KP01	437890	Compensator	JOHANNSEN	1
PC01	(432154)	Regulator R.01 G1/4 0.2-6 bar RE 01 9170100600208	UNIVER	1
PIG01	(432154)	Manometer 41309579292 G 1/8 0-10 bar	UNIVER (Tecsis)	1
P01	464936	Pressure Switches IS-20-S absolut 0..1 bar 4...20mA	WIKAI	1
P02	464937	Pressure Switches IS-20-S absolut 0..1 bar 4...20mA	WIKAI	1
P03	437866	Pressure Switches 1-10 bar G1/4" 0196 458 03 006	SUCO	1
SV05	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkman)	1
SV06	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkman)	1
SV07	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV08	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV09	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
X01	(-)	Tri-Clamp DN50 DIN32676 Ø53/50		1
X02	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X03	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X04	(-)	Tri-Clamp DN 10" BS4825		1
X05	(-)	Tri-Clamp DN 150 DIN32676		1
X06	(-)	Tri-Clamp DN2" Ø47.5/50.8		1
X07	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X10	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X11	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X12	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X13	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X14	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X15	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / frewitt	1
X16	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / frewitt	1
F1	463739	Filter SS L=225.5 Ø45 Porostar 5µm	FreWitt	1
F2	470896	Filter QX 200 Ti07 0.14 OF	Mahle Filtersysteme GmbH	1
F3	462129	Secondary filter Ti26 VS250	Mahle Filtersysteme GmbH	1
N01	470067	int. Ø38mm	(Volkman)	1
N02	470067	int. Ø38mm	(Volkman)	1
N03	470067	int. Ø38mm	(Volkman)	1
SK01	470951	MC-150 Valve	(Volkman)	2
RV01	470904	Regulator R0018-6-K	Landefeld	2
HV01	461592	Valve for maunal vibrator MV 48 06 06 3	Trigress	2
Y01	470945	KV 101481	(Volkman)	2
SV01	470947	Discharging valve G½" 111522	(Volkman)	2
A1	470948	G540 S110254A	(Volkman)	2

Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. C

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
A2	470949	(Volkmann GLA2LVA 211634) CRVZS-2 160036	FESTO SA	2
A3	(Volkmann)	Assembly of F2/Y01 / SK01 MC150NO 104117	(Volkmann)	2
A4	(Volkmann)	Assembly Security filter VS250 Ti26	(Volkmann)	2
W002	473518	Weighing scales (IND690 Typ PTA459-F1500)	Mettler Toledo	1
W003	473518	Weighing scales (IND690Typ PTA459-F1500)	Mettler Toledo	1

POWDER TRANSFER SYSTEM



Original - Operating manual

Volkmann vacuum conveying system

Type: PPC200VS
ATEX

Issue: 20 / 03 / 2014

Com: VIA AG

Order-No.: 31-9'356/14

Project-Nr.: 140522

ID-Nr.: 633960-1-001 / 633960-1-002

Construction year: 03 / 2014

Table of contents







1	INTRODUCTION	3
1.1	SCOPE OF SUPPLY:	5
1.2	GENERAL SAFETY- AND DANGER REFERENCE	7
2	VOLKMANN VACUUM CONVEYING SYSTEMS – FUNCTION AND APPLICATION.....	9
2.1	INTENDED USE OF THE VOLKMANN VACUUM CONVEYING SYSTEM	10
2.2	GENERAL DESCRIPTION OF THE PERMITTED MATERIALS	11
2.3	GENERAL DESCRIPTION OF AUTHORIZED PLACE OF WORK	12
2.4	GENERAL FOR CONVEYING IN THE EX-RANGE	13
3	QUALITY OF COMPRESSED AIR.....	15
4	DESCRIPTION OF THE INDIVIDUAL COMPONENTS.....	16
4.1	MULTIJECTOR® VACUUM PUMPS	16
4.2	FILTER SYSTEM – QUICK EXCHANGE SYSTEM QX - FILTER	19
4.3	SUCTION HOSES:	26
4.4	CONTAINER MODULES AND CONNECTIONS	28
4.5	DISCHARGE ASSISTANCE PISTON VIBRATOR	30
4.6	DISCHARGE ASSISTANCE FLUIDISATION ELEMENT	31
4.7	DISCHARGING SYSTEM TYPE MC	33
4.8	DISCHARGE ADAPTOR	39
4.9	CUSTOMER PROVIDED CONTROL	40
5	INSTALLATION	41
5.1	SET UP THE EQUIPMENT	41
6	INSTALLATION	42
6.1	CONNECTION OF SUCTION HOSE AND OTHER CONNECTIONS	43
6.2	GENERAL ADVICES TO THE CLAMP CONNECTING EQUIPMENT	44
6.3	FUNCTIONAL INSPECTION VOLKMANN VACUUM CONVEYING SYSTEM	45
6.4	ADJUSTMENT OF THE SUCTION AND DISCHARGING TIMES	47
6.5	TEST CONVEYING	49
7	OPERATION VOLKMANN VACUUM CONVEYING SYSTEM.....	50
7.1	SWITCH ON OPERATION	50
7.2	CURRENT CONTROL	50
7.3	SWITCH OFF	50
7.4	REFERENCES AND TIPS	50
8	MAINTENANCE VOLKMANN VACUUM CONVEYING SYSTEM.....	51
8.1	MAINTENANCE INTERVALS	52
8.2	DISMANTLING VOLKMANN VACUUM CONVEYING SYSTEM	52
8.3	ASSEMBLY MULTIJECTOR® VACUUM CONVEYING SYSTEM	53
8.4	TROUBLE SHOOTING	54
9	ADDENDUM.....	55
9.1	CHECKLISTS	55
9.2	VOLKMANN ACUUM CONVEYING SYSTEMS WITH EXTERNAL SOURCES OF VACUUM	56
9.3	DECONTAMINATION CERTIFICATE FOR RETURNED PARTS	58

1 Introduction

These operating instructions comprise important notes, of the installation, function, maintenance and storage of a Volkmann vacuum conveying system.
Please read the complete operating manual carefully and keep it for later questions.

The manual is divided into several parts according to table of contents.

For faster orientation in these operating instructions the following indices are used:

	<p>Danger</p> <p>Danger for life (example: electric shock) Directly imminent danger that will cause death or severe injuries if the adequate safety measures are not made.</p>
	<p>Caution</p> <p>Danger for life (example: danger of explosion) Directly imminent danger that will cause death or severe injuries if the adequate safety measures are not made.</p>
	<p>Attention</p> <p>Risk of injuries (example: risk of crushing) Danger that can cause medium heavy to minor injuries or property damage if the adequate safety measures are not made.</p>
	<p>Caution</p> <p>Danger of property damages Danger that can cause property damages if the adequate safety measures are not made.</p>
	<p>Mind earthing!</p> <p>Danger that can cause injuries or property damages if the adequate safety measures are not made.</p>
	<p>Advice or tip</p>

The Volkmann vacuum conveying systems have a modular design and therefore a lot of possible options and variants.
A statement of the options or variants of the conveyor delivered can be taken by chapter “1.1 scope of supply”.

We reserve technical changes without notice.

For questions or problems please contact us.

Volkmann GmbH
Schloitweg 17
59494 Soest

Tel.: ++ 49 29 21 / 9 60 40
Fax.. ++49 29 21 / 9 60 49 00
E-Mail: mail@volkmann.info
Internet: <http://www.volkmann.info>

Great Britain: VOLKMANN UK Limited • High Wycombe, Bucks, HP12 3LR, Great Britain •
Tel/Fax +44 (0) 1494 512228 • E-Mail: mail.uk@volkmann.info

USA: VOLKMANN, Inc. • 1900 Frost Road • Suite 102 • Bristol • PA 19007-1519 (USA) •
Tel. 609-265-0101 • E-Mail: usa@volkmann.info

IMPORTANT NOTE:

Both the observance of the manual and the conditions and methods of installation, operation, use and maintenance cannot be supervised by VOLKMANN.

Therefore VOLKMANN does not take over any responsibility for losses, damages or cost that are caused by **incorrect** use and operation of the Volkmann vacuum conveying system or related to it in any way.

The Volkmann vacuum conveying system is only allowed to be mounted and put into operation by specialist staff that is familiar with mounting and put into operation of this unit. This manual has to be available for the specialist staff at any time and without restrictions. Specialist staffs according to the sense of the manual are persons that can judge the assigned work and recognize, avoid and/or avert dangers because of their education, their knowledge and their experience.

Classified as specialist staffs are persons trained for the area of operations of the application.

For example, a training acc. to DIN VDE 0105 or IEC 364 or directly comparable norms. The mentioned persons have to have detailed knowledge about dangers caused by the operation like e.g. eventually hot, toxic or pressurized gasses, dusts, gas-dust-mixtures or other media as well as sufficient knowledge of the complete system achieved by trainings.

Endangering that can be caused by the Volkmann vacuum conveying system, from the operating- or conveying medium and from the operating pressures have to be avoided by suitable measures and safety elements so that an operation harmless for humans and environment is possible.

In addition it has to be ensured that the Volkmann vacuum conveying system is only used at places where the operating conditions and temperatures do not exceed the design criteria that are taken as a basis for the order and that are stated in the order confirmation.

Any changes and modifications of the Volkmann vacuum conveying system, not authorized by VOLKMANN, lead to the loss of the CE conformity and warranty claims.

1.1 Scope of supply:

Pos.	Qty.	Id-No.	Article
1	2 pc.	PPC200VS-F200	Vacuum conveyor PC200VS-F200 e-polish
1	2 pc.	S102944	Pump cover PPC200VS G540AA GLA2VA
2	2 pc.	102920	Filter plate PPC200VS 1xQX
3	2 pc.	104045	Filter QX200 Ti07 0,14 OF
4	2 pc.	105587	Filter mounting kit QX (Silicone)
5	2 pc.	102959	Suction module / Separator PPC200VS-F200-MC150-submerging pipe
6	2 pc.	100249	Gasket for MC-Discharge valve NW 150, Silicone
7	2 pc.	104528	Sealing VS200 (Silicone)
8	2 pc.	105235	Module clamp ring VS200/PPC200VS
9	2 pc.	105882	Piston vibrator set at discharge module
10	2 pc.	S106198	Mounting plate VS M10
2	2 pc.	S20000	Individuale Modification - System ending with clamp D150 DIN 32676-A
3	2 pc.	S20000	Individuale Modification - suction port with clamp 2" reduction of Clamp 1 1/2"
4	2 pc.	S20000	Individuale Modification Separate filter cleaning cover PPC200VS
5	2 pc.	S106056	Pneutimer PT3S-E
6	2 pc.	VS250Eco	Vacuum conveyor VS250 Eco
1	2 pc.	S105938	cover VS250, no holes
2	2 pc.	S105411	Filter plate VS250 2*QX
3	2 pc.	100106	star crimped filter cartridge Ti26 / 4 V4A
4	2 pc.	S106668	Suction module VS250 T50Eco Clamp F300 SH425
5	2 pc.	100059	Gasket Clamp Inch 2" Sil FDA
6	2 pc.	100057	Clamp-hinged 2" / DN50
8	2 pc.	105938	cover VS250, no holes
9	4 pc.	105399	Module clamp ring VS250
10	4 pc.	102401	Sealing VS250 (Silicone)
11	2 pc.	104720	Module stacking ring VS200

Operating manual PPC-VS Volkmann vacuum conveying system ATEX

Pos.	Qty.	Id-No.	Article
7	2 pc.	Sonder	Special design Change of the control box:
8	1 pc.	D10002	Documentation English
9	2 pc.	104328	Pressure regulator G1/2"-ø13
10	2 pc.	Sonder	Special design Suction hose PUR50-AS-FDA
11	14 pc.	Sonder	Special design Suction hose PUR38-AS-FDA

Re-order 31-9'329/14

1	4 pc.	S106211	Clamp-Hose-Connection 2"-38 316L
----------	-------	----------------	----------------------------------

1.2 General safety- and danger reference

During installation, operation and maintenance of the vacuum conveying system the following general safety and danger references must be observed mandatorily:



Material explosion hazard

- It must be ensured that no potential ignition sources (foreign objects) are induced into the vacuum conveying systems. Ignition sources are e.g.: metallic splinters, particles (screws, washers and others).



Atmosphere explosion hazard

- Hydrogen (H₂) and Carbon monoxide (CO) as element of an EX-atmosphere are not permissible during operation of the vacuum conveying system.



Elektrostatic charge

- It must be ensured by sufficient earthing that the vacuum conveying system is not charged electrostatically in any operation phase (installation, operation, maintenance).



Danger

- Disconnect and de energise/vent all electrical and pneumatic connections/supplies before conducting any installation or maintenance work on the vacuum conveying system.



Danger - high pressure

- The vacuum conveying system may not be tensed up at the installation place.
- The vacuum conveying system is not a pressure vessel. Ensure all connected equipment will not pressurise the vacuum conveyor body or associated parts.



High vacuum

- All equipment directly connected to the vacuum system should be adequately vented to prevent damage to adjoining parts.
- Risk of high vacuum.
**Vacuum delimitation on max. 80% with PPC-VS starting from ø 350.
(e. g. with vacuum delimitation valve).**



Airborne noise

The airborne noise emissions are strongly dependent on the product to be conveyed. Exemplary configurations resulted in the following values:

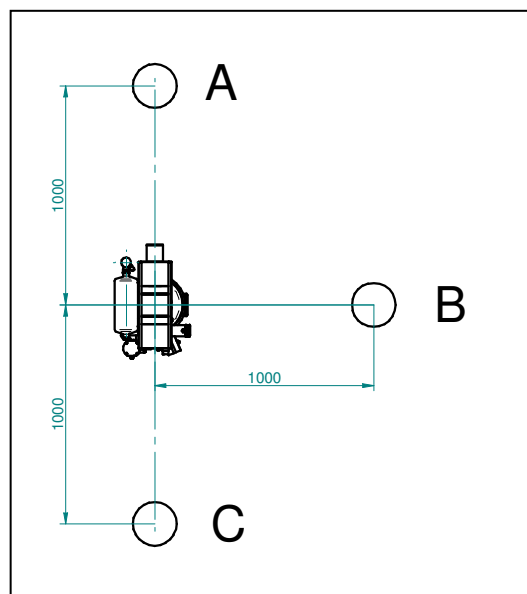
Noise level measurement Volkmann Vacuum Conveying Systems				
Conveyor combination:		LEQ-Value [db]		
		A	B	C
PPC200VS	M270AA	< 76	< 76	< 76
PPC250VS	G360FD	< 76	< 76	< 76
PPC350VS	G3600FD	< 76	< 76	< 76
PPC450VS	G1800AA	< 76	< 76	< 76

Parameters:

Conveying without product and with free suction

(P+ = 5.5 bar)

Measuring points A / B / C in level with the pump



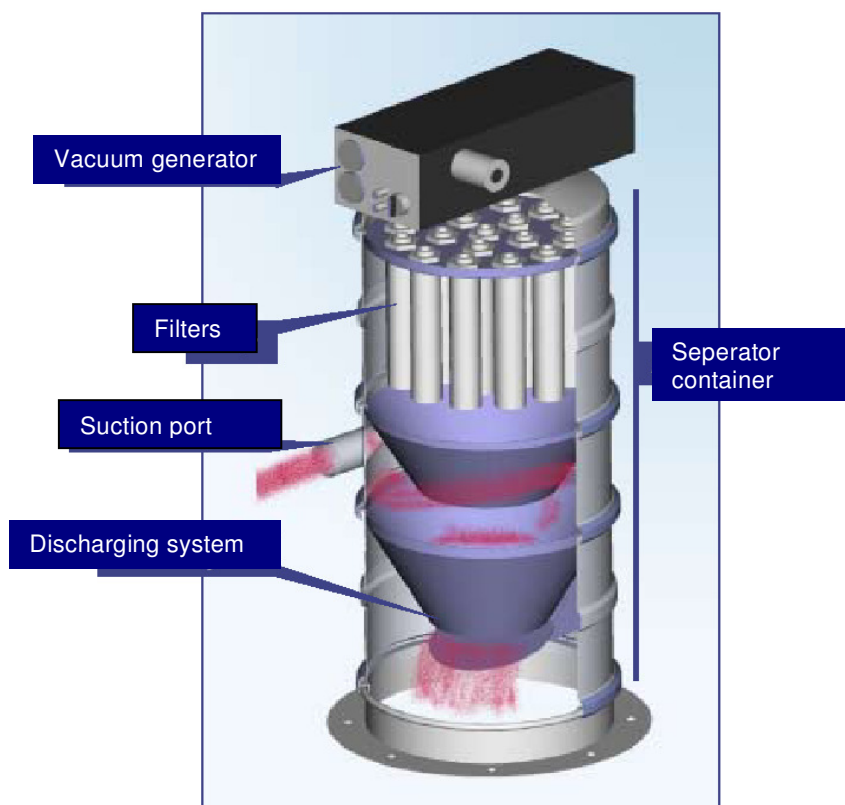
Further safety- and danger reference can be found in the individual chapters.

2 Volkmann vacuum conveying systems – function and application

All Volkmann vacuum conveying systems have their same skeletal structure. They consist of four main building groups:

- Vacuum generator
- separation container with suction port
- Discharging system
- Filters

The principle structure of a Volkmann vacuum conveying system is shown here and described in the following:



The vacuum pump generates a vacuum in the Volkmann vacuum conveyors separator container. Air rushes in through the hose/pipe and the suction inlet from the feeding point. The bulk material is aspirated and then carried in this air stream. Inside the separator tank a filter module separates air and product.

The transported material is kept and collected in the separator. With fine dust a cyclone element inserted into the separator provides higher transportation capacities because of a lower load of the filter elements.

When the separator is filled with product, the vacuum pump switches off; inside of the vacuum conveyor the pressure is balanced to surrounding area within tenths of a second. The separated material discharges from the vacuum conveyor through the discharge element and falls directly into the unit or tank to be charged.

Along with the discharging the filter module is cleaned automatically by an air shock system. The occasional filter cake is released from the filter unit. Volkmann offers piston vibrators and fluidizing units to improve the discharging for sticky or highly bridging bulk materials.

After unloading the product the discharge element closes and the whole conveying cycle starts again.

2.1 Intended use of the Volkmann vacuum conveying system

Additional to chapter 2.2 and 2.3 the following parameters are valid at:

Com: **VIA AG**



Order-No.: **31-9`356/14**

Project-Nr.: **140522**

ID-Nr.: **633960-1-001 / 633960-1-002**

Construction year: **03 / 2014**

EC type-examination certificate: **TÜV 02 ATEX 7005 X**

Conveying of:	div. pharma active agend	 Hint in chapter 2.2 c)
Conveying distance:	app. 12 – 15 m	
Conveying height:	max. 3 m	
Conveying capacity	app. 75 kg/h max. 10 kg/h	
Bulk density:	0.4 kg/l bis 0.7 kg/l	
Particle size:	0.5 – 1.5 µm	 Hint in chapter 2.2 c)
Particle geometry:	dry, powdery, fine grained	
Product characteristics:	free-flowing, not adhesive, not bridging	
Charging location:	suction from hopper to “Hammermühle”	
Installation location:	not specified	
Discharging location:	stainless-steel container	
EX-zone (charging):	Zone 20	
EX-zone (installation):	Zone 22	
EX-zone (discharging):	Zone 20	
Minimum ignition energy:	> 1000 mJ	

Materials, with a minimum ignition energy from 1 to 3 mJ, may only be conveyed with a maximum charge of 10kg per suction cycle.

2.2 General description of the permitted materials

Volkmann vacuum conveying systems of the families PPC-VS are used for transportation of the different materials.

The following table describes the permissible characteristics of the materials which can be conveyed:

Materials:	dry types of dust, powders, granulates, splinters and small particles
	water-damped and greasy products
particle size:	> 5 μm
bulk density:	> 0.005 kg/dm^3
Material properties:	not environmentally hazardous, not injurious to health
minimum ignition energy:	> 3 mJ (> 1 mJ **)
material temperature:	-40 °C to +80 °C

- a) Materials with a minimum ignition energy from **1 to 3 mJ**, have specific conditions of use:

The amount of material aspirated into the separation container may not exceed for each load the mass of 10kg.



Possible deviations and modifications of this are described exactly and specified in the chapter “**2.1 intended use of the Volkmann vacuum conveying system**”

- b) Strictly forbidden...
- is the suction of inflammable gases*.
 - is material to be conveyed are inflammable liquids as well as materials, which contain such inflammable liquids, if these liquids or their gases have minimum ignition energies <1 mJ
 - is to suck an external ignition source like e.g. a glowing metal chip.
- c) During the conveying of unhealthy materials, special measures are necessary, in order to prevent an endangerment of workers or the environment.



Look also at chapter “**2.1 intended use of the Volkmann vacuum conveying system**”

Such measures can be:

- Connection of vacuum pump by exhaust air adapters to an existing exhaust with filter systems.
- Use police filter, which provides for a complete filtering of the exhaust air.
- With inflammable types of dust only suction hoses of the type „.....-AS“ are permissible.

In each case the measures have to be discussed with Volkmann GmbH and the met measures are to be kept compellingly by operator.



* If the charging position of the vacuum conveyor is in EX-Area 2, you must be safe that when there is an ignition atmosphere, the charging of product stops immediately. So you make sure that there is no suction of inflammable gases

2.3 General description of authorized place of work

The following conditions have to be kept at the charging-, positioning and discharging location:

Charging location	The vacuum conveyor aspires the conveying product from the charging location, e.g. a direct piped or hoses production machine or flexible with a suction pipe from bags, barrels etc.	2, 20, 21
Positioning location	The place resp. the environment where the conveyor and the suction line can be installed and mounted.	1, 2, 21
Discharging location	The place beneath the conveyor into which the conveyed product is discharged. This can be e.g. a closed and connected reservoir or a loosely under-hung big-bag. Hybrid mixtures are not allowed	2, 20, 21

Charging location: Only not combustible gases may be sucked with the conveyor. The conveying product can be sucked in with normal ambient air. The sucked gas must have a temperature under 80°C

Positioning location: The maximal permissible ambient temperature is 60°C.
(80°C: Additional measures are necessary in arrangement with the company Volkmann)
The minimum permissible ambient temperature is – 10°C if a Pneutimer is used
(For lower temperatures down to -20°C: Additional measures are necessary in agreement with Volkmann).

Important:

At the positioning location of the separator an external grounding connection is to be planned. The conveying system with components is grounded at the external grounding connection.

Discharging location: The maximum temperature at the discharging place may not exceed 80°C.

In the range of the discharging system, the vacuum conveyor or in the area which can be filled directly from the vacuum conveyor, no combustible gases or liquids may be present. Their minimum ignition energy must be smaller than 3 mJ (1 mJ *, s. chapter 2.2). These gases could gather into the separating container with opened discharging system and could ignite there from the electrostatically loaded product.



It must be secured by the operator of the plant that the vacuum conveying system and their components are always grounded sufficiently.

2.4 General for conveying in the ex-range

Volkmann vacuum conveying systems transport different bulk materials; we recognize three different conveying conditions of the product:

1. Less product stream and high conveying speed up to 30m/s
--> Flight conveying
2. Whirl - formation in the intake by the product and a small plug conveying
--> Dilute phase conveying
3. There are product-filled areas and air speed down to 3m/s
--> Plug conveying

With all three conveying conditions the product particles can load itself electrostatically by friction.

As soon as the particles get into the separator of the Volkmann vacuum conveying system they collect them above the discharging system. Fine products build a filter cake at the filter system. These accumulations of particles represent a **loading amount** and the associated explosion risk in the Volkmann vacuum conveying system. The Volkmann vacuum conveying system itself possesses no electrical construction units or hot surfaces and is ignite-free.

It can be explosion proof under consideration to the following points:

- The separator container of the Volkmann vacuum conveying system is completely electrically conductive designed.
- All separating container modules and installations e.g. the discharge flap of the discharging system itself is electrically conductive connected.
- The wire spiral inserted into the suction hoses is conductive connected at the end with the Volkmann vacuum conveying system, in order to guarantee the potential equipotent bonding. The other end is attached conductive at the charging location (e.g. suction tube or delivery connecting piece of a supply container)
- The Volkmann vacuum conveying system is grounded during the using.
- The transportation air may not contain combustible gases.
- As transportation air may serve also an inert gas.
- Into the separating container of the Volkmann vacuum conveying system no combustible gases may gather.
- The MULTIJECTOR[®] vacuum pump works with compressed air and is electrically conductive developed. It is connected conductive directly or by a hose with the separating container.
- If external electrical vacuum generators are to be used, they must correspond to the device class of the explosion zone.
- If external capacitive / inductive level alarm units are to be used in the Volkmann vacuum conveying system, they must correspondent to the explosion prevention requirements and be certified for the appropriate explosion zone.



Materials with a minimum ignition energy from **1 to 3 mJ**, have specific conditions of use:

The amount of material aspirated into the separation container may not exceed for each load the mass of 10kg.

i In attempts with inspecting safety contrivance (TÜV) the **loading amount** were examined exemplarily with the biggest Volkmann vacuum conveying system of the families (VR450).

The small dimensions of the separating containers with 170 to 450 mm in diameter and product filling volume from 0.2 to 50 liters contribute considerably to the small charge energies of the conveyed product.

The Volkmann conveying system has charges, where it conveyed this small product amounts to the discharging location.

These interruptions work against an electric charge accumulation in the Volkmann vacuum conveying system.

All construction units of the Volkmann vacuum conveying system - except the small gaskets are electrically conductive.

In no operating condition there are isolate fixed electrical conductors, which could release an electrically transmitting spark.

The non - conductive filter system is consisting of filter elements that are firmly bolted on a conductive filter body. During the operation a filter cake is formed on these filter elements which are flowed through by the conveying air.

The filter cake is reduced by a back blowing air shock cleaning impulse with each discharge mode.

By the small charge quantities with comparatively small surfaces of the filters as well as the absence of mobile electrodes, which could take charges from the filter surface / filter cake off, brush discharges and / or propagating brush discharges on these surfaces are to be regarded as extremely improbable.

Brush discharges are not ignition for dust with minimum ignition energies >1 mJ .

3 Quality of compressed air

To operate the Volkmann vacuum conveying systems a compressed air network according today's state (ISO 8573-1) is necessary.

We presuppose at least compressed air acc. to **ISO 8573-1:2010, class 4.**

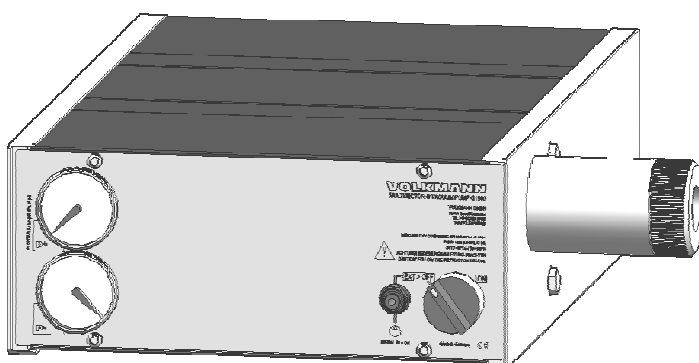
Recommendation: Pressure dew point should be min. 10°C below ambient air temperature.

Class	Solid particles			Mass concentration mg/m ³	Water		Oil	Suitability for Volkmann Pneumatics
	Max. particle amount per m ³				Pressure dew point vapour °C	Liquid g/m ³	Total oil content (liquid, aerosol and mist) mg/m ³	
	0.1-0.5 µm	0.5-1 µm	1-5 µm					
0	Acc. to operator specification, higher requirements than class 1							Admissible range
1	≤ 20.000	≤ 400	≤ 10	---	≤ -70	---	0,01	
2	≤ 400.000	≤ 6.000	≤ 100	---	≤ -40	---	0,1	
3	---	≤ 90.000	≤ 1.000	---	≤ -20	---	1	
4	---	---	≤ 10.000	---	≤ +3	---	5	Not suitable
5	---	---	≤ 100.000	---	≤ +7	---	---	
6	---	---	---	≤ 5	≤ +10	---	---	
7	---	---	---	5-10	---	≤ 0,5	---	
8	---	---	---	---	---	0,5-5	---	
9	---	---	---	---	---	5-10	---	
X	---	---	---	>10	---	>10	>10	

4 Description of the individual components

In this chapter the individual components of a Volkmann vacuum conveying system are described.

4.1 MULTIJECTOR[®] Vacuum pumps



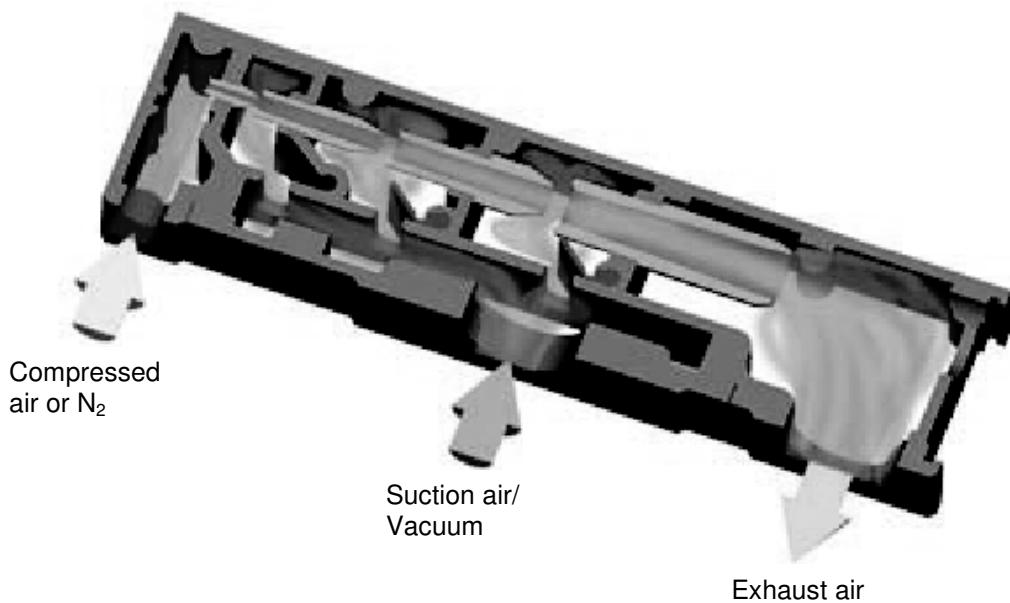
For Example:
MULTIJECTOR[®]
G-Pump

The MULTIJECTOR[®]-vacuum pumps are pneumatically operated ejector pumps, with multi-level execution for an effective use of the compressed air. Apart from compressed air the pump may be operated also with other non-combustible gases, e.g. N₂. The exhaust air is transferred over a silencer to the environment or over an exhaust air adapter to an external exhauster.

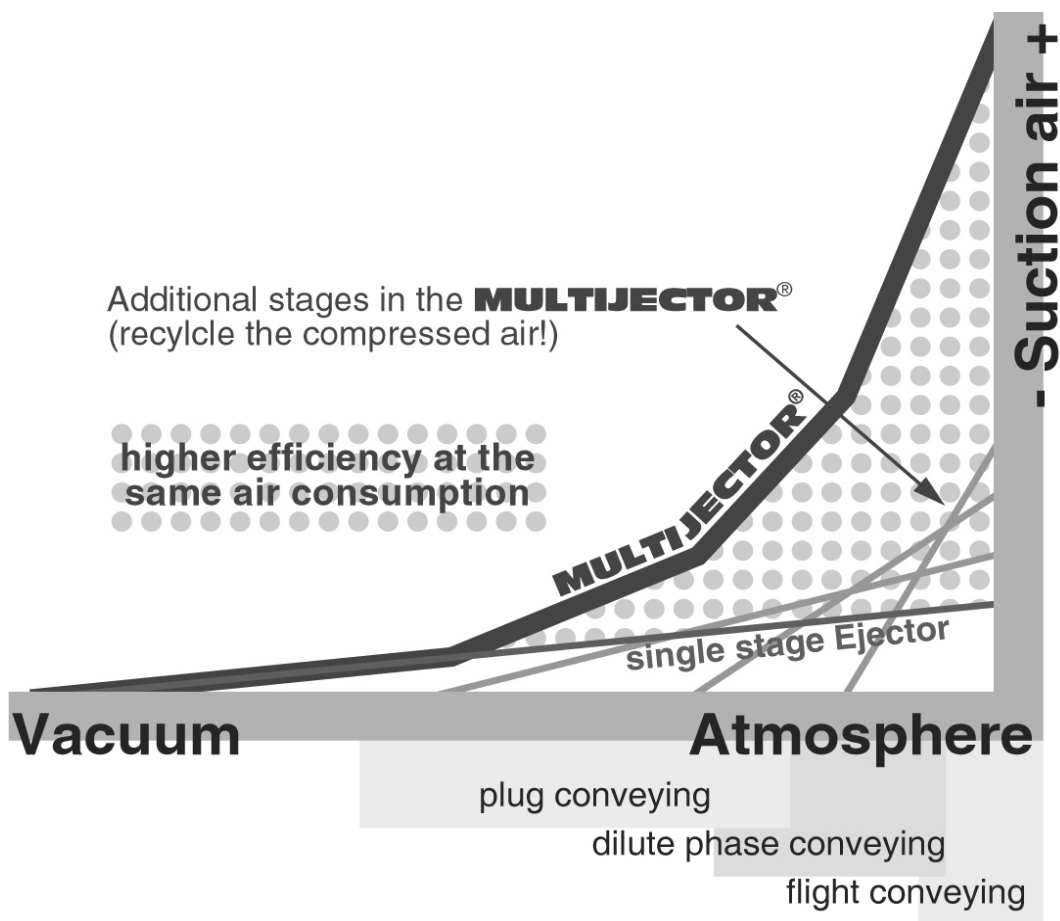
The exhaust air adapter is necessary, if the conveyed products are unhealthy.

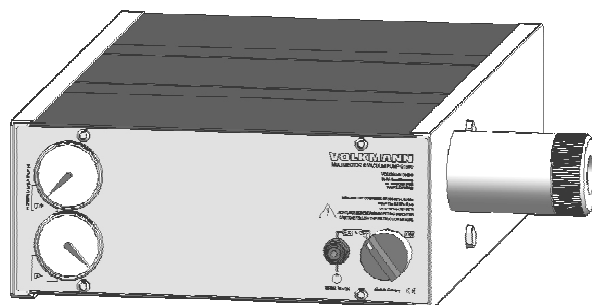
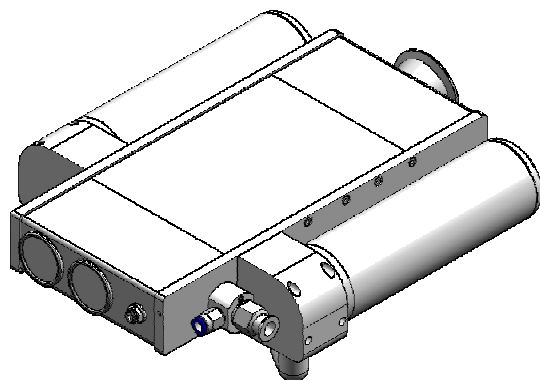
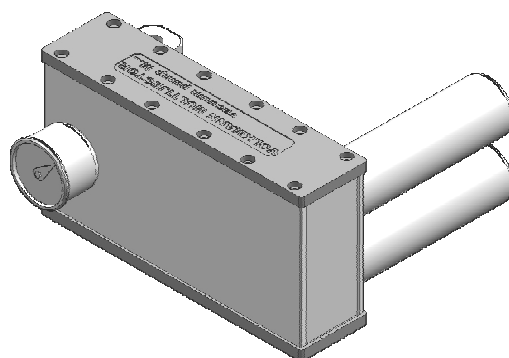
The compressed-air jet serves as a boost jet and tears further air with itself, in such a way that a suction air flow develops. At the exhaust side the air as well as the compressed air leaves the vacuum pump.

The MULTIJECTOR[®] vacuum pumps of the M-series have 3 stages; the G-series have 4 stages.



The amount of suction air of the vacuum pumps depends on the respective vacuum. This is descriptive illustrated in the following diagram, just as the characteristic of a multi-level execution.



Examples for multi-stage MULTIJECTOR® Vacuum pumps:**G -Pumpe****MX -Pumpe****M -Pumpe**

Further Types: K - Pump
PV – Pump

The respective pumps are described in a separate documentation.

4.2 Filter system – Quick exchange system QX - Filter

All QX filter types fit to every QX filter plate. Quick exchange without tools is possible by the QX-clamp.

Specification:

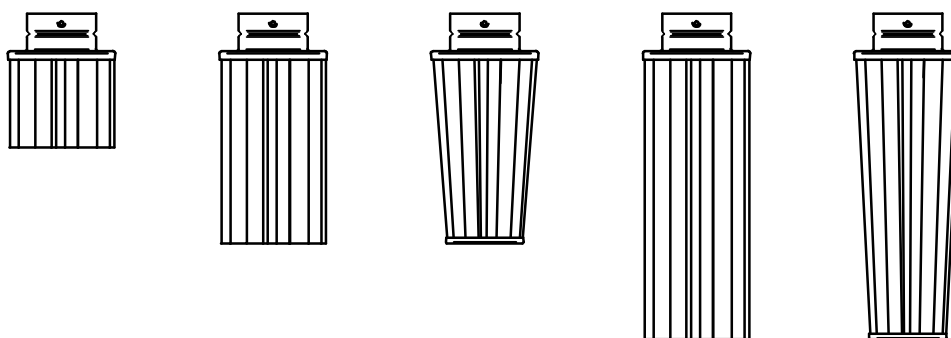
Surface filter QX {100|200|300} - {Ti 07|-H}

QX = **quick exchange**

-100|200|300 = nominal filter length in mm

-Ti07 = Filter type, conical

-H = optional: Half folding and cylindrical form



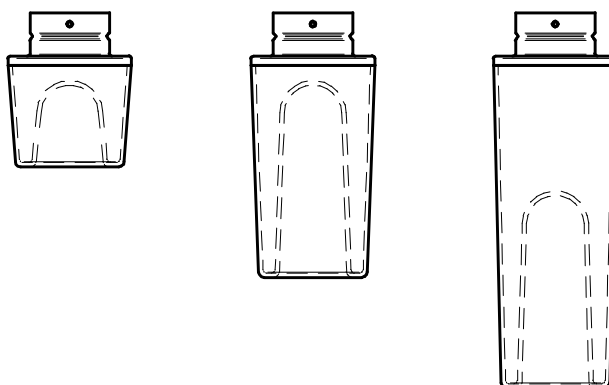
Technical data Volkmann QX-Filter					
Ti07 Surface filter					
Type	Filter QX100 Ti07 OF	Filter QX200 Ti07 OF	Filter QX300 Ti07 OF	Filter QX200 Ti07 C	Filter QX300 Ti07 C
ID-no.	104044	104045	104058	104047	104046
Installation length	100 mm	200 mm	300 mm	200 mm	300 mm
Filter area	0.070 m ²	0.140 m ²	0.210 m ²	0.280 m ²	0.450 m ²
Dust class IEC 60335-2-69	M				
Filter material	PTFE-Membrane, electr. conductive				
Supporting material	Polyester				
Connection element	AISI316L				
Bottom plate				1.4571	
Casting compound	PUR FDA				
Operation temperature	60 °C				
Cleaning temperature	80 °C				
Sterilisation temperature	130 °C – no steam				

Specification:**Deep filtration filter QX {100|200|300} - {PEHD} {-W}**QX = **q**uick **e**xchange

-100|200|300 = nominal filter length in mm

-PEHD = Filter type

-W = Form designation PEHD Filter



Technical data Volkmann QX-Filter			
PE HD Deep filter			
Type	Filter QX100 PE HD	Filter QX200 PE HD	Filter QX300 PE HD
ID-no.	104 070	104 071	104 072
Installation length	100 mm	200 mm	300 mm
Filter area	0.047 m ²	0.098 m ²	0.130 m ²
Max differential pressure	800 mbar	800 mbar	500 mbar
Filter fineness	5 µm		
Dust class IEC 60335-2-69	M		
Filter material	Sintered Polyethylene		
Connection element	PEHD		
Operation temperature	60 °C		
Cleaning temperature	80 °C		
Sterilisation temperature	120 °C, 30 Min.		

Safety deep filtration filter QX {100|200|300} - {PEHD} {-W}

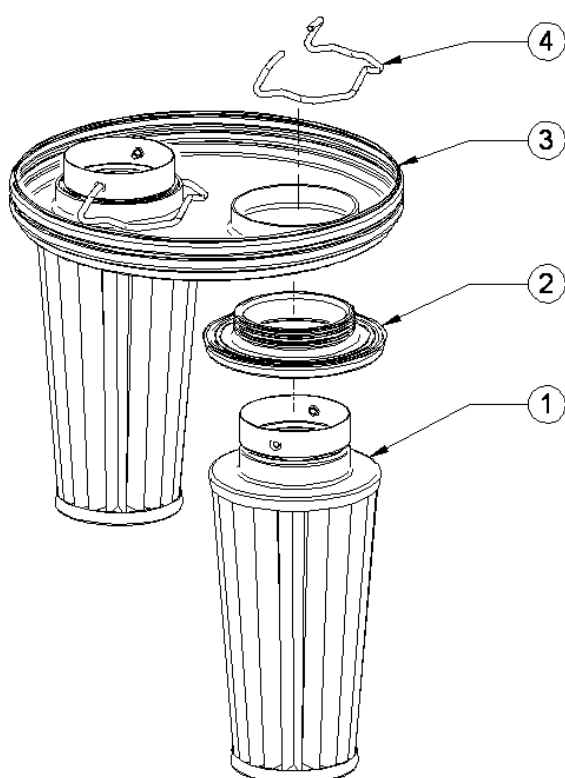
ATTENTION! Danger of damages by overload at **deep filtration filter QX**.

Causes :

- Overfilling of vacuum conveyor and thus high lateral forces at the deep filtration filters;
- Conveying product entered the filter pores and macerated;
- Blocking of deep filtration filters by unsuitable or too fine conveying products;
- Mechanical overload of deep filtration filters e.g. during cleaning or replacement;
- Thermal overload of deep filtration filters;
- Usage of humid / wet filters

If the deep filtration filter is damaged, bigger amounts of conveying product get into the vacuum pump and into the exhaust of the conveyor.

For critical conveying products (e.g. toxic, caustic or products with MAK-values etc.) special measures have to be taken beforehand (like exhaust air adaptor with air conditioning, afterfilter or similar).

Assembly and usage quick exchange filter – QX:

- 1: QX- Filter (here QX200-Ti07)
- 2: QX- Filter gasket
- 3: QX- Filter plate (here VS250)
- 4: QX- Clamp

Filter assembly

- Fit QX- Filter gasket onto QX- Filter so that the gasket bears on the filter adapter completely
- Put filter with gasket through the filter plate from the bottom up
- Insert clamp into the lateral bore holes of the filter adapter
- Hinge down clamp

Operation specification:

The filter serves for separation of solids from the transportation air.
The surface must not be damaged mechanically.
The filter has to be cleaned by air shock (GLA) in intervals from the inside.

The filter may not be used for filtration of liquids / gases.

Visible indications:

Wash filter unit after longer operation. Indications: Vacuum level at MULTIJECTOR® Vacuum pump shall not exceed 15% vacuum at free suction.

4.2.1 Cleaning QX PEHD-Filter

After longer operating time (depending on conveyed product) the filter unit should be washed. The vacuum value shown at the MULTIJECTOR® Vacuum pump at free suction can be used as reference value. It should not exceed 15% vacuum, otherwise cleaning is recommendable.

Depending on the grade of contamination cleaning can e.g. be carried out as follows:

- Washing by steam jet cleaner (max. 80 °C), doing this a minimum distance of 50 cm to the PE-HD filter has to be held.
- Alternatively: Backwashing of filter candles from inside outwards with hot water (max. 80 °C / normal line pressure)
- Alternatively: Ultrasonic cleaning
- Alternatively: Ultrasonic cleaning and additional backwashing from inside outwards

Permitted cleansing agents (depending on contamination, considering the chemical resistance of Polyethylene):

- Water with a temperature of up to +80 °C
- Usual cleaning liquids (e.g. Henkel P3)
- Gentle bases and acids up to a temperature of 40 °C
- Alcohols with ambient temperature

If cleansing agents are used, a sufficient rinsing of the filters has to be carried out to avoid remainders.

The filters may be dried and checked for damages before re-assembly.

1. Blowing out with compressed air (10 sec. with 6 bar, slightly sealed with head of air gun)
2. Drying in circulating air oven at 80 °C with open air vent
Duration: 2 – 4 hours until constant weight
(80 °C = max. temperature)



**ATTENTION! Filter drying is mandatory.
Otherwise crustification or similar will shortly lead to blocking and/or
Irreparable damaging of the filter.**

Sterilisation:

Sterilisation of PE-HD filter units is only possible in dismantled condition. The filter candles may be sterilised with max. 120 °C and for max. 30 minutes. Doing this, there may not be any forces working on the filters until cooling down.

4.2.2 Cleaning of QX Ti07-Filters

Washing with fresh water

Dusty elements can be cleaned with fresh water from a hose with low to medium velocity of exit (flush water) on the membrane side (outside) in installed or dismantled state.

Water soluble residues can be dissolved in a dipping bath with max. 70°C water temperature and a dipping time that has to be examined.

To avoid damages at the element and at the filter membrane careful handling is necessary. Other cleaning methods like brushing off and high pressure cleaning lead to damages and destruction of the filter membrane.

Commercial detergents can support the cleaning efficiency: (max 50 h in dipping bath)

Disinfectant:	Concentration:
Sagrotan	Ready solution
Antifect FF	2 % solution
Indicin Plus	2 % solution
Mikrobac forte	2 % solution
Eltra Waschmittel	7 g / l
Wasserstoffperoxid	1 % solution

Drying

Before further use the cleaned elements have to be dried.

Possible drying methods:

- Element mounted, only outside wet: → Air-drying: approx. 24 hours at ambient temperature (approx. 20 °C).
- Element dismantled only outside wet: → Drying in the circulating air furnace approx. 5 hours (70 - 100 °C)
- Element from splashing cleaning, outside and inside wet: → Drying in the circulating air furnace approx. 18 hours with 90 -100 °C or air-drying approx. 10 days at ambient temperature (approx. 20 °C)

Safety

Check all elements for damages, check gaskets. Replace defective parts. Do not use damaged filter further.



Important note

This wash recommendation complies to the manufacturer's present level of knowledge.

So washed and dried elements are not mechanically damaged.

However it cannot be ensured that the elements are completely cleaned.

A chemical attack by the product in reciprocal effect with the selected wash substances is not to be excluded

4.2.3 Filter cleaning by back blowing air shock (GLA)

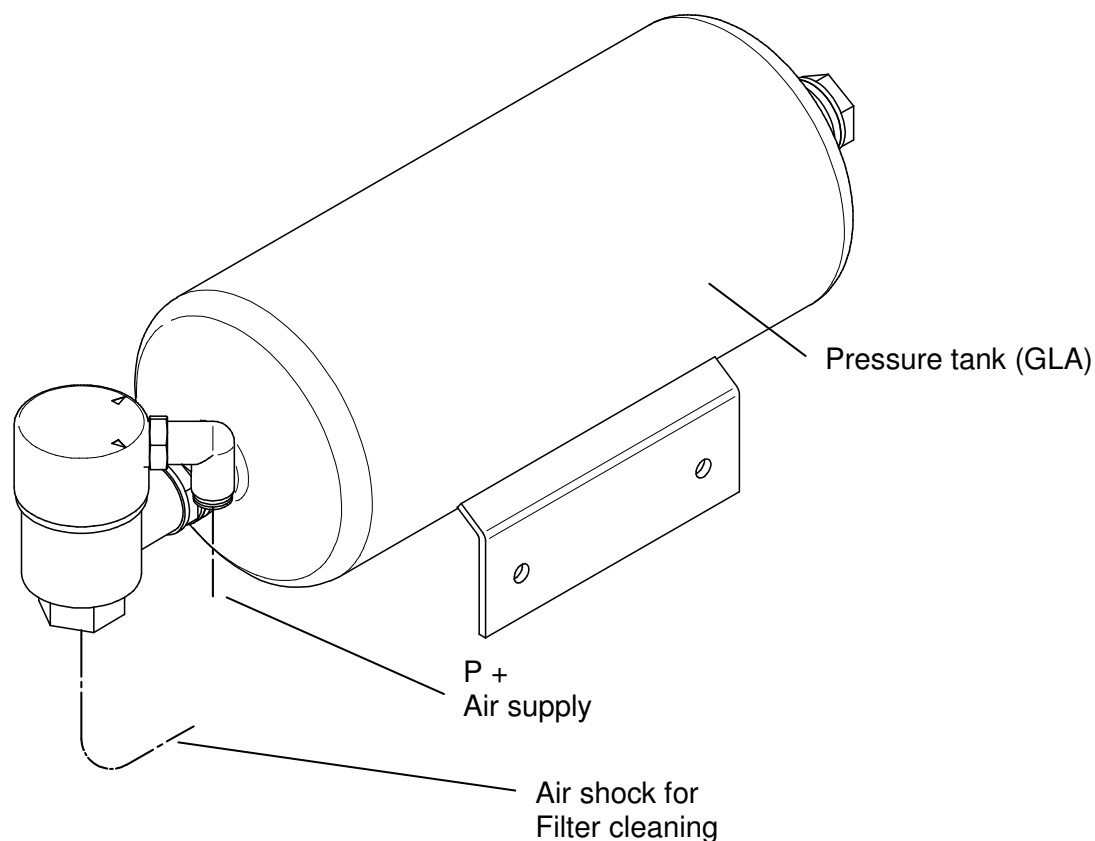
During the suction cycle a product-dependent filter cake builds up that remains at the filter also after switching off the MULTIJECTOR® Vacuum pump. This filter cake reduces the suction performance of the Volkmann vacuum conveying system. For cleaning the filter a compressed air tank GLA is automatically discharged abruptly in the discharge cycle. This compressed air shock cleans the filters.

Specification:

Size: 0.5 – 10 ltr

Pressure: max 6 bar (87 PSI)

Principle picture:



Operation specification

The GLA is filled by the MULTIJECTOR® Vacuum pump and releases through a quick release valve. The GLA does not serve as compressed air reservoir when the Volkmann vacuum conveying system is switched off.

Audible indications: Abrupt release of the air volume

Maintenance: The container may show no damages of the outside areas. Otherwise the device is to be taken immediately out of order!

Safety: do not disassemble (container is under pressure), no modification

Operating manual PPC-VS Volkmann vacuum conveying system ATEX

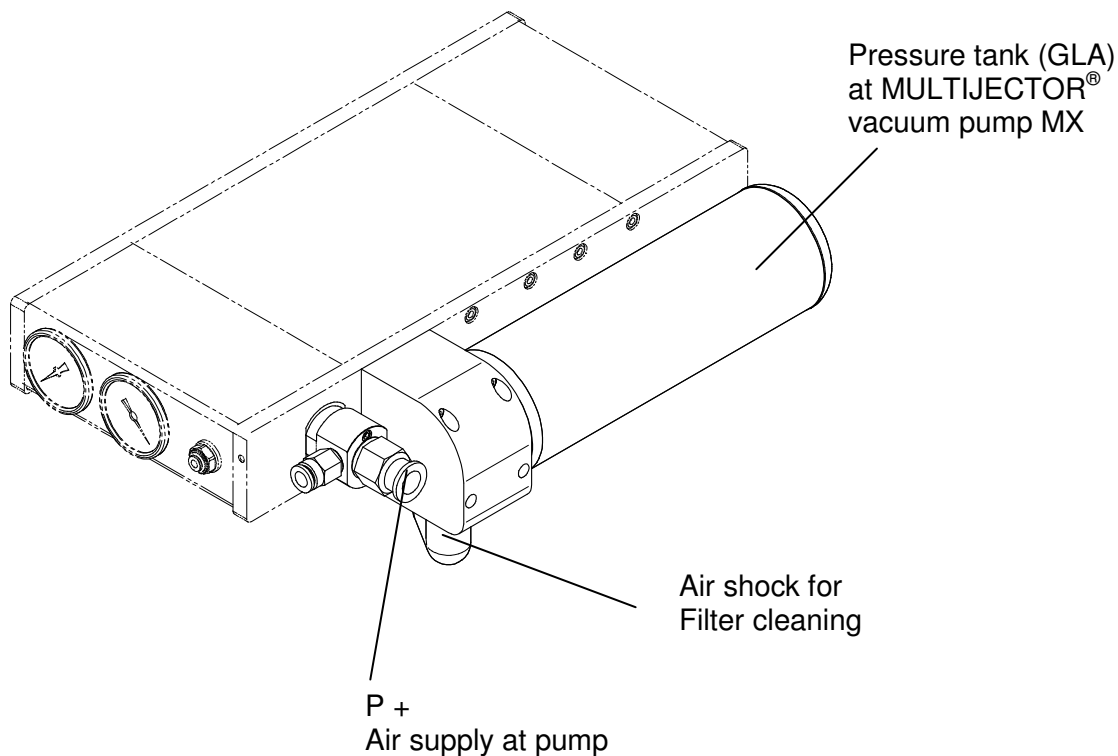
GLA at MULTIJECTOR® Vacuum pump MX:

Specification:

Size: 0.5 – 4 ltr

Pressure: max 6 bar

Principle picture:



Operation specification

The GLA is filled by the MULTIJECTOR® Vacuum pump and releases through a quick release valve. The GLA does not serve as compressed air reservoir when the Volkmann vacuum conveying system is switched off.

Audible indications: Abrupt release of the air volume

Maintenance: The container may show no damages of the outside areas. Otherwise the device is to be taken immediately out of order!

Safety: do not disassemble (container is under pressure), no modification

4.3 Suction hoses:

For the product transport from the suction point the Volkmann vacuum conveying system there are a multitude of suction hoses available optionally:

4.3.1 Suction hose PUR-MHF AS (antistatic)

Technical data standard-suction hose MHF AS:

- * general good ultraviolet- and ozone resistant
- * unplasticised and non-halogen
- * vacuum resistant, with steel wire spiral
- * internally largely smooth
- * pure special Ether-Polyurethane
- * microbe- and hydrolysis resistant
- * especially flexible at low temperatures
- * transparent (yellowish-opaque),
- * Food safe EC guideline 2002/72/EC & 2007/19/EC and FDA 21 CFR 177.2600, 21 CFR 178.2010
- * to be used in the food industry, to transport compact and liquid materials, pharmaceutical industry, chemical industry
- * Surface- and forward resistance $< 10^9 \Omega$
- * conductive acc. to TRBS 2153, when wire spiral is earthed on both sides (operating manual chapter 5) also to the support of inflammable dust / bulk materials allowed



4.3.2 Suction hose PUR-EL

Technical data suction hose EL:

- * internally largely smooth
- * vacuum resistant, with steel wire spiral
- * black
- * Surface- and forward resistance $< 10^3 \Omega$
- * derivation ability acc. to TRBS 2153, when wire spiral is earthed on both sides
- * conductive acc. to TRBS 2153, when wire spiral is earthed on both sides (operating manual chapter 5) also to the support of inflammable dust / bulk materials allowed
- * not food and not FDA conform



4.3.3 Suction hose PUR-MHF

Technical data suction hose MHF:

- * oil- and gasoline-resistant
- * unplasticised and non-halogen
- * vacuum resistant, with steel wire spiral
- * internally largely smooth
- * pure special Ether-Polyurethane
- * microbe- and hydrolysis resistant
- * especially flexible at low temperatures
- * transparent (yellowish-opaque),
- * Food safe EC guideline 2002/72/EC & 2007/19/EC and FDA 21 CFR 177.2600, 21 CFR 178.2010
- * **It is not allowed to convey inflammable materials acc. to TRBS 2153**



4.3.4 Suction hose PVC-BfR

Technical data suction hose PVC:

- * internal / external plane
- * vacuum resistant, with steel wire spiral
- * transparent
- * Food safe EC guideline 2002/72/EC & 975/2009/EG
- * EC-directive 2002/72/EC (former 90/128/EWG)
- * conductive acc. to TRBS 2153, when wire spiral is earthed (in accordance with manual chapter 5) also to the support of inflammable materials allowed
- * **It is not allowed to convey inflammable materials acc. to TRBS 2153**



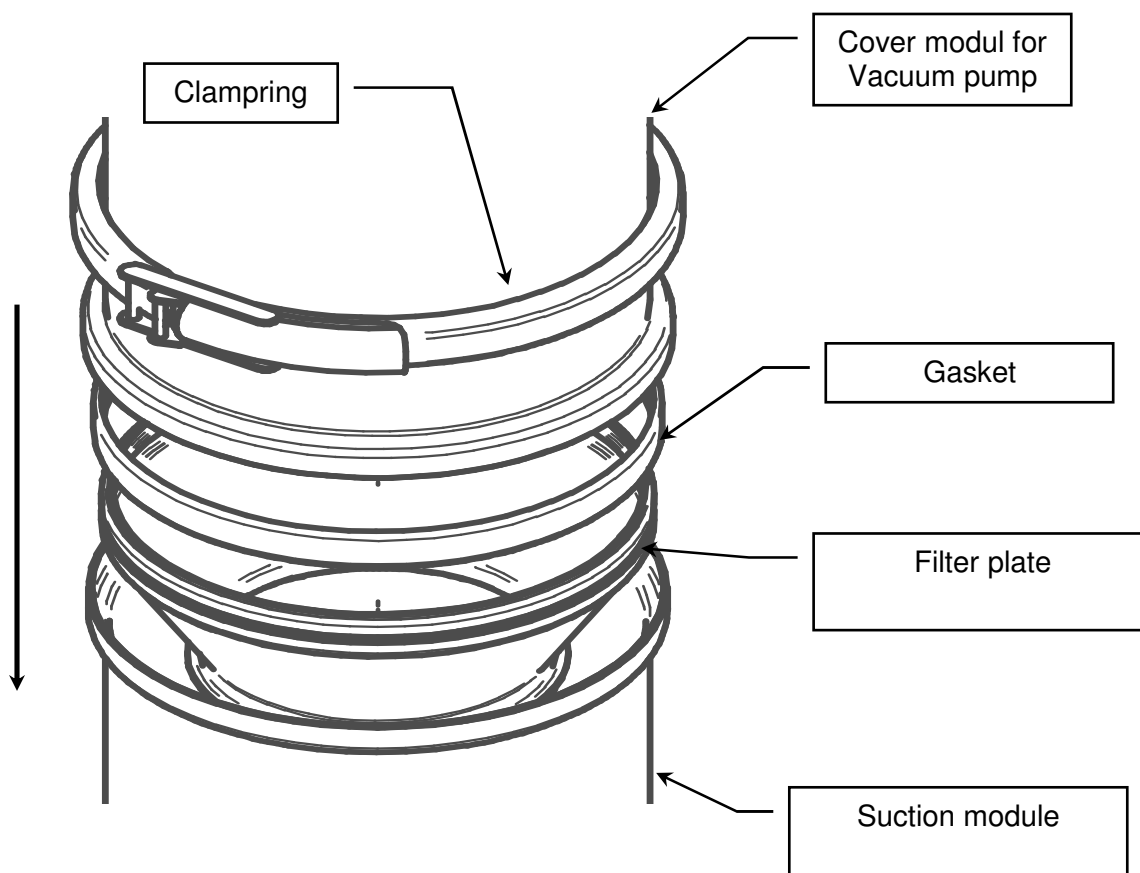
4.4 Container modules and connections

The container modules are made from AISI 316 L or higher grade stainless steel. They all have a system adapter that makes possible a quick interconnection with stainless steel clamping rings. The gaskets used are o-rings in different materials (e.g. silicone, NBR, EPDM).

Specification:

The standard module connection consists of the following components:

Principle picture:



For mounting the modules the module gasket has to be fitted to the stacking element (filter plate / stacking ring) first.



Attention: The gasket has to fit appropriately inside the bordur at the whole length as otherwise tightness can not be ensured

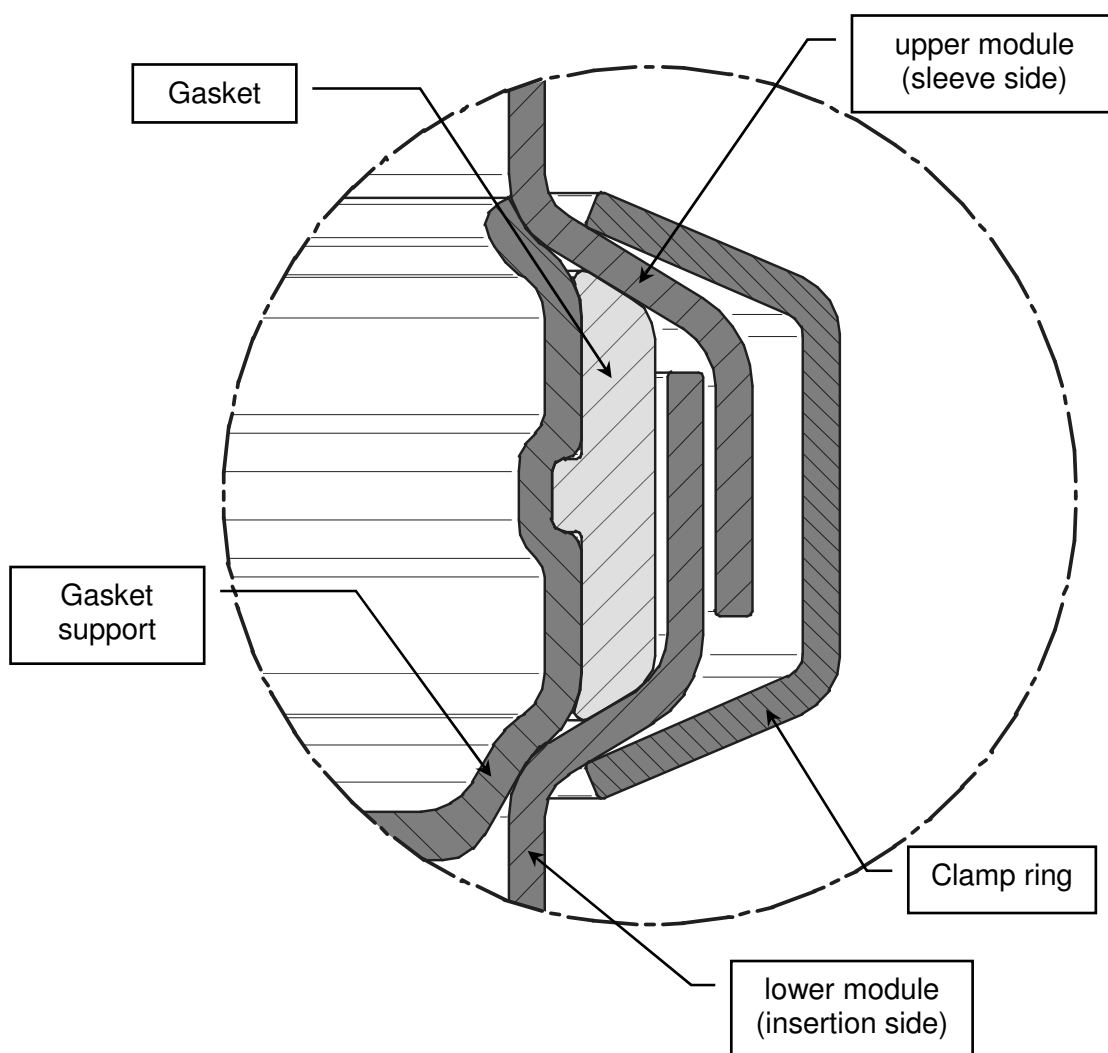
In the suction module is inserted a filter plate with the gasket.
Then the cover module is put on on the suction module.
The open clamp ring is put over the module and placed around the bordur.

Finally the clamp ring is closed by using the clamping lever.



Squeezing danger at clamp rings

Squeezing danger by tension forces during closing of clamp rings.
Danger of injuries by returning of clamp lever during opening!



Before mounting of clamp ring connections the contact- and joint surfaces have to be



- cleaned carefully,
- kept metallic bright,
- mounted professionally

previously. Only this way a safe metal contact can be ensured.

4.5 Discharge assistance piston vibrator

The piston vibrator supports the discharging of the Vacuum Conveyor with its vibrations. It only works during the discharge cycle and the vibration intensity can be adjusted freely by the adjusting throttle.

Specification:

Compressed air supply: \varnothing 5 inside, 4 to 6 bar, dry, clean, oil-free

Consumption: app. 150 NI / min – product dependent

Operation temperature: -20 °C to +60 °C

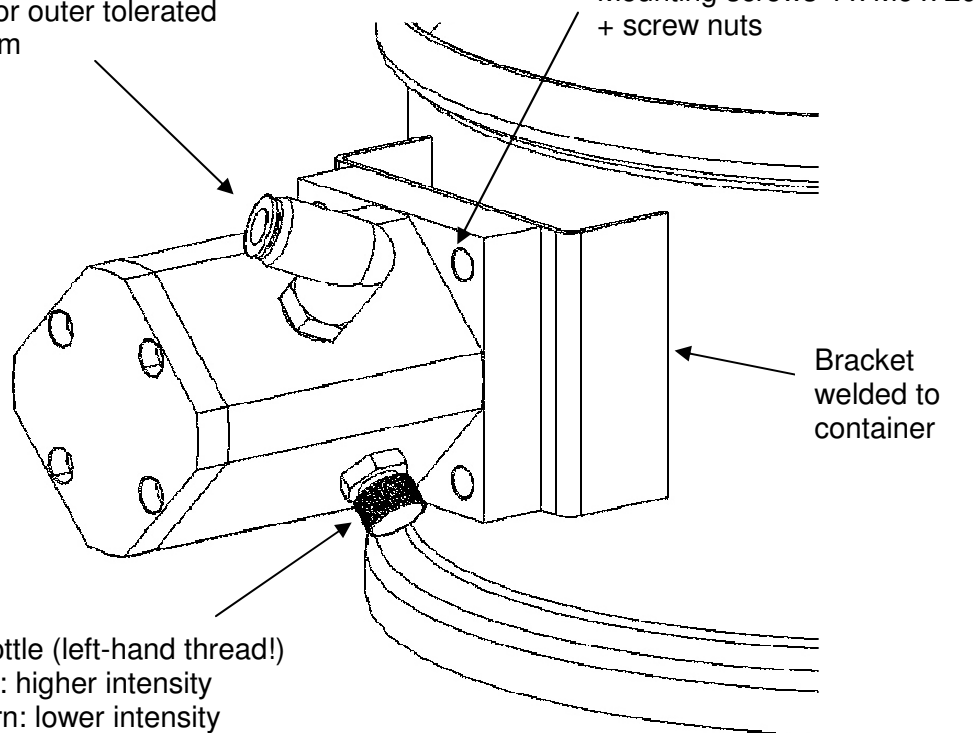
Installation:

Principle picture:

P+

L-quick push –pull elbow G1/8" – 8
 \varnothing 5 inside, for outer tolerated
 hose \varnothing 8 mm

Mounting screws 4 x M6 x 20
 + screw nuts



Bracket
 welded to
 container

Adjusting throttle (left-hand thread!)

- Left turn: higher intensity
- Right turn: lower intensity

Operation specification: 4 to 6 bar, -20 °C to 60 °C, <75 dB(A)

Audible indications: constant vibration

4.6 Discharge assistance fluidisation element

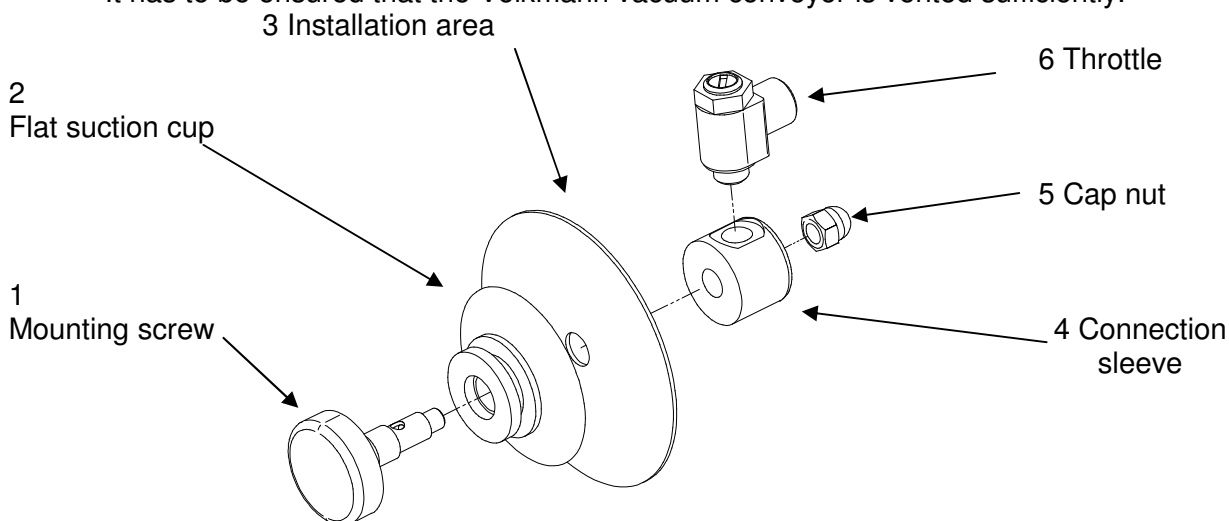
The fluidisation element supports with a pulsating air cushion between promote product and containerwall the discharging of the Vacuum Conveyor..

Specification:

Size:	ø50
Compr. air supply::	(G1/8“) 0.2 to 3 bar, dry, clean, oil-free (max. 0.5 bar for INEX-controls)
Operatin condition:	compressed air air or an inert gas like e.g. N ₂
Consumption:	app. 100 NI / min - product dependent
Operation temperature:	-20°C to +60°C

Dismantling / Installation:

- A bore hole with Ø 10 mm has to be placed at the installation area
- Loosen and remove cap nut.
- Remove flat suction cup with mounting screw from connection sleeve.
- Push flat suction cup with mounting screw through bore hole at the installation area as shown below.
- Screw cap nut onto mounting screw.
- Connection of a pneumatic supply.
- It has to be ensured that the Volkmann vacuum conveyor is vented sufficiently.



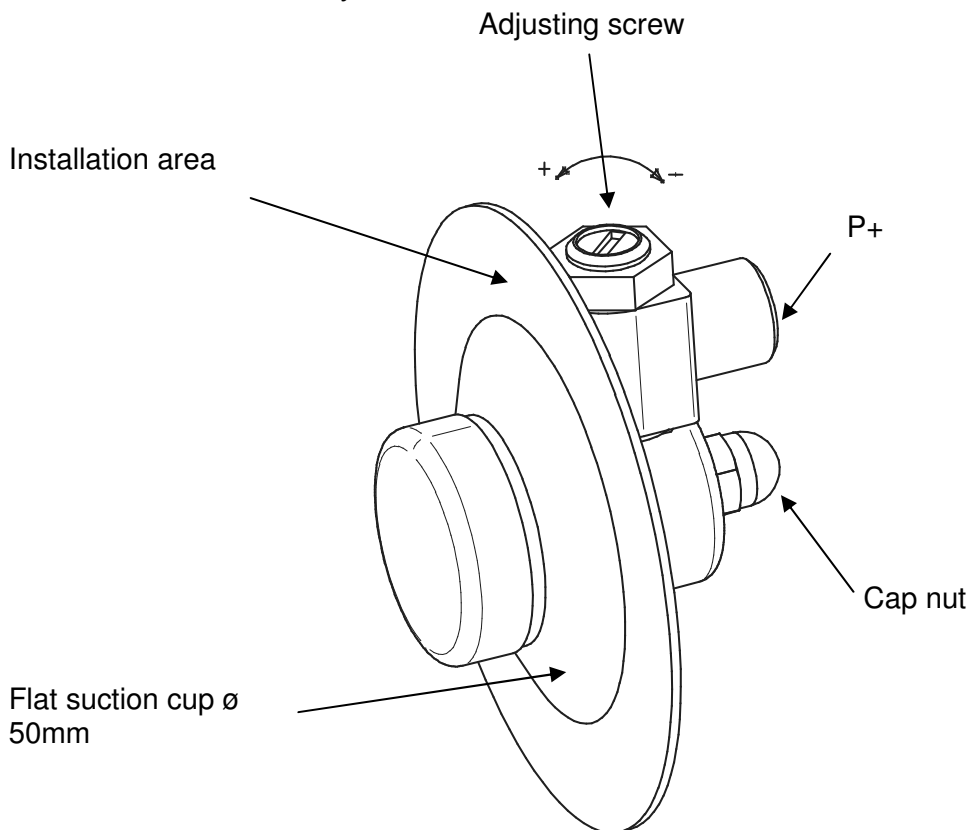
Pos.	Designation	Material	Comment
1	Mounting screw	1.4435 (AISI 316L)	product contacting
2	Flat suction cup V50F	Silicone / EPDM	product contacting
3	Installation area	-	only shown for better understanding
4	Connection sleeve	1.4435 (AISI 316L)	Limited product contacting at VR-conveyor with PK/ZK _{internal} NOT product contacting with ZK _{external}
5	Cap nut	1.4301 (AIRI 304)	Limited product contacting at VR-conveyor with PK/ZK _{internal} NOT product contacting with ZK _{external}
6	Supply air throttle	Zinc diecasting / Brass	Limited product contacting at VR-conveyor with PK/ZK _{internal} NOT product contacting with ZK _{external}

Adjustment of intensity:

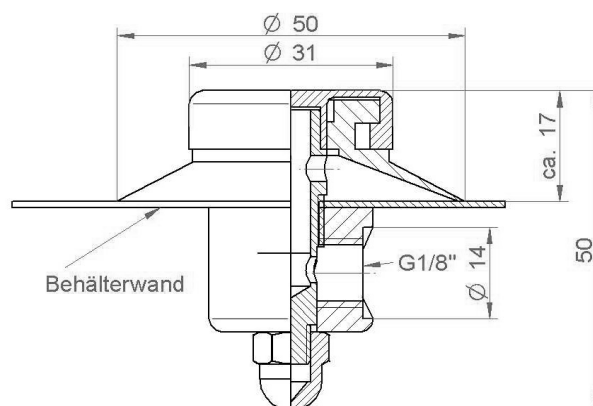
By turning the adjusting screw the flow can be changed.

Right turn => Flow / Intensity decreases

Left turn => Flow/ Intensity increases



Measures in installed state:



Operation specification: (G1/8")0.2 to 3 bar, dry, clean, oil-free
(max. 0.5 bar for INEX-controls),
-20 °C to +60 °C, app. 100 NI / min - product dependent

Audible indications: Uniform pulsate through permanent structure of the air cushion

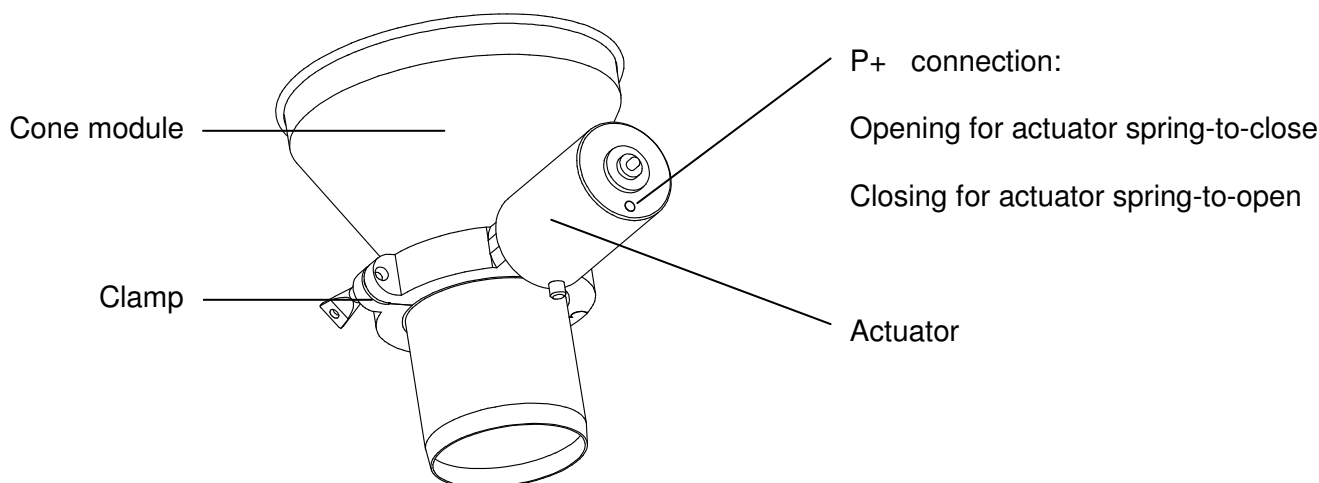
4.7 Discharging system Type MC

Discharge valve with external actuator.

Valve is single acting or double acting and serves for discharging the vacuum conveyor.

Specification:

Valve:	Butterfly
Actuator L / F:	Single acting, air-to-open/ spring-to-close NC
Actuator F / L:	Single acting, spring-to-open / air-to-close NO
Actuator L / L:	Double acting air-to-open / air-to-close
Compr. air supply:	(G1/8") 5-6 bar, dry, clean, oil-free
Consumption:	app. 80 NI / min
Operation temp.:	-20 °C to +60 °C (-4 °F to 140 °F)



Important for ZK-extern type MC with spring return:

Discharge system NC: connect „ZK open“ to actuator

Discharge system NO: connect „ZK close“ to actuator

Block the respectively other connection at the control with a plug



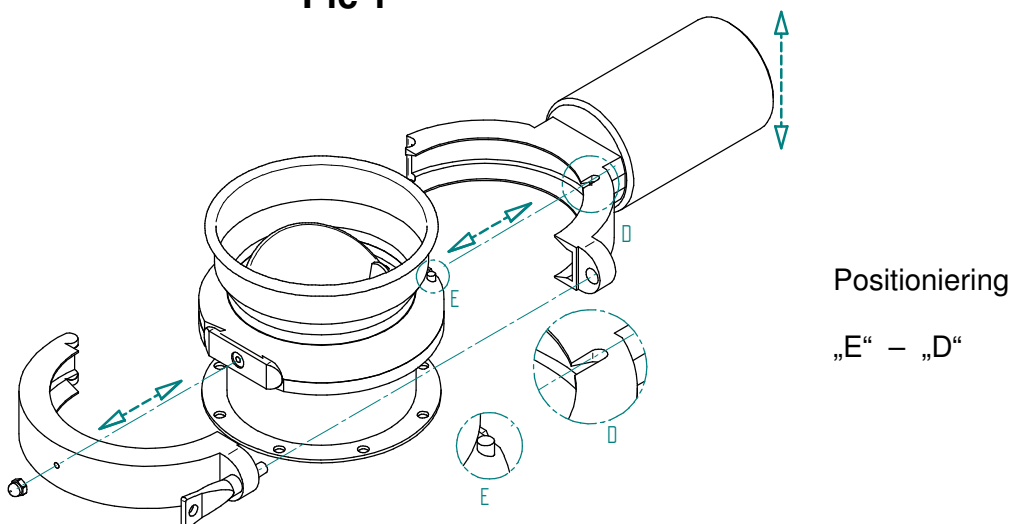
Squeezing danger at the flap plate

With the discharge flap L/F NC is fixed only by the operating pressure.

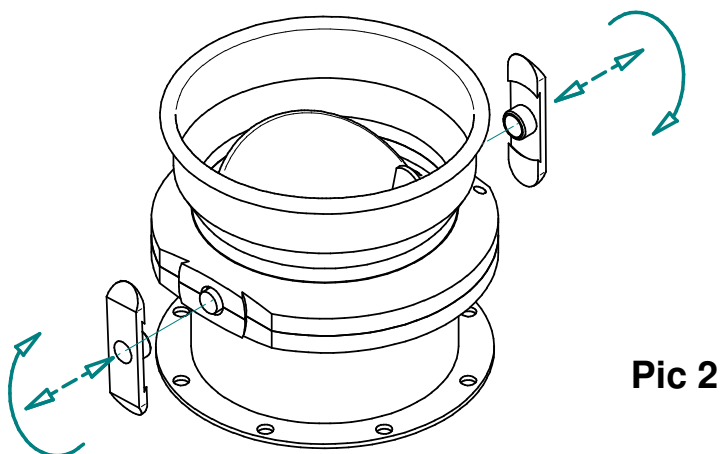
If this operating pressure should drop (consciously, or disturbance, construction unit failure, etc.), the flap closes immediately by spring action and with large strength.

The Volkmann vacuum conveying system may only taken in enterprise, if the discharge valve corresponds completely to the safety requirements of the machine guideline.

For example: An a - living

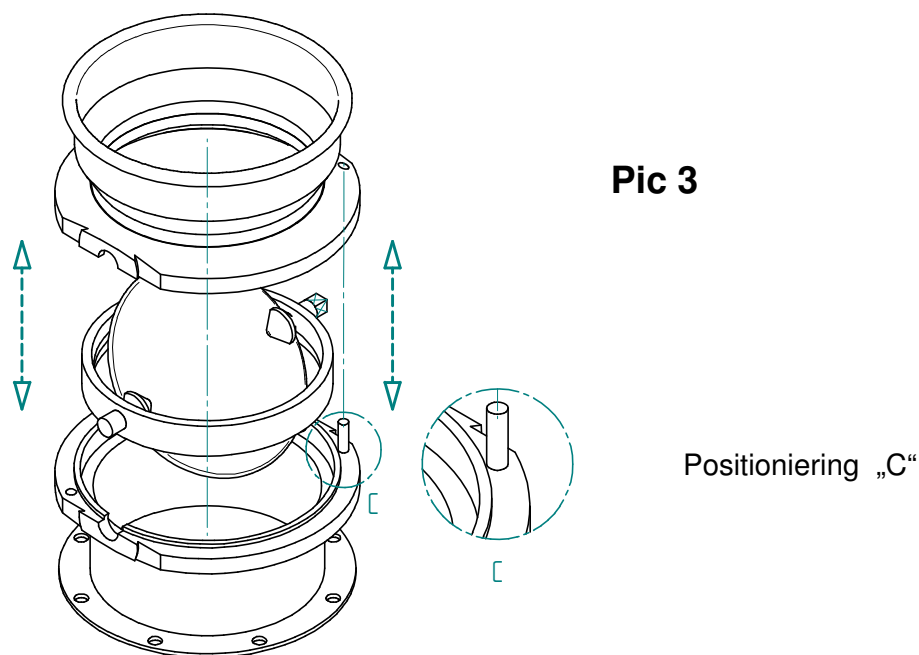
Dismantling of ZK-extern :**Pic 1**

1. Loosen the wing screw at the front assembly clamp and take off the clamp with an easy jerk..
2. Take off the rear assembly clamp with the pneumatic actuator , during this move the actuator up and down.

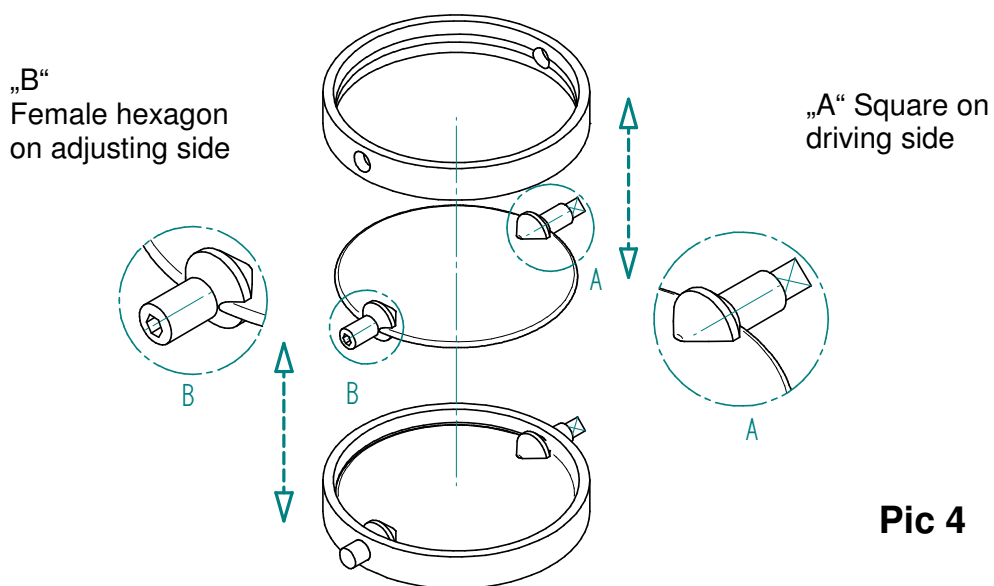


3. Rotate plastic fuse elements around 90° and tear them of the holes by rotating motion.

4. After dismantling the two plastic elements the flanges can be separated.

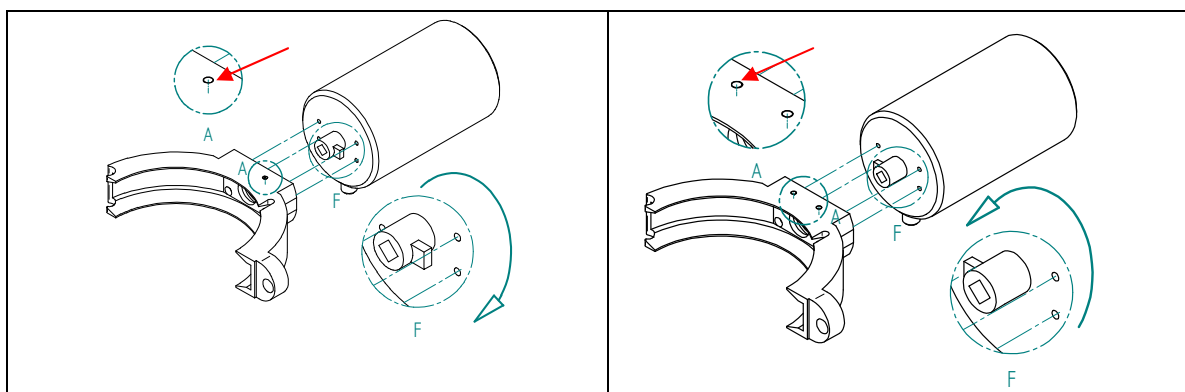


5. Now the flap plate with seal can be pulled out of one flange.



After dismantling you can easily clean the components.

Pic 5



Adjustment of discharge valve place by screw on the right side

Adjustment of discharge valve place by screw on the left side

Typ: L / F
 L / L
 Resting position
 closed

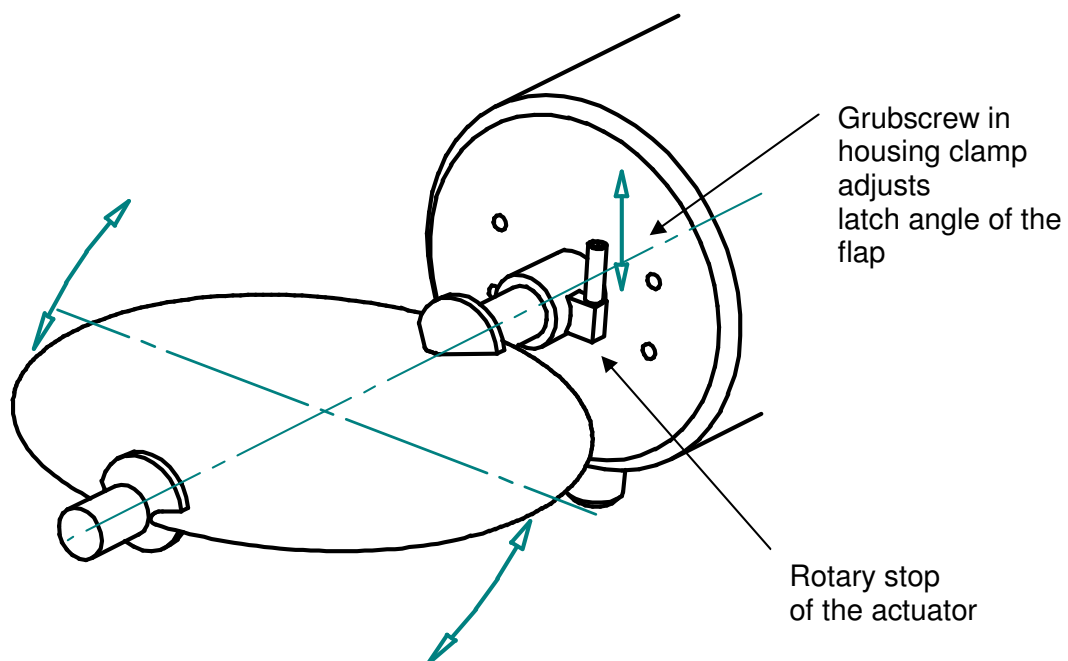
Typ: F / L
 Resting position
 opened

Actuator exchanging:

Loosen fixing bolts and separate actuator of clamp.

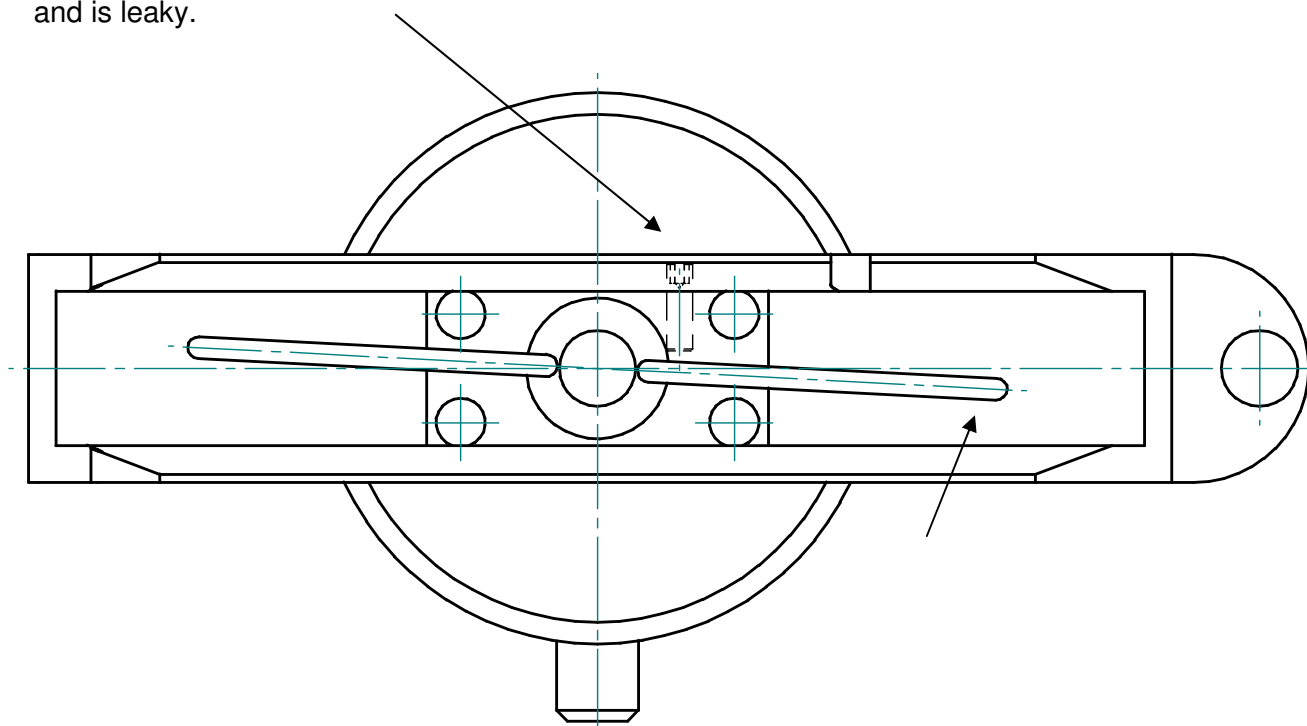
Mounting a new actuator. Inscription above.

The closed resting position can be adjusted with a grubscrew at "A".

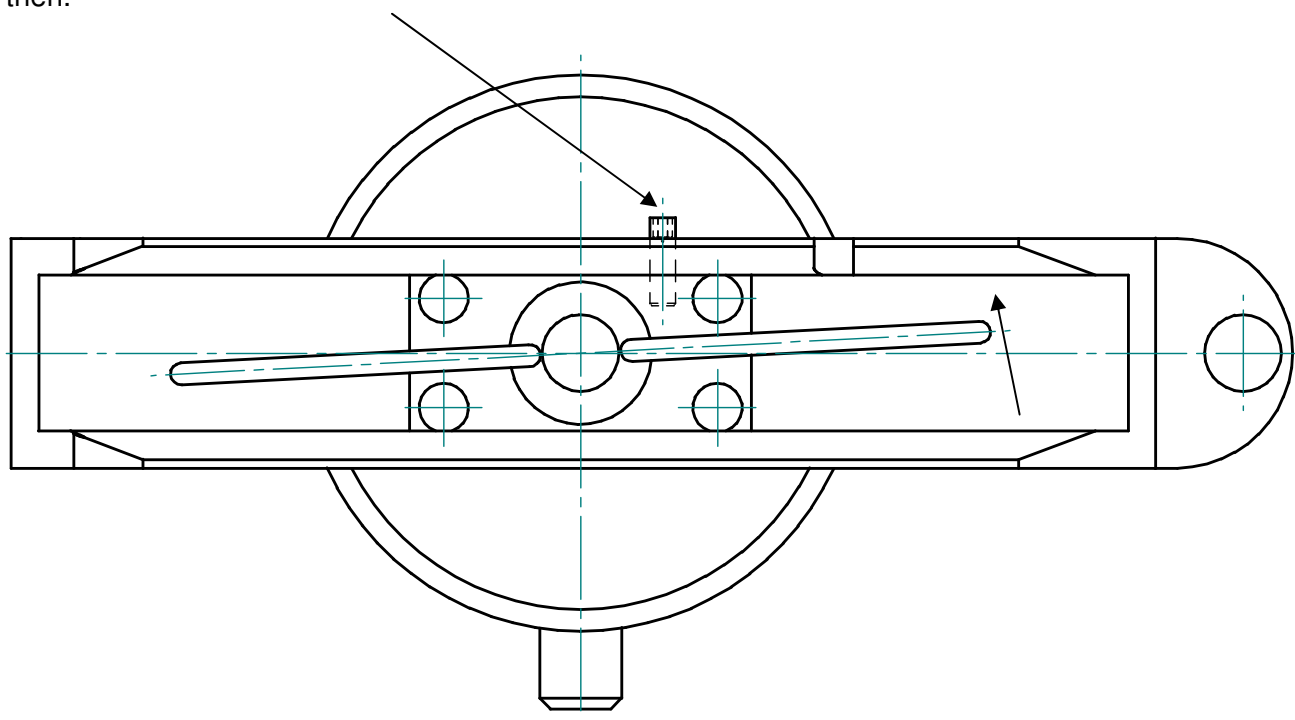


Possible misadjustments:

If grub screw „A“ is screwed in too far, the flap doesn't reach the horizontal and is leaky.



If grub screw „A“ isn't screwed in enough, the flap turns over the horizontal and opens then.



Assembly ZK-external

The assembly of ZK external takes place in the reversed order as dismantled the parts.

1. The seal has to be attached that it rests regular around the plate. **(Pic 4)**



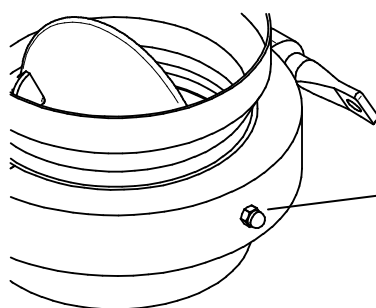
Note:

With spring closing flaps, insert flap plate flat lying.
 With spring opening flaps, insert flap plate 90° rotated.
 With double acting flaps, make sure that flap plate swores to the rotary stop of the actuator.

2. Insert the flap plate with gasket into the lower flange.
 Notice that the flap plate's shaft ends lie both sides centrally to the drillings of the flange. **(Pic 3)**
 With the female hexagon **Pic 4 „B“** the flap plate can be positioned in relation to the actuator.
3. Join the upper flange onto the lower flange.
 Please account that the position pin of the upper flange fits into the drilling of the lower flange. Don't press the gasket. **(Pic 3)**
4. Fit the plastic fuse elements and turn them 90°, so that both flanges are connected firmly. **(Pic 2)**
5. Install the clamping ring inclusive pneumatic actuator. The positioning pin of the upper flange must slide into the slotted hole of the clamping ring **(Pic 1)**
6. Set clamping ring with thumbscrew and tighten the thumbscrew strongly .

Note! After short period of operation (after approx.. 10-20 load cycles) tighten the thumbscrew!

The flap plate is grounded with an earthing screw in the clamping ring.



Earthing screw
for flap plate
with locknut

Checklist ZK external type MC

	i.O.	n.i.O.
Flap plate components clean ?		
Position of the fuse elements correct ?		
Clamping rings installed ?		
Thumbscrew tightened ?		
Grounding of the flap plate correct ?		
Works the flap in the right order?		

The other components of the Volkmann vacuum conveying system have to be installed in reverse order to the dismantling. Pay attention to the safe connection of the modules among themselves.



All components are to be grounded before the first restarting operation duly.

Visible indicators: The tappet at the end of the actuator moves

Safety:

Do not reach into it!

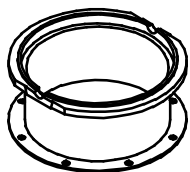


Squeezing danger at the flap plate

The emptying valve may not be prevented in its motion by product rope, present under it.

4.8 Discharge adaptor

To connect the Volkmann vacuum conveying system PPC-VS with plant equipment there is one system available next to the diving pipe:



Flange lower part zk external:

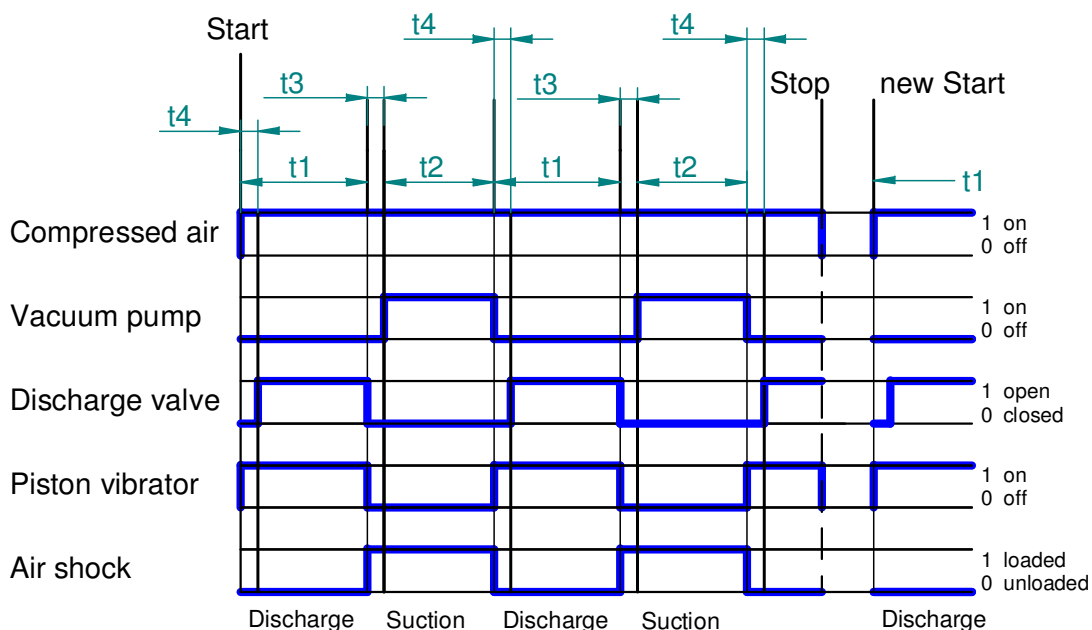
The following standard – flange measures are used:

Nominal size 150: D=195; pcd=179 (8 x ø9,5); d=150

Nominal size 200: D=250; pcd=230 (8 x ø9,5); d=200

4.9 Customer provided control

The control sequence of a **customer provided control** is to be realized with the following way-step-diagram:



t_1 : Discharge time

t_2 : Suction time

t_3 : Delay time Vacuum pump on for closing the discharge valve first

t_4 : Delay time Discharge valve open for releasing the remaining vacuum

The delay times are strongly system- and product dependent.



Remaining vacuum

Danger of irreparable damages at discharge module by stored energy (remaining vacuum).

Cause for remaining vacuum: Strongly adherent product (filter covering)

Conveying line > 10 m

Vacuum buffering e.g. by vacuum line / additional container

Inertance of individual actors / control elements

5 Installation

Before beginning the installation make sure with the delivery note and the scope of supply that the delivery is complete and intact.

If parts are missing or damaged, please contact Volkmann.

Usually the device equipment is completely installed. If this is not possible, the equipment has to be installed on the basis of the following guidance.

5.1 Set up the equipment

The device has to be installed safely at installation place.

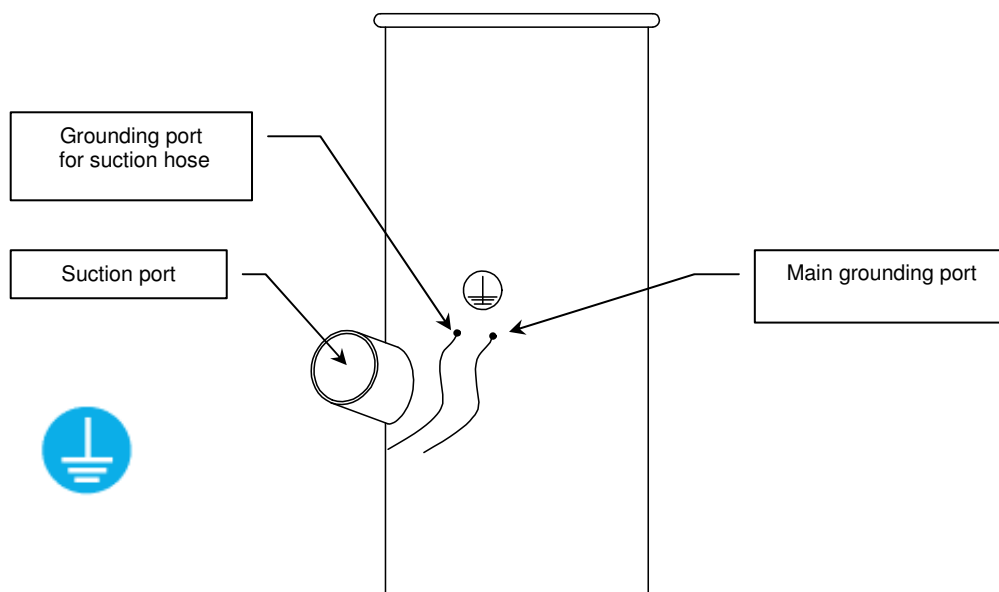
Therefore you can use the holding consoles, the flange at the discharge modules or the system adapter.

The conveyor must have save conditions.

During the installation make sure that the conveyor is grounded at main grounding port.

The main grounding port is beside the suction port.

Principle picture:



Check list setting up the equipment

	i.O.	n.i.O.
Is the equipment surely connected with the plant holding device ?		
Is the equipment grounded at the main grounding connection ?		
Are the individual components grounded ?		

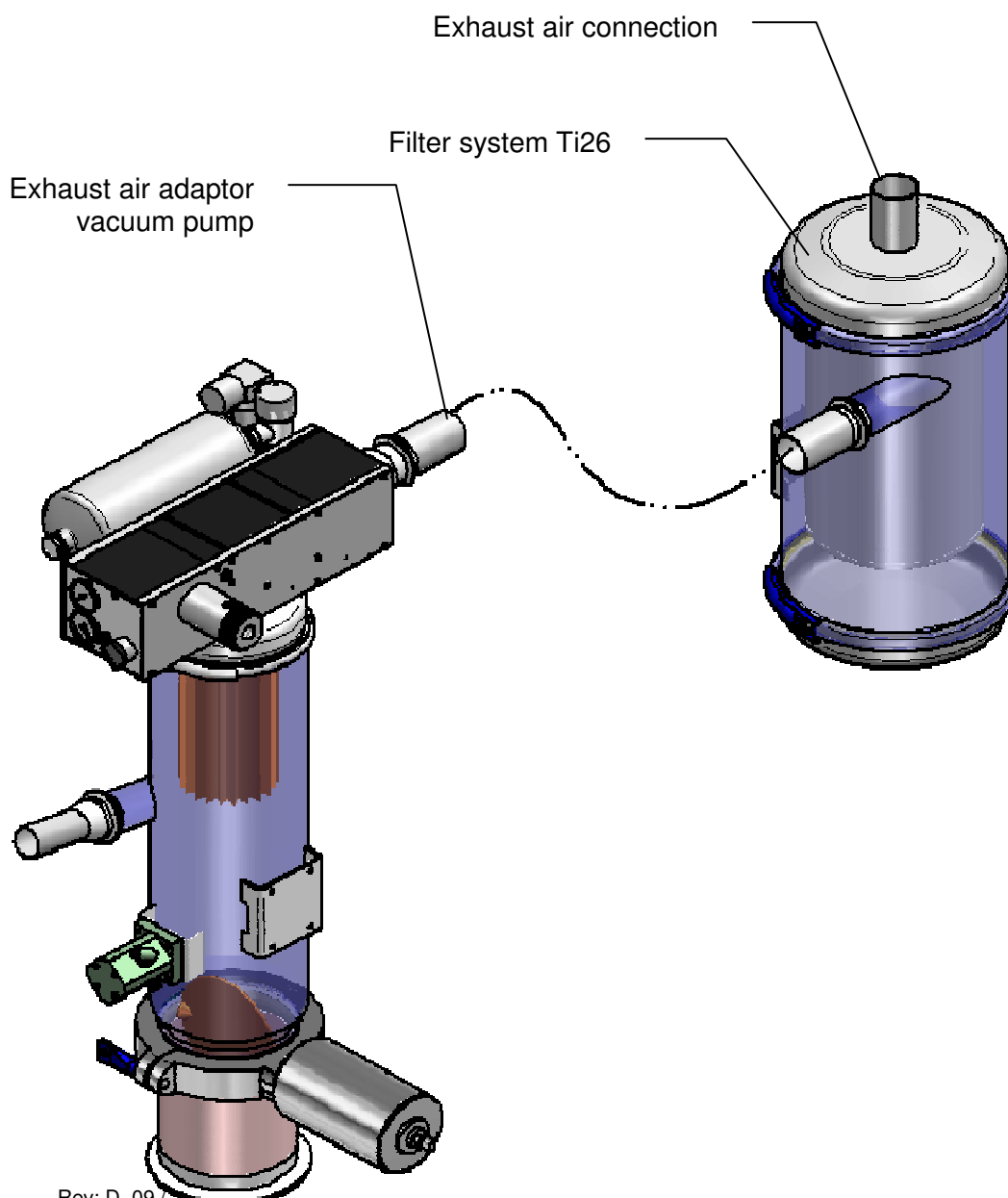
6 Installation

The filter system Ti26 (secondary filter) is fixed at the customer-provided frame by means of the mounting bracket.

The filter system may be connected safely to the exhaust air adaptor of the vacuum pump (see dashed line in image below). In this configuration, back pressure must not act on the filter system and the exhaust air adaptor, **danger of overpressure in filter system and vacuum conveyor!**

The exhaust air connection of the filter system can be connected to the customer-provided exhaust-air plant. However it has to be ensured that the exhaust air can leave the filter system freely and that a backpressure is not built up. Furthermore a vacuum must not be built up at the exhaust air connection by means of the customer-provided plant suction as the vacuum conveying process would be massive influenced hereby.

The filters inside the vacuum conveyor and the filter system may be checked daily for defects and have to be replaced immediately if necessary!



6.1 Connection of suction hose and other connections

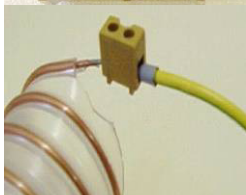
The steel wire of the suction hose has to be connected with the earth potential/grounding of the conveyor. For the connection please use a grounding terminal (Ex-certified).



Open the steel wire spiral. (**Attention! Wire must be metallically bright and is reciprocally to be attached**) for 1 cm length e.g. with a side cutter. The steel wire wrapping easily bend upward.



Connect the steel wire with grounding terminal by a safe certified fastener (Ex).

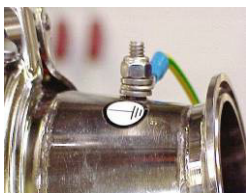


The starting torque of the terminal screw may not exceed 0.5 – 0.7 Nm.
Lay the grounding wire to a grounding point and attach them according to the regulation.



The grounding wire has to be equipped with professionally attached cable final cases and links.

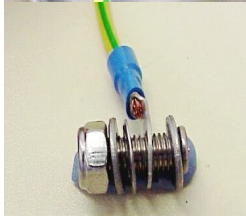
Grounding of suction hose and attached elements



The connecting elements for the suction hose such as Clamp or milk pipe connections the characterized grounding connections have to be used for attaching the wire wrapping.



The grounding connection at the conveying system. Please pay attention to a safe and professional connection.



The grounding connection has to be equipped with the necessary plane washer and tooth lock washer

6.2 General advices to the Clamp connecting equipment



Before assemble all metallic clamping connections, the contacts and contact surfaces have to be:

- cleaned carefully
- kept metallically bright
- installed professionally

In order to ensure a metallic contact!



Check list assembly of possible components

	corr.	n.corr.
Is pump and GLA connected with the control ?		
Is pump attached to the compressed air network ?		
Is discharging flap connected with the control ?		
Is piston vibrator attached ?		
Are fluidisators attached ?		
Is control supplied with compressed air ?		
Are there correct diameters of the compressed air supply / N ₂ -supply ?		
Is correct operating pressure adjusted ?		
Are no pipes broken or damaged ?		
Are all hoses and all components grounded according to the regulations ?		

6.3 Functional inspection Volkmann vacuum conveying system

The first functional test must take place without product. The test is to serve if the function of the individual components and their interaction work together.

Attention Safety advice

Check hose connections and keep distance to moving parts.



Squeezing danger

Unintended movements of hoses or moving parts lead to squeezing and clamping danger



High vacuum - danger for life

ATTENTION: With switched on source of vacuum keep the suction inlet away from orifices (mouth; ears, nose etc.)

Keep the suction inlet away from the body

The following procedure describes a functional test of the vacuum conveyor with an M or a G-pump and a pneutimer. With other configurations, for example a plant control is similarly to this procedure to proceed.

Condition for testing: The vacuum conveying system is installed and all components are duly attached.

G-pump	M- or RVA(C) - pump
<ol style="list-style-type: none"> 1. With G-pumps place selector switch at vacuum pump to OFF 2. Switch OFF the pneutimer 3. Switch ON the compressed air supply 4. Attention: Look to correct operating pressure 5. With G-pumps place selector switch at vacuum pump to ON. Now the vacuum pump should begin to suck without delay. Again the compressed air is to be controlled and corrected. 6. Place selector switch at EXTERNAL. 7. Adjust the suction- and discharging time from the pneutimer on 10 sec. and switch it ON. 	<ol style="list-style-type: none"> 1. With M- or RVA(C) - pump Switch OFF the pneutimer 2. switch ON the compressed air connection 3. Attention: Look to correct operating pressure 4. Adjust the suction- and discharging time from the pneutimer on 10 sec. and switch it ON.

Operating manual PPC-VS Volkmann vacuum conveying system ATEX

The pneutimer should now begin to work. The system should work as follows:

Discharging cycle:

- Opening the discharge flap
- Vibrating of the Piston vibrator (optional)
- Fluidisation (optional)
- Filter cleaning

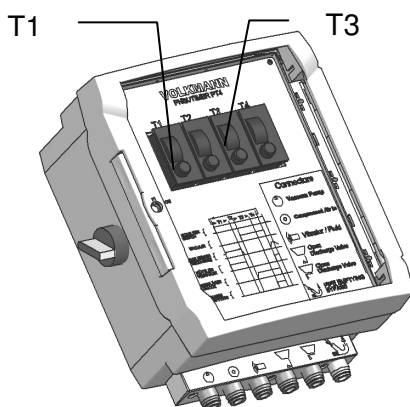
In the sucking cycle:

- Sucking of the pump
- Closing of the discharge flap

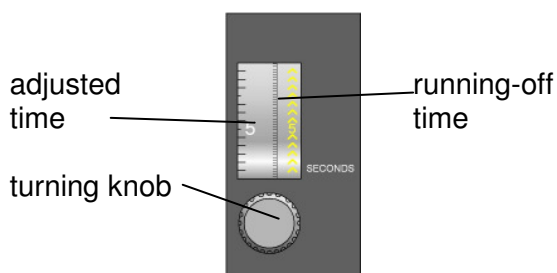
Control the operation pressure during suction mode and if necessary adjust it. Please close the suction port with a rubberised plate or something like that during the suction cycle.

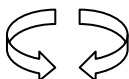
A vacuum should be reached of at least 80% (see to vacuum gauge on the pump). With large devices please extend the suction time to the maximum.

Adjusting of the suction- and discharging times on the Pneutimer



- T1 = suction time
 T2 = pump delay
 T3 = discharge time
 T4 = pipe emptying (optional)



reverse turn  natural turn
 time is diminished time is extended

Check list functional test

	corr.	n.corr.
Operating pressure?		
Work all components in the correct act?		
80% vacuum is reached?		

6.4 Adjustment of the suction and discharging times

In the following it is described, according to which criteria the sucking and discharging times are to be determined and how these times can be adjusted.

With a plant control adjust these times based on the valid operating instructions.

The suction and discharging times depend on many factors, for example:

- Product properties
- Vacuum pump
- Suction port
- Conveying distance and - height
- Conveyor's volume
- etc..

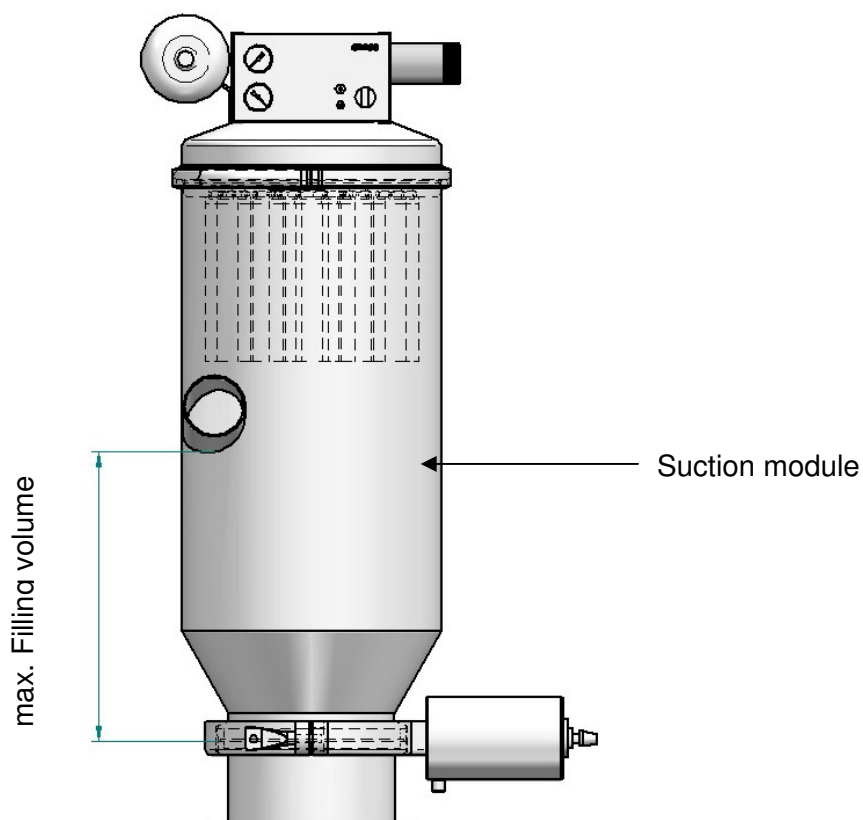
If no times are determined by attempts, the values have to be founded empirically.



In each case avoid an overfilling of the equipment and protect the filter unit!

6.4.1 Suction time

Principle picture:



Max. filling volumes of the conveying systems PPC-VS

Vacuum conveyor	Filling volume dm ³ (Litre)
PPC200VS	7
PPC250VS	17
PPC350VS	25
PPC450VS	62



- Take out of this list the configuration of your conveying system in accordance with scope of supply.
- Fill product according the filling volume into a separate container.
- Measure now the time for sucking in the product. The suction time is to be set to maximum. Repeat the attempt several times and take the shortest measured time as the suction time.

6.4.2 Discharging time

- At the beginning set the DISCHARGING TIME to the maximum.
- Control the time that the product needs to fall out of the conveyor. Adjust this time as the discharging time.

The discharging time may not be selected too short, otherwise a creeping overfilling threatens.

The piston vibrator should be adjusted too. The piston vibrator should be adjusted as strong as necessary, in order to avoid damages from strong vibrations.

After the attempts to set the times the conveyor is to be discharged and taken out of order, duly.

For questions or problems concerning the determination of the suction- and discharging times, please get in contact with the VOLKMANN company.

6.5 Test conveying

During the test conveying the material should be conveyed under real conditions. The conveying, especially the suction and discharging times and the adjustment of piston vibrator have to be controlled.

- Adjust the suction and discharging times and start the pneutimer (G-pump on EXTERNAL).
- Convey now several loads.
- Control and correct the operating pressure if necessary during conveying.
- After conveying control all connections, screws, clamp connections, etc..
- Control also the discharging of the conveyor to avoid a creeping overfilling.

7 Operation Volkmann vacuum conveying system

In this chapter an operating procedure for switching on and off is described as it is used for daily operation.

Example configuration: G – pump and Pneutimer.

7.1 Switch on operation

Before the Pneutimer is switched on the following has to be controlled:

- Are the equipment and the attached components grounded ?
- Are hoses / hose connectors correct ?
- Is the operating pressure correct ?
- Is the exhaust air adapter of the pump attached (optionally) ?
- Are the equipment and their components optically in order ?
- Are the correct sucking and discharging times adjusted ?

The device is to be switched on as follows:

1. Selector switch of the pneutimer on OUT position.
2. Selector switch of the pump on EXTERNAL position (**only with G-pumps**).
3. Open the compressed air supply.
4. Selector switch of the pneutimer on ON position.

The pneutimer starts to work immediately.

7.2 Current control

During operation you have to look at:

- Is the operating pressure correct ?
- Are there unusual noises ?
- Can you hear the filter cleaning ?
- Is the piston vibrator running during the discharge mode ?

If one or several points don't join, the equipment has to be taken IMMEDIATELY out of operation and to be examined.

7.3 Switch off

After conveying the system has to be switched off as follows:

- Turn the selector switch at the Pneutimer during the suction mode on the OUT position, however no more product gets conveyed. So that is ensured that there is no product in the conveyor.
- Close the compressed air supply and aereate the pipe (e.g. turn the selector switch of the G-pump briefly at ON position).

7.4 References and Tips

If you change the product you have to determine again the suction and discharging times because these are strongly product dependent.



8 Maintenance Volkmann vacuum conveying system



When maintaining Volkmann Vacuum conveying systems, dependant on the material to be conveyed, it may be necessary to take precautions to protect workers and the environment from exposure to the product.

These can include but are not limited to:

Prevention and monitoring of exposure in the work place

Provide a ventilation system or another technical device that regulates the contamination of the air from steams, mists and dusts, below the recommended individual maximum exposure level limits as specified in the hazard data sheets.

Assure that eye showers and emergency showers are available close to the working area.

Hand protection

When handling chemical products, always use chemically resistant, impermeable gloves that meet the minimum protection levels as stated in the product hazard data sheets.

> 8 hours (irruption time): e.g. Nitrile gloves

Eye protection

If required by the risk analysis, certified protection safety glasses should be worn to prevent exposure to liquid splashes, mists or dusts.

Recommendation: Splash protection glasses

Respiratory protection

If required by the risk analysis, always wear correctly fitted, air cleaning or breathing apparatus that meet the requirements stated in the product hazard data sheet.

The selection of a respiratory protection mask should take into account the known or assumed existing airborne concentrations, the dangers of the products and the permitted operator exposure levels.

Body protection

Before handling products, personal protection equipment must be chosen based on the individual application and the corresponding known or assumed hazards and should provide adequate protection for the user.

Recommended: Laboratory coat or Overall.

8.1 Maintenance intervals

The maintenance intervals are very dependent on the product and the application and can consequently vary into longer intervals as well as into shorter intervals. On this account the here given times are only clues and the given advice only applies if there are no other experiences with the respective product or because of other circumstances different maintenance intervals are expected.

Generally a maintenance after one month can be recommended.

Based on a 5 day working week with 40 hours this complies about 160 operating hours or with 4 conveying facts per minute about 38.400 conveying cycles.

At the maintenance it is needed to check possible damages of all expendable parts. Thereby the discharge system as well as the seals and metallic connections have to be especially recognized.

8.2 Dismantling Volkmann vacuum conveying system



SAFETY REFERENCE: When opening the conveyor rest of material can fall out of the container! Consider and use the safety references of the material manufacturer Compellingly
 Before dismantling it is to be ensured that all air supply lines are clamped off and aerated!
 During dismantling please take always care that conveyor and dismantled parts have groundings.

With the dismantling it is to be done as follows:



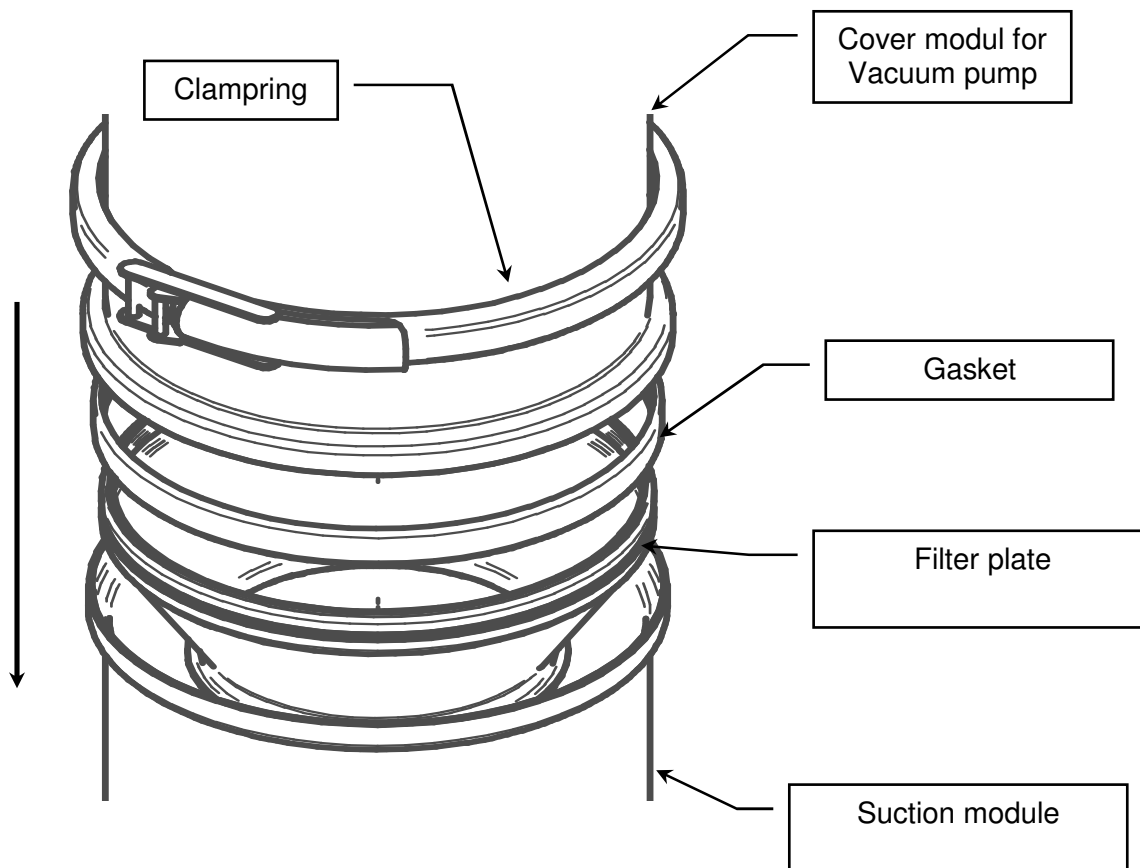
1. Discharge and switch off the conveying system.
2. Close and clamp off the complete compressed air supply, then aerate all compressed air and control lines.
3. Take off all lines between the control and vacuum conveyor and pump.
4. Open the upper clamping ring and remove the cover module.
5. Take out the filter unit. Set off filter unit carefully. Avoid damages
6. Now open further clamping rings successively and remove individual modules successively.
7. When taking out the discharging flap, consider the respective chapter to the emptying system in order to avoid damages.

After the dismantling an easy cleaning of the individual components is possible

8.3 Assembly MULTIJECTOR® Vacuum conveying system

The assembly of the MULTIJECTOR® Vacuum conveying system takes place in reversed order like dismantling the parts.

Principle picture:



For mounting the modules the module gasket has to be fitted to the stacking element (filter plate / stacking ring) first.



Attention: The gasket has to fit appropriately inside the bordur at the whole length as otherwise tightness can not be ensured

In the suction module is inserted a filter plate with the gasket.
Then the cover module is put on on the suction module.
The open clamp ring is put over the module and placed around the bordur.

Finally the clamp ring is closed by using the clamping lever.

Squeezing danger by tension forces during closing of clamp rings.
Danger of injuries by returning of clamp lever during opening!



For a safe grounding of the individual components the metallic connections have to be clean and free of dust.

8.4 Trouble shooting

Problem	Cause	Solution
1. Vacuum pump does not start (manual)	Compressed air supply is defective	Repair the compressed air supply
2. Automatic filter cleaning does not work	Membrane in the quick-release-valve is defective supply hoses are dejected	Replace membrane, check supply hoses
3. Suction capacity of the vacuum pump is too low	The MULTIJECTOR [®] Vacuum Pump needs a compressed air supply of 5,5 bar, otherwise the optimum suction capacity is not achievable Compressed air-filter is dirty Container leakages Leaking suction hoses Filter unit is blocked Module gasket or discharging cone gasket is defective or not correctly mounted	Check compressed air supply (see 6.0 Compressed air supply and 7.0 Put into operation) Clean or replace compressed air filter Check module gaskets for perfect fit and if the clamping rings fit and close completely Check all connections of the suction hoses At turned-on conveyor and "free suction" (remove suction hose from conveyor) 15-20% vacuum should not be exceeded. Otherwise change or replace filter Check discharge valve for complete closing and sealing
4. Dust emission out of the MULTIJECTOR [®] -Vacuum Pump	Damaged filter unit	Attention: Turn off conveyor immediately! Replace filter and clean MULTIJECTOR [®] -Vacuum Pump

9 Addendum

9.1 Checklists

Checklist for installing the equipment

	i.O.	n.i.O.
Is the equipment connected with the plant mounting plate ?		
Is the equipment at the main grounding connection grounded ?		
Are the individual components grounded ?		

Checklist Assembly

	i.O.	n.i.O.
Are the pump and GLA connected with the control ?		
Is the pump attached to the compressed air network ?		
Is the discharging flap connected with the control ?		
Is the piston vibrator attached ?		
Is the fluidisation attached ?		
Is the control supplied with compressed air ?		
Are the cross sections correct to the compressed air supply / N2-supply ?		
Is the correct operating pressure adjusted ?		
Are no hoses damaged ?		
Are all hoses and all components duly grounded ?		

Checklist functional test

	i.O.	n.i.O.
Operating pressure?		
Are all components working in the correct act?		
Are 80% vacuum reached?		

If malfunctions / failures of the Volkmann Vacuum Conveying system cannot be eliminated with the aid of this manual and / or by contacting Volkmann, the Volkmann Vacuum Conveying System has to be returned to Volkmann.

For doing this, please use the Decontamination certificate for returned parts at the end of this manual.

9.2 Volkmann vacuum conveying systems with external sources of vacuum

The Volkmann vacuum conveying systems can also be operated by external vacuum sources.

These are electric vacuum pumps, blowers, compressors, existing vacuum nets and similar components.

IMPORTANT NOTE: With use of Volkmann vacuum conveying systems with external vacuum sources the permission acc. to ATEX expires, since it is no longer an examined standard series.

According to EEC-right it is to be regarded as a component of a machine then. The user is the person who brings the system into circulation. He has to consider the whole system acc. to EEC machine guideline.

Of course we will not change any component of the Volkmann vacuum conveying systems opposite the EX-certified systems. This might simplify an Ex-acceptance of the whole system by a designated institution in direction of the user significantly.

Moreover the following conditions have to be kept for this:

The external vacuum source has to furnish a performance of volume flow and vacuum performance adapted to the conveying product and to the conveying conditions.

A reliable wiring and control of the suction- and discharging cycles has to be ensured.

P+ ID-schemes and regulations provided for this application have to be occurred. Often external vacuum sources like blowers or electric vacuum pumps can not be clocked, so that multi-way ball valves and venting valves have to be used.

The defaults and product specific boundary conditions have to be considered and to be adapted if necessary.

The connection of an external vacuum source has to take place at the interface planned for it only.

Here an unstressed and tight connection has to be provided.



High vacuum

Adjacent plant parts (e.g. vacuum line to vacuum source) that are connected tightly to the vacuum conveying system, have to be vented sufficiently (venting filter).

Danger of damages by high vacuum.

Vacuum limitation to max. 80% for conveyors from \varnothing 350 (e.g. by vacuum limitation valve).


Important to note:

The filters in the MULTIJECTOR® Vacuum conveying system filter dust-like materials according to the filtration rates of the appropriate filter classes. Gases, aerosols and eventually rest dusts can get through the filters and get to the external vacuum source by the suction air flow.


As these gases, aerosols and eventually rest dusts can be toxic, inflammable and dangerous, special measures for protection of environment and machine are necessary.

Eventually extensive filter measures and / or air conditions are necessary.


If you have further queries concerning this matter, please contact us.


At usage in  areas, the interaction of the single components have to be considered always.

So all control parts have to be suitable according to the  conditions.

Electric valves and electric parts must have the necessary  approvals.

Grounding measures are to be ensured after BGR 132. Particularly the suction lines and their connections are to be examined.

Also the external vacuum source is to be examined safety-relevant for the  range and to convert corresponding measures if necessary.

Usually electrical vacuum generators get hot during operation; consider this in the  zones and choose a suitable installation place.

About the special operating requirements of the external vacuum generators the appropriate operating instructions will inform you.



IMPORTANT: After installation of all construction parts the correct / constant grounding of all components is to be examined as well as with the equipment contacted plant equipment is to be manufactured and to log by an authorized specialist !

author: XX

Operating manual PPC-VS Volkmann vacuum conveying system ATEX

For rental-/test units:

Begin (Date): _____

End (Date): _____

Hazardous materials ("Hazardous substances") that have been used with this product:

The product has been cleaned and decontaminated (if necessary).

Description of cleaning / decontamination:

With the signature we confirm that the product is contamination-free.

If the decontamination has been carried out insufficiently we accept by the signature, that the associated consequential costs (e.g. for decontamination by a specialist contractor or disposal of the product e.g. as hazardous waste by a specialist contractor) are at the expense of the responsible originator.

Name: _____ Position in Company/Institution: _____

(Head of Institution / Department / Company)

Signature: _____ Date: _____

Please send this form together with the product to:

Volkmann GmbH Vakuum Technik

Schloitweg 17,
D-59494 Soest, Germany

Please attach this form duly completed to the outside of the packing.

Tel.: ++ 49 29 21 / 9 60 40

Fax.. ++49 29 21 / 9 60 49 00

E-Mail: mail@volkmann.info

Internet: http://www.volkmann.info

FILTER UNIT VS 250



Original - Operating manual

Typ: Filter unit VS 250

Issue: 20 / 03 / 2014

Com: VIA AG

Order-No.: 31-9'356/14

Project-No.: 140522

Construction year: 03 / 2014

Additional documents:

Operating manual vacuum conveying system PPC200VS
Operating manual vacuum pump Type G

Table of contents

1	INTENDED USE OF THE FILTER SYSTEM	3
2	SAFETY AND DANGER REFERENCE	3
2.1	SPEZIFICATION T126 - HEPA – FILTER CARTRIDGES	5
3	EQUIPMENT CONFIGURATION OF COMMON VS MODULES	6

Please read the following instructions precisely. Keep these operating instructions carefully for later checkbacks.

This manual is always an integrating component of the equipment and has to be available to the operating personnel and maintenance staff. The operator, the foreman and the maintenance staff must know the contents of this manual. The descriptions and illustrations contained in this manual are not obligatory.

With keeping up the substantial characteristics of the described machines, the manufacturer reserves the right to attach possible changes to organs, details and accessories that are considered for necessary with regards to product improvement or because of constructional or commercial needs at any time and without re – working this publication on time.

1 Intended use of the filter system

The filter unit is a secondary filter after an electric vacuum pump type Mink MM 1252 AV (**drawing Nr. 101696-09-001**).

No usage in EX Area allowed.

The filters Ti26 only filter dusty materials with the deposition grades of the respective filter classes.

Gases, aerosols and eventual residual dusts pass the filter and get to the external vacuum source with the suction air stream.

Note: As the gases, aerosols and eventual residual dusts can be toxic, explosive and dangerous, special measures for protection of environment and machine result here from.

In these cases eventually further filtration measures and/or air conditionings are necessary.

The diameter of pipes after the Filter should not be less than \varnothing 50 mm.

Incident - flow velocity at Ti 26 filters with Mink pump:

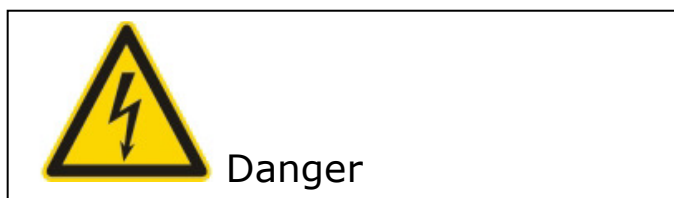
$5 \text{ m}^3 / \text{min} \Rightarrow 1,25 \text{ m} / \text{min} \Rightarrow \text{HEPA H13}$

We recommend to change the filter cartridges every 6 months
– without filter monitoring.

2 Safety and danger reference

Mount the filter unit safely (Mounting fork)

Do not transport solids in the air.
(Damaging of the filter)



- All maintenance and mounting work at the filter system must only be done with disconnected electrical and pneumatically energy connections
- The filter system has to be free from tension and from pressure.

Operating manual Volkmann filter system

Suction Hoses:

The steel wire of the suction hose has to be connected with the earth potential/grounding of the conveyor. For the connection please use a grounding terminal.



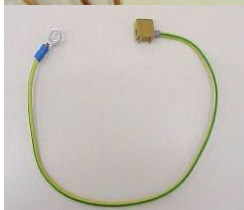
Open the steel wire spiral. (**Attention! Wire must be metallicly bright and is reciprocally to be attached**) for 1 cm length e.g. with a side cutter. The steel wire wrapping easily bend upward.



Connect the steel wire with grounding terminal by a safe certified fastener (Ex).

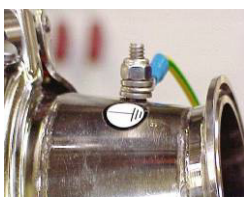


The starting torque of the terminal screw may not exceed 0.5 – 0.7 Nm.
Lay the grounding wire to a grounding point and attach them according to the regulation.



The grounding wire has to be equipped with professionally attached cable final cases and links.

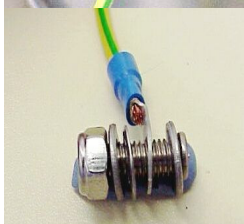
Grounding of suction hose and attached elements



The connecting elements for the suction hose such as Clamp or milk pipe connections the characterized grounding connections have to be used for attaching the wire wrapping.



The grounding connection at the conveying system. Please pay attention to a safe and professional connection.

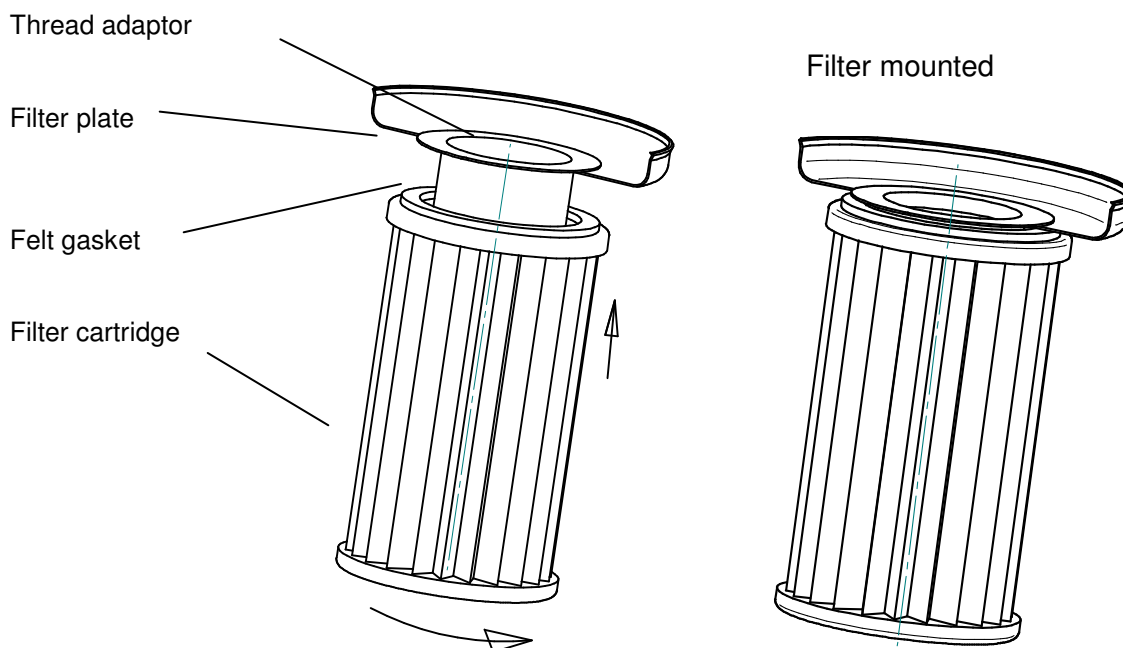


The grounding connection has to be equipped with the necessary plane washer and tooth lock washer

2.1 Spezifikation Ti26 - HEPA – Filter cartridges

Technical data Volkmann Ti26-HEPA Filter			
Type designation			Filter cartridge Ti26 / 4 V4A
Artikel-No.			100 106
Fitting length			330 mm
Filter area			4 m ²
Dust class IEC 60335-2-69	H		
Degree of separation for particles	0,1µm (> 99,99 %)		
Incident – flow velocity	3,3 m / h		
Filter material	Glas fiber / PET / Cellulose paper		
Connection element	AISI 316L		
Bottom plate	1.4571		
FDA certificate	21 CFR Ch.I § 177.1550		
Operation temperature	80°C		

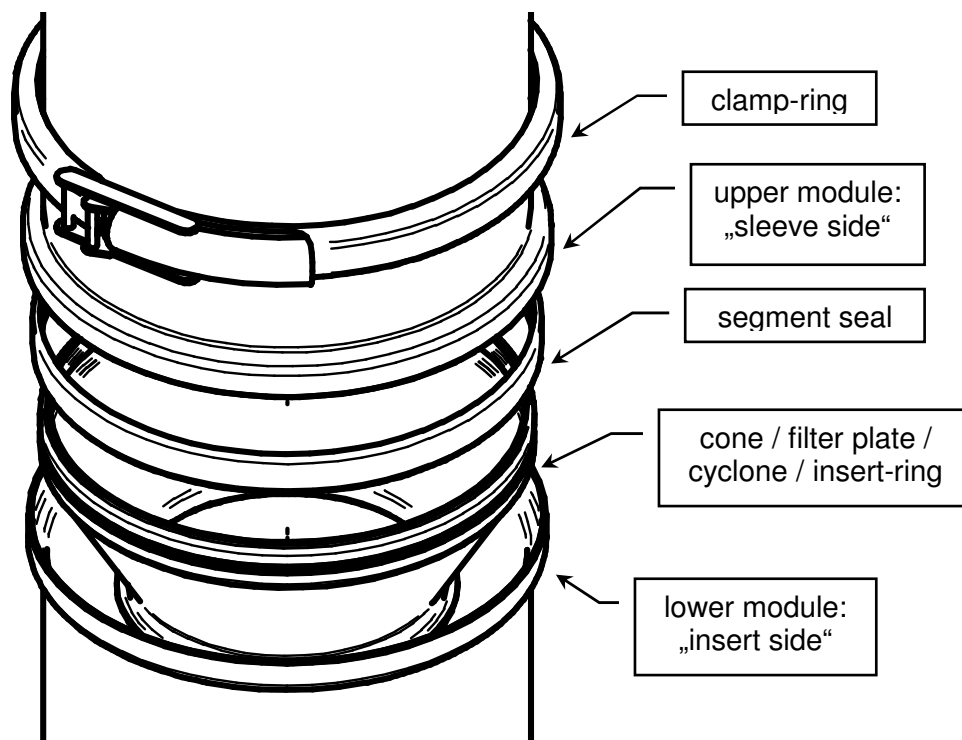
Assembly example: Ti 26 – HEPA filter with felt gasket:



Screw the filter with felt gasket dried on the filter plate strongly by hand.

3 Equipment configuration of common VS Modules

The standard module connection consists of the following components:



In order to assemble the module you have to install the segment seal over the insert element (cone / filter plate / cyclone / insert-ring) first.



Note: The seal must fit at the entire extent suitably in the groove, since otherwise the leak tightness is not ensured.

The insert element including seal is inserted into the lower module (insert side).
The upper module (sleeve side) is put on subsequently.
Now the opened clamp-ring is put over the module and put around the joggle joint.

At last the clamp-ring is closed with the help of the clamping lever.

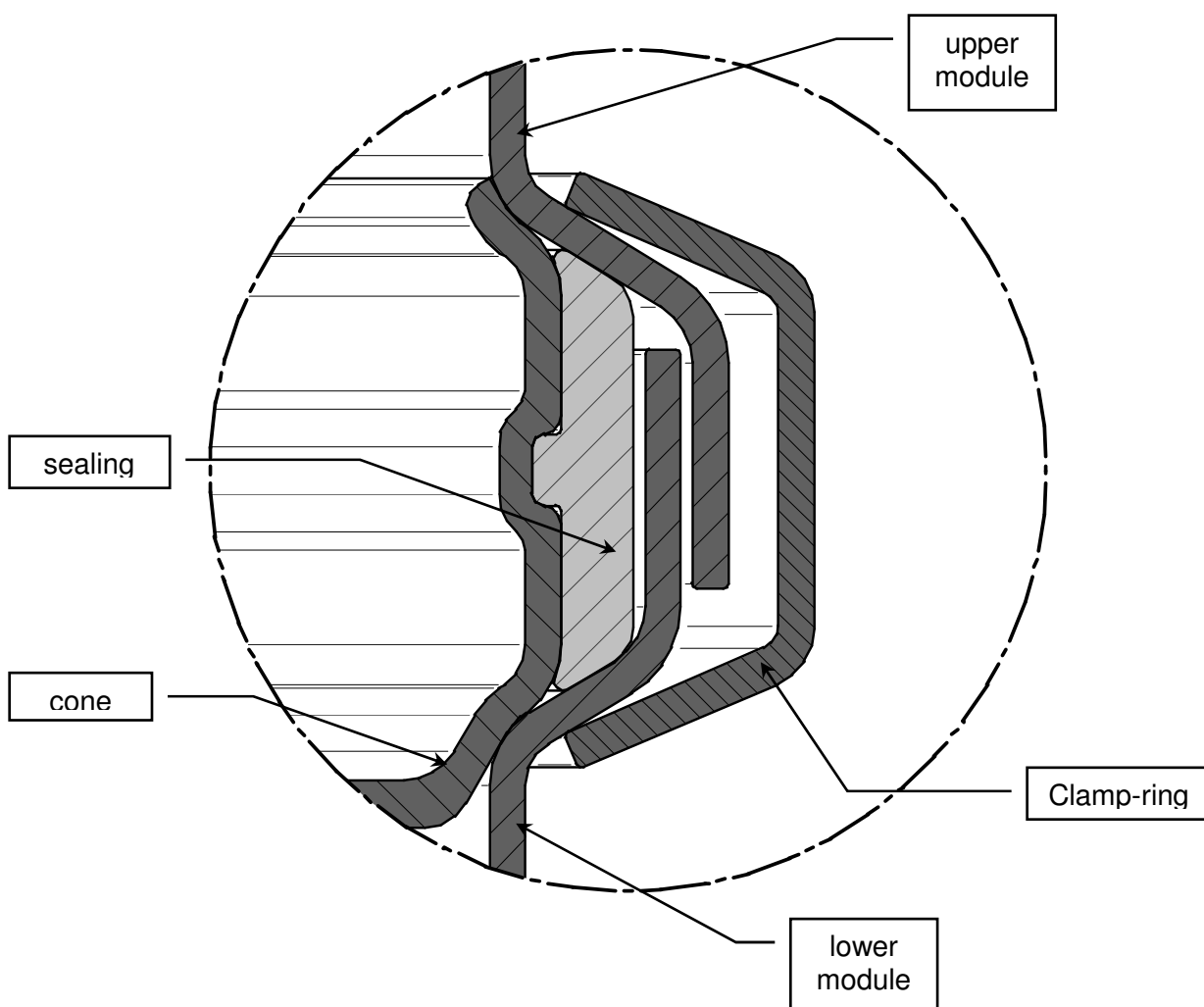
Attention squeezing danger!

When closing the clamp-ring a high squeezing danger exists due to the high clamping forces!

When opening the clamp-ring a danger of injury exists by striking back of the clamping lever!



In the picture below you can see a sectional view of the joggle joint with clamp-ring:



Before assemble all metallic clamping connections, the contacts and contact surfaces have to be:

- cleaned carefully
- kept metallically bright
- installed professionally

In order to ensure a metallic contact!

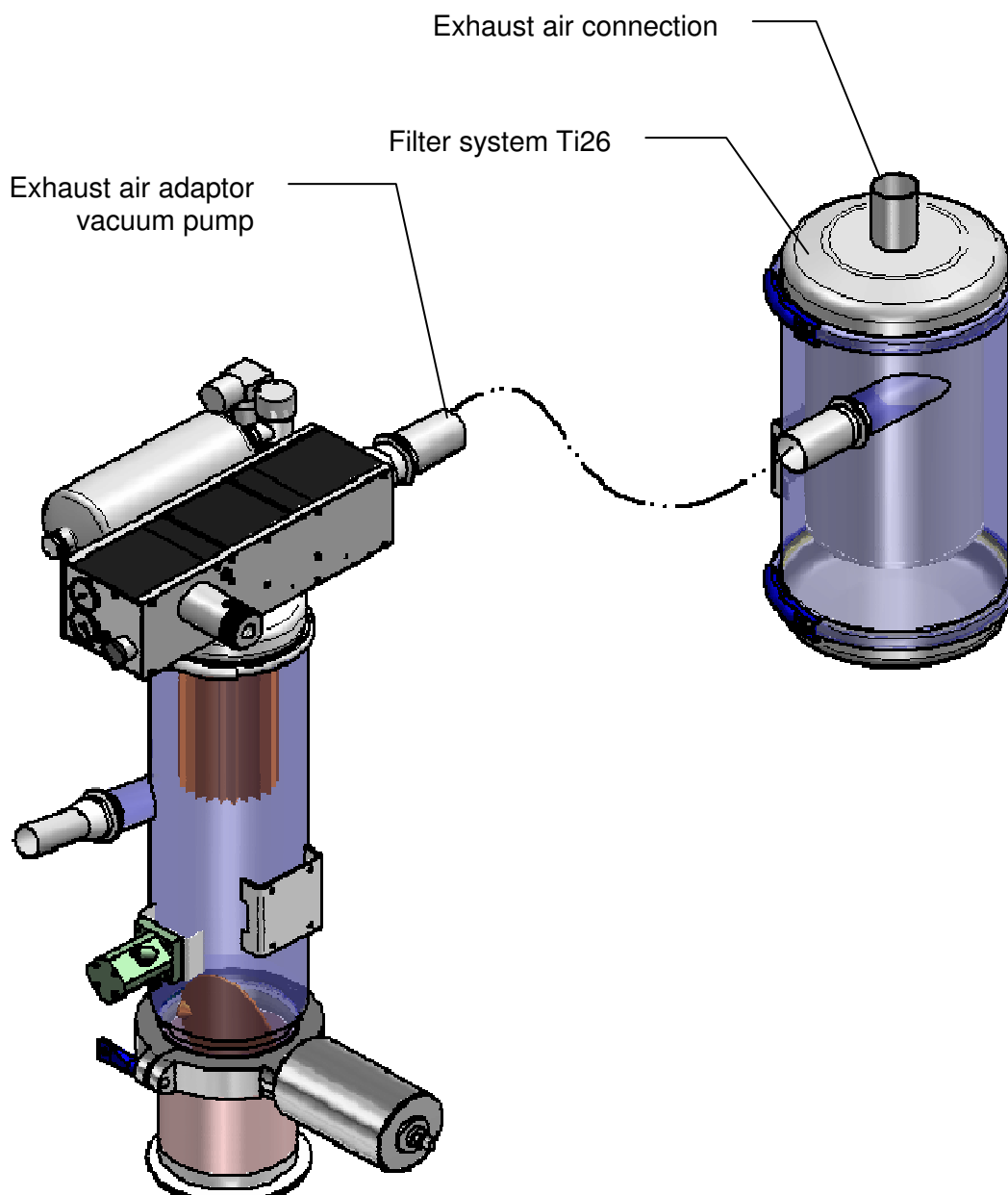
4 Installation

The filter system Ti26 (secondary filter) is fixed at the customer-provided frame by means of the mounting bracket.

The filter system may be connected safely to the exhaust air adaptor of the vacuum pump (see dashed line in image below). In this configuration, back pressure must not act on the filter system and the exhaust air adaptor, **danger of overpressure in filter system and vacuum conveyor!**

The exhaust air connection of the filter system can be connected to the customer-provided exhaust-air plant. However it has to be ensured that the exhaust air can leave the filter system freely and that a backpressure is not built up. Furthermore a vacuum must not be built up at the exhaust air connection by means of the customer-provided plant suction as the vacuum conveying process would be massive influenced hereby.

The filters inside the vacuum conveyor and the filter system may be checked daily for defects and have to be replaced immediately if necessary!



MAHLE

Industrial Filtration

Filter material

Ti 07

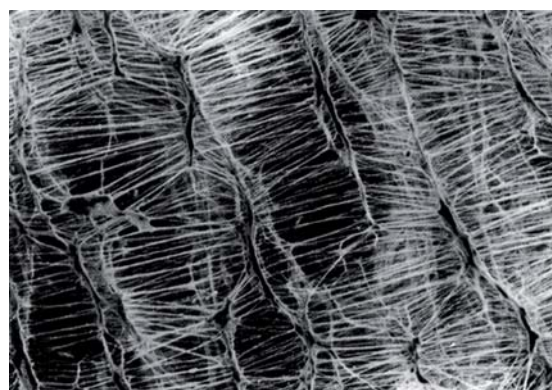
Electrically conductive membrane filter material

1. Features

This pioneering filter material combines a newly developed, electrically conductive polyester material with a PTFE membrane. Statically charged particles transfer their charge via the membrane to the conductive polyester material. Ti 07 is a composite material that makes the advantages of surface filtration accessible to applications in hazardous areas.

Characteristics

- Specially designed for filtering statically chargeable and explosive fine dusts
- Efficient surface filtration thanks to the microporous PTFE membrane
- High mechanical strength
- Very smooth, fibre-free surface
- Compliance with the requirements of DIN EN 60335-2-69
- FDA approval acc. to 21 CFR Ch. I § 177.1550
- Worldwide distribution

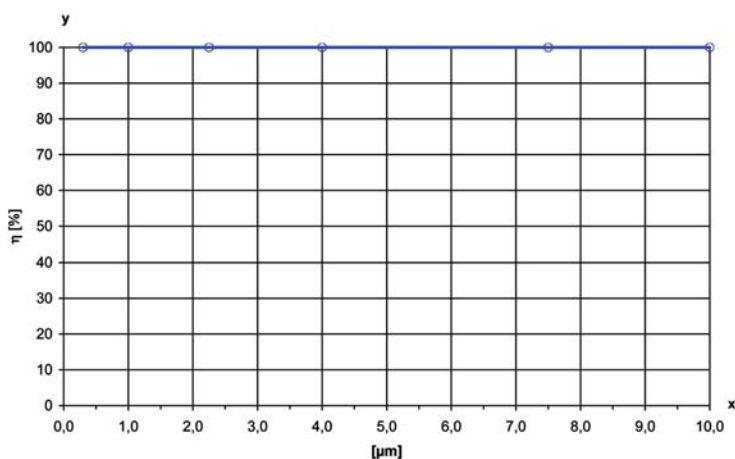


2. Technical data

Type	Material	Material thickness [mm]	Weight [g/m ²]	Air permeability [l/m ² s]	max. operating temperature [°C]	Test certificates/ dust classes
Ti 07	electrically conductive polyester (PET) with polytetrafluoroethylene (PTFE)-membrane	0.7	280	40 at Δp 200 Pa	130 (permanent) max. 150 (peaks)	DIN EN 60335-2-69 "M"

Technical data is subject to change without notice!

3. Filtration efficiency



Nominal filter rating: 0.3 μm
(filtration efficiency > 98 %)

Test conditions
Inflow velocity: 3.36 m/h
Mass concentration: 200 mg/m³
Test dust: Dolomit DRB 20
(Rock flour)

x = Particle size [μm]
y = Filtration efficiency η [%]

These values may vary depending on the nature of the dust, the composition of the gas and the cartridge design.

4. Chemical resistance/mechanical properties

Chemical resistance	Very good	Good	Limited		Mechanical properties	Very good	Good	Limited
Water	x				Surface quality (smoothness)	x		
Hydrolysis			x		Stability	x		
Acids		x			Abrasion resistance			x
Alkalis			x		Cleanability (jet pulse)	x		
Solvents		x			Washability		x	

These properties are of purely qualitative valuation and depending on the nature of the dust, the composition of the gas and the operating conditions.

5. Design

Please contact us for detailed technical information, any open questions and for general expert advice. Completion of the relevant questionnaire would facilitate in the coordination of all important parameters.

Comprehensive documentation on our product range, cleaning units and cartridges can be provided.

MAHLE Filtersysteme GmbH
Industriefiltration
Schleifbachweg 45
D-74613 Öhringen
Telefon +49 (0) 7941/67-0
Telefax +49 (0) 7941/67-23429
industriefiltration@mahle.com
www.mahle-industrialltration.com
70341999.03/2007



Nur auf ENGLISCH erhältlich



MAHLE

Industrial Filtration

Filter material

Ti 26

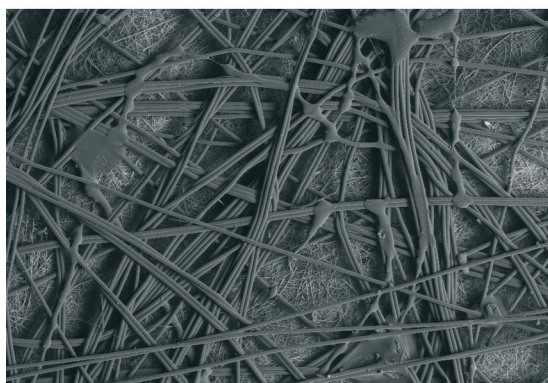
Glass fibre fleece, laminated on both sides

1. Features

The Ti 26 filter material consists of a microglass fibre fleece with spun-bonded polyester fleece laminated on one side and cellulose paper laminated on the other. It is characterised by good separation in the HEPA range. Cartridges made of this material are normally used in non-cleanable secondary filters.

Characteristics

- Very high separation efficiency
- High mechanical strength
- Compliance with the requirements of DIN EN 60335-2-69 and EN 1822-3
- FDA approval acc. to 21 CFR Ch. I § 177.1550
- Worldwide distribution

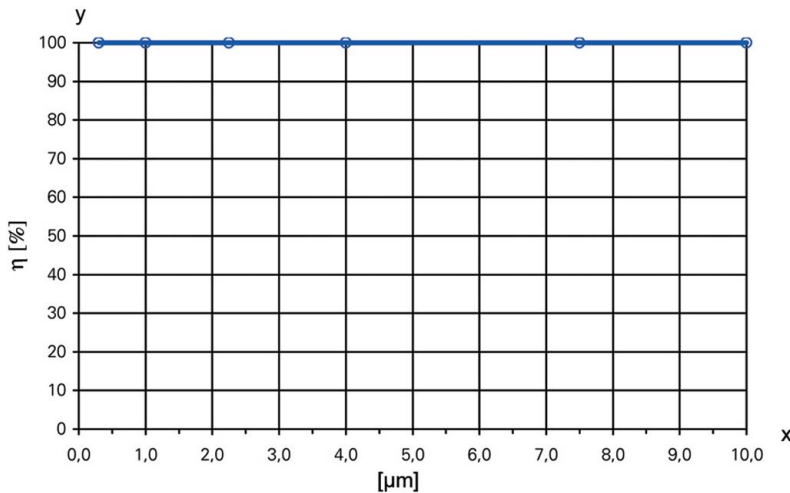


2. Technical data

Type	Material	Material thickness [mm]	Weight [g/m ²]	Air permeability [l/m ² s]	max. operating temperature [°C]	Test certificates/ dust classes
Ti 26	Glass fibre laminated with PET and cellulose	0.83	210	25 at Δp 200 Pa	90 (permanent)	DIN EN 60335-2-69 "H" EN 1822-3 "H14"

Technical data is subject to change without notice!

3. Filtration efficiency



Particle separation efficiency: 0.1 μm
(> 99,99 %)

Test conditions
 Inflow velocity: 3.36 m/h
 Mass concentration: 200 mg/m³
 Test dust: Dolomit DRB 20
 (Rock flour)

x = Particle size [μm]
 y = Filtration efficiency η [%]

These values may vary depending on the nature of the dust, the composition of the gas and the cartridge design.

4. Chemical resistance/mechanical properties

Chemical resistance	Chemical resistance				Mechanical properties	Mechanical properties		
	Very good	Good	Limited			Very good	Good	Limited
Water		x			Surface quality (smoothness)		x	
Hydrolysis			x		Stability	x		
Acids		x			Abrasion resistance		x	
Alkalis			x		Cleanability (jet pulse)			x
Solvents		x			Washability			x

These properties are of a purely qualitative valuation and depending on the nature of the dust, the composition of the gas and the operating conditions.

5. Design

Please contact us for detailed technical information, any open questions and for general expert advice. Completion of the relevant questionnaire would facilitate in the coordination of all the important parameters.

Comprehensive documentation on our product range, cleaning units and cartridges can be provided.

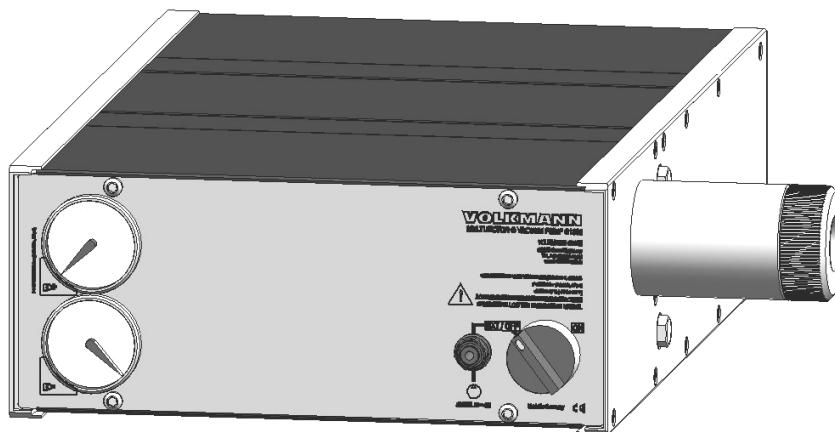
MAHLE Filtersysteme GmbH
 Industriefiltration
 Schleifbachweg 45
 D-74613 Öhringen
 Telefon +49 (0) 7941/67-0
 Telefax +49 (0) 7941/67-23429
 industriefiltration@mahle.com
 www.mahle-industriefiltration.com
 70342011.03/2007

MULTIJECTOR®-VACUUM PUMP



ORIGINAL - OPERATING MANUAL

MULTIJECTOR[®]-Vacuum pump
Type G and GL



Manufacturer: **VOLKMANN GmbH**
Vakuum-Technik
Schloitweg 17
D - 59494 Soest
Mail@volkmann.info
www.volkmann.info

Tel. + 49 (0)29 21 / 9 60 40
Fax. + 49 (0)29 21 / 9 60 49 00

Great Britain: VOLKMANN UK Limited • High Wycombe, Bucks, HP12 3LR, Great Britain •
Tel/Fax +44 (0) 1494 512228 • E-Mail: mail.uk@volkmann.eu

USA: VOLKMANN, Inc. • 3855 Sylon Blvd. • Hainesport Business Complex • Hainesport, NJ
08036(USA) • Tel. 609-265-0101 • E-Mail: usa@volkmann.info

Table of contents

1. INTRODUCTION	3
2. GENERAL DATA.....	4
3. FUNCTIONAL PRINCIPLE.....	4
4. DESIGNATED USE OF MULTIJECTOR® –VACUUM PUMPS	5
5. HEALTH- AND SECURITY ADVICES	5
6. USAGE OF MULTIJECTOR® VACUUM PUMPS IN EX-AREAS.....	6
7. CONTROLS / FRONT VIEW	7
8. STORAGE AND DISPOSAL	7
9. CONNECTION SCHEME	8
10. START-UP	9
11. MAINTENANCE.....	10
12. VACUUM HOLDING VALVE (OPTION).....	12
13. SINGLE PARTS / SPARE PARTS	12
14. COMPRESSED AIR SUPPLY / COMPRESSED AIR QUALITY.....	15
15. PNEUMATICS PLAN AND PARTS LISTS.....	16

1. Introduction

Original-Operating manual for Multijector® Vacuum pump types:

G 360, G 540, G 720, G 900, G 1260, G 1800, G 2700, G 3600, G 4500
GL 200, GL 300, GL 400, GL 500, GL 700, GL 1000, GL 1500, GL 2000, GL 2500

Please read the following instructions precisely. Keep these operating instructions carefully for later check backs.

Pictures in this Operating manual are not allying and may differ to scope of supply.

We reserve ourselves technical change without preliminary announcement.

All rights acc. to the law concerning copyright as well as the patent-, utility patent- and design patent-recordable reserved explicitly to the manufacturer.

This Operating manual is:



- Part of the equipment
- Must be read carefully before the use of the system
- To be kept with regard to references and specification
- A notification on the necessity of authorized experts

For faster orientation in these operating instructions the following indices are used:

	<p>Attention</p> <p>Risk of injuries (example: risk of crushing) Danger that can cause medium heavy to minor injuries or property damage if the adequate safety measures are not made</p>
	<p>Mind earthing!</p> <p>Danger hat can cause injuries or property damages if the adequate safety measures are not made.</p>
	<p>Advice or hint</p>

For questions or problems please contact us:

Volkmann GmbH

Schloitweg 17
59494 Soest

Tel.: 0 29 21 / 9 60 40
Fax.. 0 29 21 / 9 60 49 00
E-Mail: mail@volkmann.info
Internet: <http://www.volkmann.info>

Great Britain: VOLKMANN UK Limited • High Wycombe, Bucks, HP12 3LR, Great Britain •
Tel/Fax +44 (0) 1494 512228 • E-Mail: mail.uk@volkmann.info

USA: VOLKMANN, Inc. • 3855 Sylon Blvd. • Hainesport Business Complex • Hainesport, NJ 08036 (USA) • Tel. 609-265-0101 • E-Mail: usa@volkmann.info

Operating manual MULTIJECTOR®-Vacuum pump type G and GL

2. General Data

Vacuum:	max. 91% (-91 kPa)
Suction air flow:	max. 21.000 NI/min (type dependent)
Operating pressure:	2 to 6 bar (G-Series opt. 5,6 bar, GL-Series opt. 3,5 bar)
Operating noise:	55 to 80 dB(A)
Operating temperature:	-20 to +60 °C (-4 to + 140°F)
Materials:	Aluminium, stainless steel, NBR, PE-HD, silicon-free

Table 1: Operating data at opt. Operating pressure

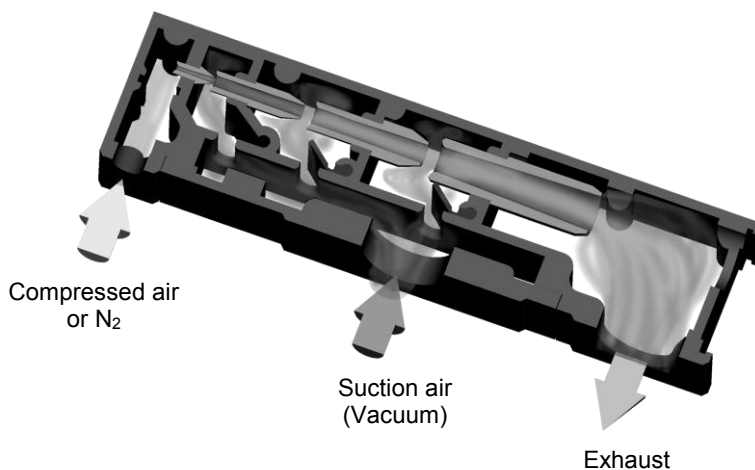
Type	Compr. air cons. [NI/min]	Suction air flow [NI/min]	Pump weight [kg]	Pump width [mm]	Compr. air connect. P+	Vacuum-connect. bolt circle
G 360	344	1.960	5,5	127	G ½"	8xM5, PCD80
G 540	516	2.744	5,6	127	G ½"	8xM5, PCD 80
G 720	688	3.250	5,7	127	G ½"	8xM5, PCD 80
G 900	860	4.063	6,2	150	G ¾"	8xM5, PCD 80
G 1260	1.204	5.688	7,3	195	G ¾"	8xM5, PCD 110
G 1800	1.720	8.125	9,0	262	G ¾"	8xM5, PCD 110
G 2700	2.580	12.188	11,7	375	G 1"	8xM5, PCD 160
G 3600	3.440	16.250	14,4	487	G 1"	8xM5, PCD 160
G 4500	4.300	20.313	17,3	600	G 1"	8xM5, PCD 160
GL 200	200	916	5,5	127	G ½"	8xM5, PCD 80
GL 300	300	1.373	5,6	127	G ½"	8xM5, PCD 80
GL 400	400	1.831	5,7	127	G ½"	8xM5, PCD 80
GL 500	500	2.288	6,2	150	G ¾"	8xM5, PCD 80
GL 700	700	3.203	7,3	195	G ¾"	8xM5, PCD 110
GL 1000	1.000	4.576	9,0	262	G ¾"	8xM5, PCD 110
GL 1500	1.500	6.864	11,7	375	G 1"	8xM5, PCD 160
GL 2000	2.000	9.152	14,4	487	G 1"	8xM5, PCD 160
GL 2500	2.500	11.440	17,3	600	G 1"	8xM5, PCD 160

Further data to the connection of the MULTIJECTOR®-Vacuum pumps see chapter 9 Connection scheme.

3. Functional principle

VOLKMANN MULTIJECTOR® Vacuum Pumps work according to the multiple stage ejector system which ensures a particularly high energy exploitation of the compressed air.

(Principle figure: MULTIJECTOR®-Vacuum pump type M cutaway view)



4. Designated use of MULTIJECTOR® –Vacuum pumps

Operating medium: Compressed air and natural gases

Forbidden propellant gas: Oxygen and flammable gases

Function: Evacuation and suction of gases

All other application possibilities require a written clearing up with company:

VOLKMANN GmbH

Schloitweg 17

D – 59494 Soest

Tel. (02921) 96040

Fax (02921) 9604900

mail@volkmann.info

5. Health- and security advices



- Maximum operating pressure 6 bar (0.6 Mpa, 87 psi)
- Damage of Vacuum pump possible by pressure (> 6bar)
- When contaminated air (dangerous dusts, oil mists, steams, aerosols etc.) is sucked in contrary to designated use of MULTIJECTOR® Vacuum Pumps there is **DANGER OF POISONING** because of contaminated exhaust air!
- Use suitable and **authorized filters** at suction port for keeping the mandatory air values (e.g. MAK-values).
- Exhaust air partially comes out of the exhaust air connection with high velocity **DANGER OF INJURIES!** Wear protective goggles. Do not step into the air stream.
- Never close exhaust air connection during operation. Danger of casing damages and malfunction by pressure.
- **Remove compressed air supply and remote control lines before maintenance!**
- Do not loosen any screw connections of the casing during operation.
Pump parts are pressurized!
- Damaged units have to be shut down by operator and to be checked properly, **DANGER OF INJURIES** as well as further dangers can not be excluded.

Attention safety note:

Check and secure hose connections.



**High vacuum at the suction ports –
Danger to life**

Attention: Do not aim suction ports towards orifices (mouth, ears, nose etc.) when vacuum source is activated! Keep away suction port from body!

6. Usage of MULTIJECTOR® Vacuum pumps in EX-areas

General:

MULTIJECTOR® Vacuum pumps series G and GL

- do not have an own potential ignition source
- do not fall in the scope of the ATEX-directive
- a type approval certificate is not necessary

Operation with pure and neutral gases, e.g. with particle-free and dry compressed air and suction air is allowed under certain conditions (e.g. exhaust air lead-away), electrostatic charges do not appear here.

Pure Oxygen is not allowed to be used as propellant!

Accessories and attaching parts that do not belong to the scope of delivery have to be checked separately.



ATTENTION: Sucked-in media can be blown out at the exhaust air port, a suitable vacuum filter has to be used and the exhaust air has to be treated if necessary. Consider possible filter breakdown.

Admissible EX-Zones:

- a) Installation-, mounting- and surrounding place of the MULTIJECTOR® Vacuum pumps
- b) Suction side connection
- c) special conditions for usage of the MULTIJECTOR® Vacuum pumps

a) Installation-, mounting- & surrounding place of the MULTIJECTOR® Vacuum pumps:

The following applies to all MULTIJECTOR® Vacuum pumps series G and GL:

- Installation / mounting possible in EX-ZONES 1, 2, 21, 22
- The pumps have to be grounded safely
- Conductive flaps or the observance of the surface restriction acc. to TRBS 2153 in Ex-groups has to be ensured (see table 2).

b) Suction side connection:

With observance of the conditions described under item a) all EX-Zones (0, 1, 2, 20, 21, 22) and hybrid mixtures are permitted for the suction side.

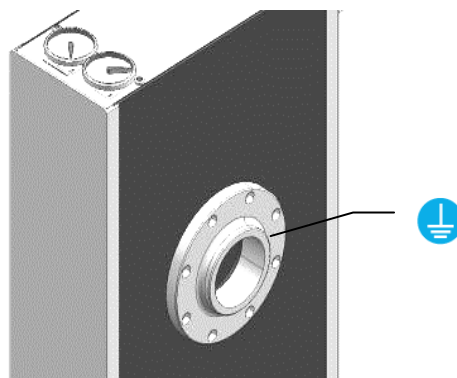
Table 2: Maximum permitted surfaces of isolating objects

Zone	Max. permitted surface [cm ²] in Explosion groups		
	IIA	IIB	IIC
0	50	25	4
1	100	100	20
2	Measures only necessary when ignitable discharges can occur from experience.		

Maximum permitted surfaces of isolating objects; source: TRBS 2153 page 13, table 1a



The MULTIJECTOR® Vacuum pump has to be grounded professionally, e.g. by the fixing screws at the flange (suction port).



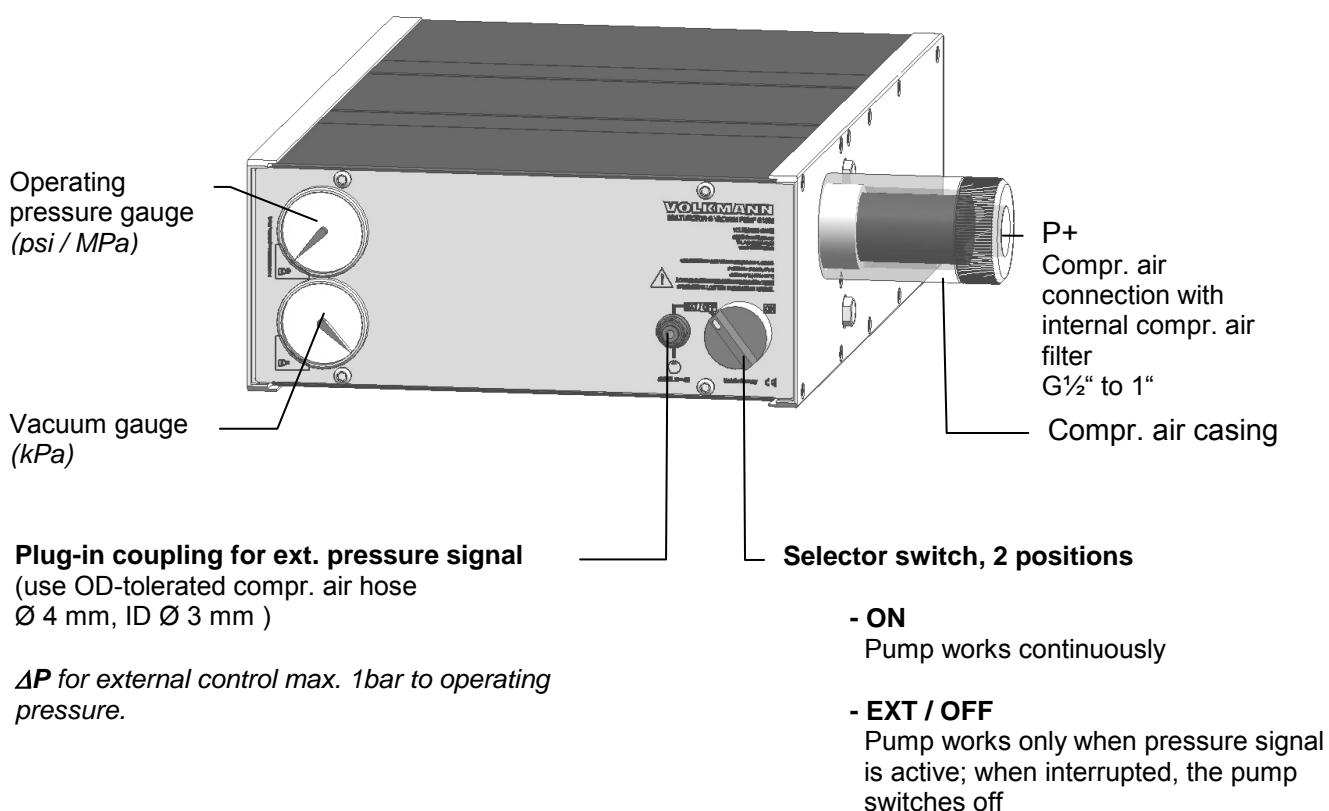
c) Special conditions for usage of the MULTIJECTOR® Vacuum pumps

- Operating temperatures: -20°C to +60°C
- Casing materials: Aluminium anodized (< 1 % Mg)
- Flap valve materials optional: NBR, Viton, EPDM
- Sucked-in dusts / particles with a minimum ignition energy (MIE) <1 mJ have to be considered the same way as sucked-in flammable gases.
- In all cases the potential ignition danger comes from the product (sucked medium), the operator has to check if an additional ignition danger could come from the product or from the surrounding of the operation site.

7. Controls / Front view

The internal compressed air valve makes it possible to start the MULTIJECTOR® Vacuum pump by the selector switch (ON – EXT - / OFF) as well as by an external pneumatical control signal (connection EXT).

Depiction of a MULTIJECTOR® Vacuum pump series G 1800

**8. Storage and disposal**

Store the MULTIJECTOR® Vacuum pump dry, frost-protected and vibration-free. Cover all ports with caps before longer shutdown.

Disposal of the MULTIJECTOR® Vacuum pump has to take place professionally and environmentally suitable according to the country-specific disposal directions, sorted by the separate material characteristics. Contaminated parts have to be disposed separately (consider MSDS (material safety data sheet of product)).

9. Connection scheme

1. Compressed air connection:

Connection thread see *Table 1: Operating data at opt. Operating pressure* Page 4
 Benchmarks for the size of the supply lines can be found in chapter 14.

Table 3: Min. width of compr. air supply line for up to 2 m line length

Compr. air consumption		Nominal width compr. air supply line [mm]
from [NI/min]	to [NI/min]	
90	500	9
500	1260	13
1260	2700	19
2700	4500	25

2. Vacuum connection P-

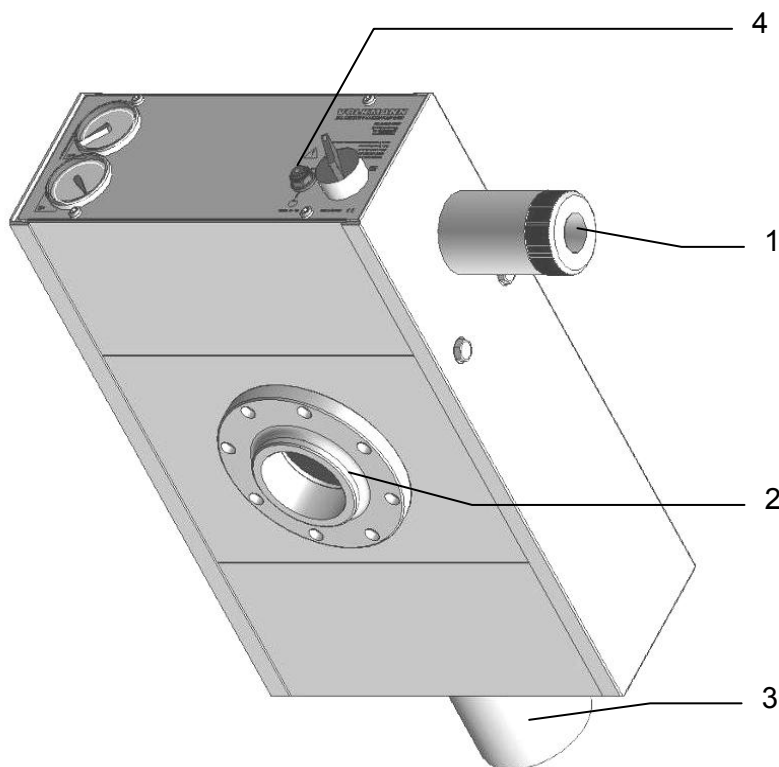
Flange measures see *Table 1: Operating data at opt. Operating pressure* Page 4
 A vacuum filter has to be used if necessary.

3. Exhaust air escape A (optional exhaust air adaptor)

G360-2700 ; GL200-1500 → 1x Ø 75
 G3600-4500; GL2000-2500 → 2x Ø 75

4. Remote control connection by plug-in coupling for external controls

Use OD-tolerated compressed air hose Ø 4 mm, ID Ø 3 mm

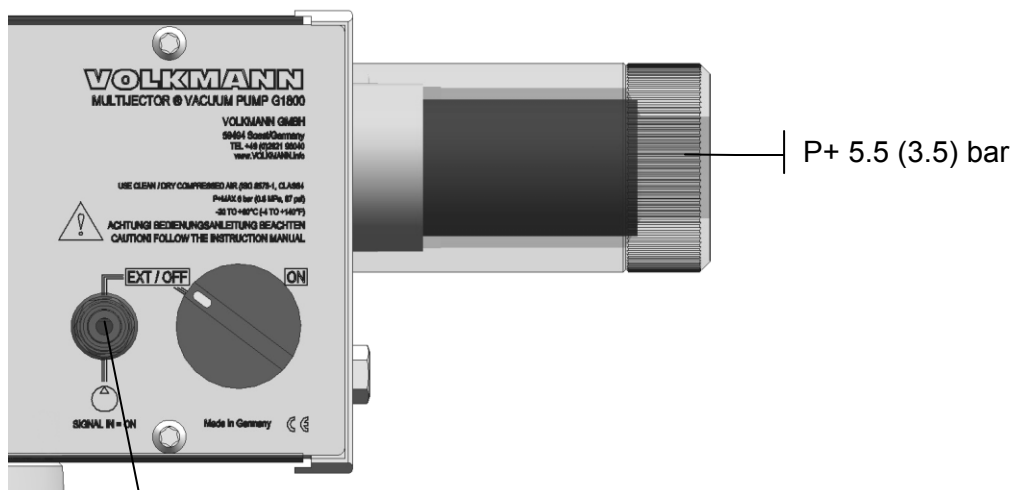


10. Start-up

To ensure full performance of the MULTIJECTOR® Vacuum pump, please pay attention to the following:

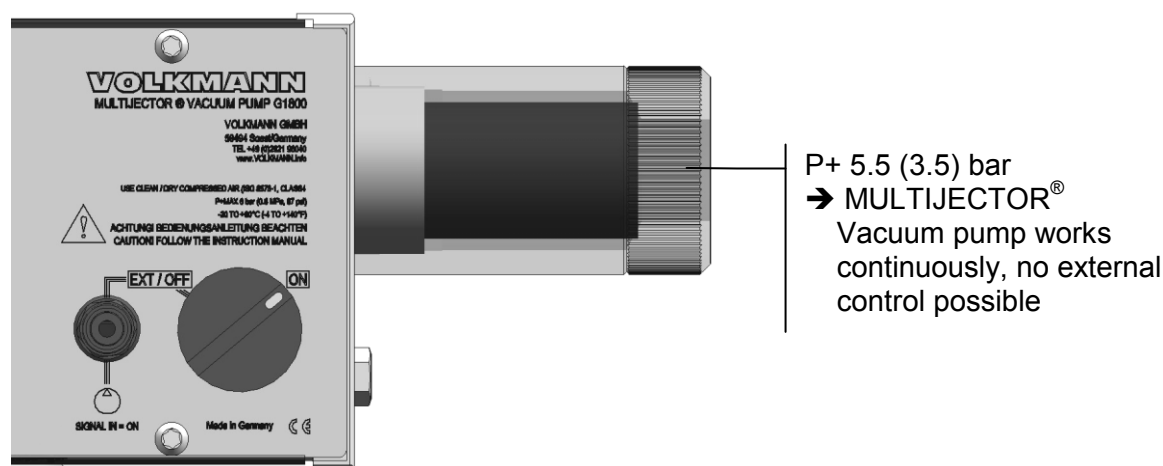
- The optimum operating pressure has to be applied to the compressed air connection (see chapter 9)
- The connected compressed air has to comply with the requirements acc. to chapter 14
- Protect MULTIJECTOR® Vacuum pumps from contamination by sucked-in materials by using suitable vacuum filters permitted for the application.
- The exhaust air has to be able to escape unhindered and without width reduction from the silencer / exhaust air adaptor (optional)
- Connect exhaust air adaptor **gastight** to existing exhaust air system
- Check **chemical resistance and compatibility** when aggressive materials are sucked
- The installation position of the MULTIJECTOR® -Vacuum pump is possible in any order
- Mechanical forces to the MULTIJECTOR® Vacuum pump have to be avoided

Switch position „EXT / OFF“



- External control by constant pneumatical signal
 → MULTIJECTOR® Vacuum pump starts
 No external control by constant pneumatical signal
 → MULTIJECTOR® Vacuum pump stops

Switch position „ON“



- P+ 5.5 (3.5) bar
 → MULTIJECTOR® Vacuum pump works continuously, no external control possible

11. Maintenance

During maintenance of the MULTIJECTOR® Vacuum pumps measures for protection of staff and environment can be necessary depending on the sucked material.

MULTIJECTOR® Vacuum pumps do not contain movable parts (except the integrated compressed air valve) and are nearly maintenance-free.

Recommendation:

- Check operating pressure and, if existing, vacuum filter daily
 - o Clean vacuum filter immediately when contaminated
- Maintenance of MULTIJECTOR® Vacuum pumps every 3 to 6 months (depending on the operating conditions)

If the suction performance should decrease earlier, check as follows:

1. Check compressed air supply:

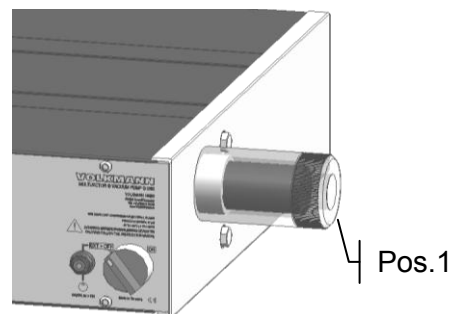
- Any hoses bent, leaky, defective?
- Customer-provided compressed air filter / regulator blocked, defective?
- Necessary operating pressure of 5.6 bar (G) / 3.5 bar (GL) available?
- Internal compressed air filter clean?

For doing this, unscrew compressed air casing (Pos.1) and pull out internal filter. When re-assembling push in filter to crank and screw on casing.

Take care for correct position of filter.

The open side is directed towards the pump.

The o-ring has also to be checked for damages and has to be replaced if necessary.



2. Check max. Vacuum:

- For doing this, dismount the MULTIJECTOR® Vacuum pump
- Close suction connection by using blind plug or similar
- Adjust operating pressure exactly to 5.6 / 3.5 bar.
- At this operating pressure a maximum vacuum of 90% (at 1,013 hPa surrounding pressure) should be reached.

Case I: Vacuum is reached

- Performance drop by leakages in existing system under observance of the conditions stated in chapter 9"Connection scheme"
 - ➔ Check filter as well as all screwed connections and hoses for leakages

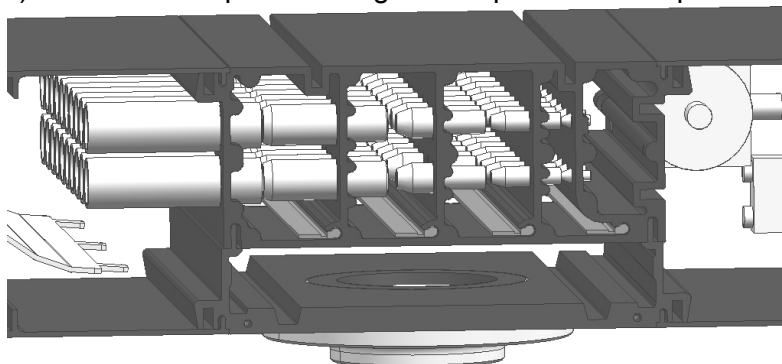
Case II: Vacuum is not reached ➔ maintenance of pump

- Vacuum is significantly below 90% (80-85%), at 1013 hPa surrounding pressure, during operation
 - ➔ Inspection and, if necessary, maintenance of the MULTIJECTOR® Vacuum pump by the user acc. to the following steps:

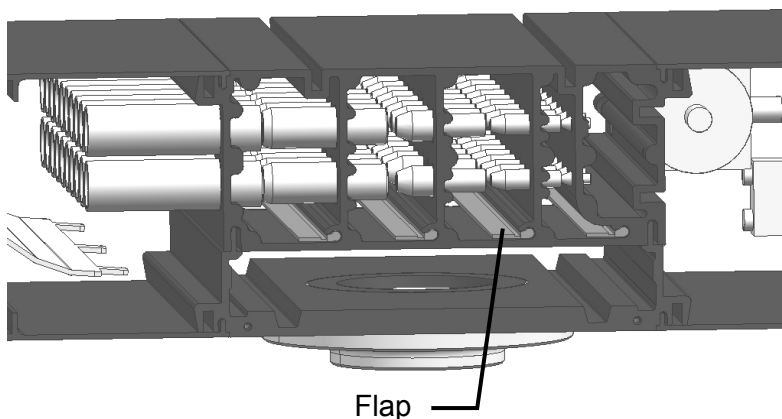
Note: Maintenance of vacuum pumps with exhaust air adaptor is only possible by Volkmann

Operating manual MULTIJECTOR®-Vacuum pump type G and GL

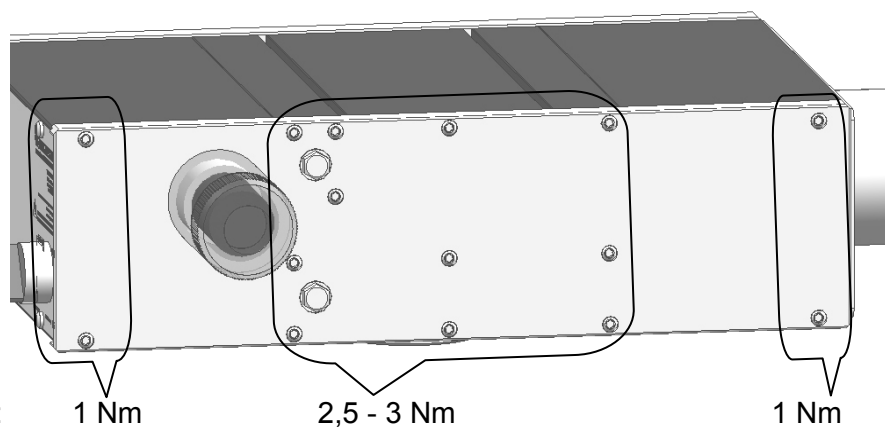
- 2.1. Disassemble MULTIJECTOR® Vacuum pump and unscrew one side plate (Torx T 20). Remove side plate sealing and inspect internal space.



- 2.2. Remove dirt by using a brush or by blowing out to the side. If stronger contamination, also inside the nozzles, is visible, send MULTIJECTOR® Vacuum pump to Volkmann for cleaning. Never use hard, scratching parts for cleaning the nozzles.
- 2.3. Check pneumatic hoses behind front plate for leakages and for bent hoses, replace if necessary.
- 2.4. Before re-assembly check the internal rubber flaps and the side plate sealing for correct seat and damages and replace if necessary.



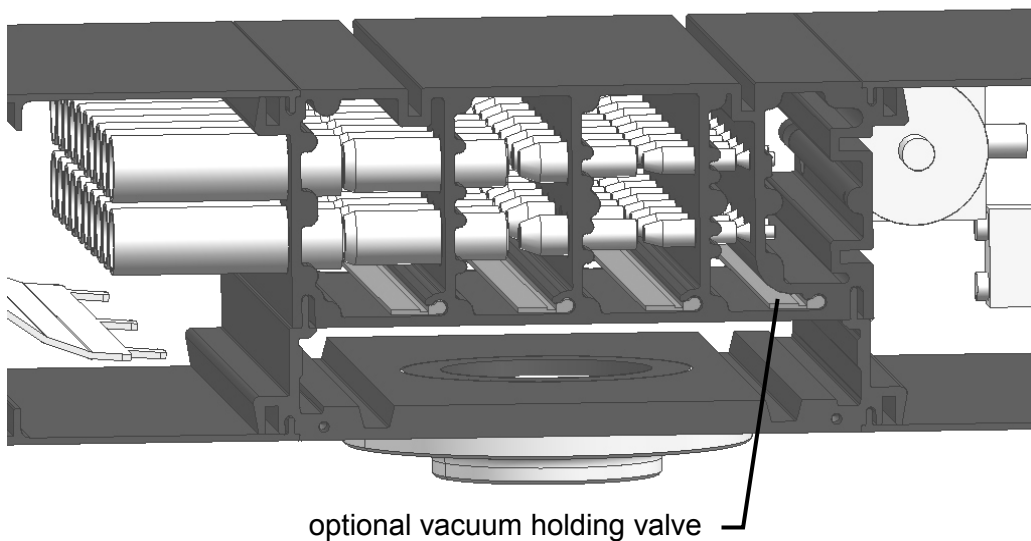
- 2.5. During re-assembly of side plate the correct position has to be ensured.
- 2.6. Fasten side plate screws with the below mentioned fastening torque:



If the pump should not reach the max. vacuum of 90% after this procedure please contact your retailer or supplier directly.

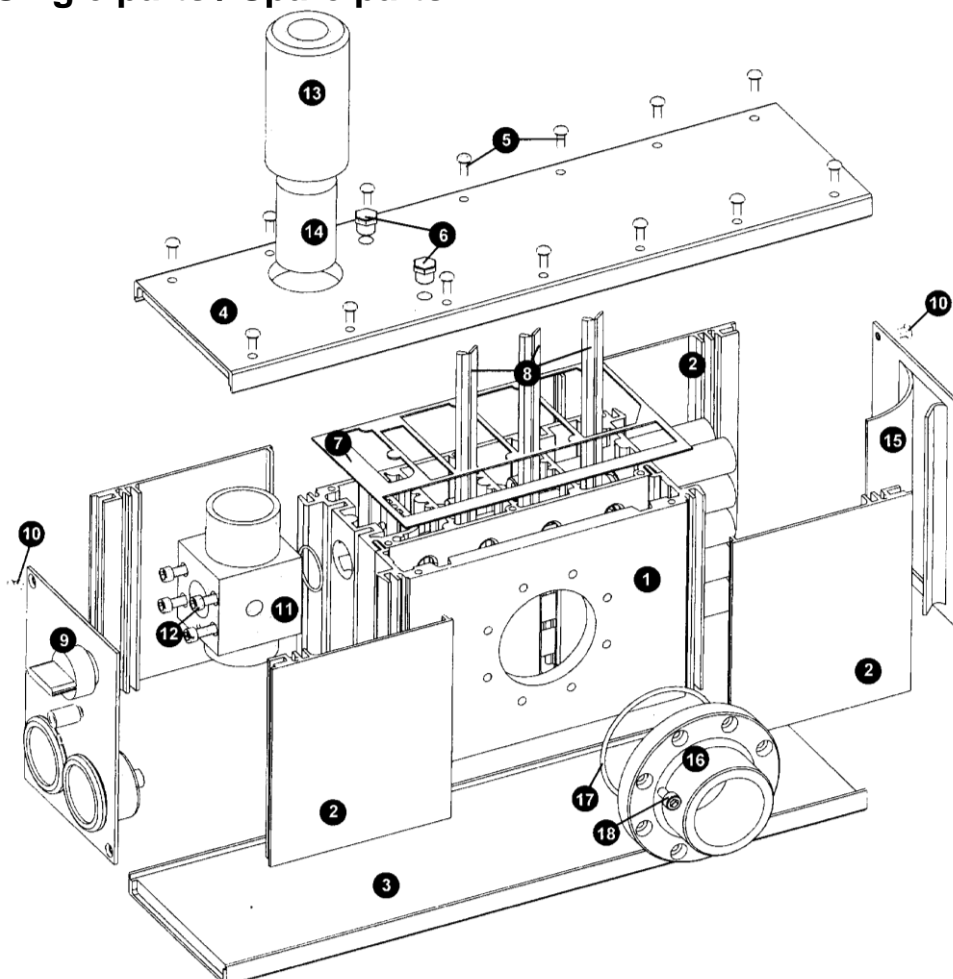
12. Vacuum holding valve (option)

If your MULTIJECTOR® Vacuum pump is equipped with the optional vacuum holding valve, the pump blocks the vacuum connection after switching off..



Venting through the MULTIJECTOR® Vacuum pump to the space evacuated before can not take place.

13. Single parts / Spare parts



Operating manual MULTIJECTOR®-Vacuum pump type G and GL

Table 4: Single parts / Spare parts

Pos	ID-No.	Designation	Materials	G360	G540	G720	G900	G1260	G1800	G2700	G3600	G4500	GL200	GL300	GL400	GL500	GL700	GL1000	GL1500	GL2000	GL2500	
1	112490	Pump body G360	Al, PUR	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	112498	Pump body G540	Al, PUR	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	112491	Pump body G720	Al, PUR	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	112492	Pump body G900	Al, PUR	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	112493	Pump body G1260	Al, PUR	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	112494	Pump body G1800	Al, PUR	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	112495	Pump body G2700	Al, PUR	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	112496	Pump body G3600	Al, PUR	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	112497	Pump body G4500	Al, PUR	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	112500	Pump body GL200	Al, PUR	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	112508	Pump body GL300	Al, PUR	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	112501	Pump body GL400	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	112502	Pump body GL500	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	112503	Pump body GL700	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	112504	Pump body GL1000	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
112505	Pump body GL1500	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	
112506	Pump body GL2000	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	
112507	Pump body GL2500	Al, PUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
2	112460	Covering G4-8	Al	4	4	4	-	-	-	-	-	-	4	4	4	-	-	-	-	-	-	-
	112461	Covering G10	Al	-	-	-	4	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
	112462	Covering G14	Al	-	-	-	-	4	-	-	-	-	-	-	-	-	4	-	-	-	-	-
	112463	Covering G20	Al	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4	-	-	-	-
	112464	Covering G30	Al	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4	-	-	-
	112465	Covering G40	Al	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4	-	-
	112466	Covering G50	Al	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4	-
3	112456	Side plate G	Al	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	112457	Side plate G with compr. air connect.	Al	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	DIN7965	Screw M4*16 Torx T20 AZ	St. Steel	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
6	111142	Blind-plug G 1/8" with O-Ring NBR	Brass nickel	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
7	112427	Side plate sealing G (NBR)	Nitril	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	112428	Side plate sealing G (Viton)	Viton	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
8	112410	Flap valve G4-8 (NBR)	Nitril	3	3	3	-	-	-	-	-	-	3	3	3	-	-	-	-	-	-	-
	112412	Flap valve G10 (NBR)	Nitril	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
	112414	Flap valve G14 (NBR)	Nitril	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-	-
	112416	Flap valve G20 (NBR)	Nitril	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-
	112418	Flap valve G30 (NBR)	Nitril	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-
	112420	Flap valve G40 (NBR)	Nitril	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-
	112422	Flap valve G50 (NBR)	Nitril	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-
	112411	Flap valve G4-8 (Viton)	Viton	(3)	(3)	(3)	-	-	-	-	-	-	(3)	(3)	(3)	-	-	-	-	-	-	-
	112413	Flap valve G10 (Viton)	Viton	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	-	-	-	-	-
	112415	Flap valve G14 (Viton)	Viton	-	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	-	-	-	-
	112417	Flap valve G20 (Viton)	Viton	-	-	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	-	-	-
	112419	Flap valve G30 (Viton)	Viton	-	-	-	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	-	-
	112421	Flap valve G40 (Viton)	Viton	-	-	-	-	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	-
112423	Flap valve G50 (Viton)	Viton	-	-	-	-	-	-	-	-	(3)	-	-	-	-	-	-	-	-	(3)	-	
9		Front plate + pneumatic components	St. Steel / various	see special list																		
10	103000	Screw M4*8 Torx T20 A2	St. Steel	8	8	8	8	10	10	16	16	16	8	8	8	8	10	10	16	16	16	
11	112397	Compressed air valve G, complete	Al, Nitril, Ms. vern.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		Spare-parts compr. Air valve G		see special list																		
12	DIN912	Screw M4*55 VZ	Aned steel	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
13	112402	Compr. air connection case G 1/2"	Al	1	1	1	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	
	112403	Compr. air connection case G 3/4"	Al	-	-	-	1	1	1	-	-	-	-	-	-	-	1	1	1	-	-	
	112404	Compr. air connection case G 1"	Al	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	1	1	
14	112405	Compressed air filter G	PEHD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	112469	Silencer insert G4-8	Stainless steel	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	
	112470	Silencer insert G10	Stainless steel	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
	112471	Silencer insert G14	Stainless steel	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	
	112472	Silencer insert G20	Stainless steel	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	
	112473	Silencer insert G30	Stainless steel	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	
	112474	Silencer insert G40	Stainless steel	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	
	112475	Silencer insert G50	Stainless steel	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	
	112513	Silencer fabric G4-8	PUR	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	
	112514	Silencer fabric G10	PUR	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
	112515	Silencer fabric G14	PUR	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	
	112516	Silencer fabric G20	PUR	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	
	112517	Silencer fabric G30	PUR	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	
	112518	Silencer fabric G40	PUR	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	
	112519	Silencer fabric G50	PUR	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	

Operating manual MULTIJECTOR®-Vacuum pump type G and GL

Pos	ID-No.	Designation	Materials	G360	G540	G720	G900	G1260	G1800	G2700	G3600	G4500	GL200	GL300	GL400	GL500	GL700	GL1000	GL1500	GL2000	GL2500
15	112478	Exhaust air adapter G4-8	Stainless Steel	(1)	(1)	(1)	-	-	-	-	-	-	(1)	(1)	(1)	-	-	-	-	-	-
	112479	Exhaust air adapter G10	Stainless Steel	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)	-	-	-	-	-
	112480	Exhaust air adapter G14	Stainless Steel	-	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)	-	-	-	-
	112481	Exhaust air adapter G20	Stainless Steel	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)	-	-	-
	112482	Exhaust air adapter G30	Stainless Steel	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)	-	-
	112483	Exhaust air adapter G40	Stainless Steel	-	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)	-
	112484	Exhaust air adapter G50	Stainless Steel	-	-	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	(1)
16	111173	Vacuum flange LK 80 R 1 1/2"	Al	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-
	111174	Vacuum flange LK 110 R 2"	Al	-	-	-	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-
	111175	Vacuum flange LK 160 R 2 1/2"	Al	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	1	1	1
17	111168	O-Ring 67*3 (NBR)	Nitril	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-
	111169	O-Ring 94*3 (NBR)	Nitril	-	-	-	1	1	1	-	-	-	-	-	-	1	1	1	-	-	-
	111170	O-Ring 145*3 (NBR)	Nitril	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	1	1
	111163	O-Ring 67*3 (Viton)	Viton	(1)	(1)	(1)	-	-	-	-	-	-	(1)	(1)	(1)	-	-	-	-	-	-
	111164	O-Ring 94*3 (Viton)	Viton	-	-	-	(1)	(1)	(1)	-	-	-	-	-	-	(1)	(1)	(1)	-	-	-
	111165	O-Ring 145*3 (Viton)	Viton	-	-	-	-	-	-	(1)	(1)	(1)	-	-	-	-	-	-	(1)	(1)	(1)
18	DIN912	Screw M5*15 A2	Stainless Steel	8	8	8	8	8	8	-	-	-	8	8	8	8	8	8	-	-	-
	DIN912	Screw M6*15 A2	Stainless Steel	-	-	-	-	-	-	8	8	8	-	-	-	-	-	-	-	8	8
19	111121	Vacuum gage G1/8"-M5	various	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	111122	Pressure gage G1/8"-M5	various	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

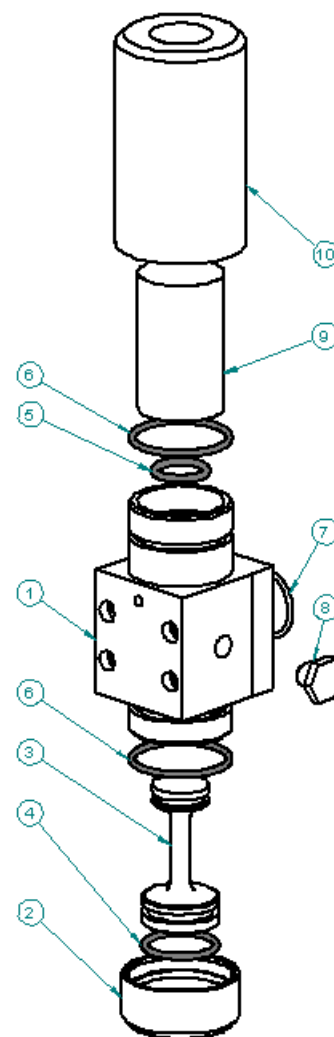
Article data sheet: Compressed air valve G ID Nr.: 112 397 (Pos 11)**Mounting instructions:**

- Attention! Don't damage O-ring seals
- Lubricate O-ring channels (advice: use silicon free lubricant)
- Attach O-ring seal (4) to piston (3)
- Insert piston into lubricated housing (1)
- Attach O-ring (5) to piston from opposite side
- Move piston several times by hand
- Attach both O-ring seals (6) to housing
- Mount cap (2)
- Insert filter cap (9) into housing with opening to the piston
- Screw on compressed air case (10)
- Insert blind-plug (8)

Lubricant: Molycote Longterm 2 plus

Table 5: Single parts Compressed air valve G

POS	ID	Designation	Material	Quantity
1	112 398	Compressed air valve G, housing	Al anodized	1
2	112 400	Compressed air valve G, cap	Al anodized	1
3	112 399	Compressed air valve G, piston	Al anodized	1
4	112 406	O – Ring 25,07 x 2,62 nitril 78	nitril	1
5	112 407	O – Ring 17 x 3 nitril	Nitril	1
6	112 408	O – Ring 35 x 2,5 nitril	Nitril	2
7	112 409	O – Ring 24 x 2 nitril	Nitril	1
8	111 142	Blind-plug G 1/8" with O-Ring nitril	nitril	1
9	112 405	Filter cap G	HDPE	1
10	112 402	Compressed air case G 1/2"	Al anodized	1
10	112 403	Compressed air case G 3/4"	Al anodized	optional
10	112 404	Compressed air case G 1"	Al anodized	optional



14. Compressed air supply / Compressed air quality

Table 6: Compressed air supply

		Cross section of compressed air hose (mm)														
		2,7	3	4	6	9	10	12,5	19	25	32	38	50	75	100	150
taking out of compressed air Q in NI/min	10	100	100													
	25	10	50	100						Read table value = max. length in m						
	50	5	10	35	100											
	75	1	5	10	30											
	100		1	5	15	100	200	600	1800	>2000						
	250			1	5	30	50	150	1000	>2000						
	500				2	10	15	50	350	1200	>2000					
	750				1	5	10	25	200	700	1500					
	1000					2,5	5	15	90	400	1200	>2000				
	1500					1,3	2,5	5	40	150	800	>2000				
	2000					1	2	4	25	120	400	1000	>2000			
	2500						1	2,5	15	65	300	800	>2000			
	3000							1,5	7	50	150	350	1200	>2000		
	5000							1	3,5	20	60	150	600	>2000		
	6000								2	10	55	80	400	>2000		
	8000								1,5	7	35	60	250	1800	>2000	
	10000								1	5	18	50	150	1200	>2000	
	15000									2,5	6	20	75	650	1600	>2000
	20000									1,5	4	10	45	400	1200	>2000
	25000									1	3	7	35	200	1000	>2000
30000										1,5	5	25	120	800	>2000	
40000											3	15	85	600	>2000	
50000											2	10	50	450	>2000	
100000												2	15	80	600	

The table shows the dependence between \varnothing , length and taking out of compressed air in a hose of 6 bar compressed air. The read table value show you the max. length of the hose with 6 bar compressed air dependence of taking out the compressed air and cross section of the hose.

Example: If the bleeding of the compressed air (Q) is 2000 NI/min the cross section of the compressed air hose can be:

1. \varnothing 10 mm by 2m length of the hose
2. \varnothing 12,5 mm by 4m length of the hose



Note:

Only the right compressed air hose guarantees an optimal operation.

To operate the VOLKMANN MULTIJECTOR-Vacuum pump a compressed air network according today's state (ISO 8573-1) is necessary.

We presuppose oil-free, remainder-oil-free (oil of compressor max. 0,1mg/ m³ for „HEES-liquids * , Bio oil“ and max. 5mg/ m³ for „Mineral oil“ permitted) and according to dried compressed air (ISO 8573-1, class 4 with 3°).

Recommendation:

The dew point of pressure should be at least 10°C under the ambient temperature.

*) HEES liquids = greasing liquids on basis of synthetic esters.

Operating manual MULTIJECTOR®-Vacuum pump type G and GL

Table 7: Compr. air quality acc. to ISO 8573 classes

ISO 8573 Classes					
Class	Remainder oil rate mg/m ³	Remainder dust µm (mg/m ³)	Dew point of pressure °C	Residual water g/m ³	Suitability for Volkman-Pneumatic
1	0,01	0,1 (0,1)	-70	0,0003	Permissible zone
2	0,1	1 (1)	-40	0,12	
3	1	5 (5)	-20	0,88	
4	5	15 (8)	+3	6	
5	25	40 (10)	+7	7,8	not suitable
6	Not defined	Not defined	+10	9,4	

If necessary, sterile filters can be used additionally in order to handle pharmaceuticals, food etc.

15. Pneumatics plan and parts lists

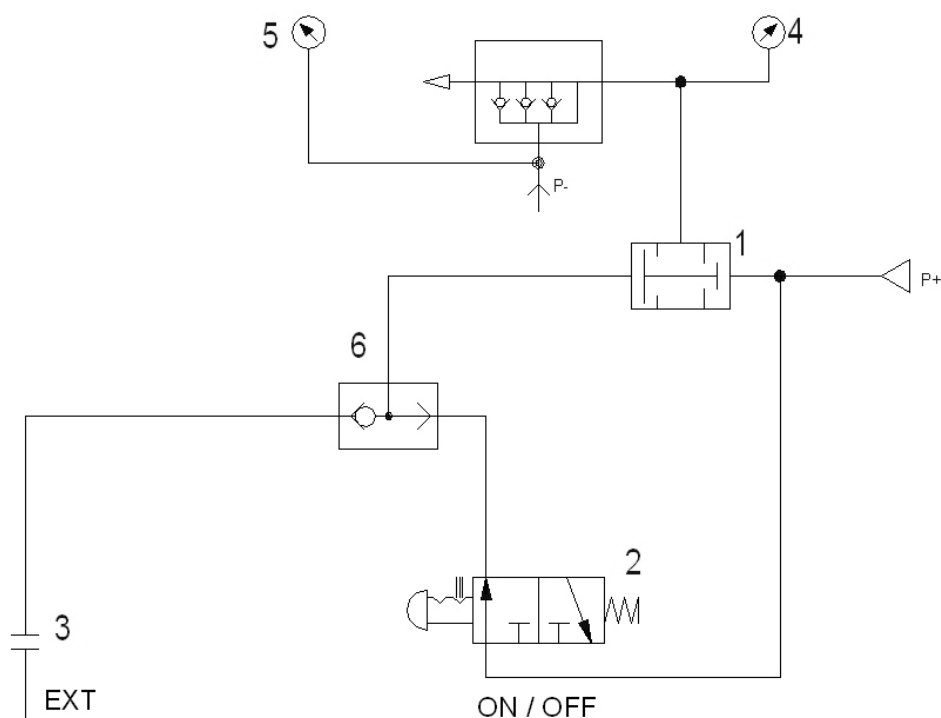


Table 8: Parts list pneumatic

POS	QTY	Description	ID-no.
1	1	Compressed air valve G cpl.	112397
2	1	Switch G 2 Pos. cpl.	105139
3	1	Plug-in connection QS 4 bulkhead	106099
4	1	Pressure gauge G40 0-1MPa G1/8"-M5	111122
5	1	Vacuum gauge G40 0.. -100kPa G1/8"-M5	111121
6	1	Or-gate Q4	103978

PNEUTIMER PT3E-S

Operating manual

Pneutimer PT3E-S - Special

Manufacturer: VOLKMANN GmbH
Vakuum-Technik
Schloitweg 17
D-59494 Soest

Tel. ++49 (0) 29 21 / 9 60 40
Fax. ++49 (0) 29 21 / 9 60 49 00

E-mail: mail@volkmann.info

Great Britain: VOLKMANN UK Limited • High Wycombe, Bucks, HP12 3LR, Great Britain •
Tel/Fax +44 (0) 1494 512228 • E-Mail: mail.uk@volkmann.eu

USA: VOLKMANN, Inc. • 3855 Sylon Blvd. • Hainesport Business Complex • Hainesport, NJ 08036 (USA) •
Tel. 609-265-0101 • E-Mail: usa@volkmann.info

Table of contents

1	Product specification	3
2	Safety and danger notes	3
3	Compressed air quality	3
4	Operating elements	4
5	Operating elements/Parts list	5
6	Connections	6
7	Control sequence	6
8	Installation.....	7
9	Time adjustment	8
10	Maintenance and cleaning	10
11	Disposal.....	10

Please read the following information carefully. Keep this operating manual carefully for later check-backs.

This operating manual is integrating part of the equipment and has always to be available for the operating and maintenance personnel. The operator, the foreman and the maintenance personnel have to know the content of this manual. The descriptions and figures contained in this publication are not binding.

With keeping the main characteristics of the described machines the manufacturer reserves the right for attaching eventual changes to organs, details and accessories considered to be necessary with regards to product improvement or because of constructional or commercial needs at any time and without timely revision of this publication.

1 Product specification

The Pneutimer PT3E-S is designed for fully automatical cycle time control of the Volkmann vacuum conveying systems.

Measures: 300 x 200 x 120 mm

Weight: ca. 5.5 kg

Necessary operating pressure: 3 - 6 bar



If the Pneutimer PT3E-S is operated with an operating pressure higher than 6 bar the correct function is disturbed.

2 Safety and danger notes

Improper handling leads to malfunctions.

Ensure that the following specifications are always observed:

Pneumatic lines can be pressurized. Pressure may not be too high.

Do not interchange compressed air connections as this may cause uncontrolled movements.

Do not loosen any plug-in connections during operation.

Danger of injury by escaping compressed air.

Before return of compressed air after pressure breakdown urgently switch off Timer!

The relevant directions, especially DIN 24558 Pneumatische Anlagen, have to be observed.

Incorrectly mounted compressed air lines can carry out uncontrollable movements and therefore cause material damage and physical injuries.

Never close exhaust.

3 Compressed air quality

For operation of the VOLKMANN control a state of the art compressed air network (ISO 8573-1) is necessary. We require unoiled, residual oil-free (residual oil from compressors max. 0.1 mg/m³ for "HEES-Liquids*", Bio oils" or max. 5 mg/m³ for "Mineral oil" allowed) and correspondingly dried compressed air (ISO 8573-1, class 4 with 3° pressure dew point*¹).

Recommendation: The pressure dew point should be min. 10°C below ambient temperature.

ISO 8573 Classes					
Class	Residual oil content mg/m ³	Residual dust µm (mg/m ³)	Pressure dew Point °C	Residual water g/m ³	Suitability fo Volkmann Pneumatic
1	0,01	0,1 (0,1)	-70	0,0003	Suitable Area
2	0,1	1 (1)	-40	0,12	
3	1	5 (5)	-20	0,88	
4	5	15 (8)	+3	6	
5	25	40 (10)	+7	7,8	Not suitable
6	Not defined	Not defined	+10	9,4	

*) HEES-Liquids = Lubricant liquids basing on synthetic esters

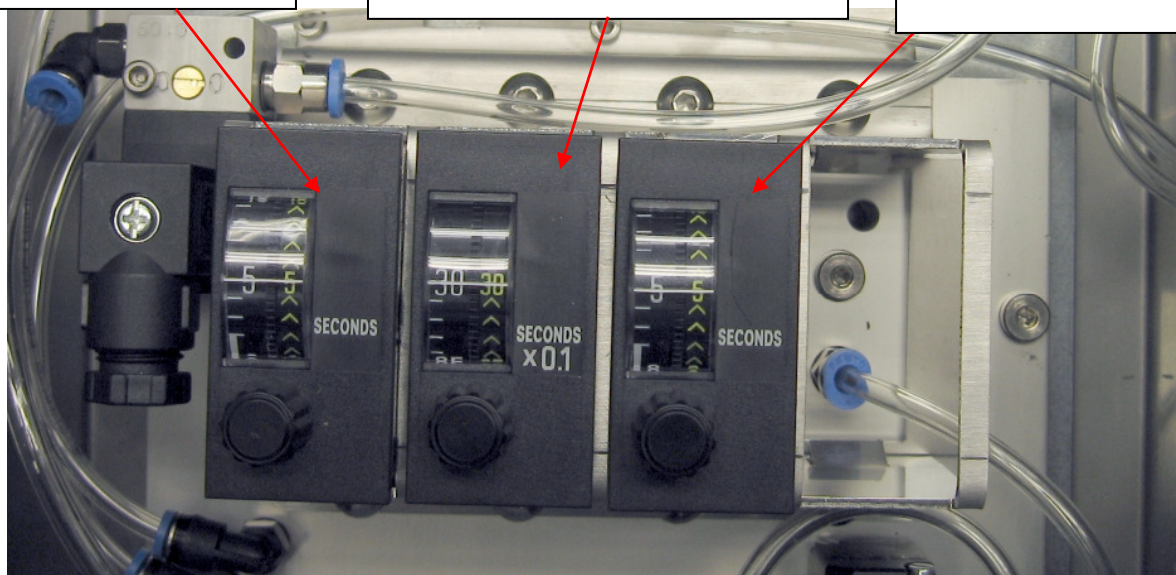
*) For controls with Festo-Quickstepper compressed air acc. to ISO 8573-1, class 3, is necessary.

4 Operating elements

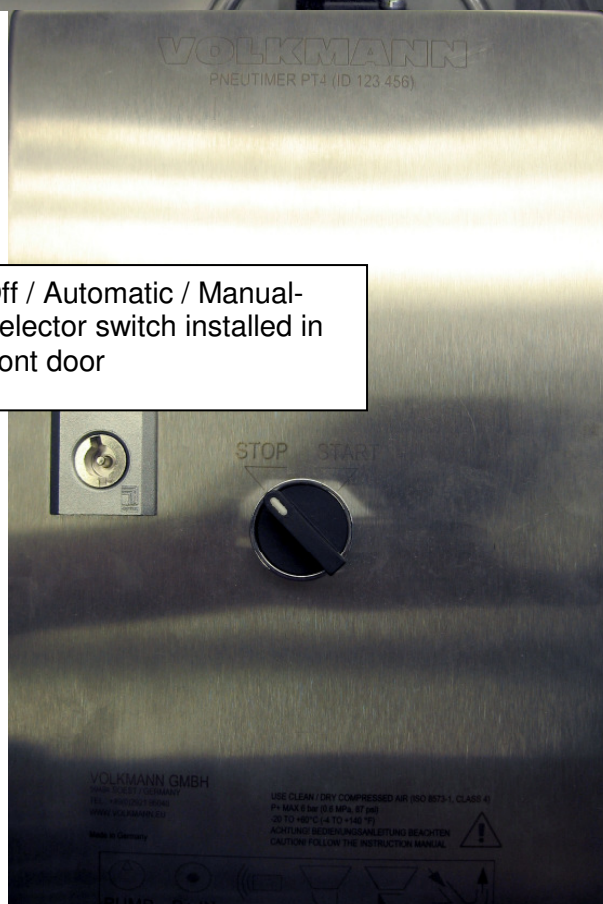
Suction-timepiece
Adjustment of suction
time

Switch on delay-timepiece
Switch on delay of vacuum pump

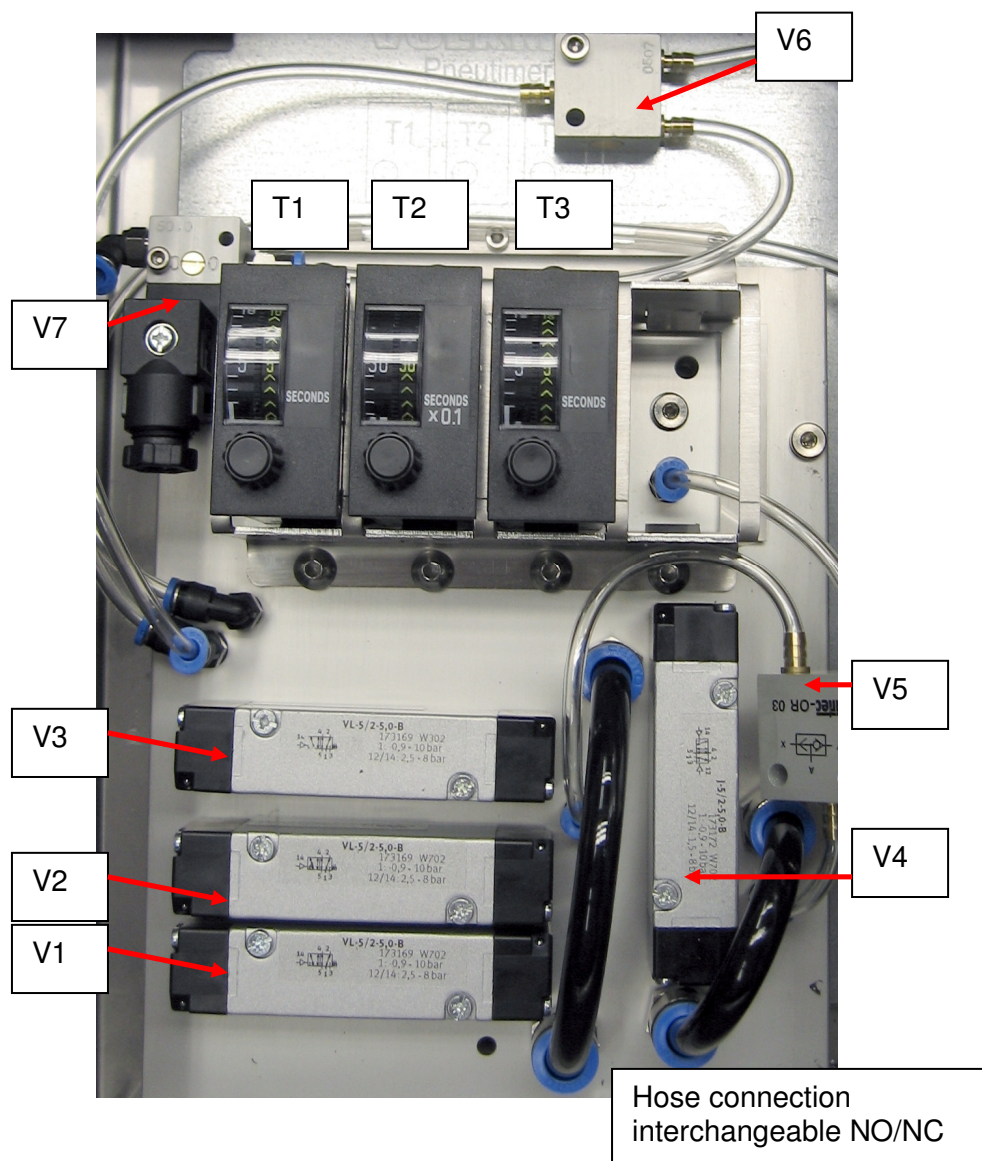
Discharge-timepiece
Adjustment of discharge
time



Off / Automatic / Manual-
Selector switch installed in
front door

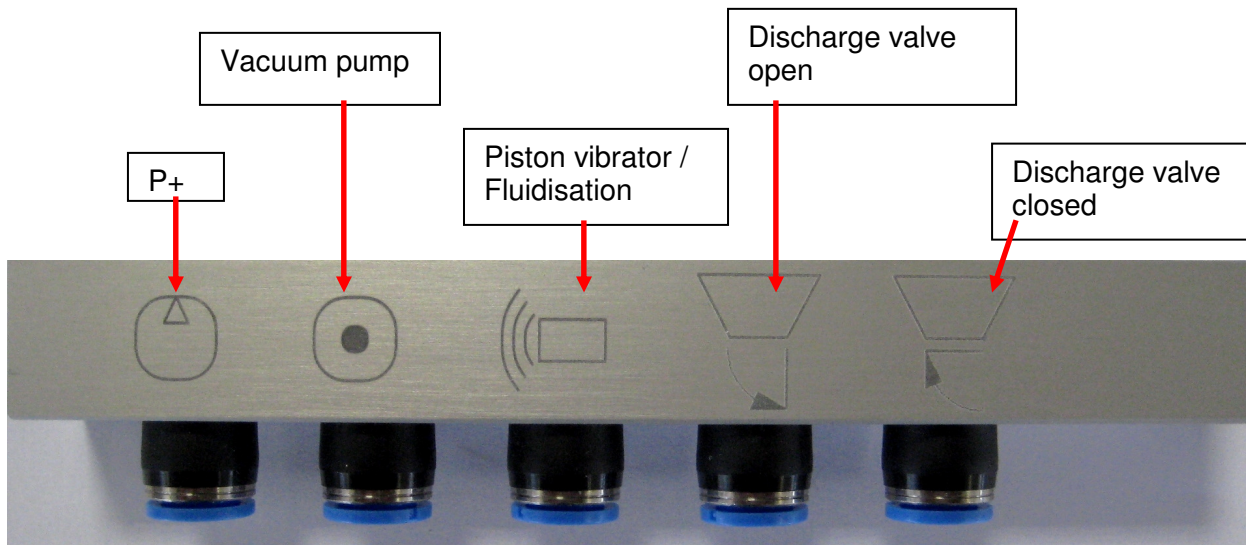


5 Operating elements/Parts list



Pos.	Description	Type
1	Selector switch	S01
2	5/2 way valve	V1
3	5/2 way valve	V2
4	5/2 way valve	V3
5	5/2 way valve	V4
6	Or gate	V5
7	And gate	V6
8	Solenoid valve	V7
9	Timepiece 0-30sec.	T1
10	Timepiece 0-3sec.	T2
11	Timepiece 0-30sec.	T3

6 Connections



Necessary hose sizes acc. to CETOP RP54P and DIN 73378 (outside tolerated)

Plug-in connection	Necessary hose, outer \varnothing
Vacuum pump	8mm
P+	8mm
Piston vibrator	8mm
Discharge valve open	8mm
Discharge valve closed	8mm

7 Control sequence

With activation of the **On/Off** – switch and active customer-provided release signal (control of solenoid valve) the discharge cycle is started.

Alternatively the Pneutimer can be started by the switch position **Manual**.

1) The discharge valve opens and the piston vibrator is activated. The MULTIJECTOR® - Vacuum conveying system is discharged during this time (Discharge time). After expiration of the adjusted discharge time the control starts the suction cycle (Suction time) with a delay (switch on delay).

2) The **Discharge valve** is closed and the MULTIJECTOR® - **Vacuum pump** is started with a delay (switch on delay).

3) After expiration of the suction time the filter cleaning takes place. The control starts again with a discharge cycle.

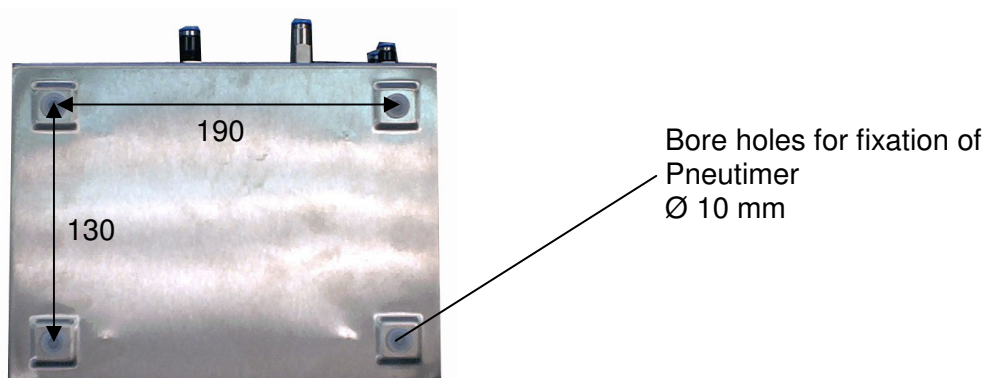
With activation of the On / **Off** – switch or by deactivation of the customer-provided release signal the control is stopped, thereby all pneumatic actuators are depressurized (basic position).



Exception NO valves (Normally Open) and compressed air supply line of control.

8 Installation

Fix Pneutimer permanently to suitable place (e.g. wall or bracket).



Connect control- and pressure-hoses to corresponding plug-in connections (see connection scheme in annex and in chapter 4).

Adjust operating pressure to 3 – 6 bars. See also chapter 3 for reference.

Adjust standard values for suction and discharging times according to the chart, if no tests/trials have been made before.

Conveyor	Conveying distance	Suction port	Piston vibrator	Suction time	Discharge time
VR/PPC170	5m (↑2m; →3m)	Ø 32 mm	Yes	5 sec.	6 sec.
VR/PPC315	5m (↑2m; →3m)	Ø 50 mm	Yes	6 sec.	6 sec.
VR/PPC450	5m (↑2m; →3m)	Ø 75 mm	Yes	8 sec.	6 sec.

9 Time adjustment

The suction and discharge times depend on the product, the conveying distance and the conveying height. If these parameters change, this has to be considered when adjusting the times.

As the values stated in the a.m. table are only approximately, the suction- and discharging times have to be adapted to the respective characteristics of the conveyor. Adjust the suction and discharge time in any case, also when trial values have been determined. Otherwise this could lead to overfilling of the conveyor and to damages resulting hereof.

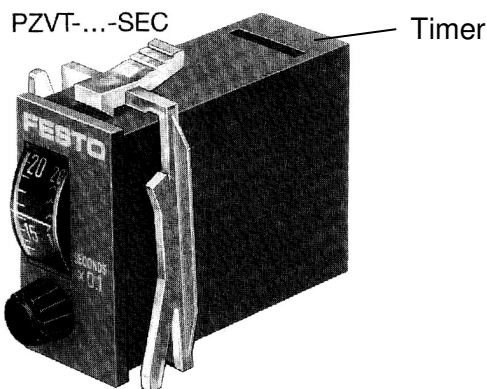
Switch Pneutimer on at On/Off selector switch (see chapter 4).
Adjust delay time at timepiece.

Determination of discharge time:

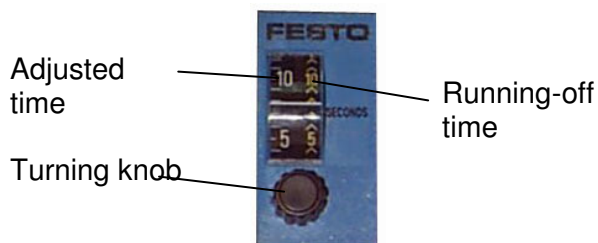
After opening the discharge valve (PK/ZK) the duration for discharging the conveyor can be determined optically in an easy way by watching the product falling out. For doing this the discharge time should be adjusted to maximum before testing.

Basic adjustment discharge timepiece:

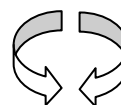
Turn turning knob right until desired discharge time is adjusted.



Technical data:
Adjustable discharge time: 2-30 sec.
Setting accuracy: ± 0.6 sec.



Left turn
Time is diminished



Right turn
Time is extended

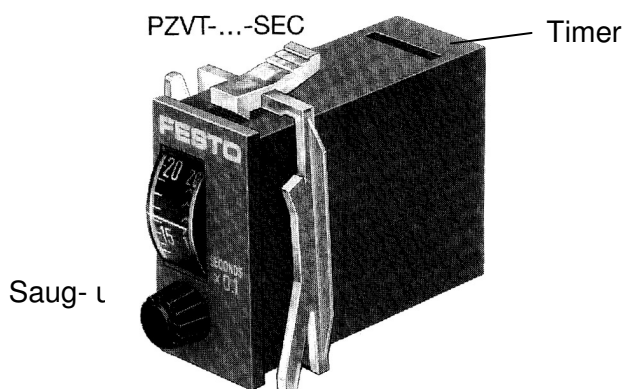
Operating manual Pneutimer PT3E-S

Adjustment of delay time (Vacuum pump):

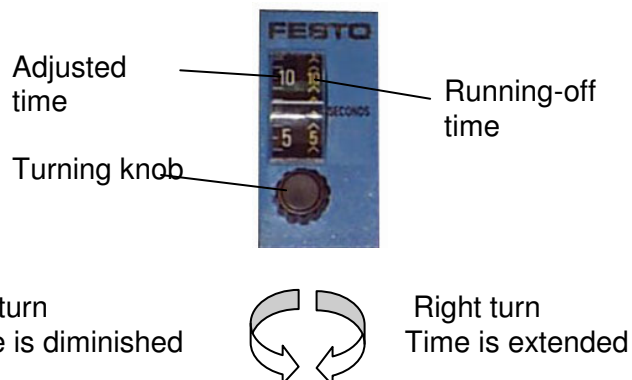
The delay time shall ensure that the vacuum pump starts after the discharge valve is closed. The delay time has to be adjusted to the closing time of the discharge valve. The delay time can be adjusted infinitely to just a few seconds at the time delay-timepiece (13.2) by turning of the turning knob.

Basic adjustment time delay-timepiece:

Turn turning knob right until desired discharge time is adjusted.



Technical data:
Adjustable discharge time: 2-30 sec.
Setting accuracy: ± 0.6 sec.



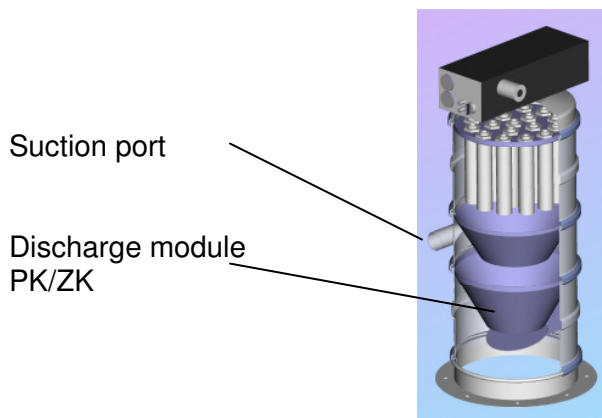
Adjust timer if not been determined in trials beforehand.



The suction- and discharging times are depending on the product, the conveying distance and the conveying height. change, this has to be considered when adjusting the times.

Determination of suction time:

The maximum aspirated product amount may not reach higher than to the suction suction port. The time needed for filling the conveyor to this limit has to be determined by trials. Further information about the timer see "Determination of discharge time".



10 Maintenance and cleaning

There are no parts to be maintained by the operator.
If malfunctions occur, please contact VOLKMANN GmbH.
Cleaning can be executed by using a damp cloth and material-compatible detergents.

11 Disposal

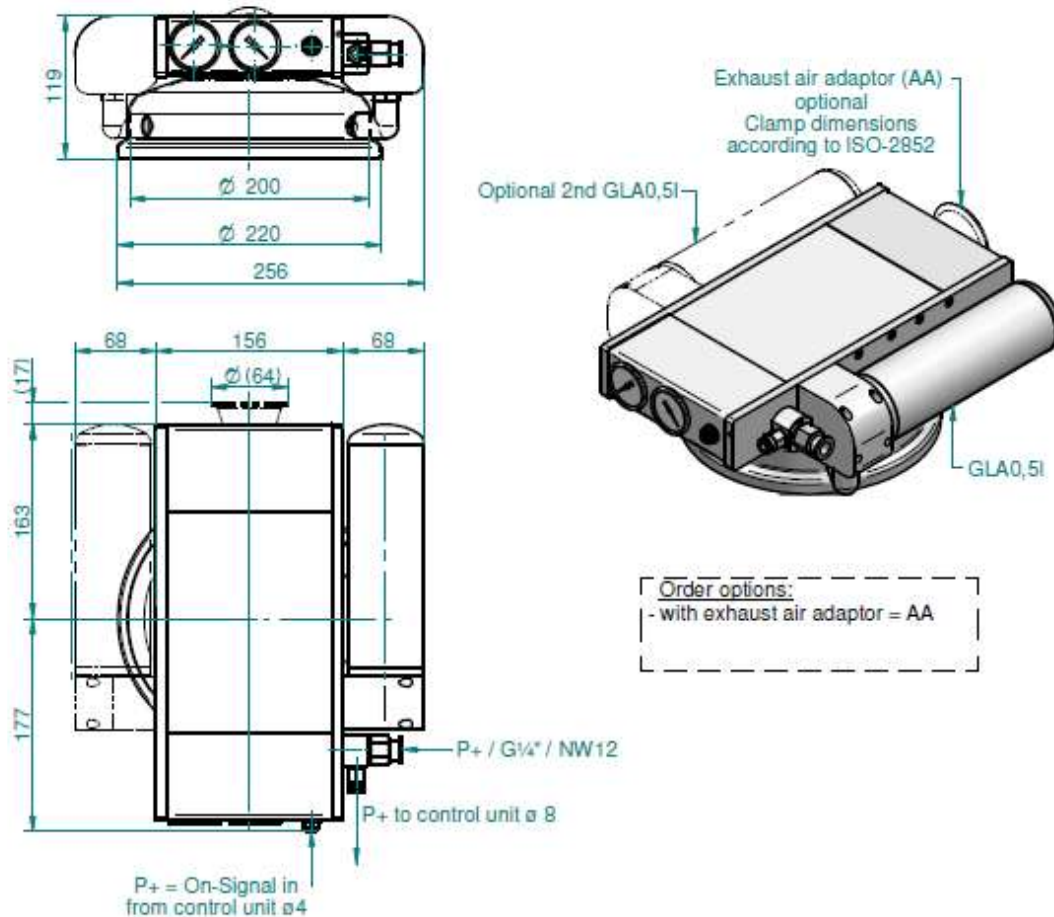
The Pneutimer has to be demounted and the individual materials have to be disposed professionally.


SPARE PARTS

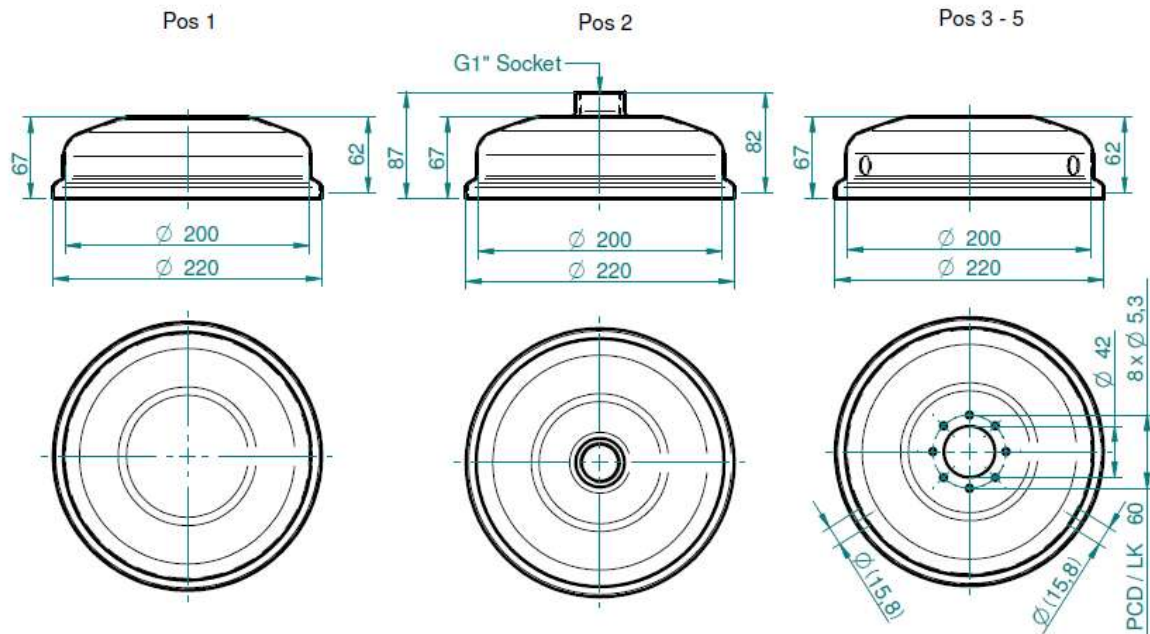


Ersatzteilliste Deckel PPC200VS


Spare parts Cover PPC200VS

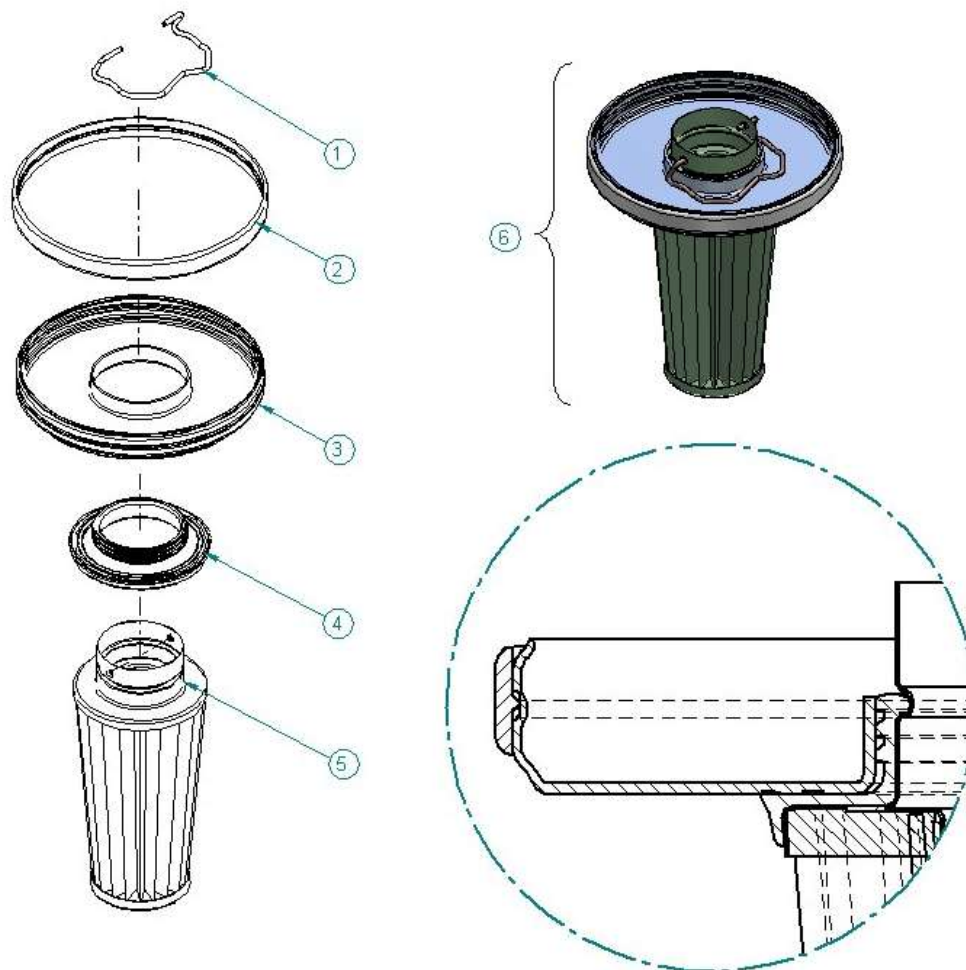


Type	ID-No	
Pumpen Deckel VS200 MX360 GLA0,5 Pump cover VS200 MX360 GLA0,5	105924	5,00 kg
Pumpen Deckel VS200 MX360 2xGLA0,5 Pump cover VS200 MX360 2xGLA0,5	105925	6,00 kg
Pumpen Deckel VS200 MX450 2xGLA0,5 Pump cover VS200 MX450 GLA0,5	105926	5,00 kg
Pumpen Deckel VS200 MX450 2xGLA0,5 Pump cover VS200 MX450 2xGLA0,5	105927	6,00 kg
Pumpen Deckel VS200 MX540 GLA0,5 Pump cover VS200 MX540 GLA0,5	105928	5,00 kg
Pumpen Deckel VS200 MX540 2xGLA0,5 Pump cover VS200 MX540 2xGLA0,5	105929	6,00 kg

Ersatzteilliste Deckel PPC200VS
Spare parts Cover PPC200VS

Order options:

 - dimension in () depend
 on the order options for GLA

Pos	Type	ID-No	 Weight
1	Deckel VS200 Covering VS200	105930	0,7 kg
2	Deckel VS200 G1" Covering VS200 G1"	105571	0,7 kg
3	Deckel VS200 LK60 Covering VS200 PCD60	105572	0,7 kg
4	Deckel VS200 LK60 1 x GLA Covering VS200 PCD60 1 x GLA	105931	0,7 kg
5	Deckel VS200 LK60 2x GLA Covering VS200 PCD60 2 x GLA	105932	0,7 kg

Ersatzteilliste Filter PPC200VS
Spare parts Filter PPC200VS


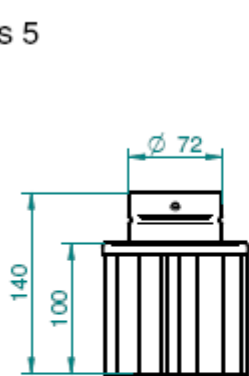
Pos.	Qty.	Type	ID-No	Material
1	1	Spannbügel QX / Clamp QX	104075	1.4310
2	1	Moduldichtung VS200 (SIL) / Sealing VS200 (Silicone)	104528	Silicone
		Moduldichtung VS200 (EPDM) / Sealing VS200 (EPDM)	104529	EPDM
		Moduldichtung VS200 (NBR) / Sealing VS200 (Nitrile)	104530	Nitrile
3	1	Filterplatte VS200 1xQX / Filterplate VS200 1xQX	105410	1.4404
4	1	Dichtung QX (SIL) / Sealing QX (Silicone)	105590	Silicone
		Dichtung QX (EPDM) / Sealing QX (EPDM)	105591	EPDM
		Dichtung QX (NBR) / Sealing QX (Nitrile)	105592	Nitrile
5	1	Filter QX100 Ti07 0,07 OF	104044	PTFE / 1.4571
		Filter QX200 Ti07 0,14 OF	104045	PTFE / 1.4571
		Filter QX200 Ti07 0,28 C	104047	PTFE / 1.4571
		Filter QX100 PEHD	104070	PEHD
		Filter QX200 PEHD	104071	PEHD



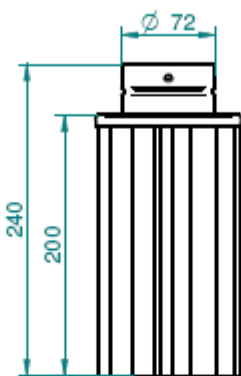
Technische Änderungen vorbehalten.
Technical data subject to change without notice.
© 2005, Volkmann GmbH, Soest, Germany

Ersatzteilliste Filter PPC200VS Spare parts Filter PPC200VS

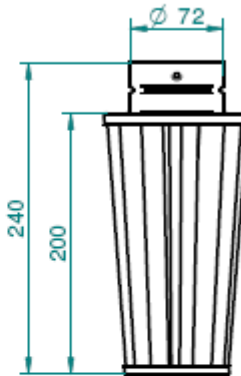
Pos 5



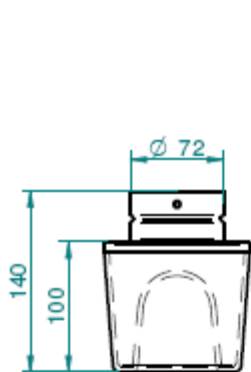
104044



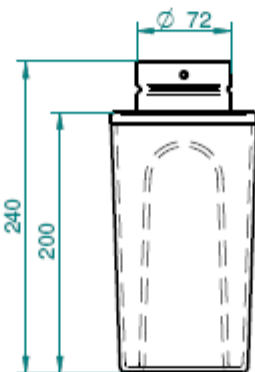
104045



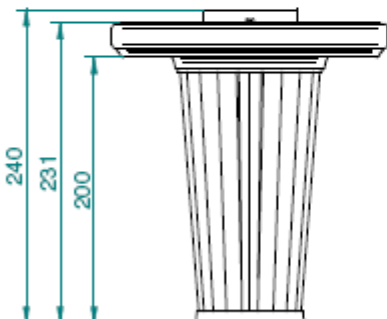
104047



104070



104071



VOLKMANN GmbHD-59494 Soest / Germany
www.Volkmann.infoTechnische Änderungen vorbehalten.
Technical data subject to change without notice

© 2005, Volkmann GmbH, Soest, Germany

Rev. A – 08/11 - SW

**Ersatzteilliste Module PPC200VS
Spare parts Modules PPC200VS****Bezeichnung / Designation**

Einsaugmodul PPC 200VS-F200-MC200

Suction module PPC 200VS-F200-MC200

Stapelhöhe / Stacking height Material

520 mm

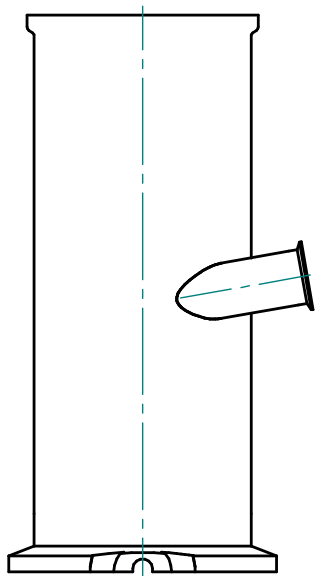
316L

Ident-Nr. / Article-No.

101544

Gewicht / Weight

6 Kg

**Bezeichnung / Designation**

Einsaugmodul PPC 200VS-F100-MC200

Suction module PPC 200VS-F100-MC200

Stapelhöhe / Stacking height Material

420 mm

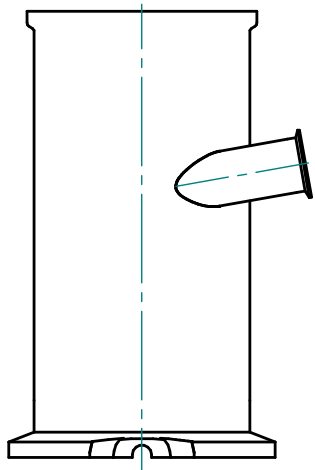
316L

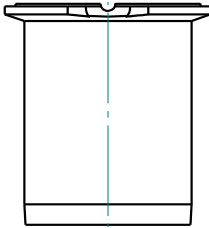
Ident-Nr. / Article-No.

101631

Gewicht / Weight

6 Kg




Ersatzteilliste Module PPC200VS
Spare parts Modules PPC200VS
**Bezeichnung / Designation**
 Unterteil Tauchrohr \varnothing 200
 Submerging pipe \varnothing 200
Länge / Length

190 mm

Material

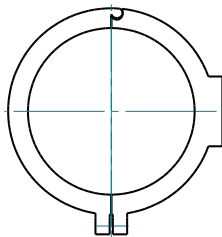
316L

Ident-Nr. / Article-No.

101562

Gewicht / Weight

3 kg

**Bezeichnung / Designation**
 Klammer Entleerklappe \varnothing 200
 Clamp discharge flap \varnothing 200
Material

1.4308

Ident-Nr. / Article-No.

101038

Gewicht / Weight

2 kg

**Bezeichnung / Designation**
 Antrieb Entleerklappe
 Actuator discharge flap
Material

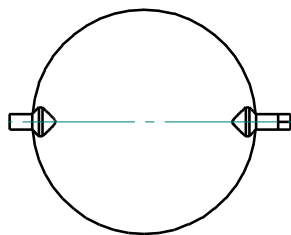
1.4308

Ident-Nr. / Article-No.

101058

Gewicht / Weight

5 kg

**Bezeichnung / Designation**
 Klappenteller Entleerklappe \varnothing 200
 Discharge flap plate \varnothing 200
Material

1.4571

Ident-Nr. / Article-No.

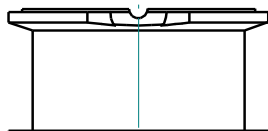
100252

Gewicht / Weight

1 kg



Ersatzteilliste Module PPC200VS Spare parts Modules PPC200VS



Bezeichnung / Designation

Flanschunterteil Entleerklappe ø 200
Flange module discharge flap ø 200

Länge / Length

120 mm

Material

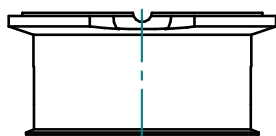
316L

Ident-Nr. / Article-No.

101563

Gewicht / Weight

2,5 kg



Bezeichnung / Designation

Clampunterteil Entleerklappe 8“
Clamp module discharge flap 8“

Länge / Length

120 mm

Material

316L

Ident-Nr. / Article-No.

101591

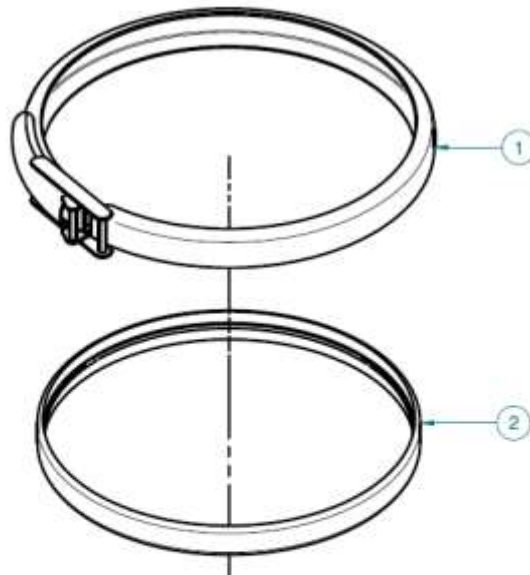
Gewicht / Weight

2,5 kg

Filter, Dichtungen und Zubehör

filter, seals and accessories

Ident-Nr./Article-No.	Bezeichnung	Designation
211266	Klappendichtung ø 200 Silikon	Flap gasket ø 200 Silicone
101070	Klappendichtung ø 200 NBR	Flap gasket ø 200 NBR
100247	Klappendichtung ø 200 EPDM	Flap gasket ø 200 EPDM
101043	Verschlußschraube M 10 Entleerklappe	Screw M10 for discharge flap
100254	Verriegelung MC Klappe NW 150-250	Locking for MC valve NW 150-250

Ersatzteilliste Modulverbindung PPC200VS
Spare parts Module connections PPC200VS


Pos.	Qty.	Type	ID-No	Material
1	1	Spannring VS200 module clamp ring VS200	105235	1.4301
2	1	Dichtung / Sealing VS200 Silicone (FDA)	104528	Silicone (FDA)
		Dichtung / Sealing VS200 EPDM (FDA)	104529	EPDM (FDA)
		Dichtung / Sealing VS200 Nitrile (FDA)	104530	Nitrile (FDA)

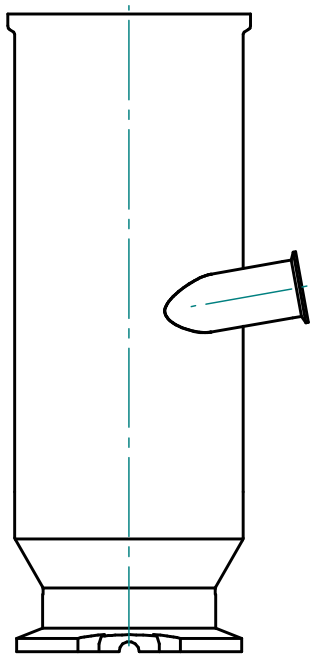
VOLKMANN GmbHD-59494 Soest / Germany
www.Volkmann.infoTechnische Änderungen vorbehalten.
Technical data subject to change without notice

© 2005, Volkmann GmbH, Soest, Germany

Rev. A – 08/11 - SW



Ersatzteilliste Module PPC200VS Spare parts modules PPC200VS



Bezeichnung / Designation

Einsaugmodul PPC 200VS-F200-MC150

Suction module PPC 200VS-F200-MC150

Stapelhöhe / Stacking height Material

565 mm

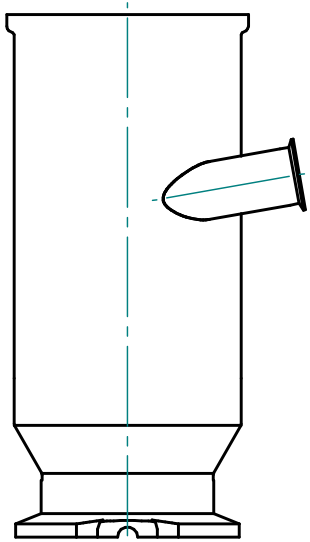
316L

Ident-Nr. / Article-No.

101597

Gewicht / Weight

6 Kg



Bezeichnung / Designation

Einsaugmodul PPC 200VS-F100-MC150

Suction module PPC 200VS-F100-MC150

Stapelhöhe / Stacking height Material

465 mm

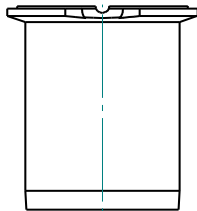
316L

Ident-Nr. / Article-No.

101634

Gewicht / Weight

6 Kg


Ersatzteilliste Module PPC200VS
Spare parts modules PPC200VS
**Bezeichnung / Designation**
 Unterteil Tauchrohr \varnothing 150
 Submerging pipe \varnothing 150
Länge / Length

190 mm

Material

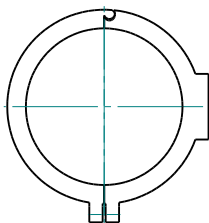
316L

Ident-Nr. / Article-No.

101622

Gewicht / Weight

3 kg

**Bezeichnung / Designation**
 Klammer Entleerklappe \varnothing 150
 Clamp discharge flap \varnothing 150
Material

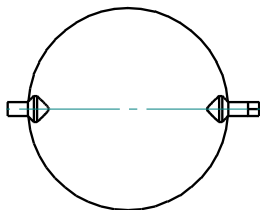
1.4308

Ident-Nr. / Article-No.

101037

Gewicht / Weight

2 kg

**Bezeichnung / Designation**
 Klappenteller Entleerklappe \varnothing 150
 Discharge flap plate \varnothing 150
Material

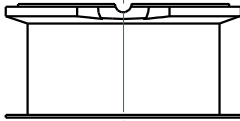
1.4571

Ident-Nr. / Article-No.

100251

Gewicht / Weight

1 kg

Ersatzteilliste Module PPC200VS
Spare parts modules PPC200VS**Bezeichnung / Designation**Flanschunterteil Entleerklappe ø 150
Flange module discharge flap ø 150**Länge / Length**

120 mm

Material

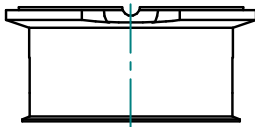
316L

Ident-Nr. / Article-No.

101624

Gewicht / Weight

2 kg

**Bezeichnung / Designation**Clampunterteil Entleerklappe 6"
Clamp module discharge flap 6"**Länge / Length**

120 mm

Material

316L

Ident-Nr. / Article-No.

101621

Gewicht / Weight

2 kg

Filter, Dichtungen und Zubehör
filter, seals and accessories

Ident-Nr./Article-No.	Bezeichnung	Designation
100249	Klappendichtung ø150 Silikon	Discharge valve gasket ø 150 Silicon
101068	Klappendichtung ø150 NBR	Discharge valve gasket ø 150 NBR
100250	Klappendichtung ø150 EPDM	Discharge valve gasket ø 150 EPDM

N° Série:

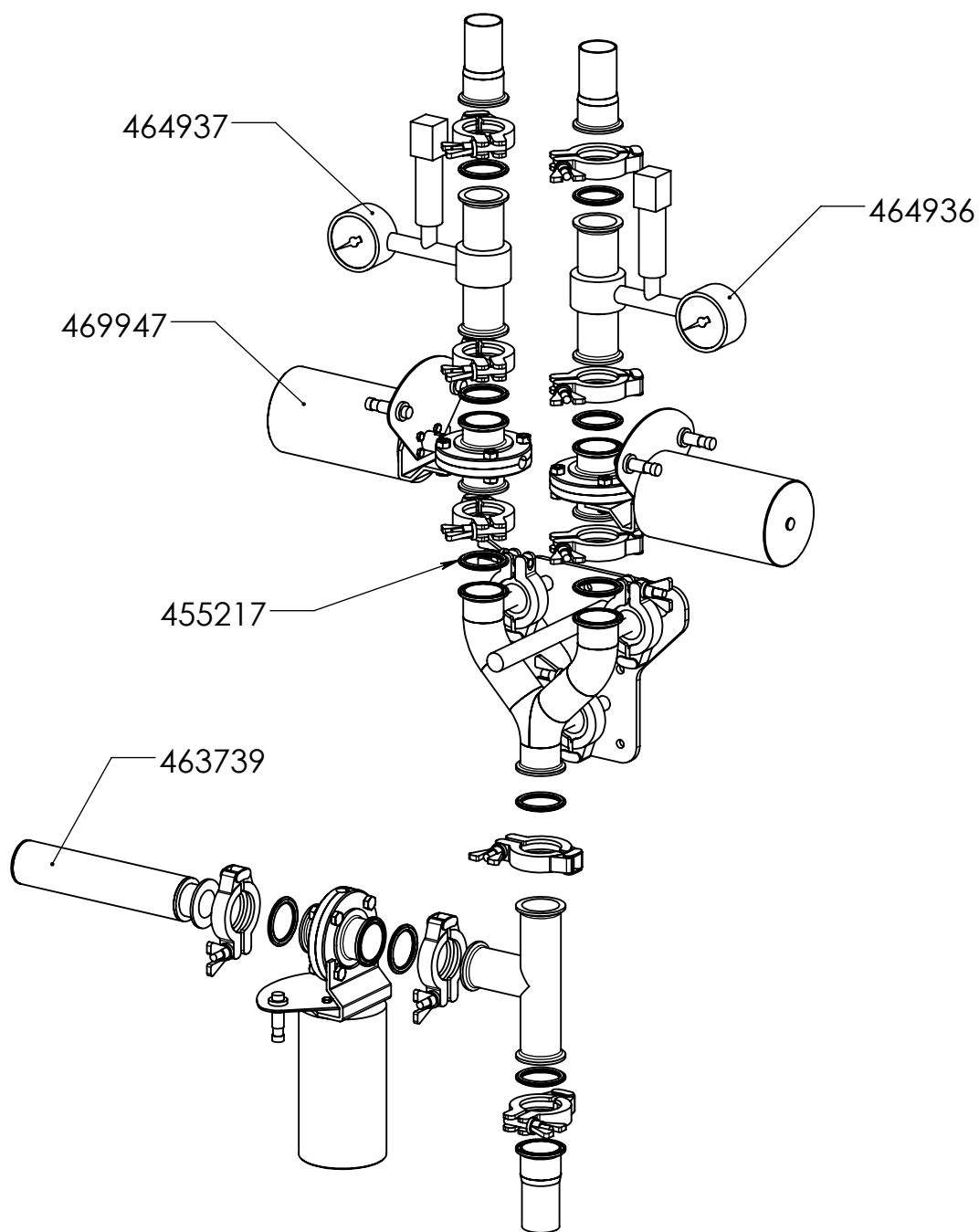
Serien-Nr.


Serial Nr.

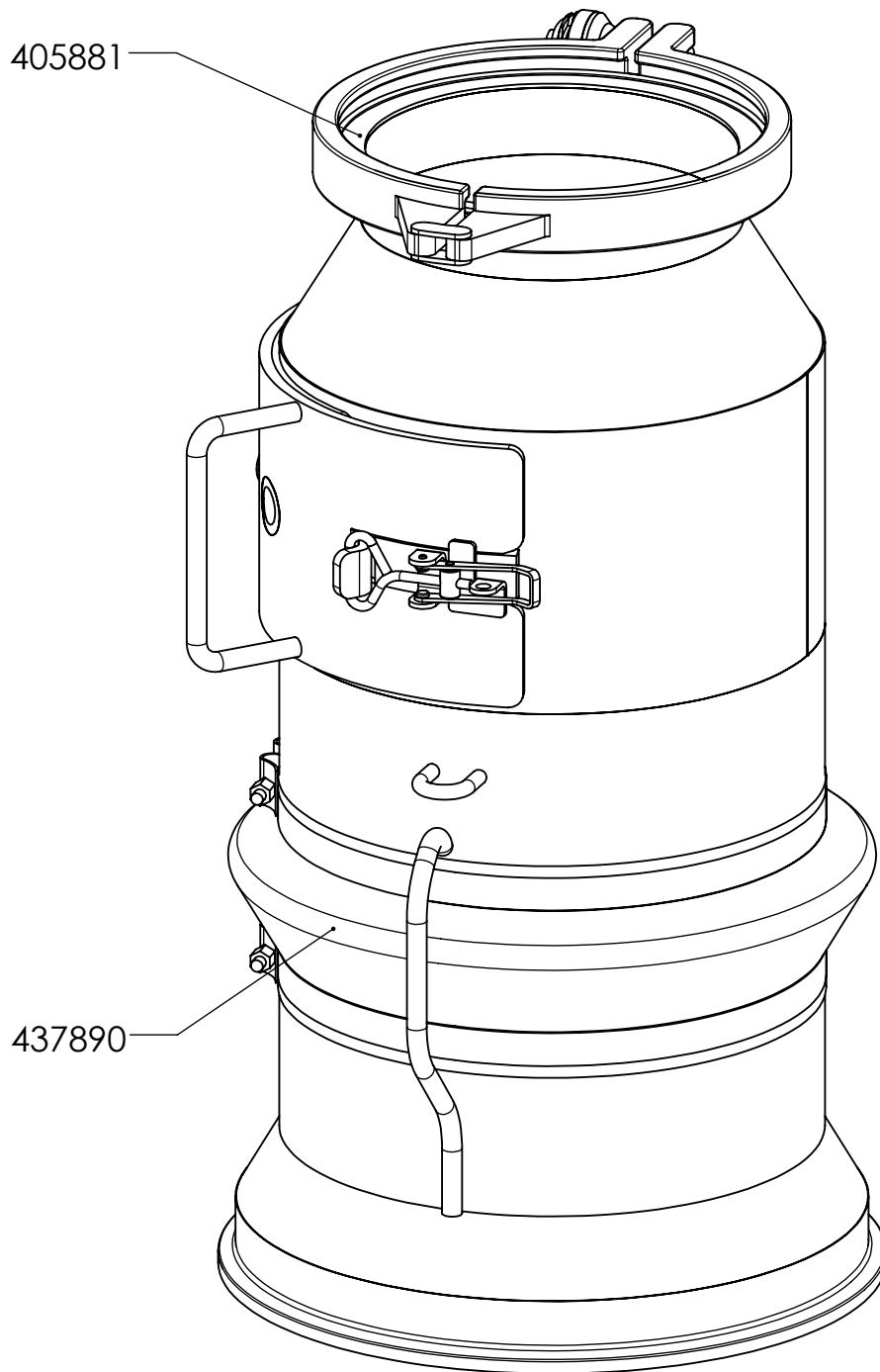
14001335180


REF: **473515**

Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Quantité Menge Quantity	Unité Einheit Unit	No Dessin Zeichnungs-Nr Drawing ID
.. 455217	Clamp Seal DN40 PTFE , ID38.0, A50.5, DIN 32676 A, FDA, 504250	10	Pce	473516
.. 469947	Butterfly valve DN40	3	Pce	473516
.. 464936	Pressure transmitter 0 bar	1	Pce	473516
.. 464937	Pressure transmitter 0 Bar	1	Pce	473516
.. 463739	Filter stainless steel L=225.5 D=45 Porostar 5µm	1	Pce	473516
.. 437890	Bellow EPDM-antistat. Ø260/216x80	2	Pce	473525
.. 405881	Seal, clamp DIN DN150, silicone	2	Pce	473525



Dimensions without tolerance [mm]	above		6	30	120	400	1000	MATERIAL :	Scale	Similar	Designed	22/01/2014	thle
	up to	6	30	120	400	1000	2000						
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20		%	464951	Controlled	22/01/2014	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00		⊕	Weight [kg]	Revised	22/01/2014	thle
Séparateur DN40								A4	54.15	Atex			
								Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA; Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com			473516-PRE		Page	Ver.
										1/1	A		



Dimensions without tolerance [mm]	above		6	30	120	400	1000	MATERIAL :	Scale	Similar	Designed	23/01/2014	thle
	up to	6	30	120	400	1000	2000						
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	%	469864	Controlled	23/01/2014	thle	
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	Weight [kg]		Revised	23/01/2014	thle	
Entonnoir de sortie								⊕	5.54	Atex			
								A4					
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				473525-PRE		Page	Ver.		
										1/1	A		

Notre service d'après vente se tient volontiers à votre disposition pour les commandes et demandes d'offre. Vous pouvez nous contacter comme suit:

Für Bestellungen oder Preisanfragen für Ersatzteile steht Ihnen unser Kundendienst gerne zur Verfügung. Sie erreichen uns wie folgt :

Our After Sales Service is at your disposal for inquiries, purchase orders for spare parts as well as for any further information you request on your machine. Our contacts are as follows

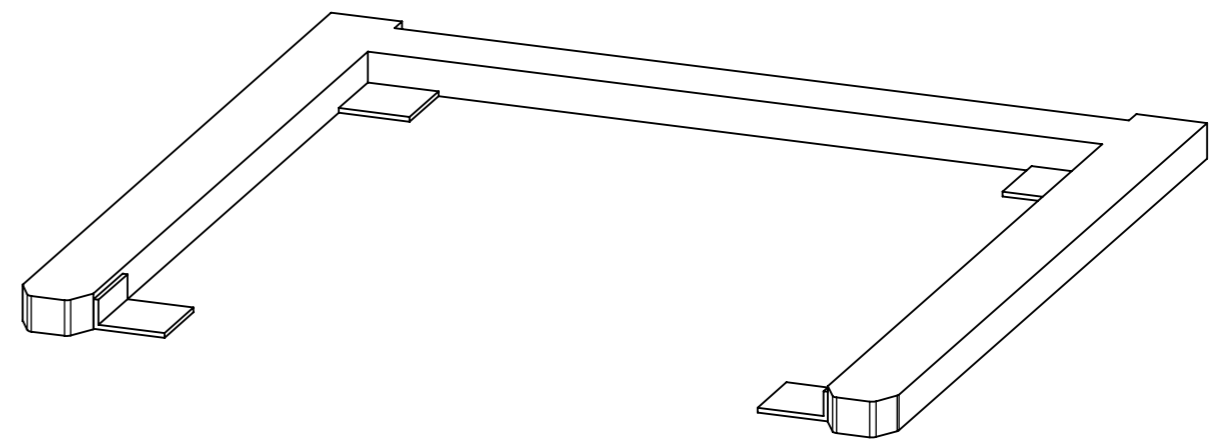
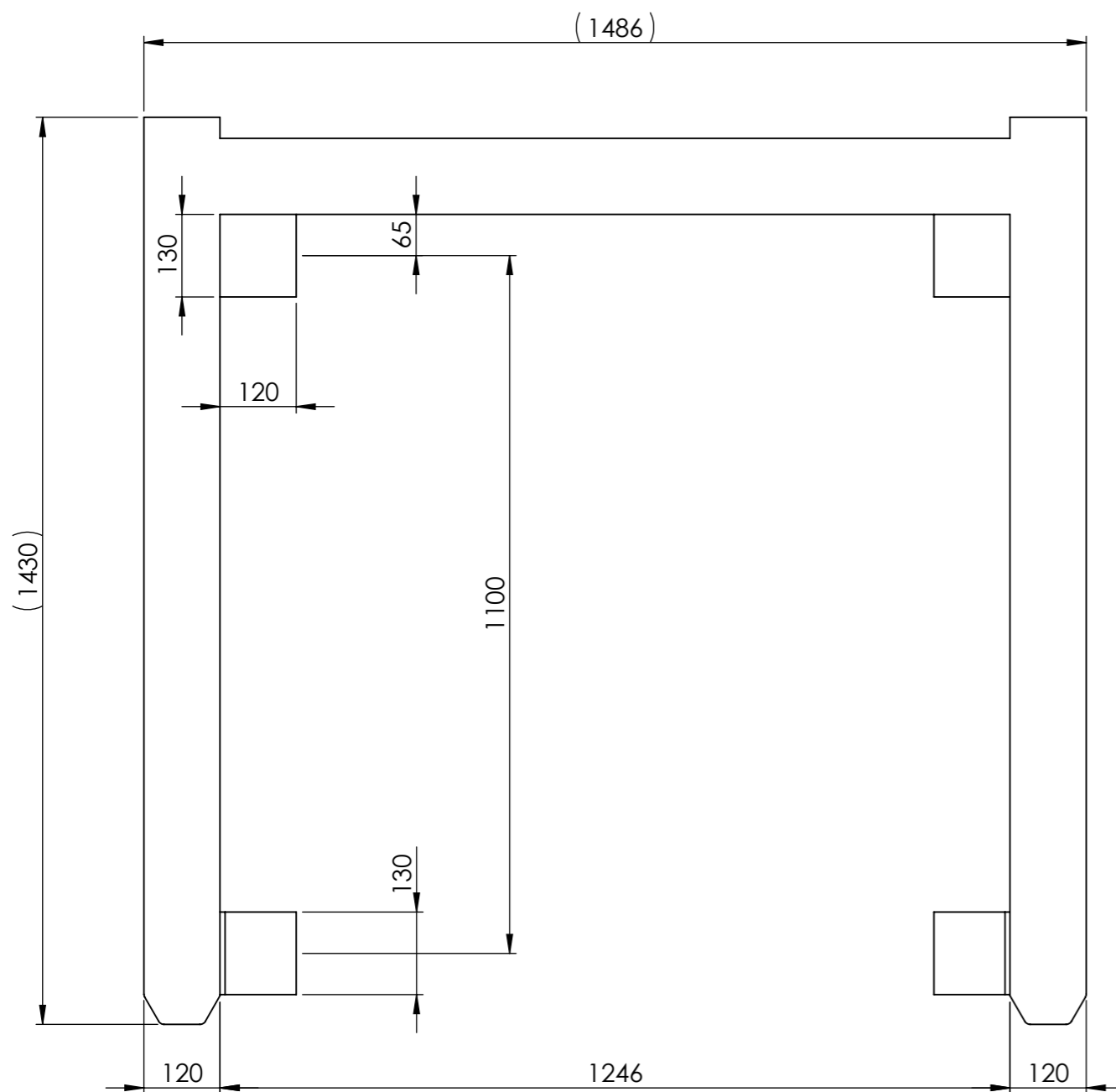
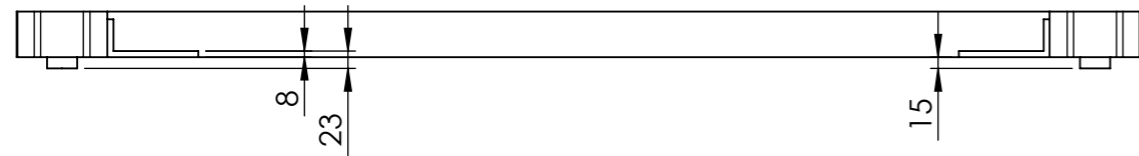
Tel: +41 26 460 74 00
Fax +41 26 460 74 07
E-mail: customerservice@frewitt.com

Formulaire de commande / d'offre au verso.

Bestellformular / Angebotsformular auf der Rückseite

Order / Inquiry form on the back

BALANCE
METTLER-TOLEDO



Numéro de série :
 - PTA459-F1500 S/N
 - PTA459-F1500 S/N



Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 304/304L				
	up to	6	30	120	400	1000	Scale	Similar	Designed	22/01/2014	thle
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	%	469860	Controlled	01/04/2014	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	⊕	Weight [kg]	Revised	01/04/2014	thle
Balance							A3	240.668	Atex		
							Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		473518		Page	Ver.
										1/1	A

**METTLER TOLEDO**

Werkszertifikat / Manufacturer Certificate

Produktionsdatum / Production Date:	27.03.2014
Produkttyp / Product Typ:	IND690xx-Panel
Seriennummer / Serial Number:	3415502
Hergestellt von / Produced by:	Mettler-Toledo(Albstadt) GmbH

Qualität und die damit verbundene Zufriedenheit unserer Kunden sind von entscheidender Bedeutung für unseren nachhaltigen Geschäftserfolg. Das von Ihnen erworbene Produkt wurde von dem oben angeführten Mitarbeiter entsprechend den relevanten Richtlinien und Gesetzen hergestellt und geprüft. Auf Basis der Testergebnisse bescheinigen wir hiermit die Übereinstimmung des Produktes mit Ihrem Auftrag und der technischen Spezifikation.

Mettler-Toledo (Albstadt) GmbH ist zertifiziert nach DIN EN ISO 9001 und DIN EN ISO 14001. Sollten Sie einen Grund zur Beanstandung haben, wenden Sie sich bitte mit Angabe der Seriennummer an Ihre zuständige Service-Organisation.

Quality and the resulting customer satisfaction are key factors for the prevailing success of our company. The product you have purchased was manufactured and tested by the employee mentioned above according to the relevant laws and guidelines. Based on the test results we certify that the product complies with the technical specifications of your order.

Mettler-Toledo (Albstadt) GmbH is both DIN EN ISO 9001 and DIN EN ISO 14001 certified. In case of complaints please contact your local service organisation and state to the serial number.



Christoph Dermond
General Manager

**METTLER TOLEDO**

Werkszertifikat / Manufacturer Certificate

Produktionsdatum / Production Date:	27.03.2014
Produkttyp / Product Typ:	IND690xx-Panel
Seriennummer / Serial Number:	3415505
Hergestellt von / Produced by:	Mettler-Toledo(Albstadt) GmbH

Qualität und die damit verbundene Zufriedenheit unserer Kunden sind von entscheidender Bedeutung für unseren nachhaltigen Geschäftserfolg. Das von Ihnen erworbene Produkt wurde von dem oben angeführten Mitarbeiter entsprechend den relevanten Richtlinien und Gesetzen hergestellt und geprüft. Auf Basis der Testergebnisse bescheinigen wir hiermit die Übereinstimmung des Produktes mit Ihrem Auftrag und der technischen Spezifikation.

Mettler-Toledo (Albstadt) GmbH ist zertifiziert nach DIN EN ISO 9001 und DIN EN ISO 14001. Sollten Sie einen Grund zur Beanstandung haben, wenden Sie sich bitte mit Angabe der Seriennummer an Ihre zuständige Service-Organisation.

Quality and the resulting customer satisfaction are key factors for the prevailing success of our company. The product you have purchased was manufactured and tested by the employee mentioned above according to the relevant laws and guidelines. Based on the test results we certify that the product complies with the technical specifications of your order.

Mettler-Toledo (Albstadt) GmbH is both DIN EN ISO 9001 and DIN EN ISO 14001 certified. In case of complaints please contact your local service organisation and state to the serial number.



Christoph Dermond
General Manager


METTLER TOLEDO
**Declaration of Conformity
Konformitätserklärung
Déclaration de conformité
Declaración de Conformidad
Dichiarazione di conformità**

22020918C

We Mettler-Toledo (Albstadt) GmbH, Unter dem Malesfelsen 34, D-72458 Albstadt,

Declare under our sole responsibility that the product,

erklären, in alleiniger Verantwortung, dass dieses Produkt,
déclarons sous notre seule responsabilité que le produit,
declaramos, bajo nuestra sola responsabilidad, que el producto,
dichiaro sotto nostra unica responsabilità, che il prodotto,

IND690xx ... Linie

S/N: > 3000000,

to which this declaration relates, is in conformity with the following standard(s) or other normative document(s).

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normatif(s).
al que se refiere esta declaración es conforme a la(s) norma(s) u otro(s) documento(s) normativo(s).
a cui si riferisce questa dichiarazione è conforme alla/e seguente/i norma/e o documento/i normativo/i.

	Applicable Standards:	
ATEX (94/9/ EEC)	EN 60079- 0 (2012) EN 60079-11 (2012) EN 60079-15 (2010) EN 60079- 31(2009)	
Low Voltage Directive (2006/95/ EEC)	EN 60950 EN 50178	
EMC Directive (2004/108/EEC)	EN 61000-6-2 EN 61000-6-3	
Non automatic weighing instrument directive (2009/23/EEC) ¹⁾	EN 45501 ¹⁾	
	CE	[Year] ¹⁾ [Code] M

1) applies only to certified non-automatic weighing instruments in connection with approved load cells
gilt nur für geeichte Waagen in Verbindung mit zugelassenen Wägezellen
valable uniquement pour les balances vérifiées en liaison avec des cellules de charge homologuées
solo aplicable a balanzas verificadas en combinación con células de carga aprobadas
la dichiarazione vale solo per le bilance omologate in collegamento con celle di carico approvate

Albstadt, November 2013



Christoph Dermond, General Manager

Important notice for verified weighing instruments in EC countries

Wichtiger Vermerk für geeichte Waagen in EU-Ländern

Note importante concernant les instruments de pesage vérifiés dans les pays de la CE

Información importante para instrumentos de pesada verificados en países de la UE

Avvertenza importante per gli strumenti di pesatura testati nei paesi della Comunità Europea



Weighing instruments verified at the place of manufacture bear the preceding mark on the packing label and a green "M" sticker on the descriptive plate. They may be set to work immediately.

Werkzeuge Waagen tragen vorstehendes Kennzeichen auf dem Packellkett und einen grünen „M“-Aufkleber auf dem Eichschild. Sie können sofort in Betrieb genommen werden. Les instruments de pesage vérifiés sur le site de production portent la marque précédente sur l'emballage et un autocollant vert "M" sur la plaque signalétique. Ils sont immédiatement opérationnels.

Los instrumentos de pesada verificados en el lugar de fabricación llevan la marca de la izquierda en la etiqueta de embalaje y un adhesivo verde "M" en la placa descriptiva. Se pueden poner en funcionamiento inmediatamente.

Gli strumenti di pesatura testati nella sede di produzione recano un'etichetta con questo marchio sulla confezione e un adesivo verde con una "M" sulla targhetta descrittiva. Possono essere messi subito in funzione.



Weighing instruments which are verified in two steps have no green "M" on the descriptive plate, bear the aforementioned identification on the packing label. The second step of the verification must be carried out by the Mettler-Toledo service approved or by the W&M authorities. Please contact your Mettler-Toledo organization.

Waagen, die in zwei Schritten geeicht werden, und kein grünes „M“ auf dem Eichschild haben, tragen vorstehendes Kennzeichen auf dem Packellkett. Der zweite Schritt der Eichung ist durch den behördlich anerkannten Mettler-Toledo Service oder durch den Eichbeamten durchzuführen. Bitte nehmen Sie mit dem Mettler-Toledo Kundendienst Kontakt auf. Les instruments de pesage vérifiés en deux étapes n'ont pas d'autocollant vert "M" sur la plaque signalétique et leurs emballages ne portent pas la marque d'identification précédente. La seconde étape de la vérification doit être exécutée par le service agréé Mettler-Toledo ou par les autorités compétentes pour les poids et mesures. Veuillez contacter votre interlocuteur Mettler-Toledo.

Los instrumentos de pesada que se verifican en dos etapas no tienen una "M" verde en la placa descriptiva y llevan la marca de la izquierda en la etiqueta del embalaje. La segunda etapa de la verificación ha de realizarla el servicio autorizado Mettler Toledo o las autoridades responsables de pesos y mediciones. Póngase en contacto con la empresa Mettler-Toledo.

Gli strumenti di pesatura che vengono sottoposti a due serie di test sono privi della "M" verde sulla targhetta descrittiva e recano questo marchio di identificazione sull'etichetta della confezione. La seconda serie di test deve essere effettuata da un centro autorizzato Mettler Toledo o dalle autorità per i pesi e le misure. Si prega di contattare la filiale Mettler Toledo.

The first step of the verification has been carried out in the manufacturing company. It comprises all tests according EN45501-8.2.2. In regard to scales with analogue connection to the weighing-platform, a weighing test according to EN 45501-3.5.3.3 must be carried out additionally. This test is not necessary if the terminal bears the serial-number of the weighing-platform.

If national regulations in individual countries limit the period of validity of the certification, the operator of such a scale is himself responsible for its timely re-certification.

Der erste Schritt der Eichung wurde im Herstellerwerk durchgeführt. Er umfasst alle Prüfungen gemäß EN 45501-8.2.2. Bei Waagen mit analogem Wägebrückenanschluss muss zusätzlich die Richtigkeit gemäß EN 45501-3.5.3.3 geprüft werden. Diese Prüfung ist nicht notwendig, wenn das Terminal die Serien-Nr. der Wägebrücke trägt.

Solfern gemäß den nationalen Vorschriften in den einzelnen Staaten die Gültigkeitsdauer der Eichung beschränkt ist, ist der Betreiber einer solchen Waage für die rechtzeitige Nach Eichung selbst verantwortlich.

La première étape de la vérification a été exécutée dans l'usine de fabrication. Celle-ci inclut l'ensemble des tests conformément à EN45501-8.2.2.

Si les réglementations nationales des différents pays limitent la période de validité de la vérification, l'exploitant d'une telle balance est lui-même responsable de la faire révéifier en temps utile.

La primera etapa de la verificación se ha efectuado en la planta de fabricación. Incluye todas las pruebas según EN45501-8.2.2.

Si las normativas nacionales de los países limitan el período de validez de la certificación, el operador de dicha báscula es responsable de gestionar dicha certificación.

La prima serie di test è stata eseguita presso lo stabilimento e comprende tutti i test previsti da EN45501-8.2.2.

Qualora la legislazione locale dei singoli paesi limiti il periodo di validità della certificazione, l'operatore della bilancia dovrà provvedere tempestivamente al rinnovo della stessa.



METTLER TOLEDO

Werkszertifikat / Manufacturer Certificate

Produktionsdatum / Production Date: 27.03.2014
Produkttyp / Product Typ: PTA459-F1500
Seriennummer / Serial Number: 3415507
Hergestellt von / Produced by: Mettler-Toledo(Albstadt) GmbH

Qualität und die damit verbundene Zufriedenheit unserer Kunden sind von entscheidender Bedeutung für unseren nachhaltigen Geschäftserfolg. Das von Ihnen erworbene Produkt wurde von dem oben angeführten Mitarbeiter entsprechend den relevanten Richtlinien und Gesetzen hergestellt und geprüft. Auf Basis der Testergebnisse bescheinigen wir hiermit die Übereinstimmung des Produktes mit Ihrem Auftrag und der technischen Spezifikation.

Mettler-Toledo (Albstadt) GmbH ist zertifiziert nach DIN EN ISO 9001 und DIN EN ISO 14001. Sollten Sie einen Grund zur Beanstandung haben, wenden Sie sich bitte mit Angabe der Seriennummer an Ihre zuständige Service-Organisation.

Quality and the resulting customer satisfaction are key factors for the prevailing success of our company. The product you have purchased was manufactured and tested by the employee mentioned above according to the relevant laws and guidelines. Based on the test results we certify that the product complies with the technical specifications of your order.

Mettler-Toledo (Albstadt) GmbH is both DIN EN ISO 9001 and DIN EN ISO 14001 certified. In case of complaints please contact your local service organisation and state to the serial number.



Christoph Dermond
General Manager

**METTLER TOLEDO**

Werkszertifikat / Manufacturer Certificate

Produktionsdatum / Production Date:	27.03.2014
Produkttyp / Product Typ:	PTA459-F1500
Seriennummer / Serial Number:	3415508
Hergestellt von / Produced by:	Mettler-Toledo(Albstadt) GmbH

Qualität und die damit verbundene Zufriedenheit unserer Kunden sind von entscheidender Bedeutung für unseren nachhaltigen Geschäftserfolg. Das von Ihnen erworbene Produkt wurde von dem oben angeführten Mitarbeiter entsprechend den relevanten Richtlinien und Gesetzen hergestellt und geprüft. Auf Basis der Testergebnisse bescheinigen wir hiermit die Übereinstimmung des Produktes mit Ihrem Auftrag und der technischen Spezifikation.

Mettler-Toledo (Albstadt) GmbH ist zertifiziert nach DIN EN ISO 9001 und DIN EN ISO 14001. Sollten Sie einen Grund zur Beanstandung haben, wenden Sie sich bitte mit Angabe der Seriennummer an Ihre zuständige Service-Organisation.

Quality and the resulting customer satisfaction are key factors for the prevailing success of our company. The product you have purchased was manufactured and tested by the employee mentioned above according to the relevant laws and guidelines. Based on the test results we certify that the product complies with the technical specifications of your order.

Mettler-Toledo (Albstadt) GmbH is both DIN EN ISO 9001 and DIN EN ISO 14001 certified. In case of complaints please contact your local service organisation and state to the serial number.



Christoph Dermond
General Manager





Declaration of Conformity
Konformitätserklärung
Déclaration de conformité
Declaración de Conformidad
Dichiarazione di conformità

22020915C

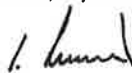
We Mettler-Toledo (Albstadt) GmbH, Unter dem Malesfelsen 34, D-72458 Albstadt,
Declare under our sole responsibility that the product,
erklären, in alleiniger Verantwortung, dass dieses Produkt,
déclarons sous notre seule responsabilité que le produit,
declaramos, bajo nuestra sola responsabilidad, que el producto,
dichiariamo sotto nostra unica responsabilità, che il prodotto,

PTA... Linie S/N: > 3000000,
to which this declaration relates, is in conformity with the following standard(s) or other normative document(s).

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt,
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normatif(s),
al que se refiere esta declaración es conforme a la(s) norma(s) u otro(s) documento(s) normativo(s),
a cui si riferisce questa dichiarazione è conforme alla/e sequente/i normale o documento/i normativo/i.

Guideline	Certificate	Applicable Standards:	*Technical status in accordance with:
ATEX (94/9/ EC) Version Analog	BVS 08 ATEX E063 ¹⁾ System Solution Type Analog Ex2 KEMA 03 ATEX 1070 ²⁾ Load Cell Model 0745A Load frame lift Load frame standard	EN 60079-0 (2006) * EN 60079-15 (2005) * EN 61241-0 (2006) * EN 61241-1 (2004) * EN 13463-1	EN 60079-0 (2009) EN 60079-15 (2010) EN 60079-31 (2009)
ATEX (94/9/ EC) Version IDNet	BVS 06 ATEX E098 ¹⁾ System Solution Type Point KEMA 03 ATEX 1070 ²⁾ Load Cell Model 0745A Load frame lift Load frame standard	EN 60079-15 (2003) * IEC61241-0 (2004) * EN 61241-1 (2004) * EN 13463-1	EN 60079-0 (2009) EN 60079-15 (2010) EN 60079-31 (2009)
EMC Directive: (2004/108/EC)		EN 61000-6-2 EN 61000-6-3	
RoHS 2011/65/EC		EN 50581 (2012)	
Non automatic weighing instrument directive (2009/23/EC)		EN 45501	
			[Year]  [Code]

Albstadt, July 2013



Christoph Dermond, General Manager

Certificate / Acknowledgement issued by:

- 1), 3) DEKRA EXAM GmbH, Dinnendahlstrasse 9
D-44809 Bochum, NB: 0158
- 2) DEKRA Certification B.V. Utrechtseweg 310,
Postbus 5185 NL-6802 ED Arnhem, NB: 0344

Important notice for verified weighing Instruments in EC countries

Wichtiger Vermerk für geeichte Waagen in EU-Ländern
Note importante concernant les instruments de pesage vérifiés dans les pays de la CE
Información importante para instrumentos de pesada verificados en países de la UE
Avvertenza importante per gli strumenti di pesatura testati nei paesi della Comunità Europea



Weighing Instruments verified at the place of manufacture bear the preceding mark on the packing label and a green "M" sticker on the descriptive plate. They may be set to work immediately.

Werksgereichte Waagen tragen vorstehendes Kennzeichen auf dem Packetkett und einen grünen „M“-Aufkleber auf dem Eichschild. Sie können sofort in Betrieb genommen werden.

Les instruments de pesage vérifiés sur le site de production portent la marque précédente sur l'emballage et un autocollant vert "M" sur la plaque signalétique. Ils sont immédiatement opérationnels.

Los instrumentos de pesada verificados en el lugar de fabricación llevan la marca de la izquierda en la etiqueta de embalaje y un adhesivo verde "M" en la placa descriptiva. Se pueden poner en funcionamiento inmediatamente.

Gli strumenti di pesatura testati nella sede di produzione recano un'etichetta con questo marchio sulla confezione e un adesivo verde con una "M" sulla targhetta descrittiva. Possono essere messi subito in funzione.



Weighing Instruments which are verified in two steps have no green "M" on the descriptive plate, bear the aforementioned identification on the packing label. The second step of the verification must be carried out by the Mettler-Toledo service approved or by the W&M authorities. Please contact your Mettler-Toledo organization.

Waagen, die in zwei Schritten geeicht werden, und kein grünes „M“ auf dem Eichschild haben, tragen vorstehendes Kennzeichen auf dem Packetkett. Der zweite Schritt der Eichung ist durch den behördlich anerkannten Mettler-Toledo Service oder durch den Eichbeamten durchzuführen. Bitte nehmen Sie mit dem Mettler-Toledo Kundendienst Kontakt auf.

Les instruments de pesage vérifiés en deux étapes n'ont pas d'autocollant vert "M" sur la plaque signalétique et leurs emballages ne portent pas la marque distinctive précédente. La seconde étape de la vérification doit être exécutée par le service agréé Mettler-Toledo ou par les autorités compétentes pour les poids et mesures. Veuillez contacter votre interlocuteur Mettler-Toledo.

Los instrumentos de pesada que se verifican en dos etapas no tienen una "M" verde en la placa descriptiva y llevan la marca de la izquierda en la etiqueta del embalaje. La segunda etapa de la verificación ha de realizarla el servicio autorizado Mettler Toledo o las autoridades responsables de pesos y mediciones. Póngase en contacto con la empresa Mettler-Toledo.

Gli strumenti di pesatura che vengono sottoposti a due serie di test sono privi della "M" verde sulla targhetta descrittiva e recano questo marchio di identificazione sull'etichetta della confezione. La seconda serie di test deve essere effettuata da un centro autorizzato Mettler Toledo o dalle autorità per i pesi e le misure. Si prega di contattare la filiale Mettler Toledo.

The first step of the verification has been carried out in the manufacturing company. It comprises all tests according EN45501-8.2.2. In regard to scales with analogue connection to the weighing-platform, a weighing test according to EN 45501-3.5.3.3 must be carried out additionally. This test is not necessary if the terminal bears the serial-number of the weighing-platform.

If national regulations in individual countries limit the period of validity of the certification, the operator of such a scale is himself responsible for its timely re-certification.

Der erste Schritt der Eichung wurde im Herstellerwerk durchgeführt. Er umfasst alle Prüfungen gemäß EN 45501-8.2.2. Bei Waagen mit analogem Wägebrückenanschluss muss zusätzlich die Richtigkeit gemäß EN 45501-3.5.3.3 geprüft werden. Diese Prüfung ist nicht notwendig, wenn das Terminal die Serien-Nr. der Wägebrücke trägt. Sofern gemäß den nationalen Vorschriften in den einzelnen Staaten die Gültigkeitsdauer der Eichung beschränkt ist, ist der Betreiber einer solchen Waage für die rechtzeitige Nacheichung selbst verantwortlich.

La première étape de la vérification a été exécutée dans l'usine de fabrication. Celle-ci inclut l'ensemble des tests conformément à EN45501-8.2.2.

Si les réglementations nationales des différents pays limitent la période de validité de la vérification, l'exploitant d'une telle balance est lui-même responsable de la faire revérifier en temps utile.

La primera etapa de la verificación se ha efectuado en la planta de fabricación. Incluye todas las pruebas según EN45501-8.2.2.

Si las normativas nacionales de los países limitan el periodo de validez de la certificación, el operador de dicha báscula es responsable de gestionar dicha certificación.

La prima serie di test è stata eseguita presso lo stabilimento e comprende tutti i test previsti da EN45501-8.2.2.

Qualora la legislazione locale dei singoli paesi limiti il periodo di validità della certificazione, l'operatore della bilancia dovrà provvedere tempestivamente al rinnovo della stessa.

IND690xx Weighing Terminal

TÜV 06 ATEX 552902 X		
EC-Type Examination Certificate	06 July 2006	Original, 3 pages
EG-Baumusterprüfbescheinigung	06 Juli 2006	Original, 3 Seiten
Attestation de vérification de type CE	06 Juillet 2006	Original, 3 pages
Certificado de inspecciones de tipo de construcción CE	06 Julio 2006	Original, 3 páginas
Certificato di approvazione CE	06 Luglio 2006	Originale, 3 pagine

Amendment 1 to TÜV 06 ATEX 552902 X		Contens / Changes	
Supplement 1	17 May 2010	Display, special condition for save use, marking	Original, 1 page
Ergänzung 1	17 Mai 2010	Anzeige, besondere Bedingungen für sicheren Betrieb, Kennzeichnung	Original, 1 Seite
Supplément 1	17 Mai 2010	Affichage, conditions speziales pour sûr l'usage, marquage	Original, 1 page
Suplemento 1	17 Mayo 2010	Pantella, condición especial para el uso seguro, marcación	Original, 1 página
Supplemento 1	17 Maggio 2010	Indicatioe, condizione speciale per il uso sicuro, marcatura	Originale, 1 pagina

Amendment 2 to TÜV 06 ATEX 552902 X		Contens / Changes	
Supplement 2	05 November 2013	New standards, special condition for use, marking	Original, 2 pages
Ergänzung 2	05 November 2013	Neue Normen, besondere Bedingungen, Kennzeichnung	Original, 2 Seiten
Supplément 2	05 Novembre 2013	Nouvelles conditions standards, état spécial pour l'usage, marquant	Original, 2 pages
Suplemento 2	05 Noviembre 2013	Nuevas condiciones estándar, condición especial para el uso, etiquetando	Original, 2 páginas
Supplemento 2	05 Novembre 2013	Nuove condizioni standard, stato speciale per uso, identificante	Originale, 2 pagine

TÜV NORD**(1) Konformitätsaussage**

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen, **Richtlinie 94/9/EG**

(3) **Konformitätsaussage Nummer: TÜV 06 ATEX 552902 X**

(4) für das Gerät: Terminal Typ IND690xx-Desk
und Typ IND690xx-Panel

(5) des Herstellers: Mettler-Toledo (Albstadt) GmbH

(6) Anschrift: Unter dem Malesfelsen 34
D-72458 Albstadt

Auftragsnummer: 8000552902

Ausstellungsdatum: 06.07.2006

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Konformitätsaussage festgelegt.

(8) Die TÜV NORD CERT GmbH bescheinigt die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen. Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. 06 YEX 552902 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

EN 60079-15:2003

EN 50 281-1-1:1998+A1

EN 1127:1997

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese Konformitätsaussage bezieht sich nur auf Konzeption und Prüfung des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

II 3 G EEx nA L [L] IIC T4 bzw. II 3 D T70°C IP69K

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, akkreditiert durch die Zentralstelle der Länder für Sicherheitstechnik (ZLS), Ident. Nr. 0044, Rechtsnachfolger der TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

Der Leiter der Zertifizierungsstelle

Schwedt

Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover, Fon +49 (0)511 986 1455, Fax +49 (0)511 986 1590

(13) ANLAGE**(14) Konformitätsaussage Nr. TÜV 06 ATEX 552902 X****(15) Beschreibung des Gerätes**

Die Terminals Typ IND690xx-Desk und Typ IND690xx-Panel dienen zur Anzeige und Auswertung von Gewichtswerten der angeschlossenen Wägebrücken. Zusammen mit angeschlossenen externen Geräten kann das Wägeterminal Typ IND690xx-Desk und Typ IND690xx-Panel für verschiedene Steueraufgaben genutzt werden.

Anschließbar über verschraubbare Stecker bzw. durch Kabelverschraubungen und interne Verbindungen sind folgende Geräte:

- eine alphanumerische Tastatur (gespeist über einen energiebegrenzten Stromkreis)
- bis zu drei Wägebrücken (digital IDNet oder analog)
- über optional eingebaute Datenschnittstellen (z. B. Serielle Interfaces, Netzwerk-Interfaces, Digitale I/O-Interfaces); Geräte gemäß der Installationsanleitung des Herstellers

Das Terminal Typ IND690xx-Desk ist als Tischgerät oder mit einer zugehörigen Wandkonsole als Wandgerät ausgeführt. Mit Hilfe der Zubehörteile Adapter, Stativ und Sockel kann das IND690xx Desk auch auf den Boden gestellt oder auf dem Boden bzw. an einem Bock festgeschraubt werden. Die Installationsanleitung des Herstellers ist zu beachten.

Das Terminal Typ IND690xx-Panel ist als Einbaugerät ausgeführt.

Die Terminals Typ IND690xx-Desk und Typ IND690xx-Panel dürfen in explosionsgefährdeten Bereichen, in denen Betriebsmittel der Kategorie 3 erforderlich sind, errichtet werden.

Der zulässige Umgebungstemperaturbereich ist $-10^{\circ}\text{C} \dots +40^{\circ}\text{C}$.

Elektrische Daten

Versorgungsstromkreis $U_n = 100 \dots 240 \text{ V AC}, +10\%/-15\%, 50/60\text{Hz}, \text{ca. } 70 \text{ VA}$
(Anschlussleitung)

Ausgang IDNet-Schnittstelle ...	Versorgungsspannung Wägezelle	max. 20 V DC
	Spannung Schnittstellenstromkreis CL	max. 27 V DC
	Stromstärke Schnittstellenstromkreis CL	max. 30 mA

5V-Versorgungsstromkreis..... energiebegrenzter Stromkreis EEx nL IIC
 $U_o = 5 \text{ V DC}$
 zulässige Stromentnahme im Bemessungsbetrieb:
 $I_{n, \text{max}} = 100 \dots 300 \text{ mA}$
 Die Installationsanleitung des Herstellers ist zu beachten
 höchstzulässige äußere Kapazität: $C_o = 200 \text{ } \mu\text{F}$
 höchstzulässige äußere Induktivität: $L_o = 60 \text{ } \mu\text{H}$

z. B. zur Versorgung der externen Tastatur Typ MF2 gemäß der Konformitätsaussage TÜV 00 ATEX 1629

Die höchstzulässige äußere Kapazität ist die Summe aller an dem energiebegrenzten 5V-Versorgungsstromkreis angeschlossenen Stromkreise.

Die höchstzulässige äußere Induktivität darf in jedem 5V-Stromkreis, der als energiebegrenzt betrachtet wird, angeschlossen werden.

Die elektrischen Daten für alle übrigen Anschlüsse (nicht energiebegrenzte Stromkreise) sind den Angaben des Herstellers in der Betriebsanleitung zu entnehmen.



Anlage Konformitätsaussage Nr. TÜV 06 ATEX 552902 X

(16) Die Prüfungsunterlagen sind im Prüfbericht Nr. 06 YEX 552902 aufgelistet.

(17) Besondere Bedingungen

1. Das Terminal Typ IND690xx-Panel so zu installieren, dass eine Schutzart von mindestens IP 54 gemäß EN 60529 erreicht wird.
2. Die Angaben bezüglich des energiebegrenzten Stromkreises sind dieser Bescheinigung zu entnehmen.
3. Das Verbinden und Trennen der Anschlüsse für die nicht energiebegrenzten Stromkreise unter Spannung ist nur bei der Installation oder für Reparaturzwecke zulässig.
4. Die angeschlossenen Geräte dürfen in explosionsgefährdeten Bereichen der Zone 2 und Zone 22 betrieben werden, wenn sie für die am Einsatzort vorliegenden Bedingungen geeignet sind.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

keine zusätzlichen

Translation

(1) **Statement of Conformity****TÜV NORD**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**



- (3) **Statement of Conformity Number: TÜV 06 ATEX 552902 X**

- (4) for the equipment: Terminal type IND690xx-Desk
and type IND690xx-Panel
- (5) of the manufacturer: Mettler-Toledo (Albstadt) GmbH

- (6) Address: Unter dem Malesfelsen 34
D-72458 Albstadt

Order number: 8000552902

Date of issue: 2006-07-06

- (7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this statement of conformity and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 06 YEX 552902.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 60079-15:2003 EN 50 281-1-1:1998+A1 EN 1127:1997
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This statement of conformity relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:

II 3 G EEx nA L [L] IIC T4 resp. II 3 D T70°C IP69K

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

Hanover office, Am TÜV 1, 30519 Hanover, Fon +49 (0)511 986 1455, Fax +49 (0)511 986 1590

(13) **SCHEDULE**(14) **Statement of Conformity No. TÜV 06 ATEX 552902 X**

(15) Description of equipment

The terminals type IND690xx-Desk and type IND690xx-Panel are used for displaying and analysis of weighing values of connected weighing bridges. In combination with connected external devices the terminals type IND690xx-Desk and type IND690xx-Panel can be used for different control tasks.

Connectable by means of plugs fixed by screw connection resp. per cable threads and internal connections are the following devices:

- an alphanumeric keyboard (energised by an energy limited circuit)
- up to three weighing bridges (digital IDNet or analogue)
- by optional build-in data interfaces (e. g. serial interfaces, network interfaces, digital I/O interfaces); devices according to the installation guidelines of the manufacturer:

The terminal type IND690xx-Desk is executed as a tabletop unit or, with a belonging wall mounting bracket, as a wall unit. By means of the belonging accessories adapter, stand and socket, the IND690xx Desk can be placed on the floor or screwed to the floor resp. to a bench. The installation guidelines of the manufacturer have to be observed.

The terminal type IND690xx-Panel is executed as a built-in unit.

The terminals type IND690xx-Desk and type IND690xx-Panel may be installed in explosion hazardous areas where apparatus of category 3 are required.

The permissible ambient temperature range is $-10^{\circ}\text{C} \dots +40^{\circ}\text{C}$

Electrical data

Supply circuit $U_n = 100 \dots 240 \text{ V a. c.}, +10\%/-15\%, 50/60\text{Hz}, \text{ approx. } 70 \text{ VA}$
(connecting cable)

Output IDNet interface	Supply voltage weighing cell	max.	20 V d. c.
	Voltage interface circuit CL	max.	27 V d. c.
	Current interface circuit CL	max.	30 mA

5V-supply circuit..... energy limited circuit EEx n L IIC

$U_o = 5 \text{ V d. c.}$

permissible current drain at rated operation:

$I_{n, \text{max}} = 100 \dots 300 \text{ mA}$

The installation guidelines of the manufacturer have to be observed.

max. permissible external capacitance: $C_o = 200 \mu\text{F}$

max. permissible external inductance: $L_o = 60 \mu\text{H}$

e. g. for supply of the external keyboard type MF2 according to the Statement of Conformity TÜV 00 ATEX 1629

The max. permissible external capacitance is the sum of all circuits which are connected to the energy limited 5V-supply circuit.

The max. permissible external inductance may be connected to each energy limited 5V-supply circuit.

The electrical data of all other connections (non energy limited circuits) have to be taken from the manufacturer's data in the installation guidelines.



Schedule Statement of Conformity No. TÜV 06 ATEX 552902 X

(16) The test documents are listed in the test report No. 06 YEX 552902.

(17) Special conditions for safe use

1. The terminal type IND690xx-Panel has to be installed in that way that a degree of protection of min. IP 54 according to EN 60529 is reached.
2. The specifications regarding the energy limited circuit have to be taken from this certificate.
3. The connection and disconnection of the connections of the non energy limited circuits under voltage, as well, is only permitted during installation and for repair purposes.
4. The connected devices may be operated in explosion hazardous areas of zone 2 resp. zone 22 if they are capable for the conditions at the place of installation.

(18) Essential Health and Safety Requirements

no additional ones



1. ERGÄNZUNG

zur Bescheinigungsnummer: **TÜV 06 ATEX 552902 X**
 Gerät: Terminal Typ IND690xx-Desk und IND690xx-Panel
 Hersteller: Mettler-Toledo (Albstadt) GmbH
 Anschrift: Unter dem Malesfelsen 34
 72458 Albstadt
 Auftragsnummer: 8000555737
 Ausstellungsdatum: 17.05.2010

Die Terminals Typ IND690xx-Desk und Typ IND690xx-Panel dürfen künftig auch entsprechend den im Prüfbericht aufgeführten Unterlagen gefertigt werden.

Die Änderungen betreffen den Einbau des Display-Modul Typ GUT170X40J-9301 des Herstellers Noritake sowie die „Besonderen Bedingungen“ und die Kennzeichnung.

Diese lautet:

II 3 G Ex nA nL [nL] IIC T4 bzw.
 II 3 D Ex tD A22 T70°C IP69K

Die elektrischen Daten sowie alle weiteren Angaben gelten unverändert für diese Ergänzung.

Das Gerät entsprechend dieser Ergänzung erfüllt die Anforderungen der folgenden Normen:

EN 60079-0:2006 EN 60 079-15:2005 EN 61241-0:2006
 EN 61241-1:2004 EN 1127-1:2007

(16) Die Prüfungsunterlagen sind im Prüfbericht Nr. 10 204 555737 aufgelistet.

(17) Besondere Bedingungen

1. Das Terminal Typ IND690xx-Panel in einem geeigneten Gehäuse entsprechend EN 60079-15 bzw. EN61241-1 so zu installieren, dass eine Schutzart von mindestens IP 54 bzw. IP 6X für Anwendungen mit leitfähigem Staub gemäß EN 60529 erreicht wird.
2. Die Angaben bezüglich des energiebegrenzten Stromkreises sind dieser Bescheinigung zu entnehmen.
3. Das Verbinden und Trennen der Anschlüsse für die nicht energiebegrenzten Stromkreise unter Spannung ist nur bei der Installation oder für Reparaturzwecke zulässig.
4. Die angeschlossenen Geräte dürfen in explosionsgefährdeten Bereichen der Zone 2 und Zone 22 betrieben werden, wenn sie für die am Einsatzort vorliegenden Bedingungen geeignet sind.
5. Es ist zu beachten, dass die Oberflächentemperatur von 70 °C ohne Staubauflage gemessen wurde.
6. Bezüglich der Gefahren durch elektrostatische Entladungen ist die Betriebsanleitung des Herstellers zu beachten.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

keine zusätzlichen

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, akkreditiert durch die Zentralstelle der Länder für Sicherheitstechnik (ZLS), Ident. Nr. 0044, Rechtsnachfolger der TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

Der Leiter der Zertifizierungsstelle

Schwedt



Translation

1. SUPPLEMENT

to Certificate No.	TÜV 06 ATEX 552902 X
Equipment:	Terminals type IND690xx-Desk and type IND690xx-Panel
Manufacturer:	Mettler-Toledo (Albstadt) GmbH
Address:	Unter dem Malesfelsen 34 72458 Albstadt, Germany
Order number:	8000555737
Date of issue:	2010-05-17

In the future, the terminal type IND690xx-Desk and type IND690xx-Panel may also be manufactured according to the documents listed in the test report.

The changes refer to the installation of the display module type GUT170X40J-9301 of the manufacturer Noritake as well as the "Special conditions for safe use and the marking.

This reads:

II 3 G Ex nA nL [nL] IIC T4 resp.

II 3 D Ex tD A22 T70°C IP69K

The electrical data and all other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2006

EN 60 079-15:2005

EN 61241-0:2006

EN 61241-1:2004

EN 1127-1:2007

(16) The test documents are listed in the test report No. 10 204 555737.

(17) Special conditions for safe use

1. The terminal type IND690xx-Panel has to be installed in a suitable housing corresponding to EN 60079-15 resp. EN 61241-1 in that way that a degree of protection of min. IP 54 resp. IP 6X for use with conductive dust according to EN 60529 is reached.
2. The specifications regarding the energy limited circuit have to be taken from this certificate.
3. The connection and disconnection of the connections of the non energy limited circuits under voltage, as well, is only permitted during installation and for repair purposes.
4. The connected devices may be operated in explosion hazardous areas of zone 2 resp. zone 22 if they are capable for the conditions at the place of installation.
5. It has to be observed, that the surface temperature of 70 °C was measured without dust layer.
6. Regarding the hazards by electrostatic discharges, the manual of the manufacturer has to be observed.

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

Schwedt

Hanover office, Am TÜV 1, 30519 Hanover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590



2. ERGÄNZUNG

zur Bescheinigungsnummer: TÜV 06 ATEX 552902 X
 Gerät: Terminal Typ IND690xx-Desk und IND690xx-Panel
 Hersteller: Mettler-Toledo (Albstadt) GmbH
 Anschrift: Unter dem Malesfelsen 34
 72458 Albstadt
 Auftragsnummer: 8000425797
 Ausstellungsdatum: 05.11.2013

Für die Geräte Terminal Typ IND690xx-Desk und IND690xx-Panel gelten künftig die folgenden Angaben:

Elektrische Daten

5V-Versorgungstromkreis..... in Zündschutzart Eigensicherheit Ex ic IIC
 $U_o = 5,1 \text{ V}$
 $P_o = 7 \text{ W}$ (statischer Wert)
 höchstzulässige äußere Kapazität: $C_o = 200 \text{ } \mu\text{F}$
 höchstzulässige äußere Induktivität: $L_o = 60 \text{ } \mu\text{H}$

Die höchstzulässige äußere Kapazität ist die Summe aller an dem eigensicheren 5V-Versorgungstromkreis angeschlossenen Stromkreise.

Die höchstzulässige äußere Induktivität darf in jedem eigensicheren 5V-Versorgungstromkreis angeschlossen werden.

Für die zulässige Stromentnahme im Bemessungsbetrieb ist die Installationsanleitung des Herstellers ist zu beachten

Die elektrischen Daten für alle übrigen Anschlüsse (nicht eigensichere Stromkreise) sind den Angaben des Herstellers in der Betriebsanleitung zu entnehmen.

Die Kennzeichnung lautet künftig:

II 3 G Ex nA ic [ic] IIC T4 Gc

II 3 D Ex tc T70 °C IIIB Dc

Alle weiteren Angaben gelten unverändert.

Das Gerät incl. dieser Ergänzung erfüllt die Anforderungen der folgenden Normen:

EN 60079-0:2012
 EN 60079-31:2009

EN 60079-11:2012

EN 60079-15:2010

(16) Die Prüfungsunterlagen sind im Prüfbericht Nr. 13 214 129090 aufgelistet.



2. Ergänzung zur Bescheinigungsnummer TÜV 06 ATEX 552902 X

(17) Besondere Bedingungen

1. Entsprechend EN 60079-15, Abschnitt 6.3.1 gilt für den Einsatz in explosionsgefährdeten Bereichen durch Gas der Zone 2 für das Gerät „IND690xx-Panel“ Folgendes:
 - a) Das Gerät ist an einem gemäß der IEC 60079-0 geprüften Gehäuse so zu installieren, dass die Anforderungen der Schutzart IP54 erfüllt sind.
 - oder
 - b) Das Gerät ist an einem gemäß der IEC 60079-0 geprüften Gehäuse zu errichten, dass die Anforderungen der Schutzart IP4X erfüllt ist. Das Gehäuse darf dann ausschließlich in Bereichen installiert werden, die ihrerseits einen geeigneten Schutz gegen das Eindringen von Fremdkörpern oder Flüssigkeiten bieten.
2. Das Gerät „IND690xx-Panel“ ist für den Einsatz in explosionsgefährdeten Bereichen durch Staub der Zone 22 an einem gemäß der IEC 60079-0 geprüften Gehäuse so zu installieren, dass die Anforderungen der Schutzart IP5X erfüllt sind (EN 60079-31, Tabelle 1).
3. Die Geräte „Terminal Typ IND690xx-Desk und IND690xx-Panel“ dürfen für den Einsatz in explosionsgefährdeten Bereichen durch Gas der Zone 2 in einem Bereich mit einem Verschmutzungsgrad von nicht größer als 2 eingesetzt werden (EN 60079-15, Abschnitt 13). Der Versorgungsstromkreis muss entsprechend der Überspannungskategorie II nach IEC 60664-1 begrenzt sein (EN 60079-11, Abschnitt F.3.2).
4. Die Angaben bezüglich des eigensicheren Stromkreises sind dieser Bescheinigung zu entnehmen.
5. Das Verbinden und Trennen der Anschlüsse für die nicht eigensicheren Stromkreise unter Spannung ist nur zulässig, wenn keine explosionsfähige Atmosphäre vorhanden sein kann.
6. Die angeschlossenen Geräte dürfen in explosionsgefährdeten Bereichen der Zone 2 und Zone 22 betrieben werden, wenn sie für die am Einsatzort vorliegenden Bedingungen geeignet sind.
7. Die Geräte „Terminal Typ IND690xx-Desk und IND690xx-Panel“ dürfen nur in Räumen oder an Stellen betrieben werden, in denen erwartungsgemäß keine starken elektrischen Feldstärken (Vermeidung elektrostatischer Aufladung) auftreten können.
8. Geräte mit beschädigten Dichtungen dürfen in explosionsgefährdeten Bereichen nicht betrieben werden.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

keine zusätzlichen

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, benannt durch die Zentralstelle der Länder für Sicherheitstechnik (ZLS), Ident. Nr. 0044, Rechtsnachfolger der TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

Der Leiter der benannten Stelle

Schwedt

Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590



Translation

2. SUPPLEMENT

to Certificate No.	TÜV 06 ATEX 552902 X
Equipment:	Terminal type IND690xx-Desk and IND690xx-Panel
Manufacturer:	Mettler-Toledo (Albstadt) GmbH
Address:	Unter dem Malesfelsen 34 72458 Albstadt
Order number:	8000425797
Date of issue:	2013-11-05

In the future, for the apparatus terminal type IND690xx-Desk and IND690xx-Panel, the following details are valid:

Electrical data

5V-supply circuit..... in type of protection intrinsic safety Ex ic IIC
 $U_o = 5.1 \text{ V}$
 $P_o = 7 \text{ W (static value)}$
 max. permissible external capacitance: $C_o = 200 \text{ } \mu\text{F}$
 max. permissible external inductance: $L_o = 60 \text{ } \mu\text{H}$

The max. permissible external capacitance is the sum of all circuits which are connected to the intrinsically safe 5V-supply circuit.

The max. permissible external inductance may be connected to each intrinsically safe 5V supply circuit.

The electrical data of all other connections (non intrinsically safe circuits) have to be taken from the manufacturer's data in the installation guidelines.

In the future, the marking reads:

II 3 G Ex nA ic [ic] IIC T4 Gc

II 3 D Ex tc T70 °C IIIB Dc

All other details apply unchanged.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2012
 EN 60079-31:2009

EN 60079-11:2012

EN 60079-15:2010

(16) The test documents are listed in the test report No. 13 214 129090.



2. Supplement to Certificate No. TÜV 06 ATEX 552902 X

(17) Special conditions for safe use

1. According to EN 60079-15, section 6.3.1, for the operation in explosion hazardous areas caused by gas of zone 2 for the apparatus „IND690xx-Panel“, the following is valid:
 - a) The apparatus has to be mounted at a housing tested according to IEC 60079-0, so that the requirements of degree of protection IP54 are adhered to.
 - or
 - b) The apparatus has to be mounted at a housing tested according to IEC 60079-0, so that the requirements of degree of protection IP4X are adhered to. Then, the apparatus may exclusively be mounted in locations providing adequate protection against the entry of solid foreign objects or liquids.
2. For the operation in explosion hazardous areas caused by dust of zone 22, the apparatus „IND690xx-Panel“ has to be mounted at a housing tested according to IEC 60079-0, so that the requirements of degree of protection IP5X are adhered to (EN 60079-31, table 1).
3. For the operation in explosion hazardous areas caused by gas of zone 2, the apparatus „Terminal type IND690xx-Desk and IND690xx-Panel“ are allowed to be operated in an area of not more than pollution degree 2 (EN 60079-15, section 13). The supply circuit has to be limited to overvoltage category II as defined in IEC 60664-1 (EN 60079-11, section F.3.2).
4. The specifications regarding the intrinsically safe circuit have to be taken from the certificate.
5. The connection and disconnection of the connections of the non intrinsically safe circuits under voltage is only permitted, if no explosion hazardous atmosphere can be available.
6. The connected devices are allowed to be operated in explosion hazardous areas of zone 2 or zone 22, if they are suitable for the conditions available at the place of operation.
7. The apparatus „Terminal IND690xx-Desk and IND690xx-Panel“ are only allowed to be operated in rooms or locations, where from experience no intense electric field strength can occur (avoidance of electrostatic charge).
8. Apparatus with damaged sealings are not allowed to be operated in explosion hazardous areas.

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

Schwedt

Hanover office, Am TÜV 1, 30519 Hannover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590



22012998B

Subject to technical changes

© Mettler-Toledo (Albstadt) GmbH 11/13

Printed in Germany 2201298B

Mettler-Toledo (Albstadt) GmbH

D-72458 Albstadt

Tel. ++49-7431-14 0, Fax ++49-7431-14 232

Internet: <http://www.mt.com>

Anhang zur Installationsanleitung

Dokumentation 22012802

Anhang zur Dokumentation 22012802 Kapitel 5 "Technische Daten"

Aufgrund unseres Nachtrags zur IND690xx Zulassung (Konformitätsaussage Nummer: TÜV 06 ATEX 552902 X) wurde die, in der Installationsanleitung, angegeben Gerätekategorie aktualisiert.

Bisherige Gerätekategorie:

II 3 G Ex nA nL [nL] IIC T4
II 3 D Ex tD A22 T70°C IP69k

Gültige Gerätekategorie ab 15.11.2013

II 3G Ex nA ic [ic] IIC T4 Gc
-10°C ≤ Ta ≤ +40°C

II 3D Ex tc T70°C IIIB Dc
IP6x

Diese Aktualisierungen wurden aufgrund Normänderungen notwendig und vollzogen. Nach folgenden europäischen Normen wurde das IND690xx geprüft:

EN60950
EN 60079-0:2012
EN 60079-11:2012
EN 60079-15:2010
EN 60079-31:2009

Des Weiteren müssen folgende Werte beim Anschließen von externen Geräten an IDNet, SICS, RS232 sowie PS/2 Schnittstellen beachtet werden:

Elektrische Daten

5V-Versorgungstromkreis..... in Zündschutzart Eigensicherheit Ex ic IIC

$$U_o = 5,1 \text{ V}$$

$$P_o = 7 \text{ W (statischer Wert)}$$

$$\text{höchstzulässige äußere Kapazität: } C_o = 200 \text{ } \mu\text{F}$$

$$\text{höchstzulässige äußere Induktivität: } L_o = 60 \text{ } \mu\text{H}$$

Die höchstzulässige äußere Kapazität ist die Summe aller an dem eigensicheren 5V-Versorgungstromkreis angeschlossenen Stromkreise.

Die höchstzulässige äußere Induktivität darf in jedem eigensicheren 5V-Versorgungstromkreis angeschlossen werden.

Für die zulässige Stromentnahme im Bemessungsbetrieb ist die Installationsanleitung des Herstellers ist zu beachten

Die elektrischen Daten für alle übrigen Anschlüsse (nicht eigensichere Stromkreise) sind den Angaben des Herstellers in der Betriebsanleitung zu entnehmen.

IND690xx		Externes Gerät bei Anschluss an IDNet, SICS, RS232 sowie PS/2 Schnittstelle
U_o	\leq	U_i or U_{max}
P_o	\leq	P_i or P_{max}
C_o	\geq	C_i + C Kabel
L_o	\geq	L_i + L Kabel

Bemerkungen:

- Die PS/2 Schnittstelle ist eigensicher (5V).
- Die Werkseinstellung der RS232 sowie SICS Schnittstelle ist eigensicher (5V).
- Den 5V Pin der IDNet Schnittstelle darf nicht verwendet werden. Für die Mettler Toledo Wägebrücken werden nur die 12V sowie die 30V verwendet.
- Bei Verwendung der eigensicheren 5V Spannung muss die Norm EN60079-14 beachtet werden.

Appendix for Installation manual

Documentation 22012803

Appendix for Documentation 22012802 Chapter 5 "Technical Data"

Due to the 2. Supplement of the IND690xx certificate (Certificate No.: TÜV 06 ATEX 552902 X) there is a update needed in respect of the type of protection.

Previous type of protection:

II 3 G Ex nA nL [nL] IIC T4
II 3 D Ex tD A22 T70°C IP69k

Valid type of protection as from 15.11.2013:

II 3G Ex nA ic [ic] IIC T4 Gc
-10°C ≤ Ta ≤ +40°C

II 3D Ex tc T70°C IIIB Dc
IP6x

This updates were necessary and completed due to changes in the latest European standards. The IND690xx was tested according the below mentioned European Standards:

EN60950
EN 60079-0:2012
EN 60079-11:2012
EN 60079-15:2010
EN 60079-31:2009

Furthermore following values has to be considered as soon as you are going to use an external device on IDNet, SICS, RS232 and PS/2 interface(s).

Electrical data

5V-supply circuit..... in type of protection intrinsic safety Ex ic IIC

$$U_o = 5.1 \text{ V}$$

$$P_o = 7 \text{ W (static value)}$$

$$\text{max. permissible external capacitance: } C_o = 200 \text{ } \mu\text{F}$$

$$\text{max. permissible external inductance: } L_o = 60 \text{ } \mu\text{H}$$

The max. permissible external capacitance is the sum of all circuits which are connected to the intrinsically safe 5V-supply circuit.

The max. permissible external inductance may be connected to each intrinsically safe 5V supply circuit.

The electrical data of all other connections (non intrinsically safe circuits) have to be taken from the manufacturer's data in the installation guidelines.

IND690xx		External device connected to an IDNet, SICS, RS232 and PS/2 interface
U_o	\leq	U_i or U_{max}
P_o	\leq	P_i or P_{max}
C_o	\geq	$C_i + C_{\text{cable}}$
L_o	\geq	$L_i + L_{\text{cable}}$

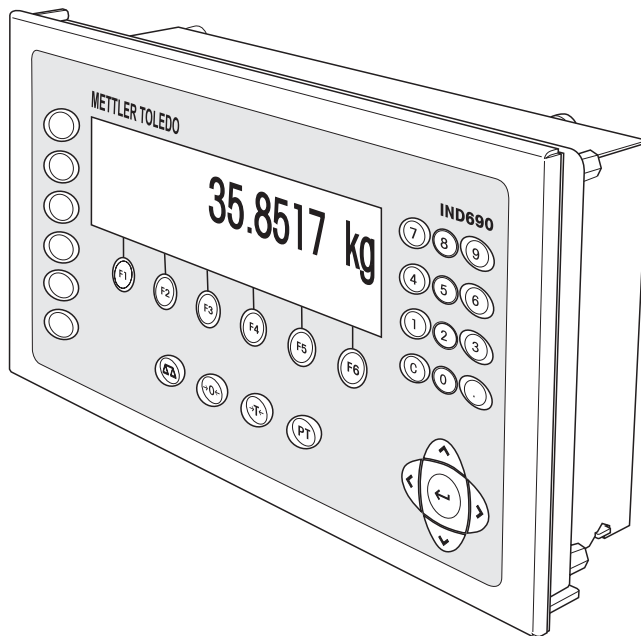
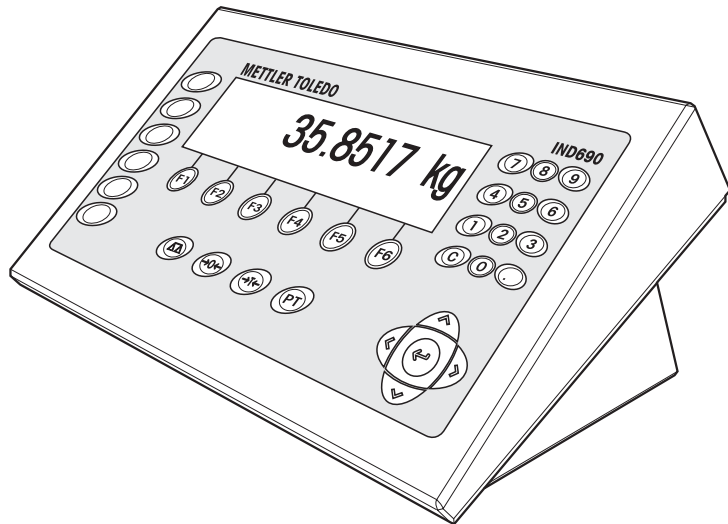
Notes:

- The PS/2 interface is intrinsically safe (5V).
- Factory setting of the RS232 and SICS interface is intrinsically safe (5V).
- The 5V Pin of the IDNet Interface must not be used. All Mettler Toledo weighing platforms are using either 12 V or 30V.
- In case of using the intrinsically safe 5V voltage please consider the latest European standard EN 60079-14.

Operating instructions

METTLER TOLEDO MultiRange IND690-Base weighing terminals

METTLER TOLEDO



www.mt.com/support

ServiceXXL

Tailored Services

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a ServiceXXL agreement tailored to your needs and budget.

We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your METTLER TOLEDO product.

Contents

	Page
1	Safety instructions 5
1.1	Safety instructions for IND690xx 5
1.2	Safety instructions for IND690-24V 7
1.3	Safety instructions for IND690 7
2	Introduction and commissioning 8
2.1	Documentation 8
2.2	Applications 8
2.3	IND690 weighing terminals 9
2.4	Cleaning 10
3	Basic functions 11
3.1	Switching on and off 11
3.2	Charge indicator in storage battery operation (IND690-24V only) 11
3.3	Setting to zero 12
3.4	Taring 12
3.5	Weighing 14
3.6	Working with several weighing platforms 14
4	Additional functions 16
4.1	Weighing with the DeltaTrac 17
4.2	Dynamic weighing 19
4.3	Change weight unit 19
4.4	Working in a higher resolution 20
4.5	Display gross weight 20
4.6	Specifying dynamic set points 20
4.7	Multiplicative tare function 21
4.8	Additive tare function 21
4.9	Sandwich tare 21
4.10	Totalizing 22
4.11	Display ID code and test weighing platform 23
4.12	Identifications 24
4.13	Recall information 25
4.14	Print or transfer data 27
4.15	Enter values with barcode or RFID reader 27
4.16	Working with external keypad 28
4.17	Working with a second display 29
4.18	Recall data from Alibi memory 29
5	Settings in the master mode 33
5.1	Overview of the master mode 33
5.2	Operating the master mode 34
5.3	TERMINAL master mode block 36
5.4	APPLICATION master mode block 44
5.5	SCALE master mode block 44
5.6	INTERFACE master mode block 52

6	Interface description.....	77
6.1	General	77
6.2	MMR command set	78
6.3	METTLER TOLEDO continuous mode	89
6.4	METTLER TOLEDO SICS command set.....	91
6.5	Profibus DP communication with a PLC	104
7	Application blocks	112
7.1	Syntax and formats.....	112
7.2	List of the application blocks.....	115
8	What to do if ...?.....	122
9	Technical data and accessories.....	125
10	Appendix	126
10.1	ASCII table.....	126
10.2	Key codes	127
10.3	Notes on CL handshake	128
10.4	Selection possibilities for the assignment of the digital inputs and outputs	129
10.5	Disposal.....	129
11	Index.....	130

1 Safety instructions

1.1 Safety instructions for IND690xx



The explosion-protected IND690xx weighing terminal fulfills Device category 3 and is approved for operation in Zone 2 (gases) and Zone 22 (dusts) hazardous areas.

There is an increased risk of injury and damage when the IND690xx weighing terminal is used in a potentially explosive atmosphere.

Special care must be taken when working in such hazardous areas. The code of practice is oriented to the "Safe Distribution" concept drawn up by METTLER TOLEDO.

- Competence**
- ▲ The IND690xx weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorised METTLER TOLEDO service personnel.
 - ▲ The mains connection may only be connected or disconnected by the owner's electrician.
- Ex approval**
- ▲ For the exact specification please refer to the statement of conformity.
 - ▲ In order to avoid electrostatic charging the IND690xx may only be installed in rooms or areas at which strong electric field strengths cannot occur from experience.
 - ▲ No modifications may be made to the terminal and no repair work may be performed on the modules. Any weighing platform or system modules that are used must comply with the specifications contained in the installation instructions. Non-compliant equipment jeopardizes the safety of the system, cancels the Ex approval and renders any warranty or product liability claims null and void.
 - ▲ The cable glands must be tightened so that a strain relief of ≥ 20 N per mm cable diameter is ensured.
 - ▲ When connecting external devices, always observe the maximum permissible connected loads, see installation information. It must be ensured that no voltages are fed into the IND690xx than it itself provides. The interface parameters have to fulfill the standard.
 - ▲ Peripheral devices without an Ex approval may only be operating in non-hazardous areas. It must be ensured that no voltages are fed into the IND690xx than it itself provides. In addition the maximum permissible connected loads have to be observed, see Page installation information. The interface parameters have to fulfill the standard.
 - ▲ The safety of a weighing system including the IND690xx weighing terminal is only guaranteed when the weighing system is operated, installed and maintained in accordance with the respective instructions.

- ▲ Also comply with the following:
 - the instructions for the system modules
 - the regulations and standards in the respective country
 - the statutory requirement for electrical equipment installed in hazardous areas in the respective country, e.g. EN 60079-14 and EN 6124-14
 - all instructions related to safety issued by the owner
- ▲ Before initial start-up and following service work, check the explosion-protected weighing system for the proper condition of all safety-related parts.

Operation

- ▲ Prevent the build-up of static electricity. Therefore:
 - only operate the IND690xx in rooms or areas at which strong electric field strengths cannot occur from experience,
 - always wear suitable working clothes when operating or performing service work on the system,
 - do not rub or wipe off the keyboard surface with a dry cloth or glove.
- ▲ Do not use protective hoods.
- ▲ Prevent damage to the weighing terminal. Hairline cracks in the keyboard membrane are also considered damage.
- ▲ If the IND690xx weighing terminal, accompanying weighing platforms or accessories are damaged:
 - Switch off weighing terminal.
 - Separate the weighing terminal from the mains in accordance with the applicable regulations.
 - Secure the weighing terminal against accidental start-up.

Leakages

- ▲ The IND690xx panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. The respective national standards furthermore have to be observed. At least a freedom-from-leaks rating IP54 is required in hazardous areas, in case of conductive dust IP6X.

1.2 Safety instructions for IND690-24V



- ▲ Never operate the IND690-24V weighing terminal in hazardous areas; there are special scales in our product line for this purpose.
- ▲ The IND690-24V weighing terminal may only be connected to a power supply (storage battery or mains) having a 24 VDC SELV power circuit in accordance with EN 60950.
- ▲ Short-circuit danger!
Ensure that the power supply is connected properly:
brown lead +24 V
blue lead 0 V or negative pole
- ▲ The safety of the unit is endangered if it is not operated in accordance with these operating instructions.
- ▲ Only authorized personnel may open the IND690-24V weighing terminal.

Competence

- ▲ The IND690-24V weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorised METTLER TOLEDO service personnel.

Leakages

- ▲ The IND690-24V panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. The respective national standards furthermore have to be observed.

1.3 Safety instructions for IND690



- ▲ Do not operate the IND690 weighing terminal in hazardous areas. We have special suitable scales in our range of products for hazardous areas.
- ▲ Ensure that the power socket outlet for the IND690 weighing terminal is earthed and easily accessible, so that it can be de-energised rapidly in emergencies.
- ▲ Ensure that the supply voltage at the installation site lies within in the range of 100 V to 240 V.
- ▲ The safety of the device cannot be ensured if it is not operated in accordance with these operating instructions.
- ▲ Only authorised personnel may open the IND690 weighing terminal.

Competence

- ▲ The IND690 weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorised METTLER TOLEDO service personnel.

Leakages

- ▲ The IND690 panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. The respective national standards furthermore have to be observed.

2 Introduction and commissioning

2.1 Documentation

The weighing terminal comes supplied with a CD containing all the documentation on the IND690 weighing system.

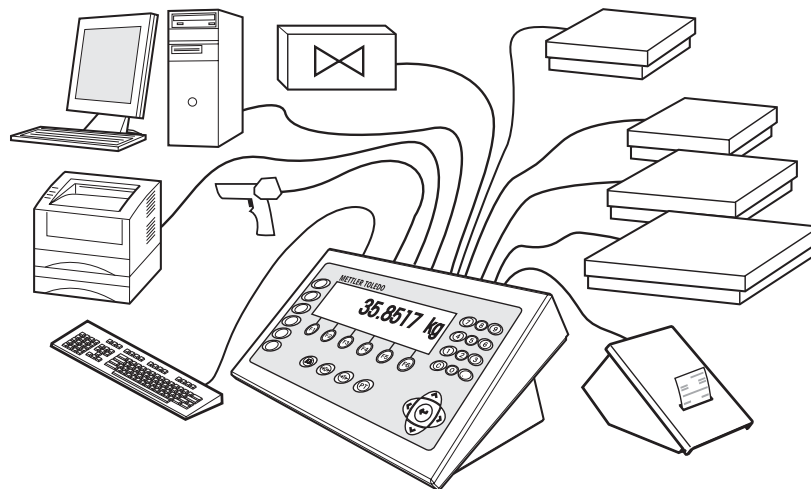
These installation instructions describe operation of the IND690 with the basic software Base-690 and all possible interfaces.

If your weighing terminal is equipped with application software (Batch-690, Com-690, Control-690, Count-690, Fill-690, Form-690, FormXP-690, Sum-690) you'll find the application specific information in the corresponding operating instructions.

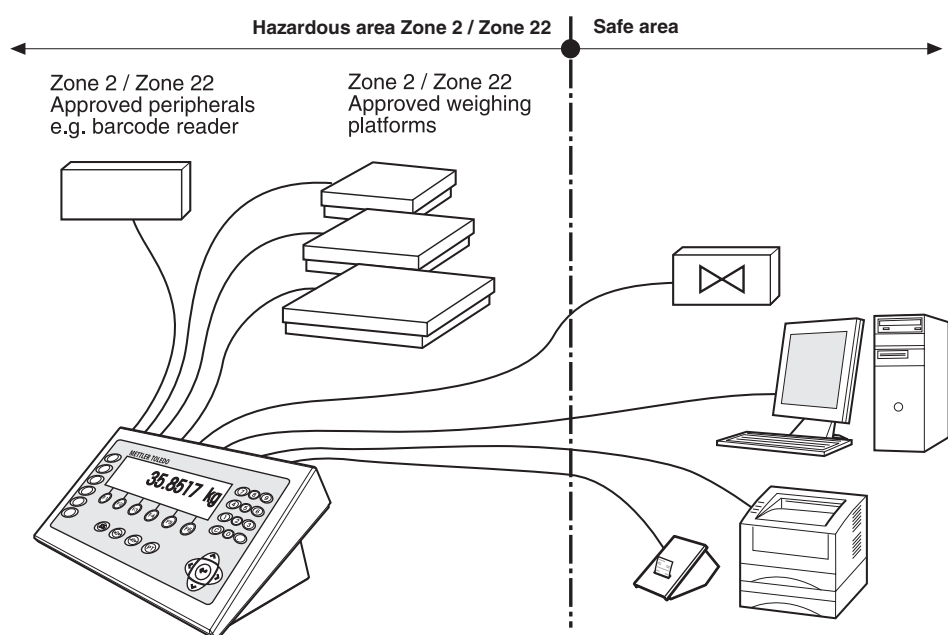
2.2 Applications

With the weighing terminals the following applications are possible:

IND690
IND690-24V



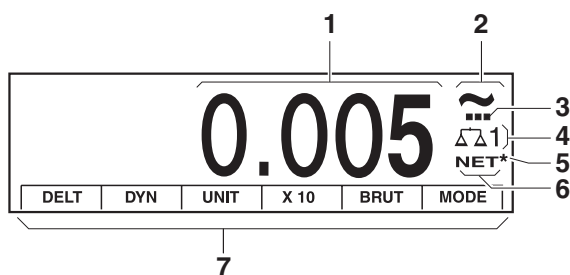
IND690xx



- Multi-scale operation with up to 4 weighing platforms with IND690 resp. up to 3 weighing platforms with IND690xx and IND690-24V, including weighing platforms with an analog signal output.
- Up to 9 data interfaces
 - for printing,
 - for data exchange with a computer,
 - for connecting a barcode reader,
 - for control, e.g. of valves or flaps,
 - for connecting reference scales,
 - for connecting an external keypad.

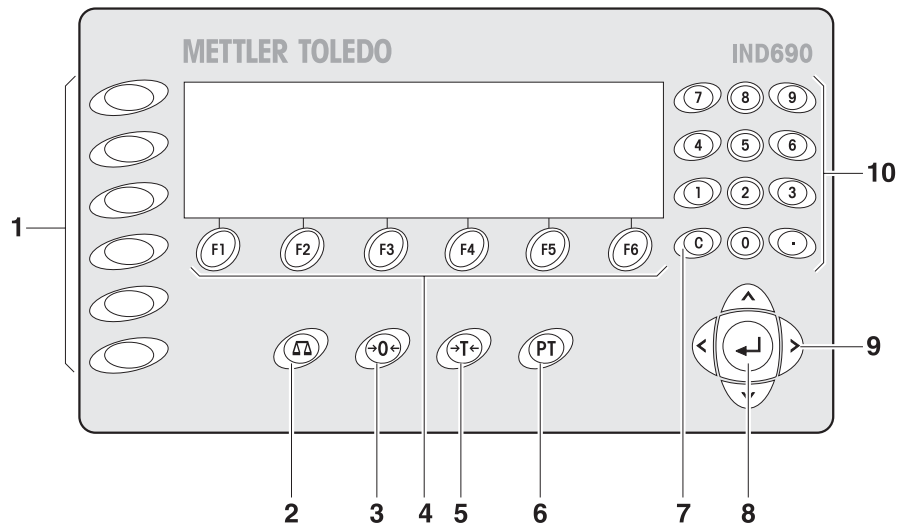
2.3 IND690 weighing terminals

2.3.1 Display



- 1 Weight display BIG WEIGHT® with sign and decimal point
- 2 Stability monitor: lights up until the weighing platform has levelled out, then the weight unit appears here
- 3 Range display for multi-range weighing platforms
- 4 Number of the weighing platform: shows the weighing platform just selected
- 5 Symbol * for identifying weight values in the second unit or in a higher resolution
- 6 NET symbol for marking net weight values
- 7 Assignment of the function keys

2.3.2 Keypad



- 1 CODE A ... CODE F keys – enter identification data
- 2 SCALE key – select scale
- 3 ZERO-SET key – set scale to zero, test scale
- 4 Function keys F1 ... F6 – the current assignment is shown in the display above the key
- 5 TARA key – tare scale
- 6 TARE SPECIFICATION key – enter known tare values numerically
- 7 CLEAR key – clear entries and values
- 8 ENTER key – accept and transfer data
- 9 Cursor keys
- 10 Numeric keypad with decimal point

2.4 Cleaning



DANGER OF SHOCK

→ Do not open the weighing terminal to clean.

CAUTION

→ Make sure that unused connection sockets are covered with protective caps to protect the socket contacts from moisture and dirt.

Cleaning

→ Wipe off the weighing terminal with a commercially available glass or plastic cleaner.

3 Basic functions

3.1 Switching on and off

Switch on from the standby mode

→ Press any key.

The display shows a weight value based on the last tare value and zero point.

Note

We recommend leaving the device switched on when it is operated in humid areas or is subjected to high temperature fluctuations. This ensures that condensate does not form on the device inside.

Switch off

→ Press function key OFF.

The display goes out and the IND690 weighing terminal is in the standby mode. The zero point and tare value remain saved.

Note

If the function key OFF does not appear in the current assignment, press the cursor key < or > several times if necessary until OFF is displayed.

Switch on with restart

1. Relieve weighing platform.
2. Press function key OFF and hold down until METTLER TOLEDO IND690 (factory setting) or text you have specified appears in display. Then weight value appears.

The weighing platform is restarted.

Note

The text which appears during switch-on with a restart is saved in the text memory 20, see page 37.

3.2 Charge indicator in storage battery operation (IND690-24V only)

If the supply voltage drops below 22.5 V, a continuous whistle sound is emitted for approx. 10 to 30 minutes.


If the supply voltage drops below 21 V, the IND690-24V weighing terminal switches off automatically.

→ If the whistle sound is emitted, complete the current weighing process and charge or replace the storage battery.

3.3 Setting to zero

Setting to zero corrects the influence of minor dirt on the load plate.


In the case of excessive dirt which cannot be compensated by setting to zero, the display shows OUT OF RANGE.

- Manual zero set**
1. Relieve weighing platform.
 2. Press .
- The display shows 0.000 kg.

Automatic zero set On certified weighing platforms the zero point of the weighing platform is automatically corrected when the weighing platform is relieved.
The automatic zero set can be switched off in the master mode on noncertified weighing platforms.

3.4 Taring

3.4.1 Manual taring

1. Place empty container on scale.
 2. Press .
- The tare weight is saved and the weight display set to zero.
The display shows the NET symbol.

Notes

- When the weighing platform is relieved, the saved tare weight is displayed with a negative sign.
- The weighing platform only saves **one** tare value.

3.4.2 Automatic taring

Condition

AUTOTARA ON must be set in the master mode, see page 48.

- Place empty container on scale.
The container weight is automatically saved and the weight display set to zero.
The display shows the NET symbol.

Note

The saved tare weight is automatically deleted with the load is removed from the weighing platform.

3.4.3 Specify tare weight

Enter numerically

1. Press **PT**.
2. Enter tare weight (container weight) and confirm with **←**.
When weighing platform is relieved, the entered tare weight is displayed with a negative sign.

Note

The weight unit for entering the tare weight can be selected with the cursor keys **<** or **>**.

Correct entry

→ Clear the entry character by character with **C** and repeat correctly.

Copy tare constant

The IND690 has 999 tare memories for frequently used tare weights programmed in the master mode.

1. Enter memory number: 1... 999.

2. Press **PT**.

The memory number, the saved tare weight and the designation appear briefly in the display. The next to appear is the weight display with the net weight referred to the called-up tare weight and the symbol NET.

3.4.4 Recall currently saved tare weight

The saved tare weight can be recalled at any time.

→ Enter INFO, **PT** sequence.

The saved tare weight is displayed.

3.4.5 Clear tare weight

→ Relieve weighing platform and tare.

– or –

→ Specify tare weight 0.

– or –

→ Enter **PT**, **C** sequence.

Note

If AUTO CLEAR TARE ON is selected in the master mode, the saved tare weight is automatically deleted with the load is removed from the weighing platform.

3.5 Weighing

Weighing without taring

- Lay weighing sample on weighing platform.
Gross weight (total weight) is displayed.


Weighing with taring

1. Place the empty container on the weighing platform and tare.
The display shows the net weight and the NET symbol.

Weighing with tare specification

1. Place filled container on weighing platform.
The display shows the gross weight (total weight).
2. Specify tare weight or recall tare memory.
The display shows the net weight (container content) and the NET symbol.

Note

If the MinWeight function is activated in the master mode, weight values that fall below the defined minimum weight are identified with the blinking symbol .


3.6 Working with several weighing platforms

Up to 4 weighing platforms can be connected to the IND690, and up to 3 weighing platforms can be connected to the IND690xx and IND690-24V.

Depending on the setting in master mode, only the currently active scale appears in the display (serial Multi-scale mode) or all scales are operated at the same time (parallel multi-scale mode). A constantly updated sum scale is also available in parallel multi-scale mode.


3.6.1 Switch over weighing platform

The weighing platform currently selected is shown on the terminal.

- Press .

The next weighing platform is selected.

– or –

- Enter number of weighing platform and press .

The desired weighing platform is selected.

3.6.2 Displaying several scales simultaneously

Condition

PARALLEL SCALE is selected in the master mode.

→ Press the cursor key < or > as often as necessary until all scales are shown in the display.

Notes

- When all scales are displayed, only the function keys UNIT and GROSS are still active. These function keys then act on all connected scales.
- The sum scale can only be operated non-verifiably. It is therefore identified by the symbol Σ .
- The calculation mode and resolution of the sum scale can be configured in master mode, see Section 5.5.5.

4 Additional functions

The assignment of the 6 function keys of the IND690 weighing terminal differs depending on the weighing task. The current assignment is shown above the function keys. The cursor keys < or > can then be used to switch to other function key assignments.

Independent of the application software, the IND690-Base has the following additional functions:

DELT	DYN	UNIT	X 10	GROSS	MODE
Weighing with the DeltaTrac, see 4.1	Dynamic weighing, see 4.2	Change weight unit, see 4.3	Increase resolution, see 4.4. This key is not assigned when the control mode is continually switched on.	Display gross weight, see 4.5	Activate master mode, see Chapter 5

MUL-T	ADD-T	ITARE	SETP	OFF	INFO
Multiplicative tare function, see 4.7	Additive tare function, see 4.8	Sandwich tare, see 4.9	Set dynamic set points, see 4.6. This key is not assigned if no set points are defined.	Switching off terminal	Calling up information

Without additional application software, the IND690-Base still provides the following function keys for totalizing:

PLUS	MAN	CANC	SUM	TARG	ITEM
Totalizing is described in Section 4.10					

4.1 Weighing with the DeltaTrac

The DeltaTrac is an analog display which makes it easier to read the weighing results.

In the master mode you can select how the DeltaTrac is displayed for the various weighing tasks FILLING, CLASSIFYING or CHECKWEIGHING.

Notes

- With the DeltaTrac signals you can also control lamps, flaps or valves, see page 65.
- With the AnalogOut-690 interface the net value can be output as an analog current or voltage signal, see page 68.

Application FILLING

For weighing-in to a target weight with tolerance monitoring.

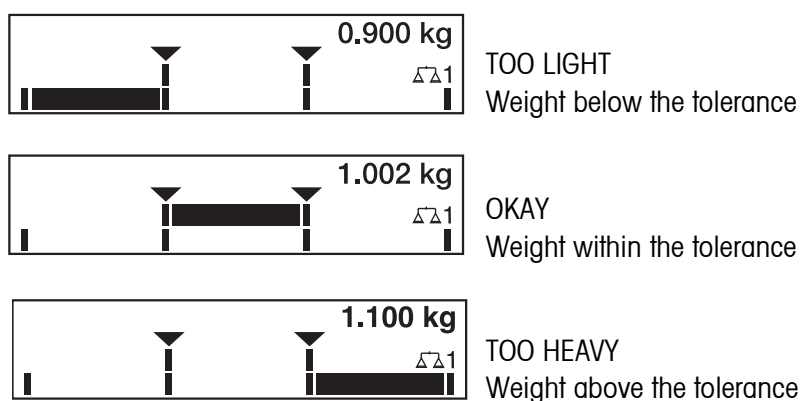
Example: Target weight = 1.000 kg, tolerance = +/-1 %



Application CLASSIFYING

To evaluate test samples as OKAY, TOO LIGHT or TOO HEAVY, based on a target weight and specified +/- tolerances.

Example: Target weight = 1.000 kg, tolerance = +/-1 %



Application CHECKWEIGHING

For determining the difference between the target and actual weight.

Example: Target weight = 1.000 kg, tolerance = +/-1 %

0.900 kg
▼▼▼ DELTA -0.100 kg ▲▲1

Weight below the tolerance
Difference: -0.100 kg

1.002 kg
DELTA ▼▼▼ +0.002 kg ▲▲1

Weight within the tolerance
Difference: +0.002 kg

1.100 kg
DELTA +0.100 kg ▼▼▼ ▲▲1

Weight above the tolerance
Difference: +0.100 kg

4.1.1 Preset DeltaTrac target values

Enter numerically

1. Press DELT key.
2. Enter target weight and confirm with \leftarrow .
3. Enter the lower tolerance TOL (-) as a % of the target weight and confirm with \leftarrow .
4. Enter the upper tolerance TOL (+) as a % of the target weight and confirm with \leftarrow .

Notes

- The weight unit for entering the DeltaTrac target values can be selected with the cursor keys < or >.
- The terminal suggests symmetrical tolerances TOL. (+) and TOL. (-). However, different tolerances are also permissible.

Correct entry

→ With \textcircled{C} the entry is corrected character by character.

Copy constants

The IND690 weighing terminal has 999 DeltaTrac memories for frequently used target values and tolerances, which are programmed in the master mode.

1. Enter number of DeltaTrac memory: 1 ... 999.
2. Press DELT key.


Reference sample

1. Press DELT key.
2. Lay sample on weighing platform and confirm with $\textcircled{\Delta}$.
3. Only for FILLING and CLASSIFYING: Enter tolerance and confirm with \leftarrow .
4. Remove sample from weighing platform.

Limits	Minimum target value	10 Digit, can be adjusted in master mode, see page 38
	Maximum target value	configured maximum load
	Minimum tolerance	1 Digit
	Maximum tolerance	100 %

Note

If the limits are not observed, a message appears in the display, e.g. MIN-DEL = ..., for too small a target value.

Clear DeltaTrac target value → Press DELT  key sequence.
DELTA CLEARED appears briefly in the display, then the weight is shown.

4.2 Dynamic weighing

With the dynamic weighing function you can weigh restless weighing samples, e.g. live animals. To do this, specify the number of weighing cycles for which the mean weight value is to be taken.

1. Set container on the weighing platform.
2. Tare weighing platform.
3. Place weighing sample in container.
4. Press DYN key and enter number of weighing cycles.
Possible values: 1 ... 255.
5. Start dynamic weighing with \leftarrow .
6. After cycle time has expired, center line of display shows:
RESULT x.xxxx kg.
This display is retained until the next weighing is started or until it is cleared.

Delete result → Press .

Notes

- Dynamic weighing results are automatically printed when AUTO PRINT is set in the master mode, see page 41.
- During dynamic weighing it is not possible to display the weight value BIG WEIGHT DISPLAY, which fills the entire display.
- Dynamic weighing can also be started with the interface command AW016..., see page 116.

4.3 Change weight unit

If an additional, second weight unit is configured in the master mode, it is possible to switch back and forth between the two weight units.

→ Press UNIT key.
The weight value is shown in the second unit.

Note

Possible second weight units are: mg, g, kg, lb, oz, ozt, dwf.

4.4 Working in a higher resolution

Depending on the setting of the master mode block CONTROL MODE (see page 41), the weight value can be displayed in a higher resolution continuously or when called. Weight values in a higher resolution are marked with a *.

Displaying weight values in higher resolution

→ Press X 10 key.

The weight value is displayed in at least a 10x higher resolution.

The higher resolution is displayed until the X 10 key is pressed again.

Note

With certified weighing platforms, the weight value only appears in a higher resolution as long as the X 10 key is pressed.

4.5 Display gross weight

The gross weight can only be displayed when a tare weight has been saved.

→ Press GROSS key and hold down.

The gross weight is displayed.

4.6 Specifying dynamic set points

Conditions

- 4 I/O-690 interface or 8-690 relay box connected.
- SETPOINT MODE ON is selected and a dynamic switching point is allocated to at least one output in the mastermode.

Use If the specified set point values are exceeded or dropped below, digital outputs are set, e.g. for controlling lamps, flaps, valves etc.

Dynamic set points can be set for each weighing procedure individually.

The set points are retained until they are overwritten with a new value or deleted.

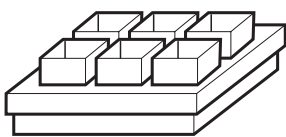
Specifying set points

1. Press the SETP key; the entry prompt for the first dynamic set point appears.
2. Enter the desired weight value and confirm with ↵.
3. If additional dynamic set points are configured, the entry prompt appears for the next dynamic set point.
4. Enter the desired weight value and confirm with ↵.
5. Repeat the procedure until all set points have been entered.

Deleting set points

→ Press the SETP key and delete the value with the .

4.7 Multiplicative tare function



The multiplicative tare function is particularly suitable when pallets with identical containers are filled. If the number of containers and tare of the individual container are known, the weighing terminal calculates the total tare.

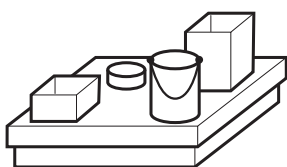
1. Press MUL-T key.
2. Enter known tare weight of individual container and confirm with \leftarrow .
3. Enter number of containers and confirm with \leftarrow .

When the weighing platform is relieved, the total tare value is shown in the display with a negative sign.

Note

The weight unit for entering the tare weight can be selected with the cursor keys < and >.

4.8 Additive tare function



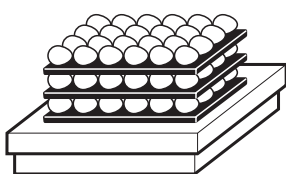
With the additive tare function you can subtract the tare of additional containers with a known tare weight for related weighings, e.g. if containers with different weights are filled on one pallet.

1. Place container on scale and press ADD-T key.
2. Enter known tare weight and confirm with \leftarrow .
The total net weight appears in the weight display.

Note

The weight unit for entering the tare weight can be selected with the cursor keys < or >.

4.9 Sandwich tare



With the sandwich tare function you can detect additional tare weights for related weighings without losing the total gross and total net.

Example

In production or shipping boxes are laid between individual layers in the transport container. The weight of these boxes can be subtracted with this function.

1. Press ITARE key.
2. Place sandwich tare, e.g. box, on scale and confirm with \leftarrow .
The net weight is retained.

4.10 Totalizing

Totalizing is only possible at the IND690-Base without additional software.
The following function keys are available for totalizing:

PLUS	MAN	CANC	SUM	TARG	ITEM
Totalize the items	Totalize manual weight values	Remove the last item from the total	Display and print out the total	Enter the target value for the total	Enter a start and end value for the item counter

4.10.1 Course

- Place an item on the scale.
If the weight exceeds the minimum deflection specified in mastermode, the "+" sign flashes behind the concurrent total.

NO.: 0001 SUM: 1,000 kg+	1,000 kg
---	-----------------

- Press PLUS key.
The item is added to the total and transferred to the printer/PC.
- Totalize further items.
The item counter (NO.) and the transaction number are both increased by 1.

4.10.2 Printing the total and finalising

- Press the SUM key.
The total is displayed and printed out.
- In order to continue with totalizing, press the ← key.
– or –
→ To clear the sum, press the **C** key.
The item counter is reset to the start value.

4.10.3 Manual entry

In order to add known weights to the total proceed as follows:

- Unload the scale and press the MAN key.
- Enter the weight and use the ← key to add to the total.

4.10.4 Totalizing to a target value

If a target value is entered, the TARGET REACHED message is displayed when this weight value is reached.

1. Press the TARG key.
2. Enter the target weight and confirm with \leftarrow .
3. Totalize the items.
4. When the TARGET REACHED message is displayed, finalize the total.

4.10.5 Totalizing with an item counter

The start and end value of the item counter can be specified between 1 and 9999.

1. Press the ITEM key.
2. Enter the start value and confirm with \leftarrow .
3. Enter the end value and confirm with \leftarrow .
4. Totalize the items.
5. When the TARGET REACHED message is displayed, finalize the total.

4.10.6 Cancelling an item

The last added item can be removed from the total.

→ Press the CANC key.

The last item is removed from the total, the item counter is reduced by 1.

4.11 Display ID code and test weighing platform

Each time the weighing platform configuration is changed the ID code counter is increased by 1. On certified weighing platforms the displayed ID code must match the ID code on the ID code sticker, otherwise the calibration is no longer valid.

Display ID code

→ Press $\rightarrow 0 \leftarrow$ and hold until IDENTCODE = ... appears in the display.

Test weighing platform

→ Press $\rightarrow 0 \leftarrow$ again.

The connected weighing platform is checked. The display shows CHECK SCALE and then SCALE IS OK after completing the test.

Note

If weighing platform is defective, display shows SCALE ERROR.

4.12 Identifications

The weighing terminal is equipped with 6 identification data memories for storing identification data Code A ... Code F.

The memories have a name, e.g. Article No., and a content which identifies the current weighing, e.g. 1234567.

The memories are named in the master mode, and the names can be noted on the keyboard. When the CODE keys are pressed, the name appears in the display.

Identification data Code A ... Code F can be entered or recalled for each weighing and are printed immediately.

4.12.1 Enter identification

An identification may contain a maximum of 30 characters.

Enter numerical identification

1. Press one of the keys CODE A ... CODE F.
2. Enter identification data Code A ... Code F via the numeric keypad and confirm with ↵.

Enter alphanumeric identification

1. Press one of the keys CODE A ... CODE F.
The functions keys are given the following assignment:

ABCDE	FGHIJ	KLMNO	PQRST	UVWXY	Z/(-)
Selection of letters A to E	Selection of letters F to J	Selection of letters K to O	Selection of letters P to T	Selection of letters U to Y	Selection of letter Z or a special character

2. Select desired group of letters, e.g. press KLMNO key.
3. Select desired letter.
The display changes again to the above selection.
4. Repeat entry in steps 2 and 3 for additional characters.

Notes

- Letters and numbers can be combined as desired.
- It is possible to switch between upper case and lower case with the cursor keys ^ and v. The following special characters are then also available with the lower case letters: *, \$, %, &.

Recall fixed text memory

The IND690 weighing terminal is equipped with 999 memories for fixed texts which can be programmed in the master mode and used as identifications.

1. Enter memory number: 1 ... 999.
2. Press a key CODE A ... CODE F.
The saved fixed text is now assigned to the selected identification Code A ... Code F.

Other entry possibilities Identifications can also be entered with a barcode or RFID reader, see section 4.15, or with an external keypad, see section 4.16.

4.12.2 Clear identifications

→ Press desired key CODE A ... CODE F and clear memory content with .

4.13 Recall information

On the weighing terminal memory contents and system information can be recalled.

1. Press INFO key.

Then the following function key assignment appears:

DELT	TARE	TEXT	ALIBI	DATE	VERS
Display DeltaTrac values	Display tare weight	Display fixed texts and name of keys CODE A ... CODE F	Recall content of alibi memory, see section 4.18. This selection only appears when Alibi-Memory-690 is installed.	Display date and time	Display version numbers of installed software modules

W&M	ERROR	COM	AB	DNGLE	
Display checksum of the software relevant to calibration. The correct checksum is documented in the calibration approval.	Fault / Event memory display	Calling up the settings of the interfaces	Display designation and contents of application blocks including sub-blocks To access directly first enter the number of the desired application block.	Display of production date, number and type of the hardware dongle	

2. Select desired information.

The information is displayed for the set DISPLAY DURATION, then the weighing terminal changes to the weighing mode again.

Notes

- When several values are displayed, the IND690-Base automatically changes to the next value after the set DISPLAY DURATION.
- With **C** it is possible to switch to the next value or back to the weighing mode.
- When the GA46 printer is connected, the version numbers of the installed software modules are automatically printed.
- After COM has been pressed, the settings of all 9 interfaces are displayed consecutively, for example
COM1: RS232
MODE: DEFAULT
SETTING: 9600, N, 8, 1
STATUS: ACTIVE

4.13.1 Recall memory

1. Press INFO key.
2. Enter number of memory and press DELT, TARA or TEXT key depending on desired memory.

Recall name of CODE A ... CODE F keys

1. Press INFO key.
2. Press one of the keys CODE A ... CODE F.
The display shows the current Code.

4.13.2 Calling up information on the installed interface modules

Information on the installed interface modules can be called up with the following key combinations:

INFO 50	Type and software version of the installed WLAN module
INFO 51	Status of the WLAN module
INFO 60	Type and software version of the installed Bluetooth module
INFO 61	Status of the Bluetooth module

4.13.3 Recall application-specific information

See operating instructions of the relevant application software.

4.14 Print or transfer data

If a printer or computer is connected, weighing results can be printed out or transferred to the computer.

In the master mode you can set the following for this purpose:

- Data to be printed or transferred,
- Manual or automatic data transfer,
- Key which triggers printing or data transfer.

Factory setting

- Manual triggering with ↵.
- The content of the display is transferred or printed.

4.15 Enter values with barcode or RFID reader

If you have connected a barcode or RFID reader to the weighing terminal, you can make all required entries, such as identifications or target specifications, easily with the barcode or RFID reader.

4.15.1 Read in any desired entries with the barcode or RFID reader

Example Read in identification Code A

1. Press CODE A key; the weighing terminal expects the entry of Code A.
2. Enter identification Code A with the barcode or RFID reader.
The identification read in appears in the display.
3. Confirm barcode entry with ↵.

4.15.2 Read in a frequently used entry directly with the barcode or RFID reader

If your working procedure repeatedly requires the same entry, you can configure the barcode or RFID reader in the master mode (see page 63) so that no additional keys need to be pressed on the weighing terminal.

Example Barcodes are automatically read in as Code A









If the working procedure requires the entry of Code A:

- Enter identification Code A with barcode reader.
The information read in appears in the display and is automatically processed by the weighing terminal as Code A.

4.16 Working with external keypad

If the weighing terminal is equipped with the interface PS2-690, an external keyboard can be connected so that alphanumerical values can be entered conveniently.

In addition to the alpha and numerical keys, the following additional scale functions can also be operated with the external AK-MFII keypad.

Function for IND690-Base	External keypad	Function for IND690-Base	External keypad
Function key F1	F1	CODE A key	Shift F1
Function key F2	F2	CODE B key	Shift F2
Function key F3	F3	CODE C key	Shift F3
Function key F4	F4	CODE D key	Shift F4
Function key F5	F5	CODE E key	Shift F5
Function key F6	F6	CODE F key	Shift F6
 key	F9	 key	Shift F9
 key	F10	 key	Shift F10
 key	F11	 key	Shift F11
 key	F12	 key	Shift F12

Note

The language of your external keyboard can be set in the master mode block LAYOUT EXT. KEYBOARD, see page 68.

4.17 Working with a second display

An ID1 Plus, ID3s, ID7 or another IND690 weighing terminal can be connected to the IND690 weighing terminal as a second display.

Conditions

- Interface CL 20mA-690 installed in passive operating mode (factory setting).
- AUTO-DIR setting selected in master mode (see page 56).
- Weighing terminal is connected as second display with cable 00 504 511.

Operation possibilities on second display

The following functions are also possible on the second display:

- Set to zero
- Taring

IND690 as second display

With IND690 as a second display, the weight value fills the entire display (BIG WEIGHT DISPLAY ON).

4.18 Recall data from Alibi memory

With the AlibiMemory-690 memory module you can fulfill your recording obligations in certified operation without having to archive paper.

AlibiMemory-690 automatically assigns every weighing operation a consecutive data record number that also appears on the printout, saves the net and tare value, the date and the time and also the scale number, tare source, MinWeigh and, if necessary, additional ID codes.

Immediately after the following actions, entries are made in the alibi memory:

- Interface commands "S" and "SX"
- Interface command "SR" as soon as a stable weight value has been determined
- Pressing ←
- Automatic transfer key printout when a certain weight value is reached (AutoPrint)

The AlibiMemory-690 operates according to the principle of a ring memory: When the capacity limit of 675500 data records is reached, the oldest data record is deleted and overwritten with data from the latest weighing.

By entering suitable search criteria you can quickly access the data of a very specific weighing.

4.18.1 Initiate

→ Press INFO, ALIBI key sequence.

The function keys change to the following assignment:

FIND	>>...		PRINT	-> Num	END
Enter search criteria	Search for next matching data record starting with oldest		Print displayed data record	Search for data record with known data record number	Exit Info Alibi and return to normal mode

4.18.2 Fast search with entry of data record number

1. Press ->Num key.
2. Enter number of data record to be searched for and confirm with ←. AlibiMemory-690 now searches for the desired data record.

Notes

- The search may take up to 10 seconds.
- If no data record with the entered number is found, the message NO MATCHING DATA RECORD appears.

4.18.3 Search with other search criteria

→ Press FIND key.

The function keys are given the following assignment:

DATE	TIME	NET	TARE	START	END
Enter date as search criterion	Enter time as search criterion	Enter net value as search criterion	Enter tare value as search criterion	Start search with entered search criteria	Terminate search

All offered search criteria can be combined with each other. The entered search criteria are shown in the display in clear text. This enables you to search for a find a specific weighing.

Enter date

→ Press DATE key and enter complete date in DD.MM.YY form.

Enter time

→ Press TIME key and enter desired time in one of following formats.

Format HH all weighings between HH.00.00 and HH.59.59 are found
 Format HH.MM all weighings between HH.MM.00 and HH.MM.59 are found
 Format HH.MM.SS only the weighing at the time HH.MM.SS is found

Enter net/fare value

1. Press NET or TARE key.
2. Enter weight value and confirm with \leftarrow .
The function key assignment changes back again for selection of the search criteria.

Note

The weight unit for entering the weight values can be selected with the cursor keys < or >.

Start search

- Press START key.
AlibiMemory-690 searches for the oldest data record which meets the entered search criteria.

Notes

- The search may take up to 10 seconds.
- If no data record with the entered values is found, the message NO MATCHING DATE RECORD appears.
- If no search criterion has been entered, the oldest data record is displayed.

4.18.4 Displaying data records

Found data records are shown in the display on 2 pages. You can change between the two pages with the cursor keys < or >.

Example 1st page

D/Z:	02.04.98	09:25:51	1/2
NUM:	000987		
NET:	25.000 KG		$\Delta \Delta 1$
TARE:	100,346 KG	PT	

Example 2nd page

ARTICLE NO.		2/2
A:	123456789	
ORDER NO.		
B:	55555	

Scroll forward/back The key >>... enables you to scroll within the found data records.

Notes

- When, during scrolling with the key >>... all entries of the AlibiMemory-690 have been searched through, the message END OF FILE appears.
- If a weight value has fallen below the set minimum weight, the weight value is also shown in the alibi memory with the symbol \leftarrow .

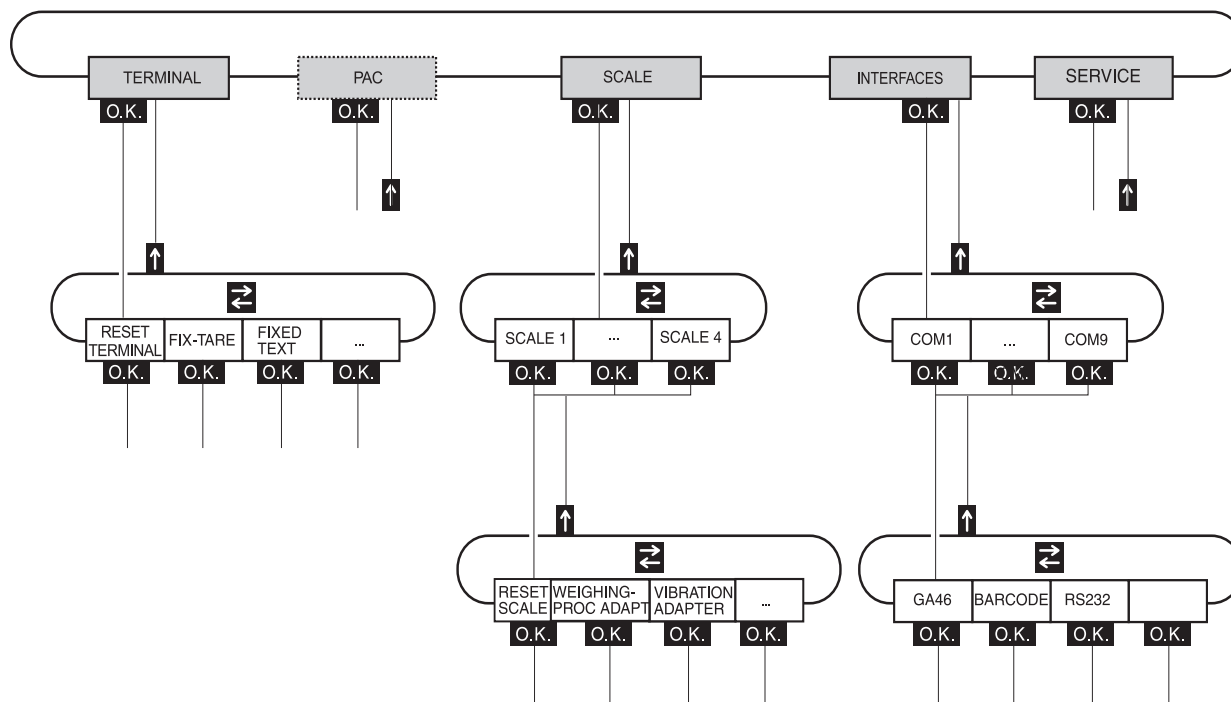
4.18.5 Printing records

1. Press the PRINT key.
2. Press the PRINT key in the next window.
3. Enter the number of the first record to be printed.
4. Enter the number of records to be printed.
5. Enter the output port (COM1 ... COM9).
The selected records are printed at the specified interface.

5 Settings in the master mode

5.1 Overview of the master mode

In the master mode you adapt the IND690-Base weighing terminal to meet your needs. Depending on the configuration, the master mode is divided into 4 or 5 master mode blocks, which are in turn divided into further blocks.



TERMINAL For system settings, such as entering the date and time or loading permanent texts, see section 5.3.

PAC To set application-specific parameters, see operating instructions of the respective application software.
APPLICATION is displayed instead at the IND690-Base, see Section 5.4.

SCALE To select one of the connected weighing platforms. For each selected weighing platform the parameters are then set which concern the weight value, e.g. stability detector, unit, etc., see section 5.5.1.

INTERFACES To select an interface. The communication parameters are then set for each interface, see section 5.6.

SERVICE For configuring the weighing platform(s).
On IDNet weighing platforms only for METTLER TOLEDO service technicians.
On weighing platforms with an analog signal output, see service manual A/D converter Point ME-22004256.

5.2 Operating the master mode

5.2.1 Enter the master mode

1. Press MODE key.
If the current function keys assignment does not contain MODE, press the cursor keys < or > as often as necessary until the MODE key appears.
2. Enter personal code if configured.
The display shows the first master mode block TERMINAL.

5.2.2 Assignment of function keys in the master mode

Assignment on the top level

On the top level of the master mode the function keys are assigned as follows:

←	→		↑	END	OK
Change to previous block within a level	Change to next block within a level		Exit level and return to higher-level block	Exit the master mode and return to normal mode	Recall lower-level block or confirm selection

→ Select the function by pressing the function key.

Example → Press the END key to exit the master mode and return to the normal mode.

When the function keys are otherwise allocated

→ Press the cursor keys < or > repeatedly until the function key assignment shown above appears.

Assignment in input masks

In input masks for several parameters, the function keys are assigned as follows:

↓↑	<	>	F▶	EDIT	↑
Select parameters	Setting parameters		Select function of function key F5: EDIT, STD, ADD, INS, etc.	Possible assignments: ADD INS EDIT DEL PRINT STD EDIT GOTO	Accept settings and return to higher-level block

5.2.3 Master mode operation with the navigation keys

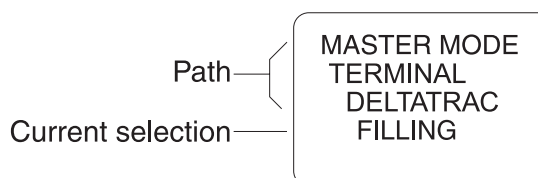
Instead of the function keys, it is also possible to use the navigation keys to operate the master mode.

Function key	Navigation key
F1 (←)	<
F2 (→)	>
F4 (↑)	^
F6 (OK)	↵

5.2.4 Orientation in the master mode

For improved orientation the display shows the last steps in the path of the current master mode block.

Example The upper 3 lines of the display show the following path for selecting the DeltaTrac application FILLING:



5.2.5 Entries in the master mode

The following basic rules apply to entries made in the master mode:

- Confirm (alpha)numeric entries with ↵.
- Alphanumeric entries with the IND690: see page 24.
- To accept the displayed value: Press ↵.

5.2.6 Emergency entrance into the master mode

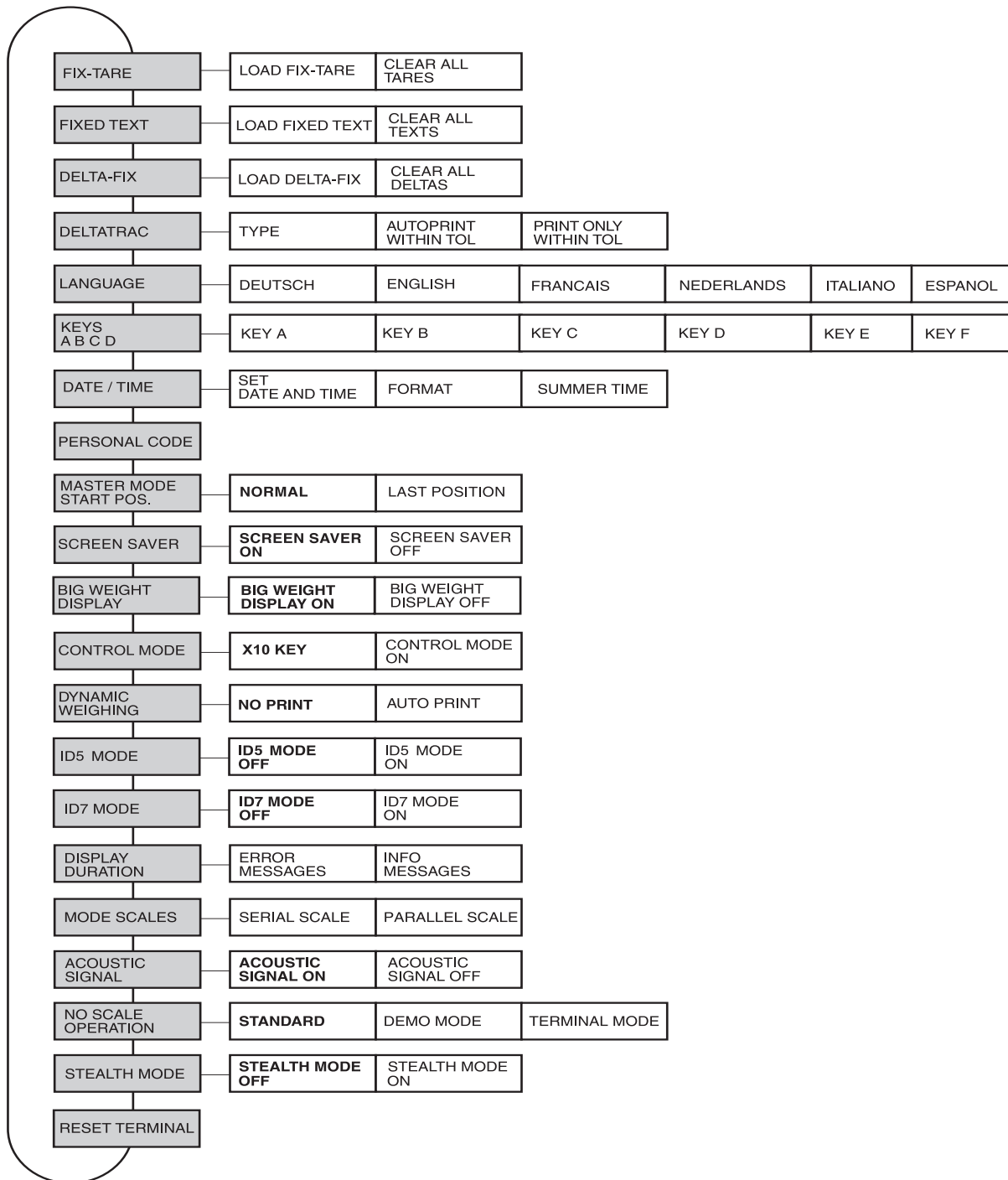
If a personal code has been assigned for entering the master mode and you have forgotten your code, you can still enter the master mode:

→ Enter the character sequence C, L, E, A, R as your personal code.

5.3 TERMINAL master mode block

5.3.1 Overview of the TERMINAL master mode block

In the TERMINAL master mode block you enter the following system settings:



- Legend**
- Blocks highlighted in **grey** are described in detail in the following.
 - Factory settings are printed in **bold print**.

5.3.2 Settings in the master mode block TERMINAL

FIXED TARE	Store tare values in the tare memory as a safeguard against power failure
LOAD FIXED TARE	<ol style="list-style-type: none"> 1. Select memory number with GOTO: 1 ... 999. 2. With ↓↑, change to WEIGHT, press EDIT and enter the tare weight in the unit displayed. 3. With ↓↑, change to TEXT, press EDIT and enter the designation of the tare memory, max. 30 characters. 4. To load additional tare weight constants, press ↓↑ and repeat steps 1 to 3.
DELETE ALL TARES	Delete all tare memories.
Notes	<ul style="list-style-type: none"> • With the cursor keys < or > you can scroll through the existing tare memories. • When entering the tare weight, it is possible to change the weight unit with the cursor keys < or >.

FIXED TEXT	Store texts in the text memory as a safeguard against power failure
	These texts can for example be assigned as identifications or can be additionally output when printing.
LOAD FIXED TEXTS	<ol style="list-style-type: none"> 1. Select memory number with GOTO: 1 ... 999. 2. With ↓↑, change to TEXT, press EDIT and enter the designation of the text memory, max. 30 characters. 3. To load additional fixed texts, press ↓↑ and repeat steps 1 and 2.
DELETE ALL TEXTS	Delete all text memories.
Notes	<ul style="list-style-type: none"> • With the cursor keys < or > you can scroll through the existing text memories. • Fixed text No. 20 is displayed when switching on with a restart, see Page 11.

FIXED DELTA	Store target weight/tolerance combinations in DeltaTrac memories as a safeguard against power failure
LOAD FIXED DELTA	<ol style="list-style-type: none"> 1. Select memory number with GOTO: 1 ... 999. 2. With ↓↑, change to TARGET, press EDIT and enter the target weight in the unit displayed. 3. With ↓↑, change to TOL.(–), press EDIT and enter the lower tolerance in the unit displayed. 4. With ↓↑, change to TOL.(+), press EDIT and enter the upper tolerance in the unit displayed. 5. To load additional DeltaTrac constants, press ↓↑ and repeat steps 1 to 4.
DELETE ALL DELTA	Delete all DeltaTrac memories.
Notes	<ul style="list-style-type: none"> • With the cursor keys < or > you can scroll through the existing DeltaTrac memories. • When entering the target weight and tolerances, it is possible to change the weight unit with the cursor keys < or >. • The terminal suggests symmetrical tolerances TOL. (+) and TOL. (–). However, different tolerances are also permissible.

DELTATRAC	Set DeltaTrac application
TYPE	Select DeltaTrac application
FILLING	Weigh in target weight within a tolerance range (factory setting)
CLASSIFYING	Evaluate the test samples as good, too light or too heavy based on the target weight and tolerance
CHECKWEIGHING	Determine difference between target and actual weight
AUTO PRINT WITHIN TOL	Automatic printout when actual weight lies within the specified tolerance
PRINT ONLY WITHIN TOL	Printout only when actual value lies within the specified tolerance
MIN. DELTA	Specify minimum target weight, adjustable from 10 ... 100 d, factory setting: 40 d

LANGUAGE	Select dialog language
	Possible settings: German, English, French, Dutch, Italian, Spanish

KEYS A B C D E F	Name identification keys CODE A ... CODE F
KEY A (B, C, D, E, F)	Identification data CODE A (CODE B, CODE C, CODE D, CODE E, CODE F)
TEXT	Naming the ID key
LENGTH	Max. 30 characters possible, factory setting: 20 characters
REQUEST FOR INPUT	Set request for input for the selected key Possible settings:
	OFF CODE A (CODE B, CODE C, CODE D, CODE E, CODE F) does not have to be entered
	RENEW A new identification must be entered for every weighing
	REUSE An identification can be used for several weighings

DATE / TIME	Enter date and time
SET DATE AND TIME	
DATE	Enter date in the displayed format
TIME	Enter time in the displayed format
FORMAT	
DATE	Select date format Possible settings: DD.MM.YY (factory setting), MM.DD.YY, YY.MM.DD, DD.MM.YYYY, MM.DD.YYYY, YYYY.MM.DD
SEP	Select separating character in date format Possible settings: "." (factory setting), ":", "/", "-"
TIME	Select time format Possible settings: HH:MM:SS 24 h (factory setting), HH:MM:SS 12 h, HH:MM 24 h, HH:MM 12 h
SEP	Select separating character in time format Possible settings: ":" (factory setting), "."

DATE / TIME	Enter date and time
SUMMER TIME	
SUMMER TIME OFF	No automatic changeover to summer time
SUMMER TIME ON	Configure automatic changeover to summer time Other settings, factory settings in brackets: START WEEKDAY (Sunday) WEEK (4) MONTH (MARCH) TIME (2:00) END WEEKDAY (Sunday) WEEK (4) MONTH (October) TIME (03:00:00)

PERSONAL CODE	Load or delete code for entering the master mode
CODE	Enter code with a maximum of 8 alphanumeric characters.
Comment	<ul style="list-style-type: none"> • If no code is entered, access to the master mode is unrestricted. • The personal code can be entered as ASCII characters (default), hexadecimal code (activation using the IDENT E key) or decimal code (activation with the IDENT F key).

MASTER MODE START POS.	Select start position for entering the master mode
NORMAL	Selection of the master mode blocks always begins with the TERMINAL block (factory setting).
LAST POSITION	When entering the master mode, the last block edited is displayed immediately.

SCREEN SAVER	Switch screen saver on or off
WAITING TIME	Enter time until screen saver is activated. Possible values: 1 ... 60 minutes
Comment	To hold all display elements at the same luminosity, we recommend not switching off the screen saver.

BIG WEIGHT DISPLAY	Switch full-display indication of the weight on or off
	Factory setting: BIG WEIGHT DISPLAY ON

CONTROL MODE	Adjust control mode
X10 KEY	Activation of control mode with X10 key (factory setting).
CONTROL MODE ON	This setting is only possible with non-certified scales. The weighing terminal always operates with the higher resolution.

DYNAMIC WEIGHING	Set printing during dynamic weighing
NO PRINT	Results during dynamic weighing are not automatically printed out (factory setting).
AUTO PRINT	Each result during dynamic weighing is automatically printed. Dynamic weights are marked with "Result:" on the printout.

ID5 MODE ID7 MODE	Deactivating or activating downward compatibility with ID5 or ID7
	If ID5 MODE ON or if ID7 MODE ON is selected, the IND690 is operated with downward compatibility to the ID5 or ID7. This also applies to the other application pacs. For details please contact the METTLER TOLEDO customer service. Factory setting: ID5 MODE OFF, ID7 MODE OFF

DISPLAY DURATION	Set display duration for messages
ERROR MESSAGES	Set display duration for error messages; factory setting: 2 seconds
INFO MESSAGES	Set display duration for informational messages; factory setting: 3 seconds
STATUS MESSAGES	Set the display duration for status messages, factory setting: 3 seconds

MODE SCALES	Select between serial and parallel operating mode for the connected scales
SCALES SERIAL	Serial operation of the connected scales: Only the weight value of the current scale is displayed.
SCALES PARALLEL SUM SCALE	Parallel operation of the connected scales: All weight values of the connected scales are displayed simultaneously. A sum scale can be defined in parallel scale operation. 1. SUM SCALE: Select ACTIVATED. 2. With \uparrow , change to SCALE 1 and select YES with < or > if this scale is to be the sum scale. 3. Repeat the procedure for SCALE 2 - SCALE 4. Factory setting: SUM SCALE DEACTIVATED

ACOUSTIC SIGNAL	Signal tone On/Off
	Factory setting: SIGNAL ON

OPERATION WITHOUT SCALE	Set the behaviour when the weighing terminal is operated without a scale
	IND690 searches for connected weighing platforms while booting. If no scale is found, the following behaviour patterns are possible.
STANDARD	If no scale is found, the booting process stops and the message NO SCALES DETECTED is displayed (factory setting). To continue the booting process press the SCALE key. During operation a virtual scale is shown whose weight value can be changed and which otherwise behaves like a "real" scale.
DEMO	If no scale is found, the message NO SCALES DETECTED is displayed briefly. During operation a virtual scale is shown whose weight value can be changed and which otherwise behaves like a "real" scale.
TERMINAL	If no scale is found, the message NO SCALES DETECTED is displayed briefly. A scale is not displayed during operation, the message TERMINAL is shown. All the scale-specific functions, keys and application blocks are deactivated.

STEALTH MODE	Switch the scale on/off without weight display
	Under certain circumstances, such as high quality goods or top secret recipes, working without a weight display may be desirable. The DeltaTrac is then the only filling aid.
DELTATRAC	Select the display behaviour of the DeltaTrac optical weighing aid
STANDARD	"Normal" DeltaTrac, high resolution in the range of the target weight
LINEAR	The optical weighing aid behaves linearly to the weighed-in weight
STANDARD-I	The display behaviour of the DeltaTrac is inversely to that of the "normal" DeltaTrac
Comment	STEALTH MODE can only be activated at non-certifiable scales.

RESET TERMINAL	Reset all terminal functions to the factory setting
	DELTATRAC Filling Autoprint within tol: no Print only within tol: no Min.Delta = 40 d DATE/TIME Format = DD.MM.YY / HH:MM:SS 24h Summertime: off MASTER MODE START POS. Normal SCREENSAVER ON BIG WEIGHT DISPLAY On DYNAMIC WEIGHING No printout CONTROL MODE X 10 key ID5 MODE Off ID7 MODE Off DISPLAY DURATION 2 / 3 seconds MODE SCALES Serial ACOUSTIC SIGNAL on OPERATION WITHOUT SCALE Standard STEALTH MODE Off
Comment	The memories are not affected by this.

5.4 APPLICATION master mode block

This block is only displayed at the IND690-Base.

TOTALIZING	Adapting the totalizing function
	If TOTALIZING ON is selected, the following setting options are displayed.
FUNCTION KEYS	Displaying/hiding the function keys permitted for totalizing
TARG	Display/hide the TARG key
MAN	Display/hide the MAN key
CANC	Display/hide the CANC (cancel) key
ITEM	Display/hide the ITEM (item counter) key
MINIMUM DEFLECTION	Entry of the minimum deflection that has to be exceeded so that the next item can be totalized. Possible settings: 1 ... 999 d Factory setting: 10 d
TRANSACTION NUMBER	The transaction number is increased by 1 at every totalization. When the transaction number has reached 999 999, it begins again at 000 001. Nonetheless the transaction number in this block can be set to a specific value.
SCQ FUNCTION	Recording of the mean value standard deviation, minimum and maximum Factory setting: SCQ FUNCTION OFF
RESET APPLICATION	Reset the TOTALIZING function to the factory setting

5.5 SCALE master mode block

The weighing platform is selected in the first block: SCALE 1 ... SCALE 4 and SCALE Σ for IND690 or SCALE 1 ... SCALE 3 and SCALE Σ for IND690xx and IND690-24V.

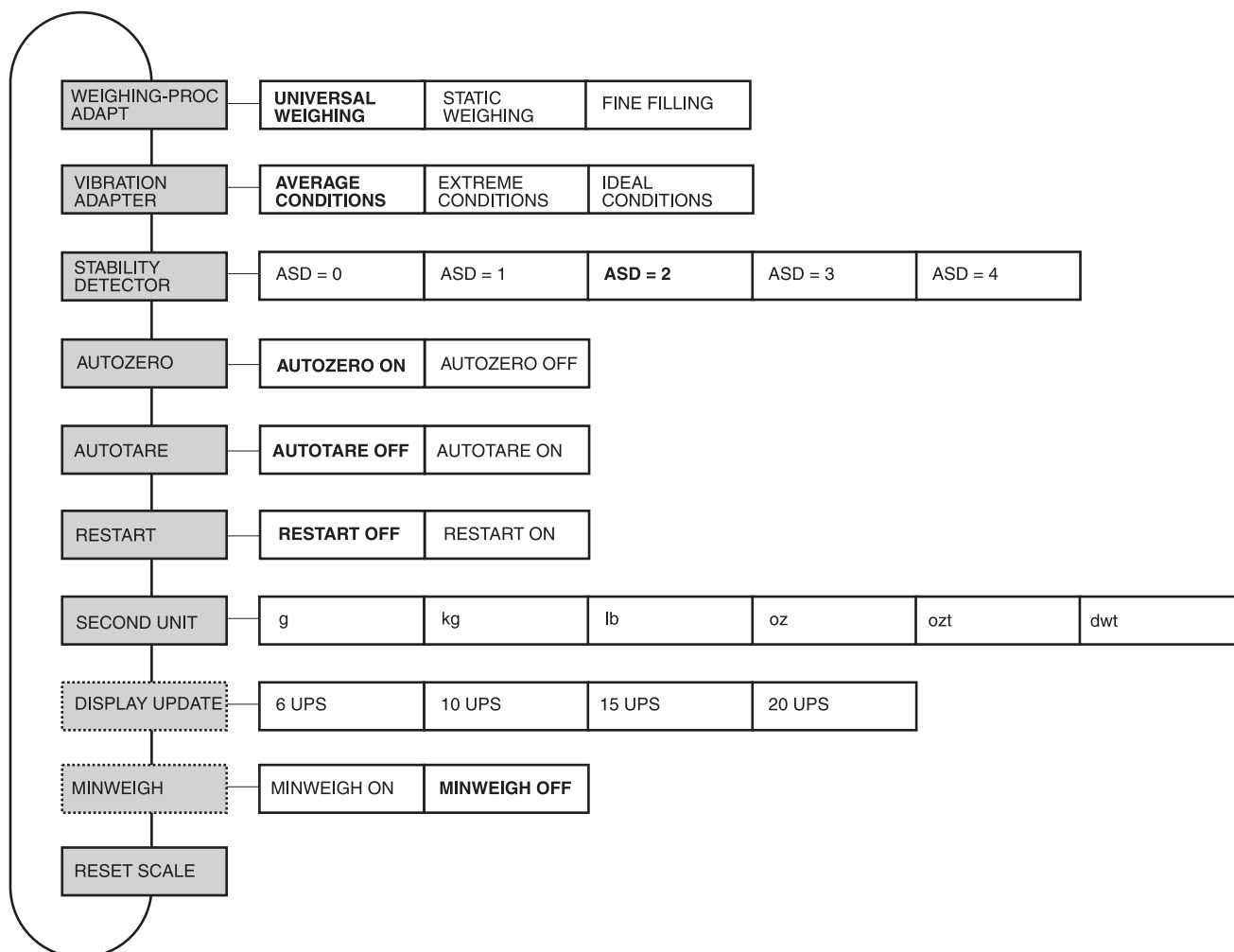
The SCALE master mode block depends on the connected weighing platform.

METTLER TOLEDO industrial scales	see Section 5.5.1
METTLER TOLEDO SICS scales	see Section 5.5.2
LabTec X-/XP-/XS scales	see Section 5.5.3
WM/WMH scales	see Section 5.5.4
Sum scale	see Section 5.5.5

5.5.1 SCALE master mode block for METTLER TOLEDO industrial scales

Overview

In the SCALE master mode block the following settings for the weight can be carried out:



- Legend**
- Blocks highlighted in **grey** are described in detail in the following.
 - Factory settings are printed in **bold print**.
 - Blocks which only appear under certain conditions have a **dotted outline**.

Settings

WEIGHING-PROC ADAPT	Adapt weighing platform to weighing sample
UNIVERSAL WEIGHING	For solid bodies, coarse filling or checkweighing (factory setting).
STATIC WEIGHING	For solid bodies and weighing under extreme conditions, e.g. strong vibrations or weighing animals.
FINE FILLING	For liquid or powdered weighing samples.

VIBRATION ADAPTER	Adapt weighing platform to the vibration influences of the environment
AVERAGE CONDITIONS	Factory setting.
EXTREME CONDITIONS	The weighing platform operates more slowly, however is less sensitive, e.g. suitable with building vibrations and vibrations at the weighing location.
IDEAL CONDITIONS	The weighing platform operates very quickly, however is very sensitive, e.g. suitable with very calm and stable weighing location.

STABILITY DETECTOR	Adapt automatic stability detector
	<p>Possible settings:</p> <p>ASD = 0 Stability detector switched off (only possible with non-certified weighing platforms)</p> <p>ASD = 1 fast display good reproducibility</p> <p>ASD = 2 ▲ ▼ (factory setting)</p> <p>ASD = 3 ▲ ▼</p> <p>ASD = 4 slow display very good reproducibility</p>


AUTOZERO	Switch automatic zero-point correction on or off
	<p>The automatic zero-point correction corrects the weight of minor dirt with the weighing platform unloaded.</p> <p>Factory setting: AUTOZERO ON</p>
Comment	On certified weighing platforms the zero-point correction is always switched on.

AUTOTARE	Configuring automatic taring
AUTO SET TARE	Activate/deactivate automatic taring
OFF	No automatic taring, factory setting
ON	Taring when the weight threshold is exceeded
AUTO CLEAR TARE	Activate/deactivate automatic clearing of the tare
OFF	No automatic clearing of the tare weight, factory setting
ON	Delete the tare automatically when the weight drops below the weight threshold
THRESHOLD	Entry of the weight threshold at which taring or tare clearing is carried out. Possible settings: 1 d ... 99 d, factory setting: 10 d

RESTART	Switch restart function on or off
	When RESTART ON is set, the zero point and tare value remain stored after the power supply is interrupted. When the weighing platform is switched on again, the terminal shows the current weight. Factory setting: RESTART OFF

SECOND UNIT	Select second weight unit																					
	Possible units: g, kg, lb, oz, ozt, dwt																					
	<table border="1"> <thead> <tr> <th>Unit</th> <th>Abbreviation</th> <th>Conversion to g</th> </tr> </thead> <tbody> <tr> <td>Kilogram</td> <td>kg</td> <td>= 1000 g</td> </tr> <tr> <td>Pound</td> <td>lb</td> <td>≈ 453.59237 g</td> </tr> <tr> <td>Ounce</td> <td>oz</td> <td>≈ 28.349523125 g</td> </tr> <tr> <td>Troy Ounce</td> <td>ozt</td> <td>≈ 31.1034768 g</td> </tr> <tr> <td>Pennyweight</td> <td>dwt</td> <td>≈ 1.555173843 g</td> </tr> <tr> <td>Gram</td> <td>g</td> <td>= 1 g</td> </tr> </tbody> </table>	Unit	Abbreviation	Conversion to g	Kilogram	kg	= 1000 g	Pound	lb	≈ 453.59237 g	Ounce	oz	≈ 28.349523125 g	Troy Ounce	ozt	≈ 31.1034768 g	Pennyweight	dwt	≈ 1.555173843 g	Gram	g	= 1 g
Unit	Abbreviation	Conversion to g																				
Kilogram	kg	= 1000 g																				
Pound	lb	≈ 453.59237 g																				
Ounce	oz	≈ 28.349523125 g																				
Troy Ounce	ozt	≈ 31.1034768 g																				
Pennyweight	dwt	≈ 1.555173843 g																				
Gram	g	= 1 g																				
Comment	On certified weighing platforms only the units permitted by certification appear.																					

DISPLAY UPDATE	Set display speed of the weight display
	Select number of updates per second (UPS). Possible values: 6, 10, 15, 20 UPS
Comments	<ul style="list-style-type: none"> This block only appears when the DISPLAY UPDATE function is supported by the connected weighing platform. The possible settings are dependent on the connected weighing platform.

MINWEIGH	Configure minimum weighing-in quantity
MINWEIGH ON	In this setting, the blinking symbol  appears in the display when the weight on the scale falls below the stored minimum weight.
TYPE	<p>Determining the minimum weight:</p> <p>CALCULATED The minimum,5 weight is calculated:</p> <p>U_0 Measurement uncertainty when the load approaches 0.</p> <p>TOL Required tolerance</p> <p>SF Safety factor</p> <p>MINWEIGH Calculated value based on the parameters entered above</p> <p>DIRECT Enter MINWEIGH value directly</p>
MINWEIGH OFF	No monitoring of the minimum weighing-in quantity (factory setting)
Comment	MINWEIGH is only available if monitoring of the minimum weighing-in quantity is activated in service mode.

RESET SCALE	Reset weighing platform to factory setting
	WEIGHING-PROC ADAPT universal weighing
	VIBRATION ADAPTER average conditions
	STABILITY DETECTOR ASD = 2
	AUTOZERO on
	AUTOTARE off
	RESTART off
	MINWEIGH off

5.5.2 SCALE master mode block at SICS scales

Only the following settings for the weight value can be carried out at METTLER TOLEDO SICS scales:

SCALE	Settings for the weighing value at SICS scales
AUTOTARE	For details see Section 5.5.1
SECOND UNIT	
MINWEIGH	

5.5.3 SCALE master mode block at LabTec X-/XP-/XS scales

The following settings for the weight value can be carried out at METTLER TOLEDO LabTec X-/XP-/XS scales:

SCALE	Settings for the weighing value at LabTec X-/XP-/XS scales
WEIGHING MODE	For details see below
CONDITIONS	
MEASURED VALUE ENABLE	
TEST WEIGHT	
TEST CALIBRATION	
AUTOZERO	For details see Section 5.5.1
AUTOTARE	
RESTART	
SECOND UNIT	
DISPLAY UPDATE	
MINWEIGH	Display update is set fixed to 10 UPS

WEIGHING MODE	Adapt the weighing platform to the weighing sample
UNIVERSAL	For all the common weighing processes
FILLING	For liquid or powdered weighing sample
SENSOR MODE	Supplies a weighing signal that is filtered to different degrees depending on the setting of the ambient conditions. The filter behaves linearly (not adaptatively) with regard to time and is suitable for continuous measured value processing
CHECK WEIGHING	The scale only reacts to larger weight changes, the weighing result is very stable

CONDITIONS	Adapt the weighing platform to the conditions
STANDARD	Normal conditions, factory setting
RESTLESS	The scale operates slower, but is less sensitive. Suitable, for example, for building oscillations and vibrations at the weighing location
VERY RESTLESS	The scale operates very slowly, but is even less sensitive. Suitable, for example, for strong building oscillations and extreme vibrations at the weighing location
CALM	The scale operates very fast, but is very sensitive. Suitable, for example, for a very calm and stable weighing location

MEASURED VALUE ENABLE	Adapt the reproducibility	
VERY FAST	Rapid display	good reproducibility
FAST	▲	▼
RELIABLE + FAST	▲	▼ (factory setting)
RELIABLE	▲	▼
VERY RELIABLE	Slow display	excellent reproducibility

TEST WEIGHT	Test weight used to check the calibration
SET EXT CALIBRATION WEIGHT	Enter the weight value of the external calibration weight

TEST CALIBRATION	Settings used to check the calibration
CALIBRATION WEIGHT	
INTERNAL	Checking with the internal calibration weight
EXTERNAL	Checking with external calibration weights as entered under TEST WEIGHT External calibration weights are not possible at certified scales
Comment	For the course and starting refer to the LabTec X-/XP-/XS scales documentation

5.5.4 SCALE master mode block at WM/WMH scales

The following settings can be carried out at METTLER TOLEDO WM/WMH scales:

SCALE	Settings at WM/WMH scales
DIRECT TALK	For details, see the next page
REMOTE TALK	
TEST WEIGHT	For details see Section 5.5.3
TEST CALIBRATION	
AUTOZERO	For details see Section 5.5.1
AUTOTARE	
RESTART	
SECOND UNIT	
DISPLAY UPDATE	Display Update can be configured using "Direct talk"
MINWEIGH	

DIRECT TALK	Direct communication between IND690 and WM/WMH scale
	<p>When DIRECT TALK is activated, commands can be entered and sent to the WM/WMH scale by using the SEND function key.</p> <p>In weighing mode the following information is displayed: SEND sent command RCVD answer received from the WM/WMH scale</p> <p>The possible commands are described in the WM/WMH operating instructions.</p>

REMOTE TALK	Configuration at the PC, display at the IND690
	<p>When REMOTE TALK is activated, commands to the WM/WMH scale have to be processed on a PC.</p> <p>In weighing mode the following information is displayed: SENT sent command RECD answer received from the WM/WMH scale</p> <p>Start command: RTS_x, whereby x is the scale number End command: RTE</p> <p>The possible commands are described in the WM/WMH operating instructions.</p>

5.5.5 SCALE master mode block Σ

SCALE Σ	Setting a sum scale
SCALE RESOLUTION METROLOGICAL MATHEMATICAL	<p>Select the scale resolution of the sum scale</p> <p>The sum scale resolution corresponds to the coarsest scale involved or the coarsest weighing range respectively</p> <p>The weight values are totalized mathematically correctly</p>
CALCULATION NORMAL HIGHRES	<p>Calculation basis for the total</p> <p>The displayed weight values are added</p> <p>The high-resolution weight values are added</p>

5.6 INTERFACE master mode block

Select the interface connection

- Select the interface connection in the first block:
COM1 ... COM9.

Select interface type

- Specify the interface type for the selected interface connection COM1 ... COM9.

COM1 ... COM9	
NOT ASSIGNED	If the selected interface connection is not assigned.
GA46	For connecting the printer GA46/GA46-W. The data is exchanged via an RS232 interface. The other setting possibilities are described in the operating and installation instructions GA46.
BARCODE RFID	For connecting a barcode or RFID reader. The data is exchanged via an RS232 interface. For additional settings, see Section 5.6.2.
RS232	This requires an RS232 interface to be connected at the selected interface connection. For additional settings, see Section 5.6.1.
IDNET SCALE	Only for COM2 ... COM5 (IND690) or for COM2 ... COM4 (IND690xx, IND690-24V) This requires an interface IDNet-690 to be installed at the selected interface connection. For additional settings in the master mode block SCALE, see Section 5.5.
ANALOG SCALE	Only for COM2 ... COM5 (IND690) or for COM2 ... COM4 (IND690xx, IND690-24V) This requires an interface AnalogScale-690 to be installed at the selected interface connection. For additional settings in the master mode block SCALE, see Section 5.5.
SICS SCALE	Only for COM2 ... COM5 (IND690) or for COM2 ... COM4 (IND690xx, IND690-24V) This requires an interface SICS-Scale-690 to be installed at the selected interface connection. When SICS SCALE is selected, the following default settings are set: SICS mode, 9600 baud, 8 data bits, 1 stop bit, no parity. For additional settings, see Section 5.6.1.
ALIBI MEMORY	Only for COM2 ... COM9. This requires an AlibiMemory-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.3.
CL20MA	Only for COM2 ... COM9. This requires an interface CL20mA-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.1.

COM1 ... COM9	
RS422 RS485	Only for COM2 ... COM9. This requires an interface RS485/422-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.1.
4 I/O	Only for COM5/COM6. This requires an interface 4 I/O-690 with a relay box 4-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.4.
RELAY BOX 8	Only for COM2 ... COM9. This requires an interface RS485/422-690 with a relay box 8-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.4.
ARM100	Only for COM2 ... COM9. This requires an interface RS485/422-690 with ARM100 to be installed at the selected interface connection. For additional settings, see Section 5.6.4.
ANALOG OUTPUT	Only for COM5/COM6. This requires an interface AnalogOut-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.6.
ETHERNET	Only for COM2 ... COM9. This requires an interface Ethernet-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.7.
PROFIBUS-DP	Only for COM2 ... COM9. This requires an interface ProfibusDP-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.8.
WLAN	Only for COM2 ... COM9. This requires an interface WLAN-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.9.
BLUETOOTH	Only for COM2 ... COM9. This requires an interface Bluetooth-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.10.
BT-BLD DISPLAY	Only for COM2 ... COM9. For direct connection of the "BLD Display" as a second display. This requires an interface Bluetooth-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.10.

COM1 ... COM9	
BT-P42	<p>Only for COM2 ... COM9. For direct connection of the "BT-P42" printer. This requires an interface Bluetooth-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.10.</p>
BT-BARCODE	<p>Only for COM2 ... COM9. For connection of a Bluetooth barcode reader. This requires an interface Bluetooth-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.10.</p>
BT-SICS SCALE	<p>Only for COM2 ... COM5 (IND690) or for COM2 ... COM4 (IND690xx, IND690-24V) This requires an interface Bluetooth-690 to be installed at the selected interface connection. When SICS SCALE is selected, the following default settings are set: SICS mode, 9600 baud, 8 data bits, 1 stop bit, no parity. For additional settings, see Section 5.6.10.</p>
USB	<p>Only for COM2 ... COM9. This requires an interface USB-690 to be installed at the selected interface connection. For additional settings, see Section 5.6.1.</p>
KEYBOARD PS2	<p>For connecting an external keyboard. Only for COM9. This requires an interface PS2-690 to be installed at COM9. For additional settings, see Section 5.6.5.</p>

5.6.1 Settings in the master mode blocks RS232, RS422, RS485, CL20mA, USB

RS232, RS422, RS485, CL20mA, USB	
OPERATING MODE	This selection only appears with the RS485 master mode block.
1:1 CONNECTION	Weighing terminal and peripheral are directly connected.
BUS SLAVE	For operating the weighing terminal in a bus system. The following parameters are set automatically for the dialog: No handshake, no continuous transmission, no transfer string, fixed string framing $C_{R\text{LF}}$. The PC is the master, the terminals act as slaves and only transmit when requested to do so by the master. The master must also wait until after sending out a command until the slave's answer is received. Each terminal must be assigned a unique address. Additional setting: ENTER TERMINAL ADDRESS. Possible addresses: 1 ... 31
COMMUNICATION	Set communication parameters (factory settings are shown in bold print). All parameters are shown on a display page and can be set there; for function key assignment, see page 59.
BITS PER CHARACTER	Possible settings: 7 bits, 8 bits
STOPBITS	Possible settings: 1 stop bit , 2 stop bits
PARITY	Possible settings: Parity even, parity odd, parity space, parity mark, no parity
BAUDRATE	Possible settings: 150, 300, 600, 1200, 2400, 4800, 9600 , 19200, 38400, 57600 baud
MODE	Set operating mode. This selection does not appear when interface RS485/422-690 is operated in the BUS SLAVE operating mode.
STANDARD SETTING	Set operating mode to factory setting: MMR dialog mode, no handshake, no auto transmission (no continuous transmission), transfer string: Standard, string framing: $C_{R\text{LF}}$
DIALOG MODE	For dialog between weighing terminal and computer. For other settings see next section.
PRINT MODE	To print weighing data, e.g. on a form printer. For other settings see page 58.

Set dialog mode

DIALOG MODE	Set dialog between weighing terminal and computer
<p>MMR</p> <p>HANDSHAKE</p> <p>AUTOMATIC CONTINUOUS TRANSMISSION</p> <p>TRANSFER STRING</p> <p>STRING FRAMING</p>	<p>For information on dialog mode with the MMR command set, see page 78. All parameters are shown on a display page and can be set there.</p> <p>Possible settings:</p> <ul style="list-style-type: none"> • NO HANDSHAKE • CL HANDSHAKE – for additional information on the CL handshake, see page 128. • XON-XOFF PROTOCOL. <p>This block does not appear with the RS485/422-690 interface.</p> <p>Possible settings:</p> <ul style="list-style-type: none"> • NO AUTO TRANSMISSION. • AUTO SIR – after each measuring cycle a stabilized or dynamic weight is transmitted. • AUTO DIR – weight values are transmitted as with AUTO SIR and additionally, the special characters in the display are transmitted for a second display. Fixed communications parameters: 9600 baud, 7 data bits, 2 stop bits, parity even • AUTO SR – after each weight change which is greater than the set value, a motionless weight value and then a dynamic weight value are sent <p>This block does not appear with the RS485/422-690 interface.</p> <p>Possible settings:</p> <ul style="list-style-type: none"> • STANDARD – gross, net, tare • OPTION 082/083 – gross, net, tare in GNT form, see operating instructions, Option 082. • USER-DEFINED – enter numbers of the application blocks which are to be transmitted or printed out. <p>Possible settings (factory settings are printed in bold print):</p> <ul style="list-style-type: none"> • CR Yes/No • LF Yes/No • <STX>---<ETX> Yes/No • BLOCK CHECK CHAR Yes/No
<p>SICS</p> <p>STANDARD</p> <p>HANDSHAKE</p> <p>AUTOREPEAT</p>	<p>Dialog mode with Standard Interface Command Set (SICS), see page 91.</p> <p>Standard setting: no handshake, no auto transmission.</p> <p>Possible settings as MMR, see above.</p> <p>Possible settings as MMR, see above.</p> <p>AUTO-DIR not possible with SICS.</p>

DIALOG MODE	Set dialog between weighing terminal and computer
<p>TOLEDO CONTINUOUS</p> <p>TRANSFER RATE</p> <p>CHECKSUM ON</p> <p>CHECKSUM OFF</p> <p>WEIGHT FORMAT</p>	<p>For the continuous transmission of net and tare values to METTLER TOLEDO devices, e.g. to a second display. For a description, see page 89. This block does not appear with the RS485/422-690 interface.</p> <p>Set the data transfer rate Possible settings: 25%, 33%, 50%, 100% Factory setting: 100%</p> <p>Checksum byte active, factory setting</p> <p>Checksum byte inactive, the transfer format is shortened by 1 character.</p> <p>Possible settings:</p> <ul style="list-style-type: none"> • Leading zeroes (factory setting) • Leading blanks
<p>TOLEDO SHORT CONTINUOUS</p> <p>TRANSFER RATE</p> <p>CHECKSUM ON</p> <p>CHECKSUM OFF</p> <p>WEIGHT FORMAT</p>	<p>For the continuous transmission of net values to METTLER TOLEDO devices, e.g. to a second display. For a description, see page 89. This block does not appear with the RS485/422-690 interface.</p> <p>Set the data transfer rate Possible settings: 25%, 33%, 50%, 100% Factory setting: 100%</p> <p>Checksum byte active, factory setting</p> <p>Checksum byte inactive, the transfer format is shortened by 1 character.</p> <p>Possible settings:</p> <ul style="list-style-type: none"> • Leading zeroes (factory setting) • Leading blanks
<p>PE SEND CONTINUOUS</p>	<p>For connecting a PE balance as a reference balance, only with IND690-Count and Interface CL20mA-690.</p>
<p>SECOND DISPLAY</p>	<p>Used to connect an IND4xx terminal as a second display</p>

Set print mode

PRINT MODE	Configure printout on an external printer
HANDSHAKE	Possible settings: <ul style="list-style-type: none"> • NO HANDSHAKE • XON-XOFF PROTOCOL
LINE LENGTH	Enter number of characters per line. Possible settings: 1 ... 240 characters Factory setting: 40 characters
LINE FRAMING	Enter ASCII character for line framing. Possible settings: ASCII 0 ... 255 Factory setting: ASCII 013 010 (C _R L _F)
REPORT TYPE	Assignment of one of two possible printout formats to the configured printer. Possible settings: <ul style="list-style-type: none"> • REPORT TYPE A e.g. for barcode printer • REPORT TYPE B e.g. for A4 printer
CONFIGURATION PRINTOUTS TRANSFER KEY CODE A KEY ... CODE F KEY DYNAMIC KEY PAC KEYS	Configuration of the printouts assigned to the individual keys. For each offered key, the current configuration can be printed out with the key sequence CHANGE CONFIGURATION, F▶ (possibly several times) and PRINT. Configuration options: <ul style="list-style-type: none"> • CHANGE CONFIGURATION See next section • DEFAULT SETTING Key-specific, if existent • DELETE ALL All blocks of the data string are deleted • PAPER FEED Adjustment range: 0 ... 9 lines • REPORT ON/OFF Switch key printout on/off • # OF COPIES Setting range: 1 ... 9 copies Factory setting: 1 copy Only for the transfer key : <ul style="list-style-type: none"> • PRINT INTERLOCK Prevents the same article from being weighed several times • ZERO LIMIT The weighing platform has to be unloaded at least under the zero limit before a new article can be weighed Setting range: 1 ... 99 d Factory setting: 10 d • MIN. DEFLECTION The weighing platform has to be deflected by at least the minimum deflection before the new article is weighed Setting range: 1 ... 99 d Factory setting: 30 d

PRINT MODE	Configure printout on an external printer
AUTOMATIC PRINTOUT	Switch automatic printout for transfer key on/off. When AUTO PRINTOUT ON is selected, a printout for the transfer key is automatically created for each weight change > x digits. Possible settings: 1 ... 255 digits (factory setting: 30 digits)
DECIMAL FORMAT DOT (.) COMMA (,)	Decimal display Decimal point (factory setting) Decimal comma
PRINT LIST COMPLETE LIST LIST AB LIST SCALE LIST INTERFACES LIST KEY CONFIGURATIONS	Print settings Print a complete list of all the parameters Print only application blocks Print only the scale parameters Print only the interface parameters Print only the key configurations

Change configuration

Function keys The function keys are assigned in CHANGE CONFIGURATION as follows:

	<	>	F▶	ADD	↑
	Display previous entry	Display next entry	Select function of function key F5: ADD, INS etc.	ADD INS EDIT DEL PRINT	Return to next highest level; changes are not saved

The printout can be edited with function key F5:

ADD	Adds a new entry at the end of the printout.
INS	Inserts a new entry in front of the displayed entry.
EDIT	Changes into the EDIT mode for the displayed entry to edit the entry.
DEL	Deletes the displayed entry.
PRINT	Creates a key printout.

EDIT mode

Function keys The following function keys are available in the EDIT mode:

<->	<	>	F▶	SAVE	↑
Select parameters	Set parameters, scroll back	Set parameters, scroll forward	Select function of function key F5: SAVE, EDIT	Confirm changes and return to higher level	Cancel EDIT mode and return to higher level; changes are not saved

Display page The setting of the parameters of an entry appears in a clear layout on a display page (example):

TRANSFER KEY	[EDIT]	(2/7)
TYPE: AB		STYLE: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
CRLF: YES	FILL: NO	PAD: 01
DATA:		011-013

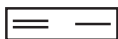
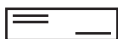



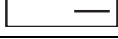
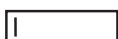
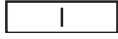

First display line Information for orientation in an entry

- Key name
- Mode: EDIT, INS or ADD
- Number of the display entry and total number of entries for the current printout.

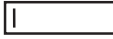
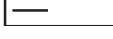

TYPE parameter Selection possibilities:

AB	Output content of an application block with or without designation
TEXT	Print out any desired text
CHRn	Insert n of any desired ASCII characters in the line, e.g. for tables; selection of character via DATA parameter
LINE	Blank line or separator line with any desired alphanumeric characters
DB	Accesses a database field. When a field is printed out, all entries of the field are listed. The option DB is only available when the software application supports access to a database. The offered database fields are application-specific.



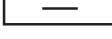
STYLE parameter STYLE determines in which format the designation and content of the application block are printed; adjustment possibilities:

TYPE	STYLE
AB DB	 Designation and content in grouped style
	 Designation and content in two lines, grouped style
	 Designation and content separated with extra blank spaces
	 Content alone, left-justified
	 Content alone, centred
	 Content alone, right-justified
TEXT	 Left-justified
	 Centred
	 Right-justified

CRLF parameter Force line feed; the CRLF parameter is only available for:

-  Text, left-justified
-  Content alone, left-justified
-  Designation and content separated with extra blank spaces
- Type CHRn



FILL parameter Show content with leading blank spaces up to maximum available length; the FILL parameter is only available for:

-  Designation and content separated with extra blank spaces
-  Content alone, left-justified
-  Content alone, centred

PAD parameter Show designation and content separated with x blank spaces

Possible settings: 0 ... 63 extra blank spaces.

The PAD parameter is only available for:

-  Designation and content separated with extra blank spaces
-  Content alone, left-justified

DATA/FIELD parameter Depending on the TYPE selected, DATA or FIELD is available.

TYPE	DATA/ FIELD	ENTRY
LINE	DATA	1 alphanumeric character Entry also possible as ASCII code, see below
AB	DATA	Number of application blocks to be output: xxx The application block can be further specified with the following keys: AB_EXT: _ For selecting read-only memories: xxx_yyy SUB-BLK: . For selecting a sub-block: xxx.z or xxx_yyy.z RANGE: - For entering a range: xxx-xxx or xxx_yyy-yyy
CHRn	DATA	1 alphanumeric character Entry also possible as ASCII code, see below
TEXT	DATA	Alphanumeric characters
DB	FIELD	Select database field

Entry of DATA parameter

To enter data or select database fields, the EDIT mode must be active.

1. Press **F▶** key, repeat if necessary until the assignment of the F5 key changes to EDIT.
2. Press the EDIT key; an input mask appears.
3. Enter data in the format and with the keys offered.
4. Complete entry with **↵**.

Enter ASCII code for LINE and CHRn parameters

1. Open the entry mask with the EDIT key.
2. Press IDENT F and enter the ASCII code numerically.
3. Complete the numeric entry with IDENT F.
4. Complete entry with **↵**.

5.6.2 Set barcode or RFID reader




BARCODE, RFID	Set barcode or RFID reader
TYPE DL900/DL910/ DLL6000/LS3603/ GRYPHON BT100/ HERON-G D130/ FIRESCAN D131 ... OTHER	Select barcode or RFID reader. When one of the barcode or RFID readers is selected, the communication and mode parameters for the selected barcode or RFID reader are automatically set. For other barcode or RFID readers: Settings in the sub-blocks COMMUNICATION and MODE as for the blocks RS232/RS422/RS485/CL20mA/USB, see page 5.6.1. The PRINT MODE setting is not possible when using barcode or RFID readers!
DESTINATION BLOCK 000/00	Enter the number of the application block and of the subsequent block with which the barcode or RFID entry is to be described. When a target block is selected, barcode or RFID information can be read directly into this block without having to press a key beforehand, see page 27.
AUTOMATIC ENTRY	If AUTOMATIC ENTRY ON is selected, the received barcode or RFID code is shown in the display and is then accepted as the entry automatically. The display duration can be set in the TERMINAL master mode block, see page 41.
DISPLAY DATA UNTIL TIMEOUT UNTIL KEYPRESS	Only for RFID The read-in data are displayed for the duration of the set display duration. The read-in data are displayed until a key is pressed.

5.6.3 Setting AlibiMemory

ALIBI MEMORY	Configure contents of the entries of the alibi memory
ENTRY LENGTH 15 CHARACTERS 35 CHARACTERS 45 CHARACTERS 55 CHARACTERS 55 CHARACTERS 55 CHARACTERS 55 CHARACTERS 55 CHARACTERS	Use ↓↑ to select from various entries, the contents are shown in the display. Gross, tare, date/time, scale number, MinWeigh, tare source; 15 characters Factory setting Same as 1, additionally ID code A (20 characters) Same as 1, additionally ID code A (30 characters) Same as 1, additionally ID code A (20 characters) + ID code B (20 characters) Same as 1, additionally ID code A (20 characters) + ID code C (20 characters) Same as 1, additionally ID code A (20 characters) + ID code D (20 characters) Same as 1, additionally ID code A (20 characters) + ID code E (20 characters) Same as 1, additionally ID code A (20 characters) + ID code F (20 characters)
Note	If an alibi memory had already been initialised and the format is changed, all previous entries (in the old format) are deleted. For safety, a corresponding notice appears before initialisation.

5.6.4 Configure inputs/outputs

4 I/O / RELAY BOX 8 / ARM100	
INPUT	Operate inputs internally or externally.
INTERNALLY	<p>Factory setting. Additional settings:</p> <p>CONFIGURE INPUTS Select the desired setting for every input. Factory setting for IND690-Base: Input 1 not in use Input 2 zero setting Input 3 taring Input 4 entry (ENTER key) Input 5 ... 8 not in use Possible settings: see page 127</p> <p>Additional settings, only for 4 I/O:</p> <p>ON/OFF HIGH ACTIVE Factory setting, the weighing terminal is switched off when ON/OFF = 1. After the digital input has been activated, the display goes out, and the content of the text read-only memory 021, factory setting appears in the upper left corner: POWER OFF.</p> <p>ON/OFF LOW ACTIVE The weighing terminal is switched off when ON/OFF = 0.</p> <p>ON TIME Delayed switch-on: After the On signal has been activated, the weighing terminal still remains switched off for the configured period. Possible settings: 0 to 9 seconds</p> <p>Off TIME Delayed switch-off: After the Off signal has been activated, the weighing terminal still remains switched on for the configured period. Possible settings: 0 ... 9 seconds</p> <p>Note: The input ON/OFF has priority over the keyboard, i.e. the weighing terminal can only be switched on again in the POWER OFF state via the ON/OFF input! In addition, entry into the master mode is permitted via the F6 key to be able to correct incorrect settings.</p>
EXTERNALLY	<p>Inputs are independent of the weighing functions. Read status of the inputs with the AR707 command, see page 121.</p>

4 I/O / RELAY BOX 8 / ARM100	
<p>OUTPUT</p> <p>INTERNALLY</p> <p>EXTERNALLY</p>	<p>Operate outputs internally or externally.</p> <p>Factory setting. Additional settings: CONFIGURE OUTPUTS Select the desired setting for every output. Factory setting for IDN690-Base: Output 1 Delta low Output 2 Delta ok Output 3 Delta high Output 4 Stable Output 5 Setpoint 1 Output 6 Setpoint 2 Output 7 Setpoint 3 Output 8 Setpoint 4 Possible settings: see page 127</p> <p>SETPOINT MODE With SETPOINT MODE ON 8 configurable fixed or dynamic set points are available, see page 67. To this purpose a setpoint has to be assigned to at least one output.</p> <p>Outputs are independent of the weighing functions. Set the outputs via the AW706... command, see page 120.</p>
I/O TEST	<p>Testing of the function and state of the inputs and outputs of one or two connected 8-690 relay box(es)</p> <p>If an input or output is set (high), the display indicates its number. If an input or output is not set (low), the display indicates –.</p> <p>Set outputs Switch over the outputs with the keys 1 to 8 of the numerical keypad.</p> <p>Set inputs Set inputs, e.g. by connecting a supply voltage (+24 V).</p> <p>Two 8-ID7 relay boxes Switch back and forth between the two 8-690 relay boxes with key 9 of the numerical keypad.</p> <p>Exit I/O TEST Exit the I/O test and the master mode with the 0 key of the numerical keypad.</p>
Comments	<ul style="list-style-type: none"> • During the I/O tests only the keys ,  and  are active. • Serial interfaces can be used during the I/O test. • The possible functions for the inputs and outputs are listed in the Appendix, see Section 10.4.

**SETPOINT MODE ON –
defining set points**

After SETPOINT MODE ON is selected, the following input mask appears for the setpoints 1 ... 4 (Example):

SP1:	F↑	A012	W1	1.2345 KG
SP2:	F↓	A013	W2	0.5678 KG
SP3:	D↑	A012	ALL	
SP4:	D↓	A011	ALL	

4 parameters can be set for each set point:

a) Type of set point

- F↑ fixed set point, ascending
- F↓ fixed set point, descending
- D↑ dynamic set point, ascending
- D↓ dynamic set point, descending

Fixed set point Set point value is specified in the master mode and cannot be changed in the weighing mode.

Dynamic set point Set point value is specified in the weighing mode, see page 20.

Ascending Digital output is set when the value of the application block concerned is greater than or equal to the set point value.

Decending Digital output is set when the value of the application block concerned is less than or equal to the set point value.

b) Application block

Weight value to which the set point refers. All application blocks with a valid weight unit (kg, g, lb, oz, ozt, dwt, pc) are possible.

Factory setting: Application block 012, net weight

c) Scale

W1 ... W4 or ALL for all scales

d) Set point value

With dynamic set points the weight value is entered in the normal mode, see page 20.

Configuring switching points 5 – 8


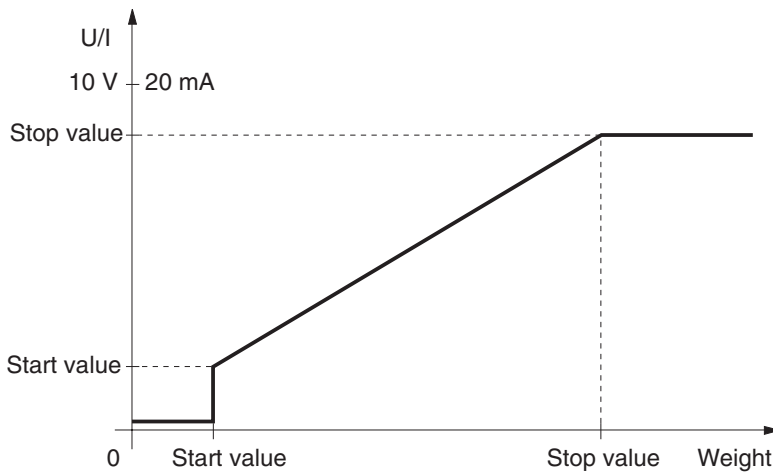
→ With F4 >>, change to the input mask for switching points 5 – 8.

5.6.5 Configuring external keyboard

KEYBOARD PS2	Select keyboard layout of connected external keyboard
	Possible setting: English-USA, English-UK, German, French, Dutch, Italian, Spanish, Finnish, Russian

5.6.6 Configuring AnalogOut-690

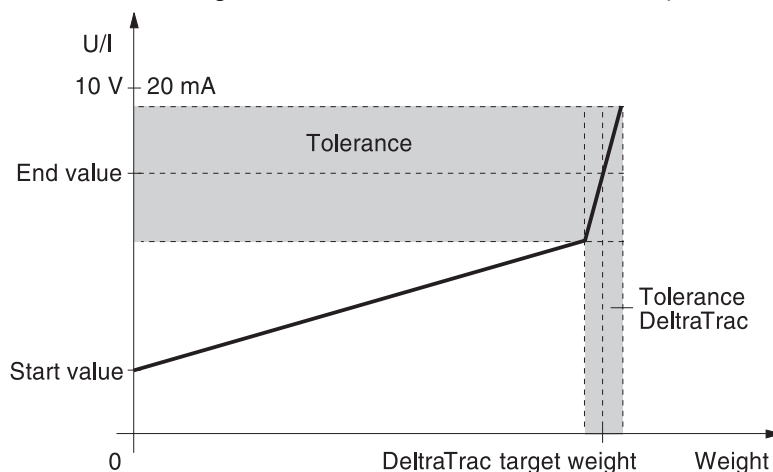
The functionality of AnalogOut-690 is dependent on the version of your weighing terminal.

ANALOG OUTPUT	
SCALE	Select weighing platform from which the weight values are to be output at the interface AnalogOut-690. This block only appears when several weighing platforms are connected. Factory setting: All weighing platforms
ALL SCALES	Weight values can be output by all connected weighing platforms at the AnalogOut-690 interface. The assignment of a weighing platform to the AnalogOut-690 interface can be changed with  or the command AW010...
SCALE 1 ... SCALE 4	Only weight signals of the selected weighing platform can be output via the AnalogOut-690 interface
START-STOP MODE	<p>When the selected weight value or the selected number of pieces is within the specified en start and stop values, a current/voltage signal in the specified range will be output at the AnalogOut-690 interface.</p>  <p>For additional settings, see page 70.</p>

ANALOG OUTPUT**DELTATRAC MODE**

In this operating mode the net weight value on the AnalogOut-690 interface is output in the factory setting, provided DeltaTrac is active.

If no DeltaTrac target value is entered, 0 V / 0 mA are output.

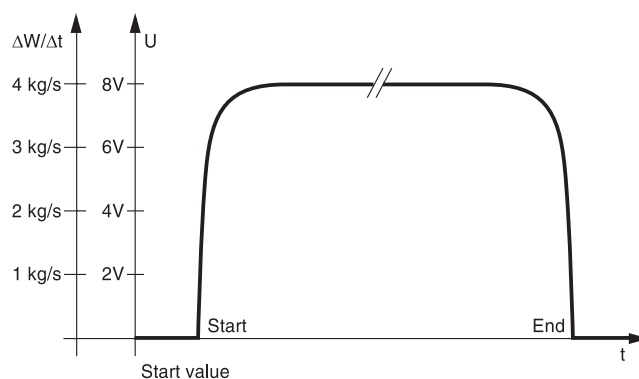


For additional settings, see page 70.

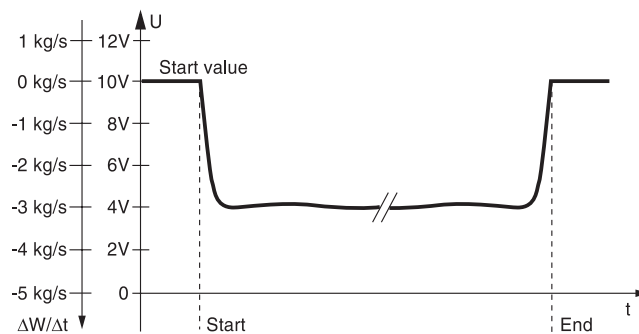
 ΔW - ΔT MODE

In this operating mode flows are measured via the weight change per time in the supply or catch container.

Example 1: Weighing in with a flow rate of 4 kg/sec.



Example 2: Subtractive weighing with a flow rate of 3 kg/sec. starting value of the analog voltage signal: 10 V.



In both cases a change in the flow rate of 1 kg/sec. results in a change in the analog voltage signal of 2 V.

For additional settings, see page 71.

ANALOG OUTPUT	
DIRECTION	Configure the behaviour of the analog output.
ALL	The analog signal is sent irrespective of the preceding sign.
POSITIVE	The analog signal is only output at positive weight values. In the case of an underload or negative weight values the signal remains at "0" or the start value.
NEGATIVE	The analog signal is only output at negative weight values. In the case of positive weight values the signal remains at "0" or the start value. This setting is ideal for subtractive weighing from a container.

Parameter for Start-Stop mode

AB	Application block number for the weight value to be output at the AnalogOut-690 interface. Factory setting: Application block 012, net weight
VALUE	Starting value of the analog output signal Factory setting: 0 V Possible settings: 0 V – 10 V or 0 mA – 20 mA Stop value of the analog output signal Factory setting: 10 V Possible settings: 0 V – 10 V or 0 mA – 20 mA
WEIGHT	Weight value at which the analog output is to start. Factory setting: 0 g or 0 kg Weight value from which the maximum value of the analog signal is to be output. Factory setting: Maximum load of weighing platform

Parameter for DeltaTrac mode

AB	Application block number for the weight value to be output at the AnalogOut-690 interface. Factory setting: Application block 012, net weight
V/mA AT ZERO	Starting value of the analog output signal Factory setting: 0 V Possible settings: 0 V – 10 V or 0 mA – 20 mA
V/mA AT TARGET	Stop value of the analog output signal Factory setting: 10 V Possible settings: 0 V – 10 V or 0 mA – 20 mA
TOLERANCE	+/- deviation from stop value of analog signal when the target weight tolerance is reached Factory setting: Tolerance = 0 V

Parameters for the ΔW - ΔT MODE

AB	Application block number for the weight value to be output at the AnalogOut-690 interface. Factory setting: Application block 012, net weight
ΔW - ΔT	Value for the change in the analog output signal in the case of a weight change of one unit per second.
START VALUE	Starting value of the analog output signal Factory setting: 0 V Possible settings: 0 V – 10 V or 0 mA – 20 mA

5.6.7 Configuring Ethernet-690

The weighing terminal can only be operated on a network with a valid IP address, subnet mask and gateway address (if the weighing terminal is to route connections to another partial network). Ask your system administrator for these addresses.

ETHERNET	Configuring Ethernet-690
COMMUNICATION	For adaptation of the communication parameters between weighing terminal and the Ethernet module, see page 55.
MODE	For adaptation of the communication mode, see page 55.
IP ADDRESS	IP address entry
SUBNET MASK	Net mask entry
GATEWAY	Gateway address entry

Note

Additional information on the configuration of the Ethernet-690 network card and information on troubleshooting can be downloaded from the website of the manufacturer: www.WuT.de.

Checking Ethernet-690**Condition**

You require a PC with Windows on which the protocol TCP/IP is installed. The PC must be operated in the same network segment as the weighing terminal with Ethernet-690.

Conducting test

With DOS entry window

1. Open DOS entry window.
2. Enter **TELNET xxx.xxx.xxx.xxx 8000** (xxx.xxx.xxx.xxx = IP address) and confirm with ↵.

The PC reports the following in a Telnet window

```
*****
* Com-Server Highspeed *
*****
```

The message means that the Ethernet-690 network card is operable. The PC and the weighing terminal can communicate with each other via interface commands, see chapter 6.

3. Close Telnet window.

With browser

1. Start browser, e.g. Internet Explorer.
2. Enter **xxx.xxx.xxx.xxx** (xxx.xxx.xxx.xxx = IP address) and confirm with ↵.

The PC reports a login window.

3. Enter password (factory setting: no password).
The configuration menu of the Ethernet-690 network card appears.

5.6.8 Configuring ProfibusDP-690

PROFIBUS-DP	Configuring ProfibusDP-690
NODE ADDRESS	Select desired node address in range 001 to 126. Factory setting: 3
OPERATING MODE	Set type and word length of user data parameter VALUE.
16-BIT-INTEGER / 2 WORDS	Consistent over valid module pair in GSD file 2 words 16-BIT-INTEGER 2(+2)W AI 16-BIT-INTEGER 2(+2)W AO
16-BIT-INTEGER / 4 WORDS	2 words 16-BIT-INTEGER 2(+2)W AI (use 2x) 16-BIT-INTEGER 2(+2)W AO (use 2x)
32-BIT-FLOATING- POINT	4 words 32-BIT-FLOATING-POINT 4W AI 32-BIT-FLOATING-POINT 4W AO
S/P MODE	Set type and use of setpoint.
UNIVERSAL	Each setpoint can be set and read independently of others.
CHECKWEIGHING	As soon as setpoints 1 and 2 are set, DeltaTrac CHECKWEIGHING will be activated with SP1 = setpoint and SP2 = tolerance (in %, in 16-bit integer mode with 2 decimal places). In read table current state BELOW (SP1), GOOD (SP2) or ABOVE (SP3) can be read off.

PROFIBUS-DP	Configuring ProfibusDP-690												
FILLING	<p>As soon as setpoints 1 and 2 are set, DeltaTrac CHECKWEIGHING will be activated with SP1 = setpoint and SP2 = tolerance (in %, in 16-bit integer mode with 2 decimal places). In addition, SP3 and SP4 can also be loaded as any desired setpoints.</p> <p>In read table current state GOOD (SP1), ABOVE (SP2), SP3 REACHED (SP3) or SP4 REACHED (SP4) can be read off.</p>												
I/P MODE	<p>Set request for identification data in Input mode.</p> <p>After setting the user data command INPUT MODE in the write table, the selected request for input is automatically carried out and the entries are saved in the application blocks 094 to 099.</p> <p>The user data response INPUT MODE RUNNING remains set while the input mode is active.</p>												
A	Code A is requested.												
A+B	Code B and Code A are always requested.												
A+B+C	Code C, Code B and Code A are always requested.												
A+B+C+D	Code D, Code C, Code B and Code A are always requested.												
A+B+C+D+E	Code E, Code D, Code C, Code B and Code A are always requested.												
A+B+C+D+E+F	Code F, Code E, Code D, Code C, Code B and Code A are always requested.												
BYTE ORDER	Order of the bytes within a data word												
NORMAL	Usual byte order (factory setting)												
SWAPPED	The upper and lower byte of each data word are swapped												
SIGN	Location of the sign in the 16-bit integer values Is only displayed if MODE = 16-BIT-INTEGERS/WORDS has been selected												
SEPARATE BIT 16	<p>The sign is transferred separately in Bit 16 (factory setting)</p> <p>Examples</p> <table> <tbody> <tr> <td>+2</td> <td>0002</td> <td>0000 0000 0000 0010</td> </tr> <tr> <td>+1</td> <td>0001</td> <td>0000 0000 0000 0001</td> </tr> <tr> <td>-1</td> <td>8001</td> <td>1000 0000 0000 0010</td> </tr> <tr> <td>-2</td> <td>8002</td> <td>1000 0000 0000 0010</td> </tr> </tbody> </table>	+2	0002	0000 0000 0000 0010	+1	0001	0000 0000 0000 0001	-1	8001	1000 0000 0000 0010	-2	8002	1000 0000 0000 0010
+2	0002	0000 0000 0000 0010											
+1	0001	0000 0000 0000 0001											
-1	8001	1000 0000 0000 0010											
-2	8002	1000 0000 0000 0010											
INTEGRATED IN INTEGER	<p>The sign is transferred integrated in the integer</p> <p>Examples</p> <table> <tbody> <tr> <td>+2</td> <td>0002</td> <td>0000 0000 0000 0010</td> </tr> <tr> <td>+1</td> <td>0001</td> <td>0000 0000 0000 0001</td> </tr> <tr> <td>-1</td> <td>FFFF</td> <td>1111 1111 1111 1111</td> </tr> <tr> <td>-2</td> <td>FFFE</td> <td>1111 1111 1111 1110</td> </tr> </tbody> </table>	+2	0002	0000 0000 0000 0010	+1	0001	0000 0000 0000 0001	-1	FFFF	1111 1111 1111 1111	-2	FFFE	1111 1111 1111 1110
+2	0002	0000 0000 0000 0010											
+1	0001	0000 0000 0000 0001											
-1	FFFF	1111 1111 1111 1111											
-2	FFFE	1111 1111 1111 1110											

PROFIBUS-DP	Configuring ProfibusDP-690																																																
<p>EXP. AB AREA</p>	<p>Input of up to three expanded application blocks for constants which can be accessed when writing applications blocks.</p> <p>Example</p> <p>Input enables access to</p> <p>021 application blocks 021_001 to 021_999</p> <p>046 application blocks 046_001 to 046_999</p> <p>071 application blocks 071_001 to 071_999</p>																																																
<p>CONFIGURE INPUTS</p>	<p>Select the desired setting for every input.</p> <p>Factory setting for the IND690-Base:</p> <p>Input 1 not in use</p> <p>Input 2 zero setting</p> <p>Input 3 taring</p> <p>Input 4 entry (↵ key)</p> <p>Input 5 ... 8 not in use</p> <p>Further settings: see page 129</p>																																																
<p>CONFIGURE OUTPUTS</p>	<p>Select the desired setting for every output.</p> <p>Factory setting for the IND690-Base:</p> <p>Output 1 Delta low</p> <p>Output 2 Delta ok</p> <p>Output 3 Delta high</p> <p>Output 4 Stable</p> <p>Output 5 ... 8 Setpoint 1 ... 4</p> <p>Further settings: see page 129</p>																																																
<p>TEST MODE</p>	<p>Activation of the information display. In line 3 and 4 write and read tables are displayed as follows:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">3</td> <td style="width: 15%; text-align: center;">4</td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">5</td> <td style="width: 15%; text-align: center;">6</td> </tr> <tr> <td></td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td></td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td></td> <td style="text-align: center;">└─</td> <td style="text-align: center;">└─</td> <td></td> <td style="text-align: center;">└─</td> <td style="text-align: center;">└─</td> </tr> <tr> <td></td> <td style="text-align: center;">TEST MODE</td> <td></td> <td></td> <td></td> <td style="text-align: right;">0.999 kg</td> </tr> <tr> <td></td> <td style="text-align: center;">┌─ Id</td> <td style="text-align: center;">┌─ Val</td> <td style="text-align: center;">5432109876543210</td> <td></td> <td style="text-align: right;">I/Os</td> </tr> <tr> <td style="text-align: right;">2 ──</td> <td style="text-align: center;">00</td> <td style="text-align: center;">0000</td> <td style="text-align: center;">0000000010000000</td> <td></td> <td style="text-align: right;">00 00</td> </tr> <tr> <td style="text-align: right;">1 ──</td> <td style="text-align: center;">00</td> <td style="text-align: center;">03E7</td> <td style="text-align: center;">0100000000000000</td> <td></td> <td style="text-align: right;">08 00</td> </tr> <tr> <td></td> <td colspan="5" style="text-align: center; border-top: 1px solid black;">CANCEL</td> </tr> </table> </div> <p>1 Read table</p> <p>2 Write table</p> <p>3 Operating mode (internal)</p> <p>4 Value (hexadecimal)</p> <p>5 Command/response bits</p> <p>6 Inputs/outputs (hexadecimal)</p>		3	4		5	6								└─	└─		└─	└─		TEST MODE				0.999 kg		┌─ Id	┌─ Val	5432109876543210		I/Os	2 ──	00	0000	0000000010000000		00 00	1 ──	00	03E7	0100000000000000		08 00		CANCEL				
	3	4		5	6																																												
	└─	└─		└─	└─																																												
	TEST MODE				0.999 kg																																												
	┌─ Id	┌─ Val	5432109876543210		I/Os																																												
2 ──	00	0000	0000000010000000		00 00																																												
1 ──	00	03E7	0100000000000000		08 00																																												
	CANCEL																																																

5.6.9 Configuring WLAN-690

The weighing terminal can only be operated in a wireless network with a valid IP address, subnet mask etc. Ask your system administrator for these parameters.

WLAN	Configuring WLAN-690
INFO	Displays the type and software version of the WLAN module. Same function as the key sequence "INFO 50" in the operating mode.
STATUS	Displays the current status of the WLAN module: Radio channel used, data rate of connection, transmission and reception quality, MAC address of the currently connected access point. Same function as the key sequence "INFO 51" in the operating mode.
COMMUNICATION	For adaptation of the communication parameters between weighing terminal and the WLAN module, see page 55.
MODE	For adaptation of the communication mode, see page 55.
IP ADDRESS	IP address entry
PORT NUMBER	Port number entry
GATEWAY	Gateway address entry
SUBNET MASK	Net mask entry
SSID	Entry of wireless-network name (ServiceSetIdentifier).
WEP-KEY	WEP key entry, with 5 characters (64 bit key) or 13 characters (128 bit key).
WPA-PSK	WPA-PSK key entry, with 16 characters (128 bit key). Note: It may take up to 50 seconds to proceed the key.
AUTHORIZATION	Activating/deactivating the authorization in accordance with the setting at the AccessPoint. If the authorization is activated at the AccessPoint, the authorization also has to be activated at the IND690.
PORT TYPE	Set WLAN architecture: Ad hoc or infrastructure
AUTO CONNECT	Input of the IP address and port number of a partner to which establishing of a connection is tried cyclically – if a connection does not exist.
Comment	SSID, WEP-key and WPA_PSK-key can be entered in different ways: ASCII characters direct entry Hexadecimal code start entry with IDENT E Decimal code start entry with IDENT F

5.6.10 Configuring Bluetooth-690/BT-BLD Display/BT-P42/BT-SICS

BLUETOOTH/BT-BLD/ BT-P42/BT-SICS	Configure Bluetooth-690/BT-BLD Display/BT-P42/BT-SICS
INFO	Displays the type, software version and manufacturer of the Bluetooth module. Same function as the key sequence "INFO 60" in the operating mode.
STATUS	Displays the current status of the Bluetooth module: own Bluetooth address, own Bluetooth name, user service/COM port and name of the Bluetooth module to which there is currently a connection. Same function as the key sequence "INFO 61" in the operating mode.
MODE	Adaptation of the communication mode, see Page 55.
PASSKEY	Switching the passkey interrogation on/off and entering the passkey, if switched on. Enter the passkey "Mettler-Toledo" at the BT-BLD display and the BT-P42. All the communication parameters are then set automatically for the connected device
CONNECT	All reachable Bluetooth modules are displayed. The connection to one of these modules can then be made or an existing connection can be broken.
Comment	Passkey can be entered in different ways: ASCII characters direct entry Hexadecimal code start entry with IDENT E Decimal code start entry with IDENT F

6 Interface description

6.1 General

To exchange data with a computer, the weighing terminal is equipped with an RS232 interface. Up to 8 additional interfaces are available as an option.

The interfaces operate independently of each other, can be used simultaneously and can be adjusted individually, see section 5.6.

To operate the serial interfaces in the **dialog mode**, one of the following METTLER TOLEDO command sets must be selected in the master mode:

- MMR command set, see section 6.2.
- METTLER TOLEDO Continuous mode, see section 6.3.
- METTLER TOLEDO SICS command set, see section 6.4.

Note

In order to avoid data loss, do not operate the interfaces in unsolicited mode. In particular if the handshake is deactivated, ensure that the host waits for a response after every command before a new command is sent.

6.2 MMR command set

6.2.1 Syntax and formats of communication

Commands and responses for transmitting weights have the following formats:

Command format when transmitting weight formats

Identification	_	Weight value	_	Unit	Framing
Character sequence for specification of command (1 ... 4 characters)		1 ... 8 digits, number of digits variable		1 ... 3 characters, number of characters variable	Definable in master mode, factory setting: C _R L _F

Response format when transmitting weight formats

Identification	_	Weight value	_	Unit	Framing
Character sequence for specification of response (2 ... 3 characters)		10 digits, right-justified, filled out with blank spaces		3 characters, left-justified, filled out with blank spaces	definable in master mode, factory setting: C _R L _F

Example

Command Tare specification

T _ 1 3 . 2 9 5 _ k g

Response Tare specification

T B H _ _ _ _ _ 1 3 . 2 9 5 _ k g _

Data formats

- The following symbols are used in the following command description:

Weight value 10 characters with sign and decimal point, right-justified (with preceding blank spaces)

Unit 3 characters, left-justified (with following blank spaces)

Text_n maximum of n characters, left-justified

- The string framing is mandatory, however it is **not** contained in the following command description!
- Enter commands as ASCII characters. The following ASCII characters are available: 20 hex/32 deci ... 7F hex/127 deci, see page 126.

BUS SLAVE operating mode (RS485)

In the BUS SLAVE operating mode each command and each response begins with a code for the terminal address.

Terminal address 1 ... 9 Code "1" ... "9" (31H ... 39H)

Terminal address 10 ... 31 Code "a" ... "v" (61H ... 76H)

Example

Command to terminal 3: 3 S

Response from terminal 3: 3 S _ _ _ _ _ 1 2 . 7 6 5 _ k g _

6.2.2 Command overview

Command	Meaning	Page
RO / R1	Switch keypad on/off	80
KD / KE	Switch individual key on/off	80
Z	Set weight display to zero after weighing platform stabilization	80
U_...	Change over terminal to a different weight unit	80
T	Tare	81
T_...	Specify tare weight	81
DY_...	Specify DeltaTrac target value	82
S	Transmit in case of weighing platform stabilization	82
SI	Transmit independent of weighing platform stabilization	82
SIR	Transmit repeatedly independent of weighing platform stabilization	83
SR	Transmit stabilized weight values repeatedly depending on a weight change	83
SR_...	Transmit repeatedly depending on weighing platform stabilization with specification of an excursion value	83
SX	Transmit data record after weighing platform stabilization	84
SXI	Transmit data record independent of weighing platform stabilization	84
SXIR	Transmit data record repeatedly independent of weighing platform stabilization	84
ARNo.	Read information of application block	85
AWNo_...	Write to application block	85
D_...	Write to display	85
P_...	Print alphanumeric characters or barcodes on the GA46	86
DS	Trigger acoustic signal	86
ID	Interrogate terminal identification	86
W_...	Actuating digital outputs	87

6.2.3 Command description


Switch keypad on or off

Command	<input type="text" value="R,0"/> Switch on keypad <input type="text" value="R,1"/> Switch off keypad
Response	<input type="text" value="R,B"/> Keypad switched on or off
Comments	<ul style="list-style-type: none"> • Factory setting: Keypad switched on. • When the keypad is switched off, the terminal cannot be operated manually.

Switch individual key on or off

Command	<input type="text" value="K,E,_,x,x"/> Switch on key with key number xx <input type="text" value="K,D,_,x,x"/> Switch off key with key number xx
Response	<input type="text" value="K,B"/> Key switched on or off
Comments	<ul style="list-style-type: none"> • Factory setting: Keys switched on. • See table in the Appendix for key numbers.




Set zero

Command	<input type="text" value="Z"/> Set gross weight display to zero after weighing platform stabilization, effect as when  is pressed.
Response	<input type="text" value="Z,B"/> Weighing platform set to zero <input type="text" value="Z,-"/> Command cannot be executed: Zero-set range dropped below <input type="text" value="Z,+"/> Command cannot be executed: Zero-set range exceeded
Comments	<ul style="list-style-type: none"> • Setting to zero is not possible when the weighing platform stabilizes in the zero-set range. • With some weighing platform types setting to zero deletes a saved tare weight. This is indicated with the message TA, see section 6.2.4.

Changing over to different weight unit

Command	<input type="text" value="U,_,Unit"/> Change over weight display to different weight unit <input type="text" value="U"/> Change over weight display to first weight unit
Response	<input type="text" value="U,B"/> Weight display changed over to different weight unit
Comment	Possible units: g, kg, lb, ozt, oz, dwt

Tare

Command	<p><input type="button" value="T"/> Tare weighing platform: After the weighing platform stabilizes, the current weight value is saved as the tare weight and the weight display is set to zero with the weight placed on the platform. Effect as when  is pressed.</p> <p><input type="button" value="T"/> <input type="button" value="_"/> Tare weight (weight value) <input type="button" value="_"/> <input type="button" value="Unit"/> Specify tare weight: The content of the tare memory is overwritten with the specified tare weight and the net weight is displayed. Effect as when , 0 ... 9,  sequence is pressed.</p> <p><input type="button" value="T"/> <input type="button" value="_"/> Delete tare weight.</p>
Response	<p><input type="button" value="T"/> <input type="button" value="B"/> <input type="button" value="_"/> <input type="button" value="_"/> Tare weight (weight value) <input type="button" value="_"/> <input type="button" value="Unit"/> Weighing platform is tared</p> <p><input type="button" value="T"/> <input type="button" value="B"/> <input type="button" value="H"/> <input type="button" value="_"/> Tare weight (weight value) <input type="button" value="_"/> <input type="button" value="Unit"/> Weighing platform is tared with specified weight</p> <p><input type="button" value="T"/> <input type="button" value="-"/> Command cannot be executed: Tare range dropped below</p> <p><input type="button" value="T"/> <input type="button" value="+"/> Command cannot be executed: Tare range exceeded</p>
Comments	<ul style="list-style-type: none"> • Taring is only possible when the weighing platform stabilizes within the tare range. • The tare weight is always transmitted in the first weight unit. • Each taring command overwrites the content of the tare memory with the new tare weight. • Taring with an unloaded weighing platform deletes the tare memory. On some weighing platform types a zero set is carried out in the unloaded state. This is displayed with the message ZA, see section 6.2.4. • On not certified weighing systems the tare weight is automatically rounded to the current increment. • On certified weighing systems: Tare range for MultiRange only in first increment range.
Example	<p>Command: <input type="button" value="T"/></p> <p>Response: <input type="button" value="T"/> <input type="button" value="B"/> <input type="button" value="_"/> <input type="button" value="_"/> <input type="button" value="_"/> <input type="button" value="_"/> 1, 2, ., 6, 5, 0 <input type="button" value="_"/> <input type="button" value="k"/> <input type="button" value="g"/> <input type="button" value="_"/></p>

Specify DeltaTrac target value

Command	<code>D | Y | _ | Target weight (weight value) | _ | Unit | _ | Lower tolerance | _ | Unit | _ |</code> <code>Upper tolerance | _ | Unit</code> Specify DeltaTrac target value <code>D | Y</code> Delete DeltaTrac target value
Response	<code>D | B</code> DeltaTrac target value loaded/deleted
Comments	<ul style="list-style-type: none"> Observe limit values, see page 18 Also possible: <code>A | W | 0 | 2 | 0 | . . .</code>, see page 116
Example	Command: <code>D | Y | _ | 4 | . | 5 | _ | k | g | _ | 5 | _ | % | _ | 4 | _ | %</code> Response: <code>D | B</code>

Transmit content of display

Command	<code>S</code> Transmit a stabilized weight when weighing platform is stabilized. <code>S | I</code> Transmit a stabilized or dynamic weight independent of weighing platform stabilization.
Response	<code>S | _ | _ | Weight value | _ | Unit</code> Stabilized weight value transmitted <code>S | D | _ | Weight value | _ | Unit</code> Dynamic weight value transmitted <code>S | I</code> Invalid weight <code>S | I | -</code> Weighing platform in underload range <code>S | I | +</code> Weighing platform in overload range

Transmit content of display repeatedly

Command	<p><code>S,I,R</code> Transmit stabilized or dynamic weight values after each measuring cycle independent of weighing platform stabilization.</p> <p><code>S,R</code> Transmit the next stabilized weight value after a weight change (e.g. different item) and one dynamic and the next stabilized weight value after each deflection > 30 d.</p> <p><code>S,R, Deflection weight (weight value) Unit</code> Transmit the next stabilized weight value and, depending on the specified deflection, a dynamic weight value after a weight change greater than the specified deflection value.</p>
Response	<p><code>S, Weight value Unit</code> Transmit stabilized weight value repeatedly</p> <p><code>S,D, Weight value Unit</code> Transmit dynamic weight value repeatedly</p>
Comment	Stop command with <code>S</code> , <code>S,I</code> command or by interrupting the interface
Example	<p>Command: <code>S,R,1,4,0,k,g</code></p> <p>Responses: <code>S,2,0,0,0,0,k,g</code> 1st item <code>S,D,3,4,5,8,5,k,g</code> <code>S,4,1,0,5,0,k,g</code> 2nd item</p>

Transmit data record

Command	<p><input type="text" value="S,X"/> Transmit a data record with stabilized weight values after weighing platform stabilization. Effect as if \leftarrow is pressed.</p> <p><input type="text" value="S,X,I"/> Transmit a data record with stabilized or dynamic weight values independent of weighing platform stabilization.</p> <p><input type="text" value="S,X,I,R"/> Transmit data records with stabilized or dynamic weight values repeatedly independent of weighing platform stabilization.</p>
Response	<p><input type="text" value="S,X,_,_"/> Application block <input type="text" value="_,_"/> Application block [...] <input type="text" value="A No. _ Data record"/> Data record with stabilized weight values transmitted</p> <p><input type="text" value="S,X,D,_,_"/> Application block <input type="text" value="_,_"/> Application block [...] <input type="text" value="A No. _ Data record"/> Data record with dynamic weight values transmitted</p> <p><input type="text" value="S,X,I"/> Invalid value <input type="text" value="S,X,I,-"/> Weighing platform in underload range <input type="text" value="S,X,I,+"/> Weighing platform in overload range</p>
Comments	<ul style="list-style-type: none"> • Number of application block: three-digit with leading zeros. • The content of the corresponding application block is contained in data record, see chapter 7. Standard data record consists of 3 blocks: <p><input type="text" value="S,X,_,_"/> <input type="text" value="A,0,1,1,_,_"/> Gross weight (weight value) <input type="text" value="_,_"/> Unit <input type="text" value="_,_"/></p> <p><input type="text" value="_,_"/> <input type="text" value="A,0,1,2,_,_"/> Net weight (weight value) <input type="text" value="_,_"/> Unit <input type="text" value="_,_"/></p> <p><input type="text" value="_,_"/> <input type="text" value="A,0,1,3,_,_"/> Tare weight (weight value) <input type="text" value="_,_"/> Unit</p> <p>The continuous transmission of data records started with the <input type="text" value="S,X,I,R"/> command can be stopped with the <input type="text" value="S,X"/> or <input type="text" value="S,X,I"/> command.</p>
Example	<p>Command: <input type="text" value="S,X,I"/></p> <p>Response: Standard data record</p> <p><input type="text" value="S,X,D,_,_"/> <input type="text" value="A,0,1,1,_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="2,3,.,6,5,0"/> <input type="text" value="_,_"/> <input type="text" value="k,g,_,_"/></p> <p><input type="text" value="_,_"/> <input type="text" value="A,0,1,2,_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="2,1,.,6,5,0"/> <input type="text" value="_,_"/> <input type="text" value="k,g,_,_"/></p> <p><input type="text" value="_,_"/> <input type="text" value="A,0,1,3,_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="_,_"/> <input type="text" value="2,.,0,0,0"/> <input type="text" value="_,_"/> <input type="text" value="k,g,_,_"/></p>

Read application block

Command	<input type="text" value="A"/> <input type="text" value="R"/> <input type="text" value="No."/> <input type="text" value=""/>	Read content of application block
Response	<input type="text" value="A"/> <input type="text" value="B"/> <input type="text" value=""/> <input type="text" value="Information"/>	Content of application block transmitted
Comments	<ul style="list-style-type: none"> • Transmitted information is dependent on application block, see chapter 7. • Number of application block must be entered as 3 digits with preceding zeros. 	

Write to application block

Command	<input type="text" value="A"/> <input type="text" value="W"/> <input type="text" value="No."/> <input type="text" value=""/> <input type="text" value="Information"/>	Write to application block
	<input type="text" value="A"/> <input type="text" value="W"/> <input type="text" value="No."/> <input type="text" value=""/>	Reset application block
	<input type="text" value="A"/> <input type="text" value="W"/> <input type="text" value="No."/> <input type="text" value=""/> <input type="text" value=""/>	Delete application block
Response	<input type="text" value="A"/> <input type="text" value="B"/>	Written to application block
Comments	<ul style="list-style-type: none"> • Information to be entered is dependent on target block, see chapter 7. • Deleting and resetting have same effect. 	

Write to display

Command	<input type="text" value="D"/> <input type="text" value=""/> <input type="text" value="Text_20"/>	Write to display
	<input type="text" value="D"/> <input type="text" value=""/>	Switch display to dark
	<input type="text" value="D"/>	Set display to normal status
Response	<input type="text" value="D"/> <input type="text" value="B"/>	Written to display
Comments	<ul style="list-style-type: none"> • Character stock: ASCII characters 20 hex/32 deci ... 7F hex/127 deci, see page 126. • Watch upper and lower case. 	

Alphanumeric printout on GA46 printer

Command	<p><code>P _ Text_48</code> Print text as per setting</p> <p><code>P _ \$! 1 Text_48</code> Print text in small type</p> <p><code>P _ \$! 2 Text_48</code> Print text in normal type</p> <p><code>P _ \$! 3 Text_48</code> Print text in large type</p> <p><code>P _ \$! A Text_48</code> Print text in small type and bold print</p> <p><code>P _ \$! B Text_48</code> Print text in normal type and bold print</p> <p><code>P _ \$! C Text_48</code> Print text in large type and bold print</p> <p><code>P _</code> Print blank line</p>
Response	<code>P , B</code> Alphanumeric characters printed
Comments	<ul style="list-style-type: none"> • Character stock: ASCII characters 20 hex/32 deci ... 7F hex/127 deci, see page 126. • Text is printed in last selected type size. • Watch upper and lower case.

Barcode printout on GA46 printer

Command	<p><code>P _ \$ # 1 Text_20, barcode-specific</code> Print Code 39</p> <p><code>P _ \$ # 2 Text_8, barcode-specific</code> Print EAN 8</p> <p><code>P _ \$ # 3 Text_13, barcode-specific</code> Print EAN 13</p> <p><code>P _ \$ # 4 Text_20, barcode-specific</code> Print EAN 128</p> <p><code>P _ \$ # 5 Text_20, barcode-specific</code> Print Code 2 of 5</p> <p><code>P _ \$ # 6 Text_20, barcode-specific</code> Print Code 2 of 5 interleaved</p> <p><code>P _ \$ # 7 Text_20, barcode-specific</code> Print Code 128</p> <p><code>P _ \$ # 8 Text_20, barcode-specific</code> Print EAN 128</p> <p><code>P _</code> Print blank line</p>
Response	<code>P , B</code> Barcode printed
Comments	<ul style="list-style-type: none"> • Character stock: ASCII characters 20 hex/32 deci ... 7F hex/127 deci, see page 126. • With Code 39, 3 barcodes can be printed next to each other. Separating characters: \$\$ or H_T (ASCII character 09 hex/9 deci). Arrangement of barcodes: Barcode 2, Barcode 1, Barcode 3.

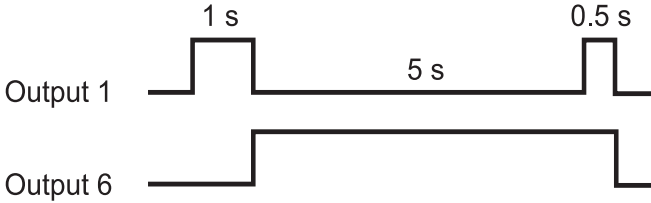
Acoustic signal

Command	<code>D , S</code> Generate short acoustic signal (beep tone) in terminal
Response	<code>D , B</code> Acoustic signal generated in terminal

Identification

Command	<code>I , D</code> Interrogate identification of terminal
Response	<code>I , D , 7 _</code> Program number of Pac

Actuating digital outputs

<p>Command</p>	<p><code>W _ Status</code> Switch individual digital outputs on or off</p> <p><code>W _ Status 1 _ Time 1 _ Status 2 _ Time 2 _ ... Status 4 _ Time 4 _ Status 5</code> Trigger time sequence of status changes of digital outputs</p> <p><code>W , W _</code> Reset all outputs to logical 0</p> <p>Status: Each output is assigned a value. The total of the values of those outputs which are to be closed is indicated as the "Status".</p> <table> <tr><td>Digital output 1</td><td>1</td></tr> <tr><td>Digital output 2</td><td>2</td></tr> <tr><td>Digital output 3</td><td>4</td></tr> <tr><td>Digital output 4</td><td>8</td></tr> <tr><td>Digital output 5</td><td>16</td></tr> <tr><td>Digital output 6</td><td>32</td></tr> <tr><td>Digital output 7</td><td>64</td></tr> <tr><td>Digital output 8</td><td>128</td></tr> <tr><td>All outputs open</td><td>0</td></tr> <tr><td>All outputs closed</td><td>255</td></tr> </table> <p>Time: 1 ... 99999 ms</p>	Digital output 1	1	Digital output 2	2	Digital output 3	4	Digital output 4	8	Digital output 5	16	Digital output 6	32	Digital output 7	64	Digital output 8	128	All outputs open	0	All outputs closed	255
Digital output 1	1																				
Digital output 2	2																				
Digital output 3	4																				
Digital output 4	8																				
Digital output 5	16																				
Digital output 6	32																				
Digital output 7	64																				
Digital output 8	128																				
All outputs open	0																				
All outputs closed	255																				
<p>Response</p>	<p><code>W , B</code> Digital outputs set</p>																				
<p>Comments</p>	<ul style="list-style-type: none"> • Max. 5 statuses "Status" and 4 intervals "Time" are possible. After sequence has been run, digital outputs freeze in last status "Status". • A break in the port has no effect on the outputs. • If terminal receives a new W command before time sequence has been run, ongoing sequence will be aborted immediately. • If limits for "Status" and "Time" are not adhered to, error message EL appears on 4 I/O-690 interface or 8-690 relay box. 																				
<p>Examples</p>	<p>Command: <code>W _ 5</code> Digital outputs 1 and 3 are closed, all others opened</p> <p>Command: <code>W _ 1 _ 1,0,0,0 _ 3,2 _ 5,0,0,0 _ 3,3 _ 5,0,0 _ 0</code> triggers following sequence:</p>  <p>The diagram shows two digital signals over time. The top signal, labeled 'Output 1', starts low, goes high for a duration of 1 s, then returns to low for a duration of 5 s, and finally goes high again for a duration of 0.5 s before returning to low. The bottom signal, labeled 'Output 6', starts low, goes high for a duration of 5 s, and then returns to low.</p>																				

6.2.4 Terminal messages – only with RS232, RS422, CL20mA and USB

In the dialog mode the weighing terminal transmits an acknowledgement to the computer each time a key is pressed.

When this pressing of a key is replaced with an interface command, the acknowledgement only differs in the second character in the response format which is part of the command:

Function	Key	Acknowledgement
Set zero		Z, A
Tare		T, A ... (see command T)
Specify tare weight		T, A, H ... (see command T_ ...)
Change over unit		U, A, _ Unit
Transmit data record in case of weighing platform stabilization		S, T, _ _ ... (see command SX)
Switch over weighing platform		S, A, _ _ n n = weighing platform 1 ... 3
Dynamic weighing		A, A, 0, 1, 6 _ Weight value _ Unit
Identification A ... F	A ... F	K, x _ Identification x = A, B, C, D, E, F 20 characters, right-justified
Function keys	F1 ... F6	K, F _ x x = I, J, K, L, M, N

6.2.5 Fault messages

Fault messages always consist of 2 characters and a string frame.

The string frame can be defined in the master mode (section 5.6.2).

E, T

Transmission error

The terminal transmits a transmission error for errors in the received bit sequence, e.g. parity errors, missing stop bit.

E, S

Syntax error

The terminal transmits a syntax error when the received characters cannot be processed, e.g. command does not exist.

E, L

Logic error

The terminal transmits a logic error when a command cannot be executed, e.g. when an attempt is made to write to a write-protected application block.

6.3 METTLER TOLEDO continuous mode

These operating modes are suitable for continuous data transmission in real time from the weighing terminal to METTLER TOLEDO devices, e.g. to a second display. The data are even transmitted when the weighing platform is moving or the gross weight = 0.

Commands can also be sent to the weighing terminal, permitting remote control of certain keys on the terminal.

There are 2 different continuous modes:

- Continuous mode – net and tare values are continuously transmitted.
- Short continuous mode – only net values are continuously transmitted.

6.3.1 Data output from IND690

Output format

Weight values are always transmitted in the following format:

STX	SB1	SB2	SB3	DF1	DF2	CR	CHK
-----	-----	-----	-----	-----	-----	----	-----

STX	ASCII characters 02 hex/2 deci, character for "start of text" is required by some printers
SB...	For status bytes, see below
DF1	Data field with 6 digits for the weight value transmitted without a decimal point and unit When counting is active in the IND690-Count: 6 digits for the quantity, no leading zeroes
DF2	Data field with 6 digits for the tare weight; is not transmitted in the short continuous mode When counting is active in the IND690-Count: 6 zeroes, not transferred in Short Continuous mode
CR	Carriage return (ASCII character 0D hex/13 deci)
CHK	Checksum (2-part complement of binary sum of 7 lower bits of all previously transmitted characters, including STX and CR)

Status byte SB1

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	Rounding / Increment		Decimal position		

Bit 4	Bit 3	Rounding/ Increment
0	1	1
1	0	2
1	1	5

Bit 2	Bit 1	Bit 0	Decimal position
0	0	0	XXXX00
0	0	1	XXXXX0
0	1	0	XXXXXX
0	1	1	XXXXX.X
1	0	0	XXXX.XX
1	0	1	XXX.XXX
1	1	0	XX.XXXX
1	1	1	X.XXXXX

Status byte SB2

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	0 lb	0 Stabiliza- tion	0 Normal status	0 Positive sign	0 Gross value
		1 kg	1 Movement	1 Underload/ overload	1 Negative sign	1 Net value

Status byte SB3

Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	0	0 Basic state 1 Print request	Weight value		

Bit 2	Bit 1	Bit 0	Weight value
0	0	0	kg / lb (SB2 Bit 4)
0	0	1	g
0	1	0	†
0	1	1	oz
1	0	0	oz†
1	0	1	dwt
1	1	0	ton
1	1	1	free unit

6.3.2 Commands to IND690

Individual command characters can be transmitted to the IND690 in the text format. One function each on the terminal is assigned to these command characters. After a command character is received, the following functions are executed:

Com- mand	Function	Note
C	Delete tare	for every application software
P	Print or send transfer string	
T	Taring	
Z	Setting to zero	
Tx.xxx	Specify tare value	
Sxxxx	Specify reference quantity	only for IND690-Count
Sx.xxx	Specify reference weight	
Ax.xxx	Specify reference piece weight	

6.4 METTLER TOLEDO SICS command set

6.4.1 Communication syntax and formats

Command format when transmitting weight values

Identification	_	Weight value	_	Unit	Framing
String of characters for specification of command (1 ... 4 characters)		1 ... 10 characters		1 ... 3 characters, number of characters variable	C _R L _F

Response format when transmitting weight values

Identification	_	Status	_	Weight value	_	Unit	Framing
String of characters for specification of response (1 ... 2 char.)		1 char.		10 char., right-justified, filled in with blank char.		3 char., left-justified, filled in with blank char.	C _R L _F

Example

Tare specification command

T, A _ 1, 3, ., 2, 9, 5 _ k, g

Tare specification response

T, A _ A _ _ _ _ _ 1, 3, ., 2, 9, 5 _ k, g _

Data formats

- The following symbols are used in the command description:

<u>Weight value</u>	10 numbers with sign and decimal point, right-justified (with preceding blank spaces)
<u>Unit</u>	3 characters, left-justified (with following blank spaces)
<u>"Text_n"</u>	maximum of n characters, left-justified

- The string framing is mandatory, however it is **not** listed in the following command description!
- Enter commands as upper-case letters.
- Text to be entered must always be placed in quotation marks.

6.4.2 Command overview

Command	Meaning	Page
Level 0		
I0	Transmit list of all available SICS commands	93
I1	Transmit SICS level and SICS versions	93
I2	Transmit scale data (terminal, platform)	93
I3	Transmit scale software version (program number)	94
I4	Transmit serial number	94
S, SI, SIR	Transmit display contents	94
Z	Set to zero	95
ZI	Set to zero immediately	95
@	Reset	95
Level 1		
D	Write display	95
DW	Weight display	95
K	Keyboard monitoring	96
SR	Transmit stable weight values repeatedly depending on a weight change	97
T	Taring	97
TI	Tare immediately	98
TA	Specify tare weight	98
TAC	Delete tare weight	99
Level 2		
SX, SXI, SXIR	Transmit data record	99
R0, R1	Switch keyboard on or off	100
U	Change over to different weight unit	100
DS	Acoustic signal	100
Level 3		
AR	Read application block	100
AW	Write application block	101
DY	Specify DeltaTrack target value	101
P	Print text or barcode	102
W	Actuating digital outputs	103

6.4.3 Command description

Transmit SICS commands

Command	<code>I,0</code> Transmit SICS commands
Response	<pre> I,0 B 0 "I0" I,0 B 0 "I1" ... I,0 B 1 "D" ... I,0 B 2 "SX" ... I,0 B 3 "AR" ... </pre>

Transmit SICS levels and SICS versions

Command	<code>I,1</code> Transmit SICS levels and SICS versions
Response	<pre> I,1 A "x1" "x2" "x3" "x4" "x5" </pre> <p> x1 = 0123 Scale with SICS levels 0, 1, 2 and 3 x2 Version or implemented SICS0 commands x3 Version or implemented SICS1 commands x4 Version or implemented SICS2 commands x5 Version or implemented SICS3 commands </p> <pre> I,1 I Command understood, cannot be executed at this time </pre>
Comments	<ul style="list-style-type: none"> On the SICS level only fully implemented levels are executed. With the SICS version all levels are specified.

Transmit scale data

Command	<code>I,2</code> Transmit data from weighing terminal and weighing platform(s)
Response	<code>I,2 A "text"</code>
Example	<code>I,2 A "IND690-Count IZ05 15.000 kg IZ10 32.000 kg"</code>

Transmit scale software version

Command	<code>I,3</code> Transmit software version from weighing terminal and weighing platform(s)
Response	<code>I,3 _ A _ "text "</code>
Example	<code>I,3 _ A _ "IP63-0-0100I IZ05-0-030I IZ10-0-0221"</code>

Transmit serial number

Command	<code>I,4</code> Transmit serial number of weighing terminal
Response	<code>I,4 _ A _ "text "</code>
Example	<code>I,4 _ A _ "1234567"</code>
Comment	The response to I4 appears automatically following switch-on and after the Reset command (@).

Transmit display contents

Command	<p><code>S</code> Transmit a stable weight value when the weighing platform is at a standstill.</p> <p><code>S,I</code> Transmit a stable or a dynamic weight value, regardless of whether the weighing platform is at a standstill.</p> <p><code>S,I,R</code> Transmit a stable or a dynamic weight value after each measuring cycle, regardless of whether the weighing platform is at a standstill.</p>
Response	<p><code>S _ S _ Weight value _ Unit</code> Stable weight value transmitted</p> <p><code>S _ D _ Weight value _ Unit</code> Dynamic weight value transmitted</p> <p><code>S _ I</code> Invalid value</p> <p><code>S _ -</code> Weighing platform in underload range</p> <p><code>S _ +</code> Weighing platform in overload range</p>
Comment	Stop <code>S,I,R</code> command with <code>S</code> , <code>S,I</code> , <code>S,R</code> , @ command or disconnect port.

Set to zero

Command	<code>Z</code> <code>Z I</code>	Set gross weight display to zero after weighing platform comes to a standstill, effect as when $\rightarrow 0 \leftarrow$ is pressed Set the gross weight display immediately to zero independently of a standstill
Response	<code>Z _ A</code> <code>Z _ I</code> <code>Z _ -</code> <code>Z _ +</code>	Weighing platform set to zero Command cannot be executed: e.g. standstill not achieved or another command is currently being executed Command cannot be executed: Zero-set range dropped below Command cannot be executed: Zero-set range exceeded

Reset

Command	<code>@</code>	Reset weighing terminal to the state maintained after Power On
Response	<code>I, 4 _ A _ "text"</code>	Serial number
Comments		<ul style="list-style-type: none"> All running applications and functions are cancelled. The tare memory is reset to zero.

Write display

Command	<code>D _ "Text_20"</code> <code>D _ ""</code>	Write display Darken display
Response	<code>D _ A</code> <code>D _ A</code> <code>D _ I</code> <code>D _ L</code>	Display written; the complete text appears left-justified in the display, marked with a symbol, e.g. with * Display written; the end of the text appears left-justified in the display with the beginning cut off, marked with a symbol, e.g. with * Command cannot be executed Command understood, parameters defective
Comment		A symbol in the display, e.g. *, indicates that an invalid weight value is displayed.

Weight display

Command	<code>D, W</code>	Switch over main display into the weight mode
Response	<code>D, W _ A</code> <code>D, W _ I</code>	The main display shows the current weight value Command understood, but cannot be executed

Keyboard monitoring

Command	<p>$\boxed{K}_{-} \boxed{1}$ When a key is pressed, execute the function, but do not transmit anything (factory setting)</p> <p>$\boxed{K}_{-} \boxed{1}$ When a key is pressed, do not execute the function and do not transmit anything</p> <p>$\boxed{K}_{-} \boxed{3}$ When a key is pressed, do not execute the function, but transmit the key code $\boxed{K}_{-} \boxed{C}_{-} \boxed{x}$ or, when the key is pressed longer, transmit $\boxed{K}_{-} \boxed{R}_{-} \boxed{x}$ and $\boxed{K}_{-} \boxed{C}_{-} \boxed{x}$</p> <p>$\boxed{K}_{-} \boxed{4}$ When a key is pressed, execute the function and transmit the function code $\boxed{K}_{-} \boxed{A}_{-} \boxed{x}$</p> <p>If the function cannot be executed immediately, the function code for the start of the function $\boxed{K}_{-} \boxed{B}_{-} \boxed{x}$ or $\boxed{K}_{-} \boxed{A}_{-} \boxed{x}$ for the end of the function is transmitted.</p>
Response	<p>$\boxed{K}_{-} \boxed{A}$ Command understood or function successfully executed</p> <p>$\boxed{K}_{-} \boxed{I}$ Command understood, but currently cannot be executed, e.g. no keyboard present</p> <p>$\boxed{K}_{-} \boxed{L}$ Command understood, parameters defective</p> <p>Key codes</p> <p>$\boxed{K}_{-} \boxed{R}_{-} \boxed{x}$ Key x was pressed briefly and released again immediately</p> <p>$\boxed{K}_{-} \boxed{C}_{-} \boxed{x}$ Key x was pressed for approx. 2 sec.</p> <p>See table in the Appendix for key codes</p>
Comments	<ul style="list-style-type: none"> • The factory setting is active after switch-on, after the Reset command and after exiting the master mode. • Only one K command is ever active at one time.

Transmit stable weight values repeatedly depending on a weight change

Command	<p><code>S | R | _ | Excursion weight (weight value) | _ | Unit</code></p> <p>After a weight change greater than the specified excursion weight, transmit alternately the next stable weight value and a dynamic weight value depending on the specified excursion.</p> <p><code>S | R |</code> If no excursion weight is entered, the weight change must be at least 12.5 % of the last stable weight value, however at least 30 d.</p>
Response	<p><code>S | _ | S | _ | Weight value | _ | Unit</code> Current stable weight value transmitted</p> <p>Weight change</p> <p><code>S | _ | D | _ | Weight value | _ | Unit</code> Dynamic weight value transmitted</p> <p><code>S | _ | I</code> Command cannot be executed</p> <p><code>S | _ | L</code> Command understood, parameters defective</p> <p><code>S | _ | -</code> Weighing platform in underload range</p> <p><code>S | _ | +</code> Weighing platform in overload range</p>
Comment	Stop command with command <code>S</code> , <code>S | I</code> , <code>S | I | R</code> , <code>@</code> or disconnect the port.
Example	<p>Command: <code>S | R | _ | 1,4,0 | _ | k | g</code></p> <p>Responses: <code>S | _ | S | _ | _ | _ | _ | _ | 2,0,0 | . | 0,0 | _ | k | g</code> 1st item</p> <p><code>S | _ | D | _ | _ | _ | _ | _ | 3,4,5 | . | 8,5 | _ | k | g</code></p> <p><code>S | _ | S | _ | _ | _ | _ | _ | 4,1,0 | . | 5,0 | _ | k | g</code> 2nd item</p>

Taring

Command	<p><code>T</code></p> <p>Tare weighing platform:</p> <p>After the weighing platform comes to a standstill, the current weight value is saved as a tare weight and the weight display set to zero with the weight on the platform.</p> <p>Effect as when TARE key is pressed.</p>
Response	<p><code>T | _ | S | _ | Tare weight (weight value) | _ | Unit</code> Weighing platform tared, stable tare value</p> <p><code>T | _ | I</code> Taring not carried out</p> <p><code>T | _ | -</code> Command cannot be executed: Tare range dropped below</p> <p><code>T | _ | +</code> Command cannot be executed: Tare range exceeded</p>
Comments	<ul style="list-style-type: none"> Each taring command overwrites the contents of the tare memory with the new tare weight. Taring with unloaded weighing platform clears the tare memory. On some weighing platform models, setting to zero is carried out in the unloaded state. On non-certified weighing systems the tare weight is automatically rounded off to the current increment. On certified weighing systems: Tare range with MultiRange only in first increment range.

Tare immediately

Command	<code>T, I</code> Tare weighing platform immediately.
Response	<code>T, I, S, Tare weight (weight value), Unit</code> Weighing platform tared, stable tare value <code>T, I, D, Tare weight (weight value), Unit</code> Weighing platform tared, dynamic tare value <code>T, I, I</code> Taring not carried out <code>T, I, L</code> Command cannot be executed <code>T, I, -</code> Command cannot be executed: Tare range dropped below <code>T, I, +</code> Command cannot be executed: Tare range exceeded
Comments	<ul style="list-style-type: none"> • Each taring command overwrites the contents of the tare memory with the new tare weight. • Following a dynamic tare value, a stable weight value can be specified. However, this value is not exact.

Specify tare weight

Command	<code>T, A, Tare weight (weight value), Unit</code> Specify tare weight: The contents of the tare memory are overwritten with the specified tare weight and the net weight is displayed. Effect as when the key sequence <code>PT</code> , 0 ... 9, <code>←</code> is pressed.
Response	<code>T, A, A, Tare weight (weight value), Unit</code> Weighing platform tared with the specified value <code>T, A, I</code> Command not carried out <code>T, A, L</code> Command understood, parameters defective <code>T, -</code> Command cannot be executed: Tare range dropped below <code>T, +</code> Command cannot be executed: Tare range exceeded
Comments	<ul style="list-style-type: none"> • The contents of the tare memory are overwritten with the specified tare value. • On non-certified weighing systems the tare weight is automatically rounded off to the current increment. • On certified weighing systems: Tare range with MultiRange only in first increment range.
Example	Command: <code>T, A, 1, 2, ., 6, 5, 0, k, g</code> Response: <code>T, A, A, _ _ _ _, 1, 2, ., 6, 5, 0, k, g, _</code>

Delete tare weight

Command	<code>T A C</code>	Delete tare weight.
Response	<code>T A C _ A</code> <code>T A C _ I</code>	Weighing platform tared with the specified weight Command not carried out

Transmit data record

Command	<p><code>S X</code> After the weighing platform comes to a standstill, transmit a data record with stable weight values. Effect as when \leftarrow is pressed.</p> <p><code>S X I</code> Transmit a data record with stable or dynamic weight values, regardless of whether the weighing platform is at a standstill.</p> <p><code>S X I R</code> Repeatedly transmit a data record with stable or dynamic weight values, regardless of whether the weighing platform is at a standstill.</p>
Response	<p><code>S X _ S _ Application block _ _ Application block [ ... ]</code> | | <code>A No. _ Data record</code> Data record with stable weight values transmitted</p> <p><code>S X _ D _ Application block _ _ Application block [ ... ]</code> | | <code>A No. _ Data record</code> Data record with dynamic weight values transmitted</p> <p><code>S X _ I</code> Command cannot be executed <code>S X _ -</code> Weighing platform in underload range <code>S X _ +</code> Weighing platform in overload range</p>
Comments	<ul style="list-style-type: none"> • Number of application blocks: three-place with preceding zeros. • The contents of the corresponding application block is contained in the data record, see chapter 7. The standard data record consists of 3 blocks: <pre> S X _ S _ A 0 1 1 _ Gross weight (weight value) _ Unit _ _ A 0 1 2 _ Net weight (weight value) _ Unit _ _ A 0 1 3 _ Tare weight (weight value) _ Unit </pre> The continuous transmission of data records started with the <code>S X I R</code> command can be stopped with the commands <code>S X</code> or <code>S X I</code>.
Example	<p>Command: <code>S X I</code></p> <p>Response: Default data record</p> <pre> S X _ D _ A 0 1 1 _ _ _ _ _ 2 3 . 6 5 0 _ k g _ _ _ A 0 1 2 _ _ _ _ _ 2 1 . 6 5 0 _ k g _ _ _ A 0 1 3 _ _ _ _ _ 2 . 0 0 0 _ k g _ </pre>

Switch keyboard on or off

Command	<code>R, 0</code> Switch on keyboard <code>R, 1</code> Switch off keyboard
Response	<code>R, 0 _ _ A</code> Keyboard switched on <code>R, 1 _ _ A</code> Keyboard switched off
Comments	<ul style="list-style-type: none"> • Factory setting: Keyboard switched on. • When the keyboard is switched off, the terminal cannot be manually operated.

Changing over to different weight unit

Command	<code>U _ Unit</code> Change over weight display to different weight unit <code>U</code> Change over weight display to the first weight unit
Response	<code>U _ _ A</code> Weight display switched over to another weight unit <code>U _ _ I</code> Impermissible weight unit
Comment	Possible units: g, kg, lb, ozt, oz, dwt

Acoustic signal

Command	<code>D, S</code> Generate short acoustic signal (beep) in the terminal
Response	<code>D, S _ _ A</code> Acoustic signal generated in the terminal

Read application block

Command	<code>A, R _ _ No.</code> Read contents of the application block
Response	<code>A, R _ _ A _ Information</code> Contents of the application block transmitted
Comments	<ul style="list-style-type: none"> • The transmitted information is dependent on the application block, see chapter 7. • The number of the application block must be entered as a three-place number with preceding zeros.

Write application block

Command	<input type="text" value="A,W,_,No.,_,Information"/> <input type="text" value="A,W,_,No."/> <input type="text" value="A,W,_,No.,_"/>	Write application block Reset application block Delete application block
Response	<input type="text" value="A,W,_,A"/> <input type="text" value="A,W,_,I"/> <input type="text" value="A,W,_,L"/>	Application block written Application block not present Application block cannot be written
Comments	<ul style="list-style-type: none"> The information to be entered is dependent on the target block, see chapter 7. Deleting and resetting have the same effect. 	

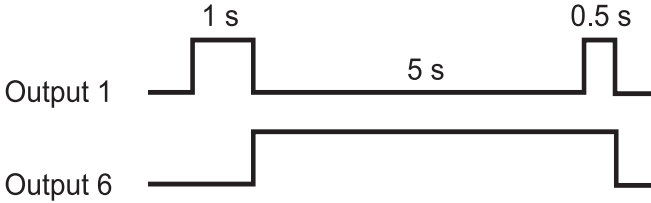
Specify DeltaTrac target value

Command	<input type="text" value="D,Y,_,Target weight (weight value),_,Unit,_,Lower tolerance,_,Unit,_,Upper tolerance,_,Unit"/> <input type="text" value="D,Y"/>	Specify DeltaTrac target value Delete DeltaTrac target value
Response	<input type="text" value="D,Y,_,A"/> DeltaTrac target value loaded/deleted	
Comments	<ul style="list-style-type: none"> Observe limit values, see page 18 Also possible: <input type="text" value="A,W,_,0,2,0,..."/> , see page 116 	
Example	Command: <input type="text" value="D,Y,_,4,.,5,_,k,g,_,5,_,%"/> Response: <input type="text" value="D,Y,_,A"/>	

Print text or barcode with GA46 printer

Command	<table border="0"> <tr> <td><code>P _ Text_48</code></td> <td>Print text as per setting</td> </tr> <tr> <td><code>P _ \$! 1 Text_48</code></td> <td>Print text in small print</td> </tr> <tr> <td><code>P _ \$! 2 Text_48</code></td> <td>Print text in normal print</td> </tr> <tr> <td><code>P _ \$! 3 Text_48</code></td> <td>Print text in large print</td> </tr> <tr> <td><code>P _ \$! A Text_48</code></td> <td>Print text in small type and bold print</td> </tr> <tr> <td><code>P _ \$! B Text_48</code></td> <td>Print text in normal type and bold print</td> </tr> <tr> <td><code>P _ \$! C Text_48</code></td> <td>Print text in large type and bold print</td> </tr> <tr> <td><code>P _ \$ # 1 Text_20, barcode-specific</code></td> <td>Print code 39</td> </tr> <tr> <td><code>P _ \$ # 2 Text_8, barcode-specific</code></td> <td>Print EAN 8</td> </tr> <tr> <td><code>P _ \$ # 3 Text_13, barcode-specific</code></td> <td>Print EAN 13</td> </tr> <tr> <td><code>P _ \$ # 4 Text_20, barcode-specific</code></td> <td>Print code 128</td> </tr> <tr> <td><code>P _ \$ # 5 Text_20, barcode-specific</code></td> <td>Print code 2 of 5</td> </tr> <tr> <td><code>P _ \$ # 6 Text_20, barcode-specific</code></td> <td>Print code 2 of 5 interleaved</td> </tr> <tr> <td><code>P _ \$ # 7 Text_20, barcode-specific</code></td> <td>Print code 128</td> </tr> <tr> <td><code>P _ \$ # 8 Text_20, barcode-specific</code></td> <td>Print EAN 128</td> </tr> <tr> <td><code>P _</code></td> <td>Print blank line</td> </tr> </table>	<code>P _ Text_48</code>	Print text as per setting	<code>P _ \$! 1 Text_48</code>	Print text in small print	<code>P _ \$! 2 Text_48</code>	Print text in normal print	<code>P _ \$! 3 Text_48</code>	Print text in large print	<code>P _ \$! A Text_48</code>	Print text in small type and bold print	<code>P _ \$! B Text_48</code>	Print text in normal type and bold print	<code>P _ \$! C Text_48</code>	Print text in large type and bold print	<code>P _ \$ # 1 Text_20, barcode-specific</code>	Print code 39	<code>P _ \$ # 2 Text_8, barcode-specific</code>	Print EAN 8	<code>P _ \$ # 3 Text_13, barcode-specific</code>	Print EAN 13	<code>P _ \$ # 4 Text_20, barcode-specific</code>	Print code 128	<code>P _ \$ # 5 Text_20, barcode-specific</code>	Print code 2 of 5	<code>P _ \$ # 6 Text_20, barcode-specific</code>	Print code 2 of 5 interleaved	<code>P _ \$ # 7 Text_20, barcode-specific</code>	Print code 128	<code>P _ \$ # 8 Text_20, barcode-specific</code>	Print EAN 128	<code>P _</code>	Print blank line
<code>P _ Text_48</code>	Print text as per setting																																
<code>P _ \$! 1 Text_48</code>	Print text in small print																																
<code>P _ \$! 2 Text_48</code>	Print text in normal print																																
<code>P _ \$! 3 Text_48</code>	Print text in large print																																
<code>P _ \$! A Text_48</code>	Print text in small type and bold print																																
<code>P _ \$! B Text_48</code>	Print text in normal type and bold print																																
<code>P _ \$! C Text_48</code>	Print text in large type and bold print																																
<code>P _ \$ # 1 Text_20, barcode-specific</code>	Print code 39																																
<code>P _ \$ # 2 Text_8, barcode-specific</code>	Print EAN 8																																
<code>P _ \$ # 3 Text_13, barcode-specific</code>	Print EAN 13																																
<code>P _ \$ # 4 Text_20, barcode-specific</code>	Print code 128																																
<code>P _ \$ # 5 Text_20, barcode-specific</code>	Print code 2 of 5																																
<code>P _ \$ # 6 Text_20, barcode-specific</code>	Print code 2 of 5 interleaved																																
<code>P _ \$ # 7 Text_20, barcode-specific</code>	Print code 128																																
<code>P _ \$ # 8 Text_20, barcode-specific</code>	Print EAN 128																																
<code>P _</code>	Print blank line																																
Response	<table border="0"> <tr> <td><code>P _ A</code></td> <td>Alphanumeric characters printed</td> </tr> <tr> <td><code>P _ L</code></td> <td>no GA46 present</td> </tr> </table>	<code>P _ A</code>	Alphanumeric characters printed	<code>P _ L</code>	no GA46 present																												
<code>P _ A</code>	Alphanumeric characters printed																																
<code>P _ L</code>	no GA46 present																																
Comments	<ul style="list-style-type: none"> • Character stock: ASCII character 20 hex/32 dec ... 7F hex/127 dec, see page 126. • Printing is carried out in the font size last selected. • Watch upper and lower case. 																																

Actuating digital outputs

<p>Command</p>	<p><code>W _ Status</code> Switch individual digital outputs on or off</p> <p><code>W _ Status 1 _ Time 1 _ Status 2 _ Time 2 _ ... Status 4 _ Time 4 _ Status 5</code> Trigger time sequence of status changes of digital outputs</p> <p><code>W , W _</code> Reset all outputs to logical 0</p> <p>Status: Each output is assigned a value. The total of the values of those outputs which are to be closed is indicated as the "Status".</p> <table> <tr><td>Digital output 1</td><td>1</td></tr> <tr><td>Digital output 2</td><td>2</td></tr> <tr><td>Digital output 3</td><td>4</td></tr> <tr><td>Digital output 4</td><td>8</td></tr> <tr><td>Digital output 5</td><td>16</td></tr> <tr><td>Digital output 6</td><td>32</td></tr> <tr><td>Digital output 7</td><td>64</td></tr> <tr><td>Digital output 8</td><td>128</td></tr> <tr><td>All outputs open</td><td>0</td></tr> <tr><td>All outputs closed</td><td>255</td></tr> </table> <p>Time: 1 ... 99999 ms</p>	Digital output 1	1	Digital output 2	2	Digital output 3	4	Digital output 4	8	Digital output 5	16	Digital output 6	32	Digital output 7	64	Digital output 8	128	All outputs open	0	All outputs closed	255
Digital output 1	1																				
Digital output 2	2																				
Digital output 3	4																				
Digital output 4	8																				
Digital output 5	16																				
Digital output 6	32																				
Digital output 7	64																				
Digital output 8	128																				
All outputs open	0																				
All outputs closed	255																				
<p>Response</p>	<p><code>W _ A</code> Digital outputs set</p>																				
<p>Comments</p>	<ul style="list-style-type: none"> • Max. 5 statuses "Status" and 4 intervals "Time" are possible. After sequence has been run, digital outputs freeze in last status "Status". • A break in the port has no effect on the outputs. • If terminal receives a new W command before time sequence has been run, ongoing sequence will be aborted immediately. • If the limits for "Status" and "Time" are not adhered to when operating the interface types 4 I/O or relay box 8, the fault message EL appears. 																				
<p>Examples</p>	<p>Command: <code>W _ 5</code> Digital outputs 1 and 3 are closed, all others opened</p> <p>Command: <code>W _ 1 _ 1,0,0,0 _ 3,2 _ 5,0,0,0 _ 3,3 _ 5,0,0 _ 0</code> triggers following sequence:</p>  <p>The diagram shows two digital outputs over time. Output 1 starts low, goes high for 1 second, then low for 5 seconds, then high for 0.5 seconds. Output 6 starts low, goes high for 5 seconds, then low.</p>																				

6.4.4 Error messages

Error messages always consist of 2 characters and a string limit.
The string limit can be defined in the master mode (section 5.6.1).

E, T

Transmission error

The terminal transmits a transmission error for errors in the received bit sequence, e.g. parity error, missing stop bit.

E, S

Syntax error

The terminal transmits a syntax error when it cannot process the received characters, e.g. command not present.

E, L

Logic error

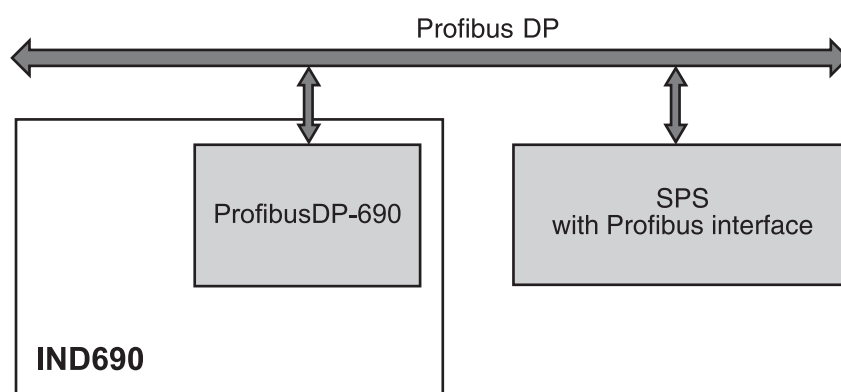
The terminal transmits a logic error, when a command cannot be executed, e.g. when an attempt is made to write a non-writable application block.

6.5 Profibus DP communication with a PLC

6.5.1 Overview

The ProfibusDP-690 is designed for operation as a slave on the Profibus DP. This provides the following possibilities with a master PLC also connected to the Profibus DP:

- Access to the weight values of the weighing platform connected to the weighing terminal
- Operation of the weighing platforms connected to the weighing terminal (zero-set, taring, setting specified tare values, etc.)
- Triggering key presses, transmitting data strings or display of texts



6.5.2 Data formats

All user data are transmitted in a compressed, up to 4-word long format.

Write table Format for transmitting user data from the PLC to the ProfibusDP-690.

Read table Format for the transmission of user data from ProfibusDP-690 to the PLC.

Structure of the write and read table

The write and read table are similarly structured and contain the following sections:

- Value (16-bit integer or 32-bit floating point) for the transmission of weight values, application block numbers, etc.
- Commands or the corresponding responses with a total of 16 bits
- Control of 16 digital I/Os

6.5.3 Handshake

As certain commands can not always be executed immediately by the scale, e.g. taring with a restless weighing platform, 3 handshake bits of the PLC allow clear monitoring of the success of its commands:

1. The PLC starts a command by setting the corresponding command bit and also toggles COMMAND VALID in the write table. All other command bits are 0.
2. The weighing terminal responds with the current data of the read table. If it was possible to completely process the command, the COMMAND EXECUTED bit is toggled. Otherwise COMMAND EXECUTED remains unchanged.
3. The PLC recognises whether it can transmit the next command or must repeat the last one from COMMAND EXECUTED and transmits the write table to the weighing terminal.
4. The weighing terminal recognises from the status change of the COMMAND VALID bit that it should carry out the next command. In addition, the weighing terminal also detects whether the last command has been executed or is still running. If the PLC attempts to start new commands before the previous one has been confirmed by the weighing terminal with a status change of COMMAND VALID, the weighing terminal ignores this new command.

6.5.4 Commands and responses

All commands available to the PLC and the corresponding responses are shown in the following two tables.

Data direction PLC -> IND690 Write table

Data direction IND690 -> PLC Read table

Write table

16-Bit Integer 2 Words	Word 0			Word 1		
16-Bit Integer 4 Words	Word 0			Word 1	Word 2	Word 3
32-Bit Floating Point		Word 0	Word 1	Word 2	Word 3	
Bit	Value 16-Bit	Value 32-Bit Floating Point		Command	16 Digital I/O	AB data
0				Command valid Toggle-bit for all commands	Setting of IND690 outputs or Displaying or evaluating inputs of external I/O module	Data for writing an application block Tolerance specifica- tions are handled in % if the sign is set to 1.
1		Mantissa		Bits 1/2/3: Selection of read-table value, read/write AB 0/0/0 = Display 1/0/0 = Net 0/0/1 = Key No. 1/0/1 = Read AB 0/1/0 = Gross 1/1/0 = Tare 0/1/1 = Write AB 1/1/1 = Not in use		
2						
3						
4						
5						
6						
7		Mantissa		Taring		
8				Delete tare		
9				Set to zero		
10				ENTER key		
11				Input mode		
12				Switch keyboard on/off		
13		Exponent		Bits 13/14/15: Selection of weighing platform 0/0/0 = None 1/1/0 = Scale 3 1/0/0 = Scale 1 0/0/1 = Scale 4 0/1/0 = Scale 2 1/0/1 = Sum scale		
14						
15	Sign				Sign	Sign

Read table

16-Bit Integer 2 words	Word 0			Word 1		
16-Bit Integer 4 words	Word 0			Word 1	Word 2	Word 3
32-Bit Floating Point		Word 0	Word 1	Word 2	Word 3	
Bit	Value 16-Bit	Value 32-Bit Floating Point		Command	16 Digital I/O	Not in Use
0				Command executed Toggle-bit for all commands	Showing or reading of IND690 inputs or Displaying or setting outputs of external I/O module	
1		Mantissa		Error command		
2				Movement		
3				Net		
4				Error scale (overload/underload...)		
5		Mantissa		Key(s) was/were pressed		
6				Input mode active		
7				Setpoint 1 reached		
8				Setpoint 2 reached		
9		Exponent		Setpoint 3 reached		
10				Setpoint 4 reached		
11				1 = keyboard blocked, 0 = keyboard unblocked		
12				Second unit 0 = first unit, 1 = second unit		
13		Sign		Bits 13/14/15: Current weighing platform 0/0/0 = None 1/1/0 = Scale 3 1/0/0 = Scale 1 0/0/1 = Scale 4 0/1/0 = Scale 2 1/0/1 = Sum scale		
14						
15	Sign	Sign				

Notes on commands

If the command requires parameters, they will be transmitted either as an integer value or as a floating point value depending on the operating mode set.

Exception: The commands READ/WRITE APPLICATION BLOCK and PRESS KEY always expect integer values as parameters.

Read commands

- The read commands Display value, Net, Gross, Tare, Key and Application block overwrite the cyclically transmitted display values with the required data. The data are transmitted as 16-bit integers or 32-bit floating points. As soon as the COMMAND EXECUTED bit is toggled, these values must be evaluated immediately by the PLC, as in the next cycle the value in the read table is overwritten again with the current weight value.
- The response to the READ KEY NUMBER command (write table bits 1/2/3 = 0/0/1) is transmitted in the Word 0 (16-bit integer) or in Word 1 (32-bit floating point). The low byte contains the keyboard code, the high byte the function key code. The weighing terminal can store a maximum of 10 keys for being called via the READ KEY NUMBER command. If they are not called, the oldest key actuations are overwritten. After reading out the last stored key, the KEY WAS PRESSED bit is reset. The key memory is cleared after the device is switched on and after the master mode is exited.

Key numbers

Number	Function key
00	Standard keys of IND690-Base
02	Extended tare keys of ID690-Base
51	Standard keys of Pac
52	Extended keys of Pac
...	Only when the Pac is equipped with more than one function key page, i.e. more than 6 function keys

Reading and writing application blocks

- When writing an application block, the desired data are simultaneously transferred with Word 3. For this reason, writing application blocks is only possible in 16-bit integer/4-word mode.
- Only application blocks with the formats "numeric" or "weight value" can be read or written. When writing, certain tolerance (sub-)blocks (e.g. with DeltaTrac) can be intentionally written with the format "percent" by setting the sign to "1".
- If a non-existent block or an alphanumeric block is selected, the IND690 responds with ERROR COMMAND. The requested data are supplied in the 16-bit integer mode in the same format as the weight value, and in the 32-bit floating point mode floating point values are always transmitted.

The **application block number** in the write table must be entered as a value (Word 0 in 16-bit integer mode, Word 1 in 32-bit floating point mode) in the following format for the READ APPLICATION BLOCK and WRITE APPLICATION BLOCK commands:

"Basic" application block

	Sub-block no.				Exp.		Application block number													
	Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0			
Example	S	S	S	S	E	E	A	A	A	A	A	A	A	A	A	A	A			
AB 10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0			
AB 20, sub-block 2	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0			

Expanded application block

Condition

One or more expanded application blocks are selected in master mode.

Example

Application block 21 is selected as the 1st expanded application block, application block 46 is selected as the 2nd expanded application block.

	Sub-block no.				Exp.		Index of the expanded AB													
	Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0			
Example	S	S	S	S	E	E	A	A	A	A	A	A	A	A	A	A	A			
AB 21_007	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1			
AB 46_005, SB 1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	1	0			

Input of tolerances in %

If the sign (bit 15) in Word 3 is set to 1, tolerance specifications can be written accurately down to one decimal place in %.

This rule applies in the same way for Word 0 (16-bit integer) and Word 1 (32-bit floating point) when reading.

Example	Decimal	Binary															
		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
100.0 %	-1000	1	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0
1 %	-10	1	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0
0.1 %	-1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Write commands

- The write command PRESS KEY requires the low byte keyboard code and the high byte function key code as parameters.
- The function key code is based on the active function keys and must be correctly specified for each PRESS KEY command. A function key change can also automatically be forced by changing the function key code, e.g. from REF 10 (3301 hex) to X10 (0004 hex).
- The setpoints loaded via the WRITE SETPOINT X commands (e.g. Setpoint 1: write table bits 4/5/6 = 0/0/1) are deleted after switch-on and each time the master mode is run. The Tolerance parameter in the setpoint modes Checking and Filling must be specified in the 16-bit integer mode with 2 decimal places, e.g. 1025 for 10.25 %.

6.5.5 Digital I/Os

The operating mode of an I/O interface (4 I/O-690 or a relay box 8-690) installed on the IND690 is dependent on where the I/Os are located (directly on the IND690 or externally on the Profibus) and on the parameters CONTROL INPUTS, CONTROL OUTPUTS.

	Outputs	Inputs
No I/Os on IND690	The weighing terminal controls external outputs via the read table.	The weighing terminal reads external inputs from the write table and executes predefined actions.
I/Os on IND690 (4 I/O-690 or 8-690 relay box), inputs and outputs configured to CONTROL INTERNAL	The weighing terminal controls internal outputs and displays these in the read table.	The weighing terminal reads internal inputs and executes predefined actions; the PLC has no access.
I/Os on IND690 (4 I/O-690 or 8-690 relay box), inputs and outputs configured to CONTROL EXTERNAL	The PLC controls the outputs of the weighing terminal via the write table.	The weighing terminal reads internal inputs and displays these in the read table.

6.5.6 Messages in display

The following messages may appear briefly in the display:

Message	Meaning
PROFIBUS NOT ACTIVE!	<ul style="list-style-type: none"> • Initialisation processes are still running on Profibus DP. • The weighing terminal is not yet connected to the Profibus DP.
PROFIBUS ACTIVE	<ul style="list-style-type: none"> • Readiness restored, e.g. after switch-on, exiting master mode or following a bus interruption.
PROFIBUS – ERROR BCC RX PROFIBUS – ERROR BCC TX	<ul style="list-style-type: none"> • Weighing terminal or field bus module have detected a BCC error.
PROFIBUS – ERROR DATA RX PROFIBUS – ERROR DATA TX	<ul style="list-style-type: none"> • Communication error weighing terminal <--> Field bus module: e.g. not ETX, Uart error, etc.
PROFIBUS – TIMEOUT IND690	<ul style="list-style-type: none"> • Communication error weighing terminal <--> Field bus module: The weighing terminal does not respond within the defined time.
PROFIBUS – ERROR CONF.	<ul style="list-style-type: none"> • The field bus module has not received the configuration data properly.

6.5.7 GSD file

The GSD file required for communication with the ProfibusDP-690 is available from METTLER TOLEDO Service or can be downloaded from the Profibus GSD Library at <http://www.profibus.com>.

6.5.8 Profibus DP-690 demo kit

For a demonstration and test of all commands with a normal PC, ask METTLER TOLEDO Customer Service for the ProfibusDP-690 demo kit.

7 Application blocks

Application blocks are internal information memories in which weighing data, calculated quantities, configuration data or character sequences entered with the keypad are stored. The content of the application blocks can be read out or written to with a computer.

When the GA46 printer is connected, the assignment of the application blocks can be printed out, see operating instructions for the GA46 printer.

7.1 Syntax and formats

The syntax and formats are dependent on the command set selected in the dialog mode, see page 56.

7.1.1 Read application block

Read

A	R	No.
---	---	-----

A	R	—	No.
---	---	---	-----

MMR command set

SICS command set

The weighing terminal receives the command from the computer to read out the content of the "No." application block. Possible formats for "No." are:

xxx Entire application block

xxx.zz Sub-block of an application block

xxx_yyy Read-only memory

xxx_yyy.zz Sub-block of a read-only memory

This read command is **not** contained in the following description of the application blocks.

Response

A	B	—	Information
---	---	---	-------------

A	R	—	A	—	Information
---	---	---	---	---	-------------

MMR command set

SICS command set

As a response the weighing terminal transmits the content of the "No." application block to the computer.

This response is contained in the following description of the application blocks in the MMR version.

Example

Command MMR
Command SICS

A	R	0	2	1	—	0	0	1
---	---	---	---	---	---	---	---	---

A	R	—	0	2	1	—	0	0	1
---	---	---	---	---	---	---	---	---	---

Read out tare memory 1.

Response MMR
Response SICS

A	B	—	—	—	—	—	—	—	1	0	·	5	—	k	g	—
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

A	R	—	A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0	·	5	—	k	g	—
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

7.1.3 Data formats

- In the following description of the application blocks the following data formats are used:

<u>Weight value</u>	10 digits with sign and decimal point, right-justified (with preceding blank space)
<u>Unit</u>	3 characters, left-justified (with following blank spaces)
<u>Number_n</u>	Number, n digits, right-justified (with preceding blank spaces)
<u>Text_n</u>	maximum of n characters If the SICS command set is used, "Text" must always be placed in inverted commas.

- Conclude commands and responses with the string frame $C_R L_F$
(ASCII characters $C_R = 0D$ hex/13 deci, $L_F = 0A$ hex/10 deci).
The string frame is **not** contained in the following description.

7.1.4 Read and write application blocks with the SICS command set

In the following description, the application blocks are shown in the syntax for the MMR command set. When used with the SICS command set, please observe the following SICS conventions, also see sections 7.1.1 to 7.1.3 :

- A blank space must be entered between AR or AW and the application block number: E.g. `A R _ _ No.`
- The command identification is repeated in the response and a blank space and the character A added:

<code>A R _ _ A _ Information</code>	application block transmitted and
<code>A W _ _ A</code>	application block written.
- Texts entered or transmitted are always in inverted commas.

Example Read application block for CODE A

Command: `A R _ _ 0 9 4`

Response: `A R _ _ A _ "Article"`

Write application block for CODE A

Command: `A W _ _ 0 9 4 _ "Article"`

Response: `A W _ _ A]`

7.2 List of the application blocks

No.	Content	Format
001	Terminal type	Response: <input type="text" value="A,B _ Mettler-Toledo_IND690"/>
002	Program number	Response: <input type="text" value="A,B _ IP60-0-0xxxx _"/>
004	Serial number	Response: <input type="text" value="A,B _ Identification (Text_20) _ _"/> <input type="text" value="SN Terminal (Number_7) _ _"/> <input type="text" value="SN Scale 1 (Number_14) _ _"/> <input type="text" value="SN Scale 2 (Number_14) _ _"/> <input type="text" value="SN Scale 3 (Number_14) _ _"/> <input type="text" value="SN Scale 4 (Number_14) _ _"/> <input type="text" value="SN Mainboard (Number_24)"/> Write: <input type="text" value="A,W 0,0,4 _ Identification (Text_20)"/>
005	Keyboard	Response: <input type="text" value="A,B _ Keyboard"/> Write: <input type="text" value="A,W 0,0,5 _ \$ \$ Text"/> Note: Only possible as long as input active on IND690. The text is then written into the input field
006	Electronic finger	Response: <input type="text" value="A,B _ Keys _ _ key number"/> Write: <input type="text" value="A,W 0,0,6 _ \$ \$ 2,4"/> Note: See table in the Appendix for key numbers
007 007.01 007.02	Current gross weight (2nd weight unit)	Response: <input type="text" value="A,B _ Weight value _ Unit"/> <input type="text" value="A,B _ Weight value"/> <input type="text" value="A,B _ Unit"/>
008 008.01 008.02	Current net weight (2nd weight unit)	Response: <input type="text" value="A,B _ Weight value _ Unit"/> <input type="text" value="A,B _ Weight value"/> <input type="text" value="A,B _ Unit"/>
009 009.01 009.02	Current tare weight (2nd weight unit)	Response: <input type="text" value="A,B _ Weight value _ Unit"/> <input type="text" value="A,B _ Weight value"/> <input type="text" value="A,B _ Unit"/> Write: <input type="text" value="A,W 0,0,9 _ Weight value _ Unit"/>
010	Current weighing platform	Response: <input type="text" value="A,B _ Number_2"/> Write: <input type="text" value="A,W 0,1,0 _ Number_2"/> Switch over weighing platform
011 011.01 011.02	Current gross weight (1st weight unit)	Response: <input type="text" value="A,B _ Weight value _ Unit"/> <input type="text" value="A,B _ Weight value"/> <input type="text" value="A,B _ Unit"/>
012 012-01 012-02	Current net weight (1st weight unit)	Response: <input type="text" value="A,B _ Weight value _ Unit"/> <input type="text" value="A,B _ Weight value"/> <input type="text" value="A,B _ Unit"/>

No.	Content	Format
013 013.01 013.02	Current tare weight (1st weight unit)	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/> Write: <input type="text" value="A, W 0, 1, 3 _ Weight value _ Unit"/>
014	Content of display	Response: <input type="text" value="A, B _ Display"/> Display = Text_20 or weight value
015	Date	Response: <input type="text" value="A, B _ Date"/> Write: <input type="text" value="A, W 0, 1, 5 _ Date"/> Comment: The date is sent in the format selected in the master mode.
016	Dynamic weighing	Response: <input type="text" value="A, B _ Weight value _ Unit"/> Write: <input type="text" value="A, W 0, 1, 6 _ No. of cycles"/> Start weighing cycle Comment: No. of cycles = 1 ... 255
018	Difference target/ actual weight	Response: <input type="text" value="A, B _ Weight value _ Unit"/>
019	Date and time	Response: <input type="text" value="A, B _ Date _ Time"/> Write: <input type="text" value="A, W 0, 1, 9 _ Date \$ \$ Time"/> Comment: Date and time are sent in the format selected in the master mode.
020	Current DeltaTrac	Response: <input type="text" value="A, B _ Target weight (weight value) _ Unit _ _"/> <input type="text" value="lower tolerance (weight value) _ Unit _ _"/> <input type="text" value="upper tolerance (weight value) _ Unit"/> Write: <input type="text" value="A, W 0, x, x _ Target weight (weight value) _ Unit \$ \$"/> <input type="text" value="lower tolerance (weight value) _ Unit \$ \$"/> <input type="text" value="upper tolerance (weight value) _ Unit"/> Comment: xx = 20
021_001 ... 021_999	Tare memory 1 ... 999	Response: <input type="text" value="A, B _ Weight value _ Unit _ _ Name (Text_30)"/> Write: <input type="text" value="A, W 0, x, x, _ x, x, x _ Weight value _ Unit \$ \$"/> <input type="text" value="Name (Text_30)"/> Comment: xx_xxx = 21_001 ... 21_999
021 ... 045	Tare memory 1 ... 25	Response: equal to 021_001 Write: equal to 020_001 Comment: xx_xxx = 21 ... 45 The contents of the tare memories 1 ... 25 are identical to the contents of the tare memories 021_001 ... 021_025.
046_001 ... 046_999	DeltaTrac memory 1 ... 999	Response: equal to 020 Write: equal to 020 Comment: xx = 46_001 ... 46_999

No.	Content	Format																																																																					
046 ... 070	DeltaTrac memory 1 ... 25	Response: equal to 020 Write: equal to 020 Comment: xx = 46 ... 70 The contents of the DeltaTrac memories 1 ... 25 are identical to the contents of the DeltaTrac memories 046_001 ... 046_025.																																																																					
071_001 ... 071_999	Text memory 1 ... 999	Response: <table border="1"><tr><td>A</td><td>B</td><td>_</td><td>Text_30</td></tr></table> Write: <table border="1"><tr><td>A</td><td>W</td><td>0</td><td>x</td><td>x</td><td>_</td><td>x</td><td>x</td><td>x</td><td>_</td><td>Text_30</td></tr></table> Comment: xx = 71_001 ... 71_999	A	B	_	Text_30	A	W	0	x	x	_	x	x	x	_	Text_30																																																						
A	B	_	Text_30																																																																				
A	W	0	x	x	_	x	x	x	_	Text_30																																																													
071 ... 090	Text memory 1 ... 20	Response: equal to 071_001 Write: equal to 071_001 Comment: xx_xxx = 71 ... 90 The contents of the text memories 1 ... 20 are identical to the contents of the text memories 071_001 ... 071_020.																																																																					
091	Barcode EAN 28, EAN 128	Response: <table border="1"><tr><td>A</td><td>B</td><td>_</td><td>EAN 28</td><td>_</td><td>_</td><td>EAN 128 01</td><td>_</td><td>_</td><td>EAN 128 310</td><td>_</td><td>_</td></tr><tr><td colspan="12" style="text-align: center;">EAN 128 330</td></tr></table> <u>EAN 28:</u> <table border="1"><tr><td>2</td><td>8</td><td>Article</td><td>Check digit</td><td>Weight</td></tr></table> Article: 4-digit article No. from memory Code A Check digit: 1-digit, calculated by IND690-Base for the weight Weight: 5-digit positive weight value with 3 decimal places between 00.000 kg - 99.999 kg <u>EAN 128 01:</u> <table border="1"><tr><td>0</td><td>1</td><td>Article</td></tr></table> or <table border="1"><tr><td>0</td><td>1</td><td>Article</td><td>Check digit</td></tr></table> or <table border="1"><tr><td>0</td><td>1</td><td>0</td><td>Article</td><td>Check digit</td></tr></table> or <table border="1"><tr><td>0</td><td>1</td><td>0</td><td>Article</td></tr></table> Article: Article No. from memory Code A, max. 14 digits Check digit: 1-digit, calculated by IND690-Base Length: total of max. 16 digits <u>EAN 128 310:</u> <table border="1"><tr><td>0</td><td>1</td><td>9</td><td>Article</td><td>Check digit</td><td>3</td><td>1</td><td>0</td><td>x</td><td>Weight</td></tr></table> or <table border="1"><tr><td>0</td><td>1</td><td>9</td><td>Article</td><td>3</td><td>1</td><td>0</td><td>x</td><td>Weight</td></tr></table> Article: Article No. from memory Code A max. 12 or 13 digits Check digit: 1-digit calculated by IND690-Base x: 0 ... 6, decimal places of weight value Weight: 6-digit net weight value <u>EAN 128 330:</u> <table border="1"><tr><td>3</td><td>3</td><td>0</td><td>x</td><td>Weight</td></tr></table> x: 0 ... 6, decimal places of weight value Weight: 6-digit gross weight value	A	B	_	EAN 28	_	_	EAN 128 01	_	_	EAN 128 310	_	_	EAN 128 330												2	8	Article	Check digit	Weight	0	1	Article	0	1	Article	Check digit	0	1	0	Article	Check digit	0	1	0	Article	0	1	9	Article	Check digit	3	1	0	x	Weight	0	1	9	Article	3	1	0	x	Weight	3	3	0	x	Weight
A	B	_	EAN 28	_	_	EAN 128 01	_	_	EAN 128 310	_	_																																																												
EAN 128 330																																																																							
2	8	Article	Check digit	Weight																																																																			
0	1	Article																																																																					
0	1	Article	Check digit																																																																				
0	1	0	Article	Check digit																																																																			
0	1	0	Article																																																																				
0	1	9	Article	Check digit	3	1	0	x	Weight																																																														
0	1	9	Article	3	1	0	x	Weight																																																															
3	3	0	x	Weight																																																																			

No.	Content	Format
092	Barcode EAN 29	Response: <input type="text" value="A,B _ 2,9 Article Check digit Weight"/> Comment: Article: 4-digit article no. from memory Code A Check digit: 1-digit no., calculated from IND690-Base for the weight Weight: 5-digit positive weight value with 3 places to right of point between 00.000 kg ... 99.999 kg
093	Barcode EAN 29 A	Response: <input type="text" value="A,B _ 2,9 Article Weight"/> Comment: Article: 5-digit article no. from memory Code A Weight: 5-digit positive weight value with 3 places to right of point between 00.000 kg ... 99.999 kg
094 ... 099	Identification data Code A ... Code F	Response: <input type="text" value="A,B _ Name (text_20) _ _ Identification (text_30)"/> Write: <input type="text" value="A,W 0,x,x _ Name (text_20) \$ \$ Identification (text_30)"/> Comment: xx = 94 ... 99
101 ... 109	Status COM1 ... COM9	Response: <input type="text" value="A,B _ HW (Text_21 _ _ Mode (Text_21 _ _) Status (Text_21 _ _) Settings (Text_31)"/> Write*: <input type="text" value="A,W 1,0,x _ Transmit buffer COMx"/> Note: x = 1 ... 9 The information entered is sent directly via the selected interface. The max. data length of a transmit buffer is 246 characters.
110	Scales ID	Response: <input type="text" value="A,B _ Scale No. Scale 1 (Number_2) _ _ Scale No. Scale 2 (Number_2) _ _ Scale No. Scale 3 (Number_2) _ _ Scale No. Scale 4 (Number_2) _ _ Scale No. Sum scale (Number_2)"/> Note: This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE. When a sum scale is configured, the scale number 05 is output in the last sub-block. If no sum scale is configured, the last sub-block is empty.
111_001 ... 111_005	Gross weight, scales 1 ... 4, sum scale	Response: <input type="text" value="A,B _ Weight value _ Unit"/> Note: This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
112_001 ... 112_005	Net weight, scales 1 ... 4, sum scale	Response: <input type="text" value="A,B _ Weight value _ Unit"/> Note: This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
113_001 ... 113_005	Tare weight, scales 1 ... 4, sum scale	Response: <input type="text" value="A,B _ Weight value _ Unit"/> Write: <input type="text" value="A,W 1,1,3 _ 0,0,x Weight value _ Unit"/> Note: x = 1 ... 5 This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
115	Status terminal	Response: <input type="text" value="A,B _ Status"/>

No.	Content	Format
116	Fault/event memory	Response: <input type="text" value="A, B _ Type (Number_2) _ _ Quantity (Number-2)"/>
117_001 ... 117_005	Gross weight, (2nd weight unit) scales 1 ... 4, sum scale	Response: <input type="text" value="A, B _ Weight value _ Unit"/> Note: This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
118_001 ... 118_005	Net weight, (2nd weight unit) scales 1 ... 4, sum scale	Response: <input type="text" value="A, B _ Weight value _ Unit"/> Note: This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
119_001 ... 119_005	Tare weight, (2nd weight unit) scales 1 ... 4, sum scale	Response: <input type="text" value="A, B _ Weight value _ Unit"/> Write: <input type="text" value="A, W 1, 1, 3 _ 0, 0, x Weight value _ Unit"/> Note: x = 1 ... 5 This block only contains data if the setting PARALLEL SCALES is selected under the SCALES MODE.
120	Disabling / Enabling keys	Response: <input type="text" value="A, B _ x, x, x, ... (37 places)"/> Write: <input type="text" value="A, W 1, 2, 0 _ x, x, x, ... (37 places)"/> Note: x = 1: Key enabled x = 0: Key disabled The position of the numerals corresponds to the table in section 10.2, beginning with 0. The setting is retained when the weighing terminal is switched off. Example: <input type="text" value="A, W 1, 2, 0 _ "/> <input type="text" value="000000000000000000010000000000000111100"/> : All keys disabled except for F6 and the cursor keys.
181 ... 184	Parameters for scale 1 ... 4	Response: <input type="text" value="A, B _ Scale parameters"/> Note: For service information purposes the internal scale parameters can be read out/printed; the structure and content are scale-dependent.
185	Parameters for sum scale	Response: <input type="text" value="A, B _ Sum scale parameters"/>
199	Number of last Alibi entry	Response: <input type="text" value="A, B _ Number_6 _ _ Date _ _ Time _ _ "/> <input type="text" value="Gross (Weight value) _ _ "/> <input type="text" value="Net (Weight value _ _ "/> <input type="text" value="Tare (Weight value)"/> Note: Date and time as in application block 019.
201	Application	Response: <input type="text" value="A, B _ IND690 _ TOTALIZING"/>
202	Version application	Response: <input type="text" value="A, B _ IP60_1_0105"/>
205 205.01 205.02	Start and end value for the item counter	Response: <input type="text" value="A, B _ Start value (Number 4) _ End value (Number 4)"/> <input type="text" value="A, B _ Start value (Number 4)"/> <input type="text" value="A, B _ End value (Number 4)"/>

No.	Content	Format
206	Item counter	Response: <input type="text" value="A, B _ Item (Number 4)"/>
207	Transaction number	Response: <input type="text" value="A, B _ Transaction number (Number 6)"/>
208	Last process	Response: <input type="text" value="A, B _ Process (Number 1)"/> Remark: Last process carried out 1 = Totalizing 2 = Manual input 4 = Cancelled
211 211.01 211.02	Sum gross	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
212 212.01 212.02	Sum net	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
213 213.1 213.2	Sum tare	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
214 214.01 214.02	Last gross	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
215 215.01 215.02	Last net	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
216 216.01 216.02	Last tare	Response: <input type="text" value="A, B _ Weight value _ Unit"/> <input type="text" value="A, B _ Weight value"/> <input type="text" value="A, B _ Unit"/>
217	Mean value	Response: <input type="text" value="A, B _ Weight value _ Unit"/>
218	Standard deviation	Response: <input type="text" value="A, B _ Weight value _ Unit"/>
219	Minimum x_{\min}	Response: <input type="text" value="A, B _ Weight value _ Unit"/>
220	Maximum x_{\max}	Response: <input type="text" value="A, B _ Weight value _ Unit"/>
701	Description of application	Response: <input type="text" value="A, B _ ID690-Interfaces"/>
702	Program designation	Response: <input type="text" value="A, B _ IK07-0-0300"/>
706, 708, 710, 712, 714, 716, 718, 720	Dig. outputs 1 ... 8	Response: <input type="text" value="A, B _ 8-digit binary value"/> Write: <input type="text" value="A, W 7, x, x _ 8-digit binary value"/> Note: xx = 06, 08, 10, 12, 14, 16, 18, 20 8-digit binary value: Bit8, Bit7 ... Bit1 Bit8 = Output 8 ... Bit1 = Output 1

No.	Content	Format																																																																																																																																				
707, 709, 711, 713, 715, 717, 719, 721	Dig. inputs 1 ... 8	Response: <table border="1" style="display: inline-table;"><tr><td>A, B</td><td>8-digit binary value</td></tr></table> Note: 8-digit binary value: Bit8, Bit7 ... Bit1 Bit8 = Input 8 ... Bit1 = Input 1	A, B	8-digit binary value																																																																																																																																		
A, B	8-digit binary value																																																																																																																																					
722, 723	COM5 analog output, COM6 analog output	Response: Start-Stop mode <table border="1" style="display: inline-table;"><tr><td>A, B</td><td>A</td><td>Application block for COM5 (Number_3)</td><td></td><td></td></tr><tr><td></td><td></td><td>Start value (weight value)</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Stop value (weight value)</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Stop value voltage/current</td><td>Unit</td><td>*</td></tr></table> DeltaTrac mode <table border="1" style="display: inline-table;"><tr><td>A, B</td><td>A</td><td>Application block for COM5 (Number_3)</td><td></td><td></td></tr><tr><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Stop value voltage/current</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Tolerance voltage/current</td><td>Unit</td><td>*</td></tr></table> ΔW - ΔT mode <table border="1" style="display: inline-table;"><tr><td>A, B</td><td>A</td><td>Application block for COM5 (Number_3)</td><td></td><td></td></tr><tr><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td></td></tr><tr><td></td><td></td><td>Delta voltage/current</td><td>Weight unit/sec</td><td>*</td></tr></table> Write: Start-Stop mode <table border="1" style="display: inline-table;"><tr><td>A, W</td><td>7, x, x</td><td>A</td><td>Application block for COM5 (Number_3)</td><td>\$</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Start value (weight value)</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Stop value (weight value)</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Stop value voltage/current</td><td>Unit</td><td>*</td></tr></table> DeltaTrac mode <table border="1" style="display: inline-table;"><tr><td>A, W</td><td>7, x, x</td><td>A</td><td>Application block for COM5 (Number_3)</td><td>\$</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Stop value voltage/current</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Tolerance voltage/current</td><td>Unit</td><td>*</td></tr></table> ΔW - ΔT mode <table border="1" style="display: inline-table;"><tr><td>A, W</td><td>7, x, x</td><td>A</td><td>Application block for COM5 (Number_3)</td><td>\$</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Start value voltage/current</td><td>Unit</td><td>\$</td></tr><tr><td></td><td></td><td></td><td>Delta voltage/current</td><td>Weight unit/s</td><td>*</td></tr></table> Note: xx = 22: COM5 xx = 23: COM6	A, B	A	Application block for COM5 (Number_3)					Start value (weight value)	Unit				Stop value (weight value)	Unit				Start value voltage/current	Unit				Stop value voltage/current	Unit	*	A, B	A	Application block for COM5 (Number_3)					Start value voltage/current	Unit				Stop value voltage/current	Unit				Tolerance voltage/current	Unit	*	A, B	A	Application block for COM5 (Number_3)					Start value voltage/current	Unit				Delta voltage/current	Weight unit/sec	*	A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$				Start value (weight value)	Unit	\$				Stop value (weight value)	Unit	\$				Start value voltage/current	Unit	\$				Stop value voltage/current	Unit	*	A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$				Start value voltage/current	Unit	\$				Stop value voltage/current	Unit	\$				Tolerance voltage/current	Unit	*	A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$				Start value voltage/current	Unit	\$				Delta voltage/current	Weight unit/s	*
A, B	A	Application block for COM5 (Number_3)																																																																																																																																				
		Start value (weight value)	Unit																																																																																																																																			
		Stop value (weight value)	Unit																																																																																																																																			
		Start value voltage/current	Unit																																																																																																																																			
		Stop value voltage/current	Unit	*																																																																																																																																		
A, B	A	Application block for COM5 (Number_3)																																																																																																																																				
		Start value voltage/current	Unit																																																																																																																																			
		Stop value voltage/current	Unit																																																																																																																																			
		Tolerance voltage/current	Unit	*																																																																																																																																		
A, B	A	Application block for COM5 (Number_3)																																																																																																																																				
		Start value voltage/current	Unit																																																																																																																																			
		Delta voltage/current	Weight unit/sec	*																																																																																																																																		
A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$																																																																																																																																	
			Start value (weight value)	Unit	\$																																																																																																																																	
			Stop value (weight value)	Unit	\$																																																																																																																																	
			Start value voltage/current	Unit	\$																																																																																																																																	
			Stop value voltage/current	Unit	*																																																																																																																																	
A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$																																																																																																																																	
			Start value voltage/current	Unit	\$																																																																																																																																	
			Stop value voltage/current	Unit	\$																																																																																																																																	
			Tolerance voltage/current	Unit	*																																																																																																																																	
A, W	7, x, x	A	Application block for COM5 (Number_3)	\$	\$																																																																																																																																	
			Start value voltage/current	Unit	\$																																																																																																																																	
			Delta voltage/current	Weight unit/s	*																																																																																																																																	
724 ... 731	Set point 1	Response: <table border="1" style="display: inline-table;"><tr><td>A, B</td><td>Set point (Text_2)</td></tr><tr><td>A, x, x, x</td><td>y, y, y, ., z, z</td></tr><tr><td></td><td>Scale (Text_3)</td></tr><tr><td></td><td>Set point value (weight value)</td></tr></table> Write: <table border="1" style="display: inline-table;"><tr><td>A, W</td><td>7, 2, x</td><td>Set point type (Text_2)</td><td>\$, \$</td></tr><tr><td></td><td>A, x, x, x</td><td>y, y, y, ., z, z</td><td>\$, \$</td></tr><tr><td></td><td></td><td>Scale (Text_3)</td><td>\$, \$</td></tr><tr><td></td><td></td><td>Set point value (weight value)</td><td></td></tr></table> Note: xx = 24 ... 31 Set point type: F \uparrow , F \downarrow , D \uparrow , D \downarrow Scale: W1, W2, W3, ALL	A, B	Set point (Text_2)	A, x, x, x	y, y, y, ., z, z		Scale (Text_3)		Set point value (weight value)	A, W	7, 2, x	Set point type (Text_2)	\$, \$		A, x, x, x	y, y, y, ., z, z	\$, \$			Scale (Text_3)	\$, \$			Set point value (weight value)																																																																																																													
A, B	Set point (Text_2)																																																																																																																																					
A, x, x, x	y, y, y, ., z, z																																																																																																																																					
	Scale (Text_3)																																																																																																																																					
	Set point value (weight value)																																																																																																																																					
A, W	7, 2, x	Set point type (Text_2)	\$, \$																																																																																																																																			
	A, x, x, x	y, y, y, ., z, z	\$, \$																																																																																																																																			
		Scale (Text_3)	\$, \$																																																																																																																																			
		Set point value (weight value)																																																																																																																																				


8 What to do if ...?

Error / Display	Possible causes	Remedy
Display is dark	<ul style="list-style-type: none"> • No mains voltage • Terminal switched off • Power cord not connected • Brief malfunction • Switch-off time too short in storage battery operation at the IND690-24V • Storage battery level too low at the IND690-24V • Operating-mode selector switch for storage battery operation/mains operation set incorrectly at the IND690-24V 	<ul style="list-style-type: none"> → Check mains → Switch on terminal → Plug in power plug → Switch terminal off and on again → Switch off power for 10 seconds → Charge storage battery → Set operating-mode selector switch to desired operating mode
Underload	<ul style="list-style-type: none"> • Load plate not in place • Preload not applied • Weighing range dropped below 	<ul style="list-style-type: none"> → Apply load plate → Apply preload → Set zero
Overload	<ul style="list-style-type: none"> • Weighing range exceeded • Weighing platform locked 	<ul style="list-style-type: none"> → Relieve weighing platform → Release lock
Weight display unstable	<ul style="list-style-type: none"> • Agitated set-up location • Draft • Contact between load plate and/or weighing sample and surroundings • Power malfunction 	<ul style="list-style-type: none"> → Adjust vibration adapter → Avoid drafts → Eliminate contact → Check mains
Wrong weight display	<ul style="list-style-type: none"> • Wrong setting to zero of weighing platform • Wrong tare weight • Contact between load plate and/or weighing sample and surroundings • Weighing platform tilted • Wrong weighing platform selected 	<ul style="list-style-type: none"> → Relieve weighing platform, set to zero and repeat weighing → Delete tare or enter right tare value → Eliminate contact → Level weighing platform → Select right weighing platform
A whistle sound is emitted in the IND690-24V	<ul style="list-style-type: none"> • Storage battery level too low 	<ul style="list-style-type: none"> → Charge storage battery or switch over to 24 VDC mains operation
WRONG CODE	<ul style="list-style-type: none"> • Wrong personal code 	<ul style="list-style-type: none"> → Enter right personal code

Error / Display	Possible causes	Remedy
SCALE NO. ERROR	<ul style="list-style-type: none"> • Error in weighing cell 	<ul style="list-style-type: none"> → Repeat test → If the message appears again: contact METTLER TOLEDO Customer Service
OUT OF RANGE	<ul style="list-style-type: none"> • Zero set range exceeded • Gross weight negative • Taring range exceeded • Entered value outside permissible range 	<ul style="list-style-type: none"> → Relieve weighing platform → Relieve weighing platform and set to zero → Relieve weighing platform and set to zero → Enter permissible value
NOT ALLOWED	<ul style="list-style-type: none"> • Weighing platform does not exist • Print with negative weight value 	<ul style="list-style-type: none"> → Connect weighing platform → Relieve weighing platform, set to zero and repeat weighing
NOT EXISTENT	<ul style="list-style-type: none"> • Recalled memory not assigned 	<ul style="list-style-type: none"> → Recall other memory
NO DATA TRANSFER	<ul style="list-style-type: none"> • Weighing platform does not transmit data to the terminal 	<ul style="list-style-type: none"> → Switch terminal off and on again → If the message appears again: contact METTLER TOLEDO Customer Service
INTERF. COM X – BREAK	<ul style="list-style-type: none"> • Break in receiving cable of specified interface 	<ul style="list-style-type: none"> → Check cable and connectors → Check external devices (on/off)
TRANSMIT BUFFER FULL	<ul style="list-style-type: none"> • No transmission • Too many key messages and baud rate too low 	<ul style="list-style-type: none"> → Check handshake → Increase baud rate
KEY BUFFER FULL	<ul style="list-style-type: none"> • Data string currently being edited contains too many blocks 	<ul style="list-style-type: none"> → Remove blocks from data string
ERROR BARCODE	<ul style="list-style-type: none"> • The specified application block contains no data • Wrong sub-block selected, e.g. sub-block 0 	<ul style="list-style-type: none"> → Select application block which contains data → Select permissible sub-block
NO BLOCK	<ul style="list-style-type: none"> • Entered application block does not exist 	<ul style="list-style-type: none"> → Enter different application block
BUFFER IS FULL	<ul style="list-style-type: none"> • Data string of transfer key contains more than 10 application blocks 	<ul style="list-style-type: none"> → Change configuration of transfer key
DISPLAY MODE	<ul style="list-style-type: none"> • Weighing cell defective 	<ul style="list-style-type: none"> → Contact METTLER TOLEDO Customer Service

Error / Display	Possible causes	Remedy
NO ANALOG OUTPUT	<ul style="list-style-type: none">• Resolution or maximum load of the selected weighing bridge was changed	→ Reconfigure Interface AnalogOut-690 in master mode
SCALE NUMBER DOUBLED	<ul style="list-style-type: none">• 2 weighing platforms with same scale number connected	→ Contact METTLER TOLEDO Customer Service

9 Technical data and accessories

Weighing functions	
Tare compensation	At the press of a button or automatically, up to maximum load (subtractive)
Tare target value	<ul style="list-style-type: none"> • For single-range scales over entire weighing range (subtractive) • For multi-range scales depending on national calibration regulations • 999 stored tare memories, protected against power failure
Tare indicator	NET lights up with saved tare weight
DeltaTrac	<ul style="list-style-type: none"> • Analog display of dynamic measured values • With optical marks for target value and tolerances • Asymmetric tolerances possible • 3 selectable applications • 999 DeltaTrac memories, protected against power failure
Setting to zero	Automatic or manual
Gross changeover	Display of weight value can be changed over to gross weight at press of a button
Unit changeover	Unit can be changed over to weight units kg, g, lb, oz, ozt, dwt in dependence on national calibration regulations at press of a button
Stabilization detector	4-step, with motion indicator
Weighing process adapter	3-step adjustment to weighing sample
Vibration adapter	3-step adjustment to ambient conditions
MinWeigh	<ul style="list-style-type: none"> • Weight values below the minimum weighing-in quantity are identified with  • Minimum weighing-in quantity fixed or calculated
Identification data	<ul style="list-style-type: none"> • 6 memories for 30 alphanumeric characters, can be recalled with keys A to F • Each memory can be assigned a fixed name which can be written in the marking field next to the corresponding key • 999 memories for frequently used identification data
Info function	Displays of current weighing data, identification data and memories at the press of a button
Date and time	<ul style="list-style-type: none"> • For printout or output via the data interface • Quartz-controlled, 12 or 24-hour display, automatic calendar function, Europe, USA or free format, safe against power failure • Automatic summer time switchover







10 Appendix

10.1 ASCII table

hex	deci	ASCII US	hex	deci	ASCII US	hex	deci	ASCII US	hex	deci	ASCII US	hex	deci	ASCII US
00	0	NUL	34	52	4	68	104	h	9C	156	€	D0	208	⌚
01	1	SOH	35	53	5	69	105	i	9D	157	¥	D1	209	⌘
02	2	STX	36	54	6	6A	106	j	9E	158	ℳ	D2	210	⌚
03	3	ETX	37	55	7	6B	107	k	9F	159	ƒ	D3	211	⌚
04	4	EOT	38	56	8	6C	108	l	A0	160	á	D4	212	⌚
05	5	ENQ	39	57	9	6D	109	m	A1	161	í	D5	213	⌚
06	6	ACK	3A	58	:	6E	110	n	A2	162	ó	D6	214	⌚
07	7	BEL	3B	59	;	6F	111	o	A3	163	ú	D7	215	⌚
08	8	BS	3C	60	<	70	112	p	A4	164	ñ	D8	216	⌚
09	9	HT	3D	61	=	71	113	q	A5	165	Ñ	D9	217	⌚
0A	10	LF	3E	62	>	72	114	r	A6	166	ª	DA	218	⌚
0B	11	VT	3F	63	?	73	115	s	A7	167	º	DB	219	■
0C	12	FF	40	64	@	74	116	t	A8	168	¿	DC	220	■
0D	13	CR	41	65	A	75	117	u	A9	169	¡	DD	221	■
0E	14	SO	42	66	B	76	118	v	AA	170	¬	DE	222	■
0F	15	SI	43	67	C	77	119	w	AB	171	□	DF	223	■
10	16	DLE	44	68	D	78	120	x	AC	172	□	E0	224	α
11	17	DC1	45	69	E	79	121	y	AD	173	¡	E1	225	β
12	18	DC2	46	70	F	7A	122	z	AE	174	«	E2	226	Γ
13	19	DC3	47	71	G	7B	123	{	AF	175	»	E3	227	Π
14	20	DC4	48	72	H	7C	124	|	B0	176	⋮	E4	228	Σ
15	21	NAK	49	73	I	7D	125	}	B1	177	⋮	E5	229	σ
16	22	SYN	4A	74	J	7E	126	~	B2	178	■	E6	230	μ
17	23	ETB	4B	75	K	7F	127	⏏	B3	179	|	E7	231	τ
18	24	CAN	4C	76	L	80	128	reserved	B4	180	¡	E8	232	φ
19	25	EM	4D	77	M	81	129	ü	B5	181	¡	E9	233	θ
1A	26	SUB	4E	78	N	82	130	é	B6	182	¡	EA	234	Ω
1B	27	ESC	4F	79	O	83	131	ô	B7	183	π	EB	235	ø
1C	28	FS	50	80	P	84	132	ä	B8	184	π	EC	236	∞
1D	29	GS	51	81	Q	85	133	à	B9	185	¡	ED	237	∅
1E	30	RS	52	82	R	86	134	å	BA	186	||	EE	238	ε
1F	31	US	53	83	S	87	135	ç	BB	187	π	EF	239	∩
20	32	SP	54	84	T	88	136	ê	BC	188	⌚	F0	240	≡
21	33	!	55	85	U	89	137	ë	BD	189	⌚	F1	241	±
22	34	"	56	86	V	8A	138	è	BE	190	⌚	F2	242	≥
23	35	#	57	87	W	8B	139	ï	BF	191	⌚	F3	243	≤
24	36	\$	58	88	X	8C	140	î	C0	192	⌚	F4	244	|
25	37	%	59	89	Y	8D	141	ì	C1	193	⌚	F5	245	|
26	38	&	5A	90	Z	8E	142	Ë	C2	194	⌚	F6	246	÷
27	39	'	5B	91	[	8F	143	Ä	C3	195	⌚	F7	247	≈
28	40	(	5C	92	\	90	144	É	C4	196	—	F8	248	°
29	41	)	5D	93	]	91	145	æ	C5	197	+	F9	249	•
2A	42	*	5E	94	^	92	146	Æ	C6	198	⌚	FA	250	·
2B	43	+	5F	95	_	93	147	ô	C7	199	⌚	FB	251	√
2C	44	,	60	96	`	94	148	ö	C8	200	⌚	FC	252	ˆ
2D	45	-	61	97	a	95	149	ò	C9	201	⌚	FD	253	ˆ
2E	46	.	62	98	b	96	150	ù	CA	202	⌚	FE	254	ˆ
2F	47	/	63	99	c	97	151	û	CB	203	⌚	FF	255	ˆ
30	48	0	64	100	d	98	152	ÿ	CC	204	⌚			
31	49	1	65	101	e	99	153	Û	CD	205	=			
32	50	2	66	102	f	9A	154	Ü	CE	206	⌚			
33	51	3	67	103	g	9B	155	ç	CF	207	⌚			

10.2 Key codes

All keys of the IND690 are assigned to numbers so that the keys may be addressed via interfaces.

Key	Number	Key	Number
Key 0	0	Key 	19
Key 1	1	Key 	20
...	...	Key 	21
Key 9	9	Key 	22
Decimal point key	10	Key 	23
Function key F1	11	Key 	24
Function key F2	12	CODE A key	25
Function key F3	13	CODE B key	26
Function key F4	14	CODE C key	27
Function key F5	15	CODE D key	28
Function key F6	16	CODE E key	29
		CODE F key	30
		Cursor key <	31
		Cursor key >	32
		Cursor key ^	33
		Cursor key v	34

10.3 Notes on CL handshake

With the CL handshake 3 types of interface control are possible:

Handshake in receiving direction, in transmitting direction and in both directions.

After switch-on and after each interruption, the IND690 attempts to establish the handshake in both directions.

CL handshake in receiving direction

This type of CL handshake is suitable for data transmission from the IND690 to the computer.

1. The weighing terminal transmits SYN after switch-on.
2. The computer transmits the character ACK after switch-on or after receiving SYN.
3. The weighing terminal then sends the response to a command or to a key actuation after each ACK.

CL handshake in transmission direction






This type of CL handshake is suitable for data transmission from the computer to the IND690.

1. The weighing terminal transmits SYN after switch-on.
2. The computer transmits the character SYN after switch-on or after receiving SYN.
3. The weighing terminal acknowledges the receipt of SYN again with SYN and signals its readiness to receive with ACK.
4. Then the computer can transmit a command after each ACK.

CL handshake in both directions

1. The weighing terminal transmits SYN after switch-on.
2. The computer transmits the character SYN after switch-on or after receiving SYN.
3. The weighing terminal acknowledges the receipt of SYN again with SYN and signals its readiness to receive with ACK.
4. The computer signals its readiness to receive with ACK.
5. During operation the weighing terminal receives data and transmits ACK when it is ready to receive data again.
The computer receives data and transmits ACK when it is ready to receive data again.

10.4 Selection possibilities for the assignment of the digital inputs and outputs

Digital inputs	Assignment	Function
	ON/OFF	switch terminal on or off
	ZERO SET	like 
	TARE SET	like 
	ENTER	like 
	CLEAR	like 
	SCALE	like 
	SCALE 1 ... SCALE 5	switch over to Scale 1 ... 5
	KBD LOCK	lock/unlock keyboard
	F1 F6	like key F1 ... F6
	NOT USED	no function stored
Digital outputs	Assignment	Function
	DELTA BELOW	DeltaTrac below tolerance
	DELTA GOOD	DeltaTrac within tolerance
	DELTA ABOVE	DeltaTrac above tolerance
	STABLE	scale stationary, no movement
	SETPOINT 1 ... SETPOINT 8	Setpoint 1 ... 8 reached or exceeded
	SCALE 1 ... SCALE 5	current scale is Scale 1 ... 5
	GA46 P O	Out of paper GA46
	CMD	toggles after a command triggered via an input has been executed
	RESULT	result of the command execution 0 = correct, 1 = incorrect
	NET	net weight is displayed
	NOT USED	no function stored

10.5 Disposal



In conformance with the European Directive 2002/96 EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of with domestic waste. This also applies to countries outside the EU, per their specific requirements.

→ Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

Thank you for your contribution to environmental protection.

11 Index

- A**
- Acoustic signal 42, 86, 100
 - Additional functions 16
 - Additive tare function 21
 - Alibi memory 29, 52, 64
 - Alphanumeric identification 24
 - Alphanumeric keypad 28
 - Alphanumeric printout 86, 102
 - Analog scale 52
 - AnalogOut 53, 72
 - Application blocks 85, 100, 101, 112
 - Applications 8
 - ASCII characters 78, 126
 - Automatic continuous transmission 56
 - Automatic tare clear 47
 - Automatic taring 12, 125
 - Autozero 12, 46
- B**
- Barcode 27, 52, 63, 86
 - Basic functions 11
 - Big Weight Display 9, 40
 - Bluetooth 53, 76
 - Bus Slave 55, 78
- C**
- Change over weight unit 80, 100, 125
 - Check mode 41
 - Checkweighing 18
 - CL20mA 52
 - Classifying 17
 - Cleaning 10
 - Command format 91
 - Command overview 79, 92
 - Communication 55
 - Configuration printouts 58
- D**
- Data formats 78, 91
 - Date 39, 125
 - DeltaTrac 17, 38, 82, 101, 125
 - DeltaTrac memory 18, 38
 - DeltaTrac mode 69
 - DeltaTrac target values 18, 82, 101
 - Dialog mode 55, 77
 - Digital inputs/outputs 53
 - Display 9, 85, 95
 - Display Mode 123
 - Display update 47
 - Dynamic weighing 19, 41, 44
- E**
- Edit data string 60
 - Error messages 88, 104, 122
 - Ethernet 53, 71
 - External keypad 28, 68
- F**
- Filling 17
 - Function key codes 128
 - Function keys 9, 16
- G**
- GA46 52
 - Gross 20, 125
- I**
- I/O test 66
 - ID code 23
 - ID5 mode 41
 - Identifications 24, 86, 125
 - IDNet scale 52
 - IDs 39
 - Interface connections 52
 - Interface description 77
 - Interface type 52
 - Introduction 8
- K**
- Keypad 10
 - Keys A B C D E F 39
- L**
- Language 38
- M**
- Master mode 33
 - Memory 26
 - METTLER TOLEDO continuous mode 57
 - MMR command set 56, 78
 - Multiplicative tare function 21
 - Multi-scale mode 14, 41
- O**
- Operating mode 55
- P**
- Personal code 40
 - Print 27
 - Print mode 55, 58
 - Printout 86
 - ProfibusDP 53
 - PS2 54
- R**
- Recall information 25
 - Relay box 8 53
 - Representable characters 126
 - Reset scale 48
 - Reset terminal 43
 - Response format 91
 - Restart 47
 - RFID 52
 - RS232 52
 - RS485/422 53
- S**
- Safety instructions 5
 - Sandwich tare 21
 - Second display 29
 - Second unit 47
 - Serial interfaces 77
 - Set zero 12, 80, 95, 125
 - SICS command set 56, 91
 - SICS scale 52
 - Stability detector 46
 - Start-Stop mode 68
 - Status byte 89, 90
 - String framing 56, 78, 91
 - Switch keyboard on/off 80
 - Switch keypad on/off 80, 100
 - Switch off 11
 - Switch on 11
 - Switch over weighing platform 14
- T**
- Tare 12, 81, 125
 - Tare memory 13, 37
 - Taring 97
 - Technical data 125
 - Test weighing platform 23
 - Text memory 24, 37
 - Time 39, 125
 - Transfer data 27
 - Transfer string 56
 - Transmit data record 84, 99
 - Transmit weight value 82, 94
- U**
- Unit changeover 125
 - USB 54
- V**
- Vibration adapter 46, 125
- W**
- Weighing 14
 - Weighing functions 125
 - Weighing process adapter 46, 51, 125
 - What to do if ...? 122
 - WLAN 53



22012808F

Subject to technical changes © Mettler-Toledo (Albstadt) GmbH 07/09 Printed in Germany 22012808F

Mettler-Toledo (Albstadt) GmbH

D-72458 Albstadt

Tel. ++49-7431-14 0, Fax ++49-7431-14 232

Internet: <http://www.mt.com>

Quick Guide

METTLER TOLEDO MultiRange

METTLER TOLEDO

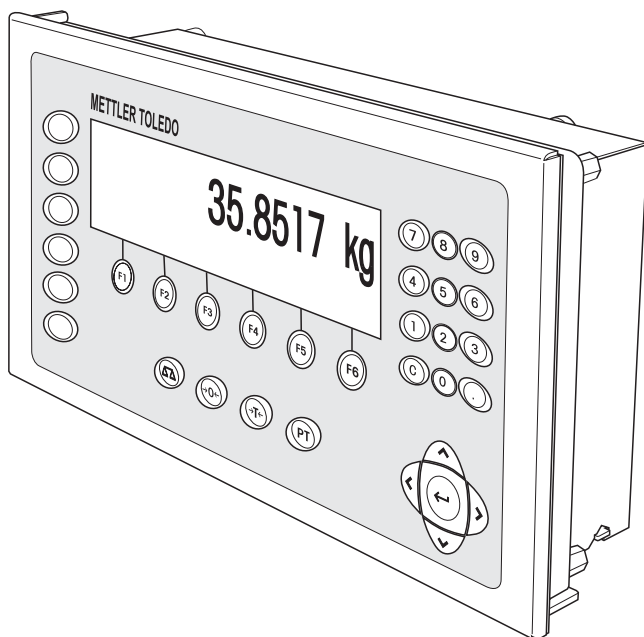
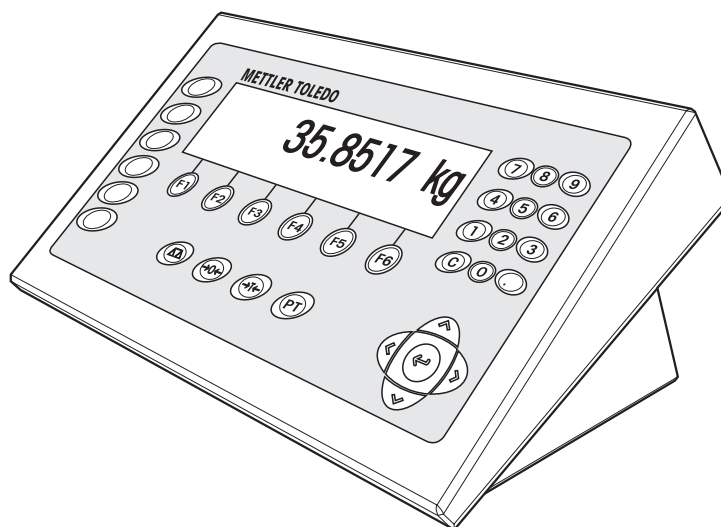
IND690 / IND690xx / IND690-24V weighing terminals

Wägeterminals IND690 / IND690xx / IND690-24V

Terminaux de pesage IND690 / IND690xx / IND690-24V

Terminales de pesada IND690 / IND690xx / IND690-24V

Terminali di pesata IND690 / IND690xx / IND690-24V



www.mt.com/support

ServiceXXL

Tailored Services

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a ServiceXXL agreement tailored to your needs and budget.

We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.

1 Safety instructions

1.1 Safety instructions for IND690xx



The explosion-protected IND690xx weighing terminal fulfills Device category 3 and is approved for operation in Zone 2 (gases) and Zone 22 (dusts) hazardous areas.

There is an increased risk of injury and damage when the IND690xx weighing terminal is used in a potentially explosive atmosphere.

Special care must be taken when working in such hazardous areas. The code of practice is oriented to the "Safe Distribution" concept drawn up by METTLER TOLEDO.

- Competence**
- ▲ The IND690xx weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorized METTLER TOLEDO service personnel.
 - ▲ The mains connection may only be connected or disconnected by the owner's electrician.
- Ex approval**
- ▲ For the exact specification please refer to the statement of conformity.
 - ▲ In order to avoid electrostatic charging the IND690xx may only be installed in rooms or areas at which strong electric field strengths cannot occur from experience.
 - ▲ No modifications may be made to the terminal and no repair work may be performed on the modules. Any weighing platform or system modules that are used must comply with the specifications contained in the installation instructions. Non-compliant equipment jeopardizes the safety of the system, cancels the Ex approval and renders any warranty or product liability claims null and void.
 - ▲ The cable glands must be tightened so that a strain relief of ≥ 20 N per mm cable diameter is ensured.
 - ▲ When connecting external devices, always observe the maximum permissible connected loads, see installation information. It must be ensured that no voltages are fed into the IND690xx than it itself provides. The interface parameters have to fulfill the standard.
 - ▲ Peripheral devices without an Ex approval may only be operating in non-hazardous areas. It must be ensured that no voltages are fed into the IND690xx than it itself provides. In addition the maximum permissible connected loads have to be observed, see installation information. The interface parameters have to fulfill the standard.
 - ▲ The safety of a weighing system including the IND690xxx weighing terminal is only guaranteed when the weighing system is operated, installed and maintained in accordance with the respective instructions.

- ▲ Also comply with the following:
 - the instructions for the system modules
 - the regulations and standards in the respective country
 - the statutory requirement for electrical equipment installed in hazardous areas in the respective country, e.g. EN 60079-14 and EN 61241-14
 - all instructions related to safety issued by the owner
- ▲ Before initial start-up and following service work, check the explosion-protected weighing system for the proper condition of all safety-related parts.

Operation

- ▲ Prevent the build-up of static electricity. Therefore:
 - only operate the IND690xx in rooms or areas at which strong electric field strengths cannot occur from experience,
 - always wear suitable working clothes when operating or performing service work on the system,
 - do not rub or wipe off the keyboard surface with a dry cloth or glove.
- ▲ Do not use protective hoods.
- ▲ Prevent damage to the weighing terminal. Hairline cracks in the keyboard membrane are also considered damage.
- ▲ If the IND690xx weighing terminal, accompanying weighing platforms or accessories are damaged:
 - Switch off weighing terminal.
 - Separate the weighing terminal from the mains in accordance with the applicable regulations.
 - Secure the weighing terminal against accidental start-up.

Leakages

- ▲ The IND690xx panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. At least a freedom-from-leaks rating IP54 is required in hazardous areas, in case of conductive dust IP6X. The respective national standards furthermore have to be observed.

1.2 Safety instructions for IND690-24V



- ▲ Never operate the IND690-24V weighing terminal in hazardous areas; there are special scales in our product line for this purpose.
- ▲ The IND690-24V weighing terminal may only be connected to a power supply (storage battery or mains) having a 24 VDC SELV power circuit in accordance with EN 60950.
- ▲ Short-circuit danger!
Ensure that the power supply is connected properly:
brown lead +24 V
blue lead 0 V or negative pole
- ▲ The safety of the unit is endangered if it is not operated in accordance with these operating instructions.
- ▲ Only authorized personnel may open the IND690-24V weighing terminal.

Competence ▲ The IND690-24V weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorized METTLER TOLEDO service personnel.

Leakages ▲ The IND690-24V panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. The respective national standards furthermore have to be observed.

1.3 Safety instructions for IND690



- ▲ Do not operate the IND690 weighing terminal in hazardous areas. We have special suitable scales in our range of products for hazardous areas.
- ▲ Ensure that the power socket outlet for the IND690 weighing terminal is earthed and easily accessible, so that it can be de-energized rapidly in emergencies.
- ▲ Ensure that the supply voltage at the installation site lies within in the range of 100 V to 240 V.
- ▲ The safety of the device cannot be ensured if it is not operated in accordance with these operating instructions.
- ▲ Only authorized personnel may open the IND690 weighing terminal.

Competence ▲ The IND690 weighing terminal, accompanying weighing platforms and accessories may only be installed, maintained and repaired by authorized METTLER TOLEDO service personnel.

Leakages ▲ The IND690 panel unit does not comply with any freedom-from-leaks rating. Therefore the installer is responsible for compliance with the freedom from leaks rating, e.g. at control cabinet installation. The respective national standards furthermore have to be observed.

2 Documentation

The weighing terminal comes supplied with the instructions and a CD containing all the documentation on the weighing system IND690.

Quick Guide These instructions describe the first steps with the weighing terminal following installation.

Operation instructions **IND690-Base**
Further instructions on working with the weighing terminal with the basic software and the interface settings can be found in the operating instructions IND690-Base.

IND690-Batch, IND690-Com, IND690-Control, IND690-Count, IND690-Fill, IND690-Form, IND690-FormXP, IND690-Sum

These operating instructions contain all information about how to operate and adjust the respective software application.

Example: Weighing terminal IND690-Count

The operating instructions for **IND690-Base** contain the following information:

- Basic functions (e.g. weighing, taring, ...)
- Additional functions (e.g. printing, DeltaTrac, dynamic weighing ...)
- Terminal settings (e.g. date/time, language ...)
- Scale settings (e.g. second unit, weighing process adapter, ...)
- Interface settings

The operating instructions for **IND690-Count** contain the following information:

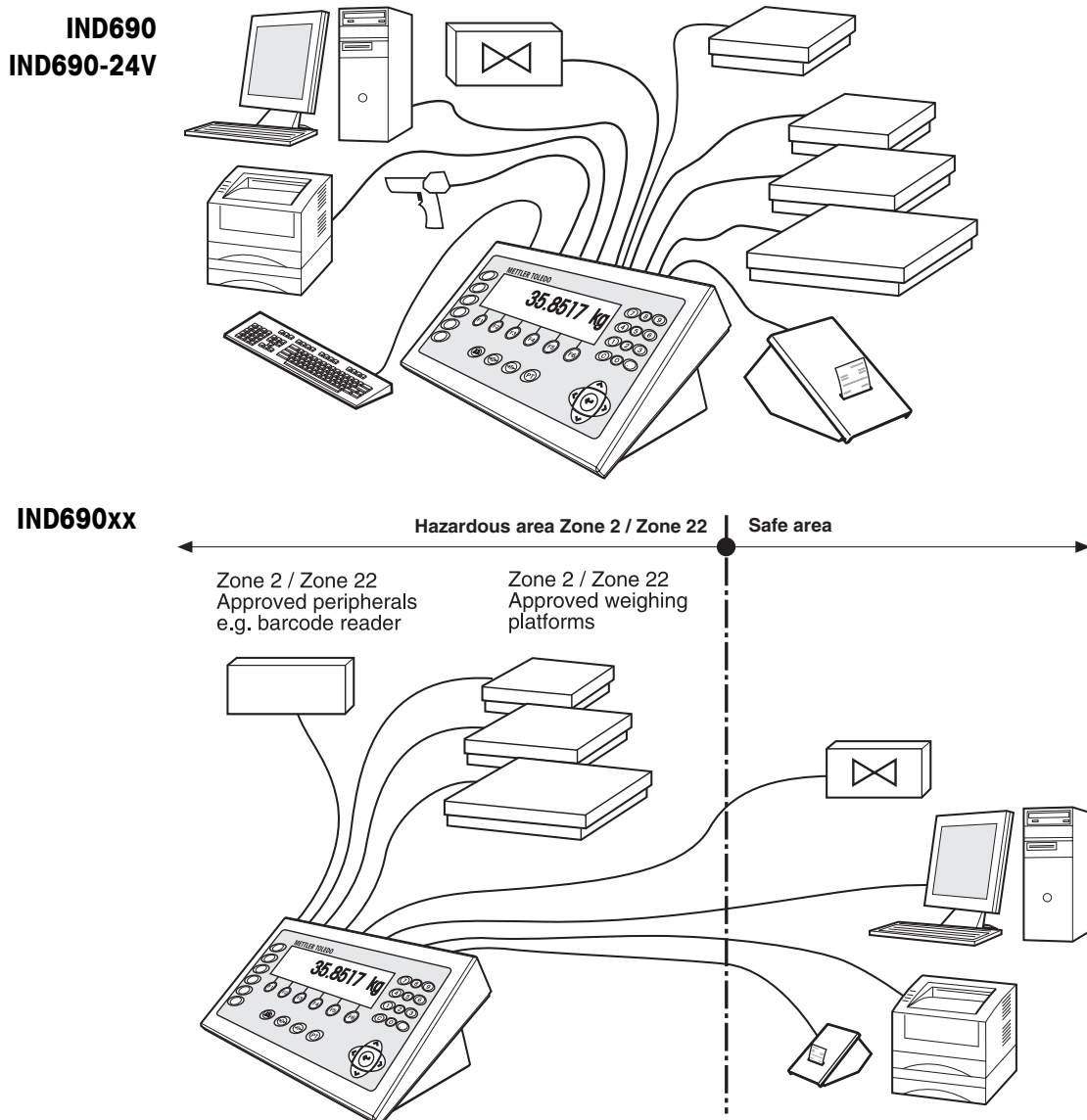
- Counting mode
- Settings for counting

Installation information Information about installation and/or retrofitting your terminal and the technical data of the hardware components can be found in the installation information IND690 / IND690xx / IND690-24V.

3 The weighing terminals

3.1 Applications

With the weighing terminals the following applications are possible:



- Multi-scale operation with up to 4 weighing platforms with IND690 and up to 3 weighing platforms with IND690xx and IND690-24V, including weighing platforms with an analog signal output.
- Up to 9 data interfaces
 - for printing,
 - for data exchange with a computer,
 - for connecting a barcode reader,
 - for control, e.g. of valves or flaps,
 - for connecting reference scales.
 - for connecting an external keypad

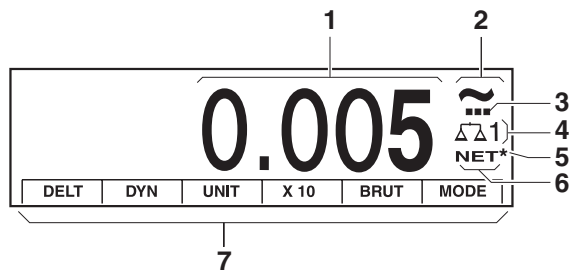
3.2 Installation

The weighing terminal is normally set up and installed by the METTLER TOLEDO Customer Service.

In the case of the IND690xx, the mains connection has to be made by one of the operator's skilled electricians.

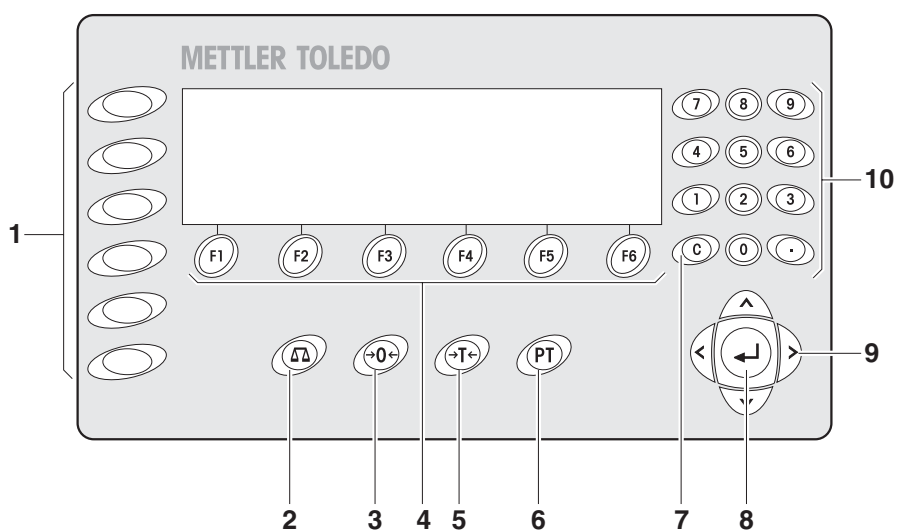
3.3 Overview

3.3.1 Display



- 1 Weight display BIG WEIGHT® with sign and decimal point
- 2 Stability monitor: lights up until the weighing platform has levelled out, then the weight unit appears here
- 3 Range display for multi-range weighing platforms
- 4 Number of the weighing platform: shows the weighing platform just selected
- 5 NET symbol for marking net weight values
- 6 Assignment of the function keys
The function keys are multiple assigned. With the cursor keys < or > you can switch between the different assignments.

3.3.2 Keyboard



- 1 CODE A ... CODE F keys – enter identification data
- 2 SCALE key – select scale
- 3 ZERO SET key – set scale to zero, test scale
- 4 Function keys F1 ... F6 – the current assignment is shown in the display above the key
- 5 TARE key – tare scale
- 6 TARE SPECIFICATION key – enter known tare values numerically
- 7 CLEAR key – clear entries and values
- 8 ENTER key – accept and transfer data
- 9 Cursor keys
- 10 Numeric keypad with decimal point

4 Operation

4.1 Switching on and off

Switching on from the standby mode

- Press any key.
The display shows a weight value based on the last tare value and zero point.

Switch off

- Press function key OFF.
The display goes out and the weighing terminal is in the standby mode. The zero point and tare value remain saved.

Note

If the function key OFF does not appear in the current assignment, press the cursor keys < or > several times if necessary until OFF is displayed.

Switching on with restart

1. Relieve weighing platform.
2. Press function key OFF and hold down until METTLER TOLEDO IND690 (factory setting) or text you have specified appears in display.
Then weight value appears.

The weighing platform is restarted.

4.2 Charge indicator in storage battery operation (IND690-24V only)

If the supply voltage drops below 22.5 V, a continuous whistle sound is emitted for approx. 10 to 30 minutes.

If the supply voltage drops below 21 V, the IND690-24V weighing terminal switches off automatically.


- If the whistle sound is emitted, complete the current weighing process and charge or replace the storage battery.

4.3 Setting to zero

Setting to zero corrects the influence of minor dirt on the load plate.

In the case of excessive dirt which cannot be compensated by setting to zero, the display shows OUT OF RANGE.

Manual zero set

1. Relieve weighing platform.
2. Press .
The display shows 0.000 kg.

Automatic zero set

On certified weighing platforms the zero point of the weighing platform is automatically corrected when the weighing platform is relieved.

The automatic zero set can be switched off in the master mode on noncertified weighing platforms.

4.4 Taring

4.4.1 Manual taring

1. Place empty container on scale.
2. Press $\rightarrow T \leftarrow$.
The tare weight is saved and the weight display set to zero.
The display shows the NET symbol.

Notes

- When the weighing platform is relieved, the saved tare weight is displayed with a negative sign.
- The weighing platform only saves **one** tare value.

4.4.2 Specifying tare weight

1. Press PT .
2. Enter tare weight (container weight) and confirm with \leftarrow .
When weighing platform is relieved, the entered tare weight is displayed with a negative sign.

Note

The weight unit for entering the tare weight can be selected with the cursor keys < or >.

4.4.3 Clearing tare weight

- Relieve weighing platform and tare.
- or –
- Specify tare weight 0.
- or –
- Enter PT , C sequence.

4.5 Weighing

Weighing without taring → Lay weighing sample on weighing platform.
Gross weight (total weight) is displayed.

Weighing with taring

1. Place the empty container on the weighing platform and tare.
2. Pour in weighing sample.
The display shows the net weight and the NET symbol.

Weighing with tare specification

1. Place filled container on weighing platform.
The display shows the gross weight (total weight).
2. Specify tare weight or recall tare memory.
The display shows the net weight (container content) and the NET symbol.


4.6 Working with several weighing platforms

Up to 4 weighing platforms can be connected to the IND690, and up to 3 weighing platforms can be connected to the IND690xx and IND690-24V.

Depending on the setting in master mode, only the currently active scale appears in the display (serial Multi-scale mode) or all scales are operated at the same time (parallel multi-scale mode). A constantly updated sum scale is also available in parallel multi-scale mode.


4.6.1 Switching over weighing platform

The weighing platform currently selected is shown on the terminal.

→ Press .

The next weighing platform is selected.

– or –

→ Enter number of weighing platform and press .

The desired weighing platform is selected.

4.6.2 Displaying several scales simultaneously

Condition

PARALLEL SCALE is selected in the master mode.

→ Press the cursor keys < or > as often as necessary until all scales are shown in the display.

5 Cleaning



DANGER OF SHOCK

→ Do not open the weighing terminals to clean.

CAUTION

→ Make sure that unused connection sockets are covered with protective caps to protect the socket contacts from moisture and dirt.

→ Do not use high-pressure cleaners.

Cleaning

→ Wipe off the weighing terminals with a commercially available glass or plastic cleaner.

IND690 Terminal

WM / WMH Weighing Module



Operation of WM weighing modules
and WMH weighing platforms
with an IND690 industrial terminal

METTLER TOLEDO

Contents

1	Introduction	3
2	Configuration	3
2.1	System structure.....	3
2.2	Connection diagram	4
2.2.1	Connection diagram for an RS232 connection	4
2.2.2	Connection diagram for an RS422 connection	4
3	Functionality	5
3.1	Direct Talk	5
3.1.1	Description.....	5
3.1.2	Terminal setting	5
3.1.3	Display information items	5
3.1.4	Key designations	5
3.2	Remote Talk	6
3.2.1	Description.....	6
3.2.2	Display information items	6
3.2.3	Command set.....	6
3.3	MT-SICS commands of the IND690	6
3.4	Restart	7
3.4.1	Description.....	7
3.4.2	Terminal setting	7
3.5	Control mode x10	7
3.5.1	Description.....	7
3.5.2	Terminal setting	7
3.6	Totaling scale (scales in parallel)	8
3.6.1	Description.....	8
3.6.2	Terminal setting	8
3.7	Menu item Scale	8
3.7.1	Terminal setting	8
4	Annex.....	9
4.1	Typical configurations.....	9
4.1.1	Connection of the WM / WMH weighing module via a ConModule.....	9
4.1.2	Connection of a WM Ex / WMH Ex weighing module via a PSU.....	9
4.1.3	Direct connection of a WX weighing module.....	10
4.2	Referenced documents.....	11
5	Figures	11

1 Introduction

With the WM / WMH product line, METTLER TOLEDO offers weighing technology for the automation industry that is optimal with regard to speed, ruggedness, precision, and direct integration. The WM / WMH high-performance sensors (weighing modules) can be optimally connected to the IND690 industrial terminal with extended functionality as from Software Version 2.0, as well as to a computer (PC) or process control system (PLC). The DIRECT TALK and REMOTE TALK functionalities allow direct communication with a connected weighing module. The direct communication allows freely chosen commands to be sent directly to the weighing module, which makes configuration of the weighing module simple. With DIRECT TALK, the weighing module can be completely configured by the IND690, without connection of a PC.

2 Configuration

2.1 System structure

Operation of a weighing module on an IND690 requires a ConModule and a power supply from the system side (or power supply unit (PSU) for Ex Zone 1 weighing modules), because the IND690 cannot directly supply the weighing module with the necessary operating voltage. For the connection, an RS232 (point-point) or RS422 (for large distances) is available. Corresponding cables are available. The IND690 supports up to four scales with the METTLER TOLEDO Standard Interface Command Set (MT-SICS). The corresponding interface cards are built into the IND690.

The terminal can also be connected directly to a PC via the terminal interface COM1 (RS232) (interface configuration, see 3.3, page 6).

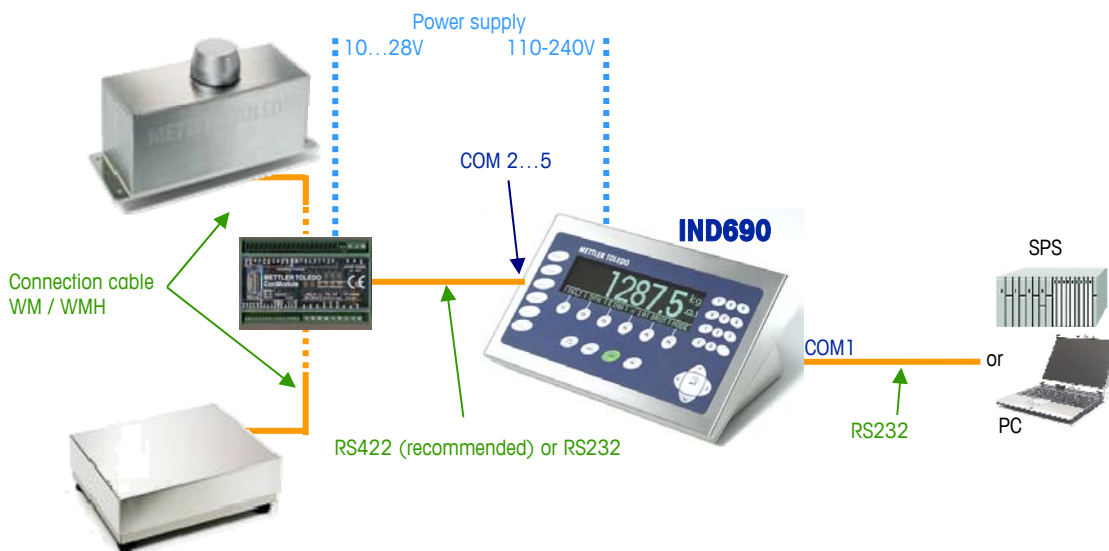


Figure 1: System structure IND690 weighing module

2.2 Connection diagram

As described in sections 2.2.1 and 2.2.2, an IND690 is connected to the weighing module via a ConModule (see [4]). Depending on the distance between the terminal and the ConModule or weighing module, an RS232 or RS422 connection can be used. Provided that the specification is met, and the correct baud rate is used, the RS422 allows a length of up to 1200 meters.

The voltage supply to the weighing module is from a separate supply on the ConModule.

The article numbers for typical configurations are listed in section 4.1 on page 9.

Recommendation: So that the RS232 remains available as service interface, METTLER TOLEDO recommends using the RS422 as connection between the IND690 and the ConModule.

2.2.1 Connection diagram for an RS232 connection

Terminal ConModule	1	2	3	4	5	6
Signal ConModule	RXD:	TxD	RTS	CTS	GND	Shield
Cable	See 4.1, page 9					
Color	White	Green	Yellow	Brown	Gray	Braid
Pin on plug IND690	2	3	8	4	6	1
Signal IND690	TxD	RxD	CTS	RTS	GND	Shield
Interface IND690	RS232-690 configuration: SICS-SCALE					

2.2.2 Connection diagram for an RS422 connection

Terminal ConModule	7	8	9	10	11
Signal ConModule	Rx+	Rx-	Tx+	Tx-	Shield
Cable	See 4.1, page 9				
Color	Green	Yellow	Gray	Pink	Braid
Pin on plug IND690	3	4	6	5	Plug
Signal IND690	TxD+	TxD-	RxD+	RxD-	Shield
Interface IND690	RS232-690 configuration: SICS-SCALE Interface module: switch 1 and 6: ON and 2-5: OFF (see [2])				

3 Functionality

For the WM and WMH weighing modules in conjunction with the IND690, many functions are available. In each case, the full update rate is maintained.

The functionalities described below are not all the functionalities that are available. The complete description of the functionality, and an overview of the available applications such as, for example, IND690 Count, is contained in the IND690 Operating Instructions [3].

3.1 Direct Talk

3.1.1 Description

With the DIRECT TALK configuration, individual commands can be sent to a weighing module as an ASCII character string. The terminal adds the end-of-line (<cr><lf>) automatically. The commands are input either directly via the terminal, or via a PC keyboard that is connected to the terminal (interface card).

The responses are displayed on the terminal; multiline responses are possible. The function keys F1 / F2 can be used to page through a multiline response (up to 40 lines).

3.1.2 Terminal setting

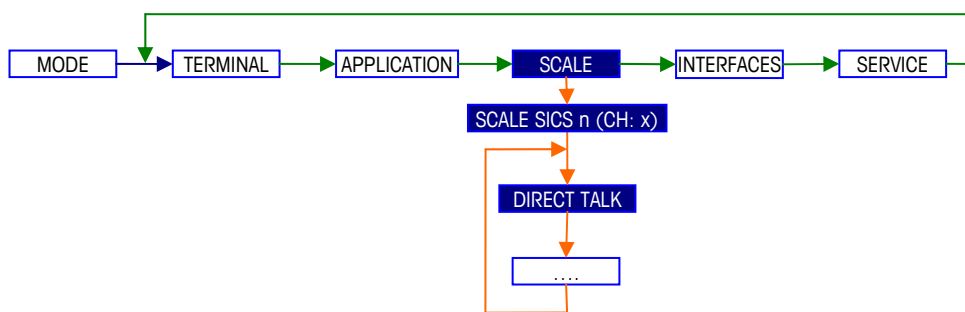


Figure 2: IND690 – DIRECT TALK menu

3.1.3 Display information items

COMx x = port number of the weighing module
 SEND Command that was sent to the weighing module
 RECD Response received from the weighing module



Figure 3: DIRECT TALK display

3.1.4 Key designations

F1 / F2	< >	Up / down for multiline responses	
F3	NEW	Input new command to be sent	| The command is input via the display or | an external PC keyboard
F4	EDIT	Edit last command	
F5	ENDE	Quit DIRECT TALK; the terminal is re-started	
F6	SEND	Send the command to the weighing module	
< >		Page through long responses right / left	
^ v		Switch display keyboard between upper case, lower case, and special characters	

3.2 Remote Talk

3.2.1 Description

REMOTE TALK mode enables a direct connection to be set up between a computer (for example the WM_Terminal or Microsoft ® HyperTerminal) and a weighing module via the IND690. Only one connection is possible. To change between several weighing modules, the connection must always be stopped. The IND690 is then re-started.

The communication is displayed on the terminal with the end-of-line (<cr><lf>) suppressed. The communication commands (see [1]) comprise the command set of the respective weighing module. The communication supports the full update rate (depending on the specific weighing module that is connected).

3.2.2 Display information items

COMx x = port number of the weighing module
 SEND The command that was sent to the weighing module
 RECD Response received from the weighing module



Figure 4: REMOTE TALK display

3.2.3 Command set

Command	RTS_ScaleID	Start REMOTE TALK ScaleID matches the ID of the scale (according to the display) [1...4]
Responses	RTS_A	Command executed successfully
	RTS_L	Command understood, but cannot be executed
	RTS_I	Invalid command, incorrect scale type connected

As soon as REMOTE TALK mode is activated, any interface command described in [1] can be sent to the weighing module.

Command	RTE	Stop REMOTE TALK The terminal is then re-started
Responses	RTE_A	REMOTE TALK was successfully stopped
	RTE_L	REMOTE TALK cannot be stopped
	RTE_I	REMOTE TALK is not switched on

3.3 MT-SICS commands of the IND690

The COM1 interface of the terminal serves to exchange data with a computer or SPS. In DIALOG MODE, the MT-SICS command set can be activated (MASTERMODE - INTERFACES - COMx - RS232 - MODE - DIALOG MODE - SICS). This makes it possible to communicate with the terminal by using MT_SICS commands. When doing so, it is important to note that the MT-SICS commands are not transmitted unchanged 1:1 by the terminal (as in REMOTE TALK), but interpreted. The command is sent to the scale that is currently active in the display.

The complete list of the compatible MT-SICS commands is contained in the Operating Instructions: IND690 Base (see [3], Chapter 6.4).

3.4 Restart

3.4.1 Description

The Restart functionality of the IND690 allows the original status to be recreated after a loss of voltage on the weighing module. With the RESTART ON configuration, the tare and zero values are permanently stored in the terminal. After a voltage interruption, the IND690 writes the respective values back into the weighing module.

3.4.2 Terminal setting

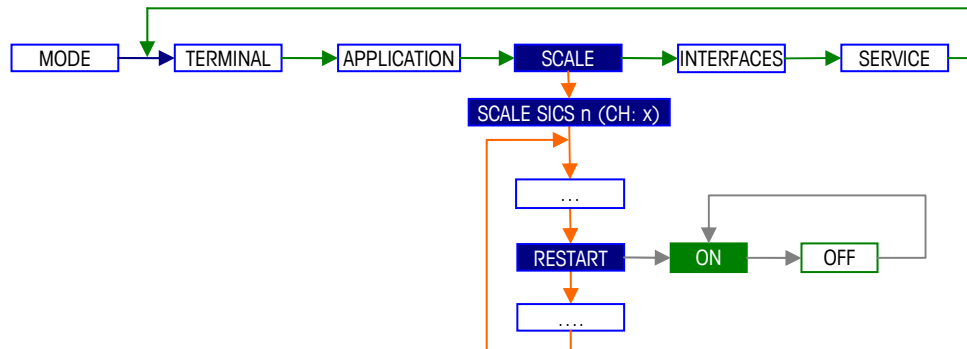


Figure 5: IND690 restart menu

3.5 Control mode x10

3.5.1 Description

Control mode x10 allows an additional display position – a so-called auxiliary numerical increment – on the WMH / WMH Ex weighing modules. This corresponds to the command MOD 1 or MOD 0 which is described in the MT-SICS Manual (see [1]).

With Control Mode switched on, the weight value is marked on the terminal with an asterisk (*).

Important: When Control Mode is switched off, all user modes are also switched off! With Increased Display Resolution or Open Zero, this mode must be re-set (see [1]).

3.5.2 Terminal setting

Setting is done with function key F4 in Master Mode.



Figure 6: Control mode display

3.6 Totaling scale (scales in parallel)

3.6.1 Description

In the PARALLEL SCALE - Totaling Scale operating mode (see [3], Chapter 3.6.2), totaling of the weight values of up to four weighing modules is possible. When this operating mode is activated, the respective weighing modules that are used in the totaling are selected.

The SCALES key can be used to switch between the measurement values of the individual weighing modules and the total. Instead of the number of the weighing cell, the display shows a total sign (Σ).

3.6.2 Terminal setting

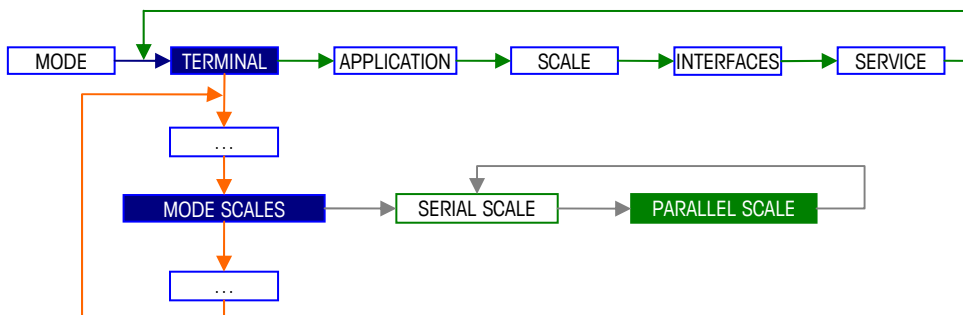


Figure 7: IND690 – SCALES IN PARALLEL - totaling scale

3.7 Menu item Scale

Under the menu item SCALE, several functions are available that depend on the scale that is connected. For the weighing modules, the functions that are listed below are possible. Further information is contained in the Operating Instructions (see [3]).

3.7.1 Terminal setting

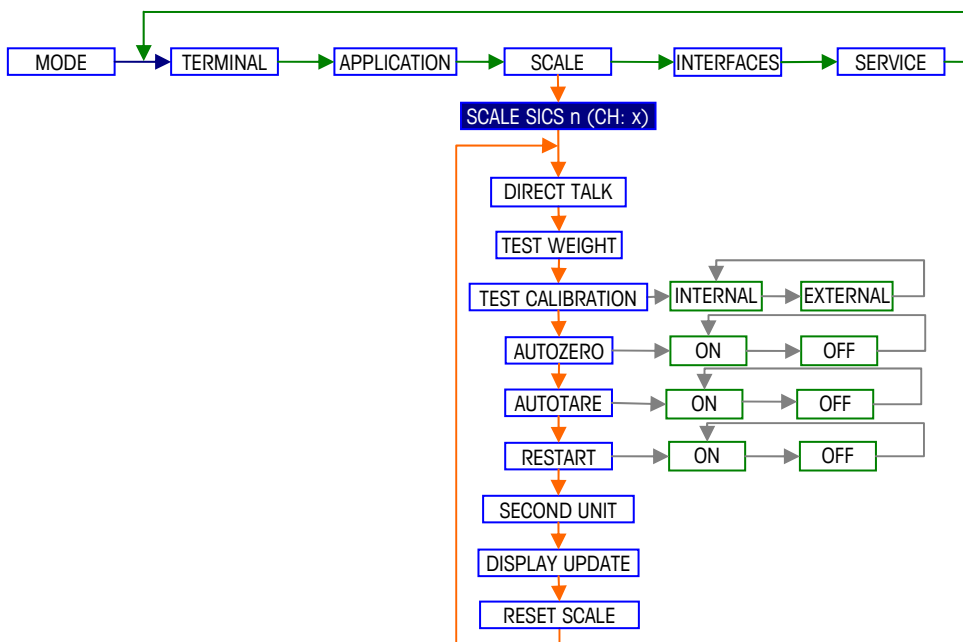


Figure 8: Overview IND690 - menu item SCALE

4 Annex

4.1 Typical configurations

4.1.1 Connection of the WM / WMH weighing module via a ConModule

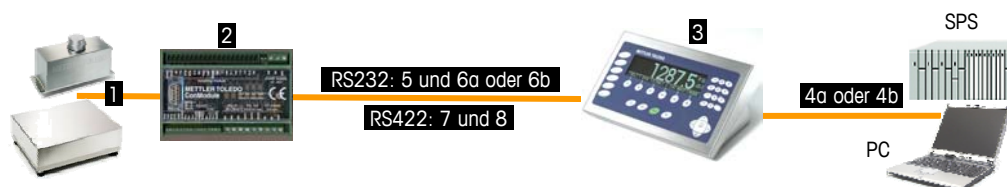


Figure 9: Typical configuration via a ConModule

No.	Article number	Designation
1	See [5]	WM or WMH weighing modules
		WM / WMH cable, 19-pin plug, straight or angled
2	42102811	ConModule (DIN rail) or ConBox (42102800)
3	22011901	IND690 terminal
4a	00504374	RS232 cable, 9-pin (female), 3 m for connection to a PC
4b	00503756	Plug (8-pin) and own cable for connection to an SPS/PLC
Connection via RS232		
5	22011953	RS232 interface card for installation in the IND690 terminal
6a	22006795	RS232 cable, 9-pin (male) for SICS balances via the service connector
6b	00503756	Plug (8-pin) and own cable for connection to the ConModule
Connection via RS422 (recommended)		
7	22011956	RS422 interface card for installation in the IND690 terminal
8	00204933	Cable (3 m) for RS422 with open end

4.1.2 Connection of a WM Ex / WMH Ex weighing module via a PSU

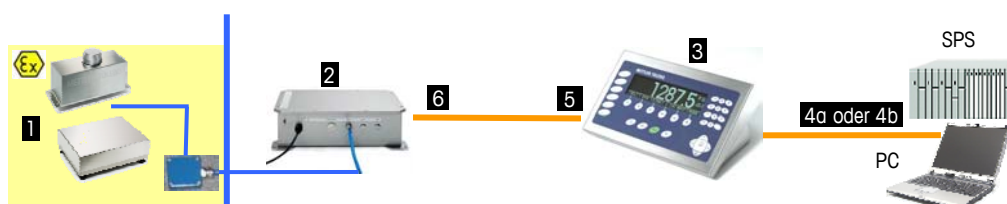


Figure 10: Typical configuration via a PSU

No.	Article number	Designation
1	See [5]	WM Ex or WMH Ex weighing modules
		Terminal box and Ex cable (blue)
2	22008525	Power supply unit (PSU) with RS232 interface
3	22011901	IND690 terminal
4a	00504374	RS232 cable, 9-pin, 3 m for connection to a PC
4b	00503756	Plug (8-pin) and own cable for connection to an SPS/PLC
5	22011953	RS232 interface card for installation in the IND690 terminal
6	22003832	PSU – IND690 connection cable (4 m)

4.1.3 Direct connection of a WX weighing module

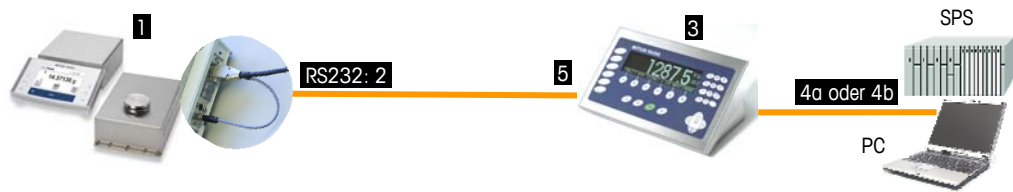


Figure 11: Typical configuration for WXT / WXS

No.	Article number	Designation
1	See [5]	WXT / WXS weighing module
2	22015128	RS232 cable, 9-pin (male) for SICS balances including power supply
3	22011901	IND690 terminal
4a	00504374	RS232 cable, 9-pin (female), 3 m for connection to a PC
4b	00503756	Plug (8-pin) and own cable for connection to an SPS/PLC
5	22011953	RS232 interface card for installation in the IND690 terminal Important: The voltage must be changed from 5V (factory) to 12V (BR2 bridge unpick and BR3 close).



4.2 Referenced documents

- [1] Reference Manual, Standard Interface Command Set for WM and WMH Weighing Modules MT-SICS (42101959)
- [2] Installation Information, Weighing Terminals IND690 / IND690xx / IND690-24V (22012803)
- [3] Operating Instructions, IND690 Base (22012808)
- [4] ConModule, Installation and Operating Instructions (42102823)
- [5] Weighing Components Catalog (44099884)

5 Figures

Figure 1: System structure IND690 weighing module	3
Figure 2: IND690 – DIRECT TALK menu	5
Figure 3: DIRECT TALK display	5
Figure 4: REMOTE TALK display	6
Figure 5: IND690 restart menu	7
Figure 6: Control mode display	7
Figure 7: IND690 – SCALES IN PARALLEL - totaling scale.....	8
Figure 8: Overview IND690 - menu item SCALE.....	8
Figure 9: Typical configuration via a ConModule	9
Figure 10: Typical configuration via a PSU.....	9
Figure 11: Typical configuration for WXT / WXS.....	10

www.mt.com

For more information

Mettler-Toledo AG

Laboratory & Weighing Technologies
CH-8606 Greifensee, Switzerland
Phone +41 44 944 22 11
Fax +41 44 944 30 60

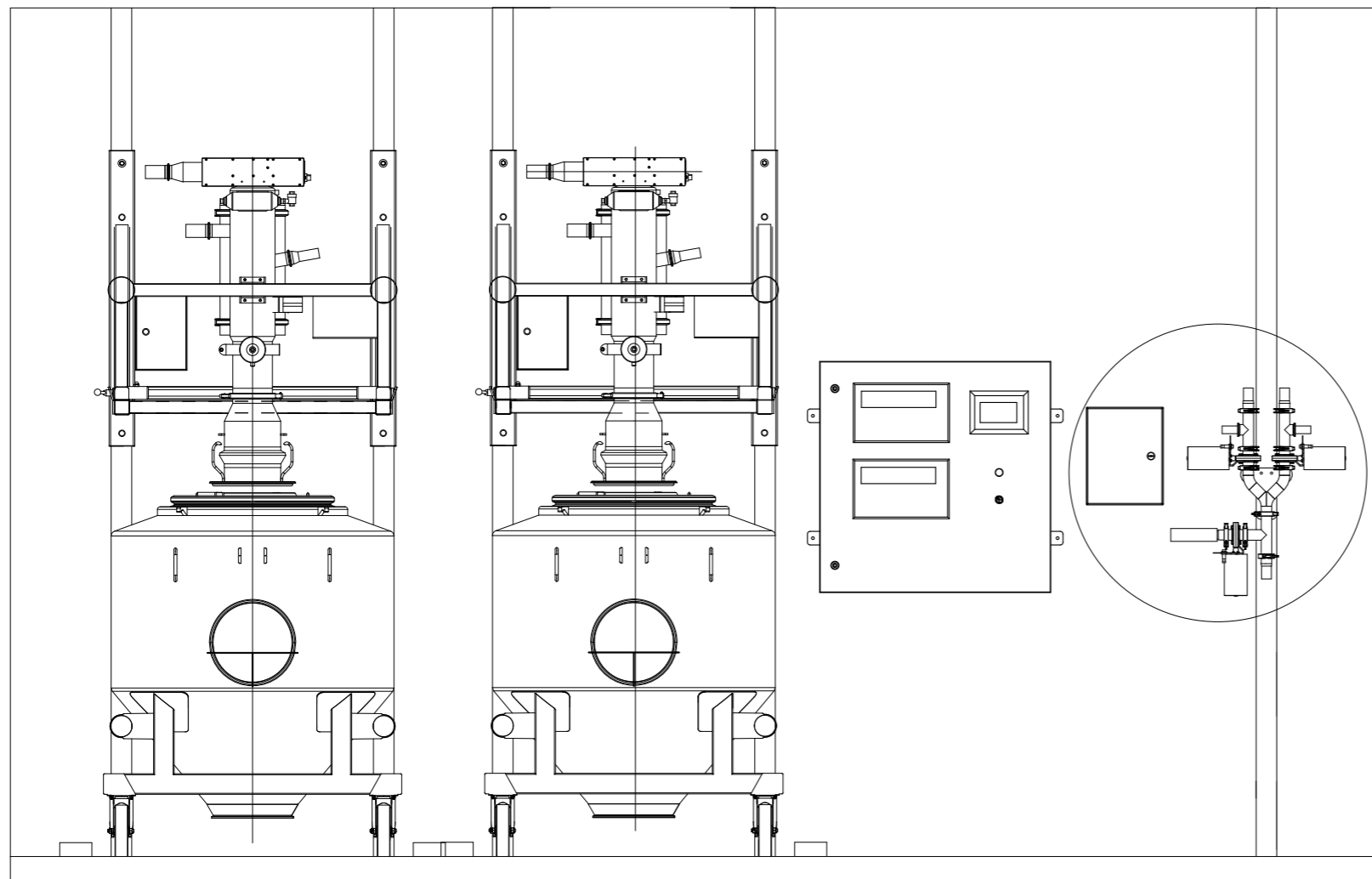
Subject to technical changes
© 03/2008 Mettler-Toledo AG
Printed in Switzerland 42908990A

ELECTRIC / DRIVE / PNEUMATICS

Project : PRO-14-0013

SG.TBP 202.M.5235/C005 SG.TBP 202.M.5235/C006

Type : PF - Installation
 Carrying out: 400V,50Hz,3P+N+PE
 Fedded by Frewitt DelumpWitt



Wire colors :

Power	400VAC - L1	Brown	4mm ²
Power	400VAC - L2	Black	4mm ²
Power	400VAC - L3	Gray	4mm ²
Power	N	Light blue	4mm ²
Power	PE	Green/Yellow	4mm ²
Control voltage	24VDC	Violet	0.5 to 0.75mm ²
Control voltage	0VDC	Violet-White	0.5 to 0.75mm ²
Control voltage	Ex-i	Blue	0.75mm ²
External voltage	...	Orange	0.75mm ²

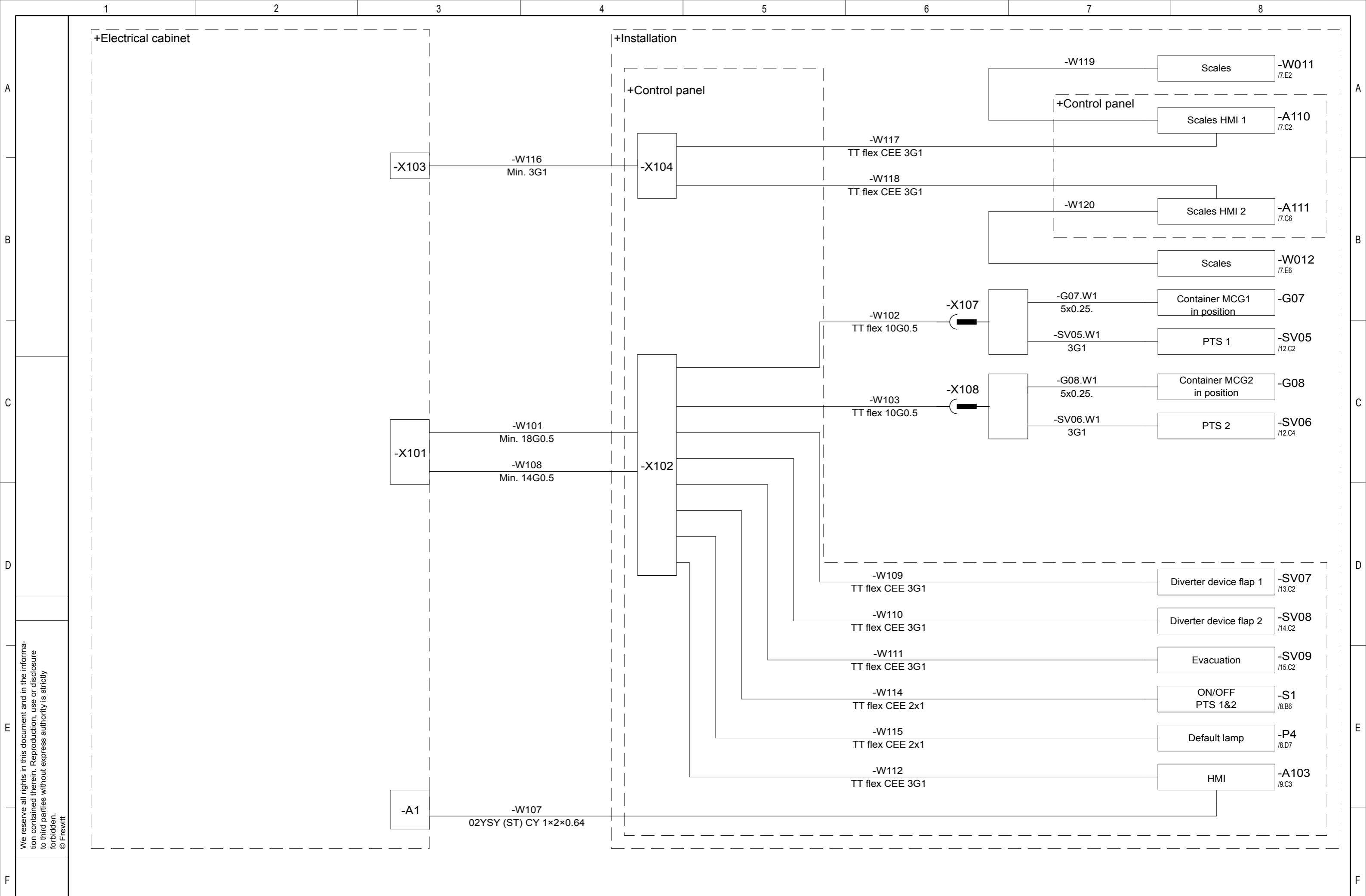
White	WH	Blue	BU
Brown	BN	Red	RD
Green	GN	Black	BK
Yellow	YE	Violet	VT
Gray	GY	Orange	OG
Pink	PK		

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	Origin

Novartis Singapore, SG-Singapore		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Tribourog, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Repl. f.	Repl. by		

00 - Cover sheet					
PTS					
		473827			Page
					1 / 39



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE				Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.	Repl. by			

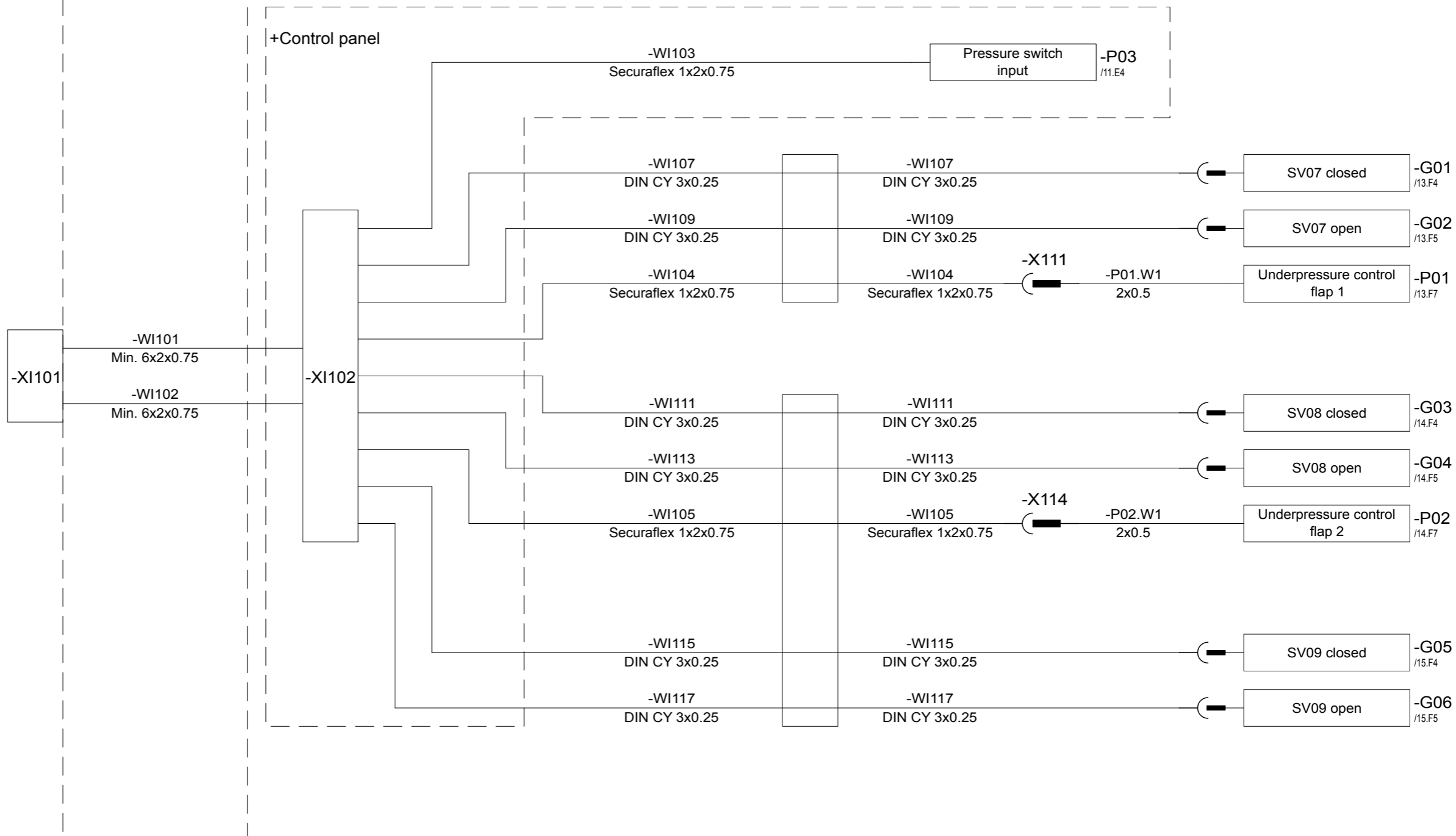
01 - Overview
Instruments location

Type : PF - Installation		
473827		Page 2 / 39

+Electrical cabinet

+Installation

+Control panel



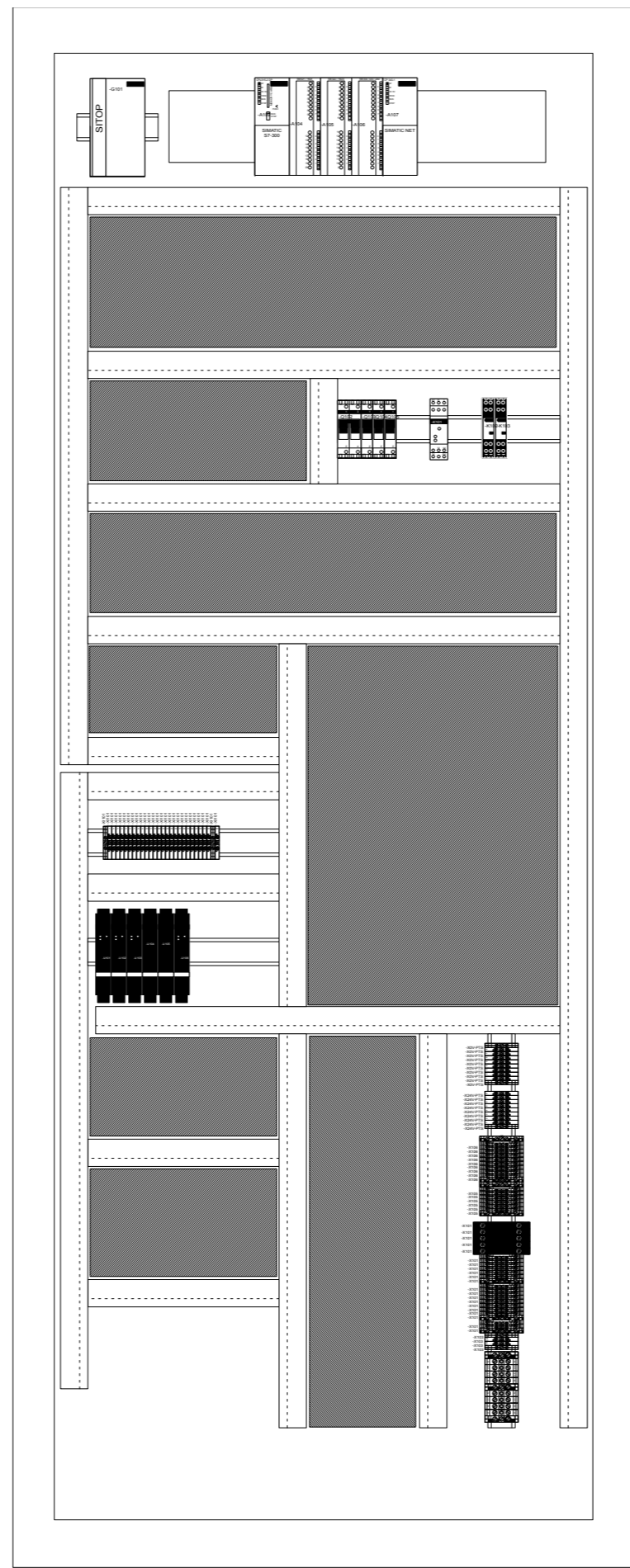
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.	Repl. by	

01 - Overview Instruments location		Type : PF - Installation	
473827		Page 3 / 39	

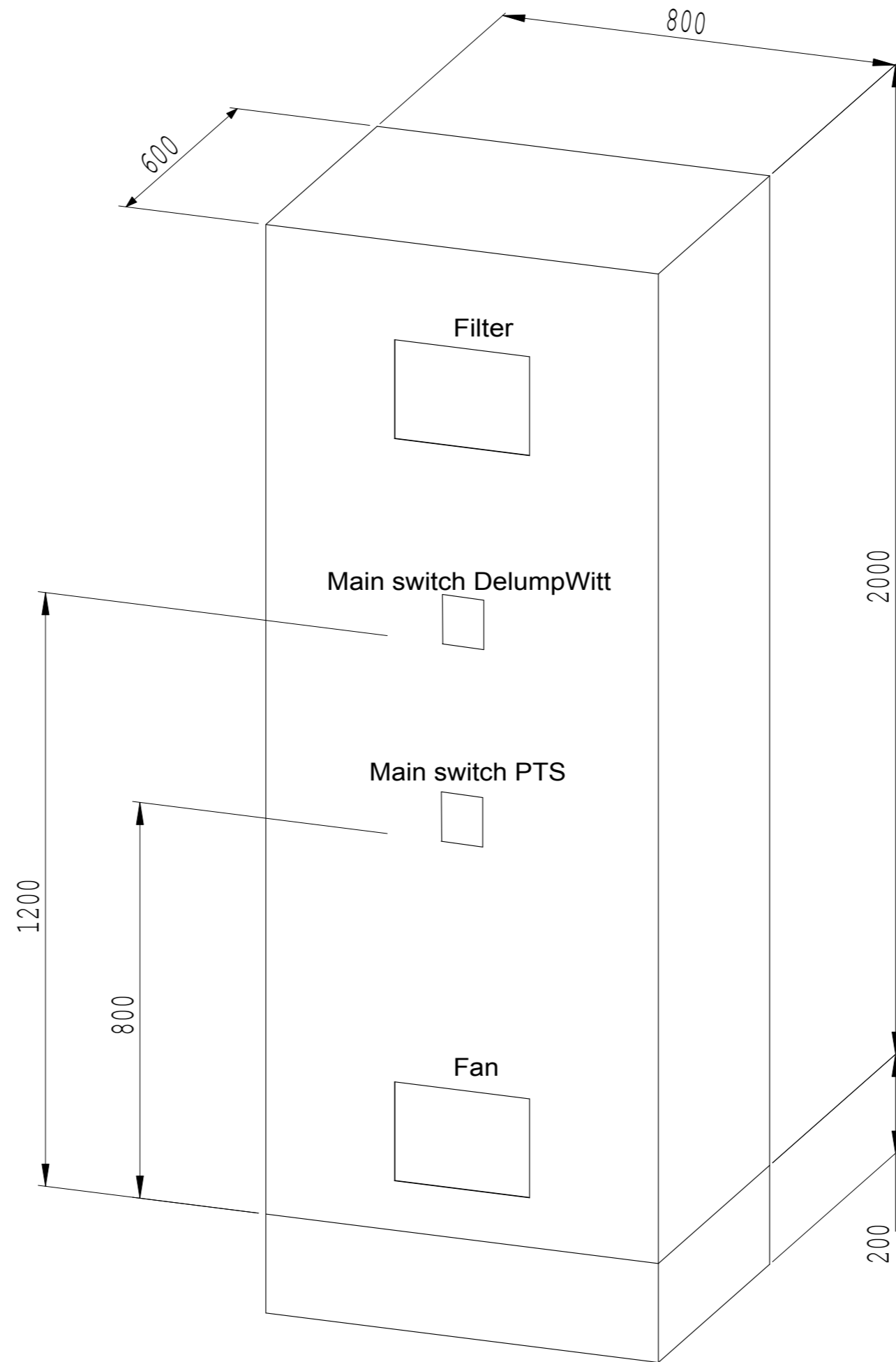
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt



Space for DelumpWitt electrical parts

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	02 - Electrocabinet details Electrocabinet details	Type : PF - Installation		+Electrical cabinet Page 4 / 39
B	Project closure	16.05.2014	vri	User	phha				473827		
				Proved	phha						
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by				

Housing steel: 1.5mm
 Door steel: 2mm
 Door open from left to right



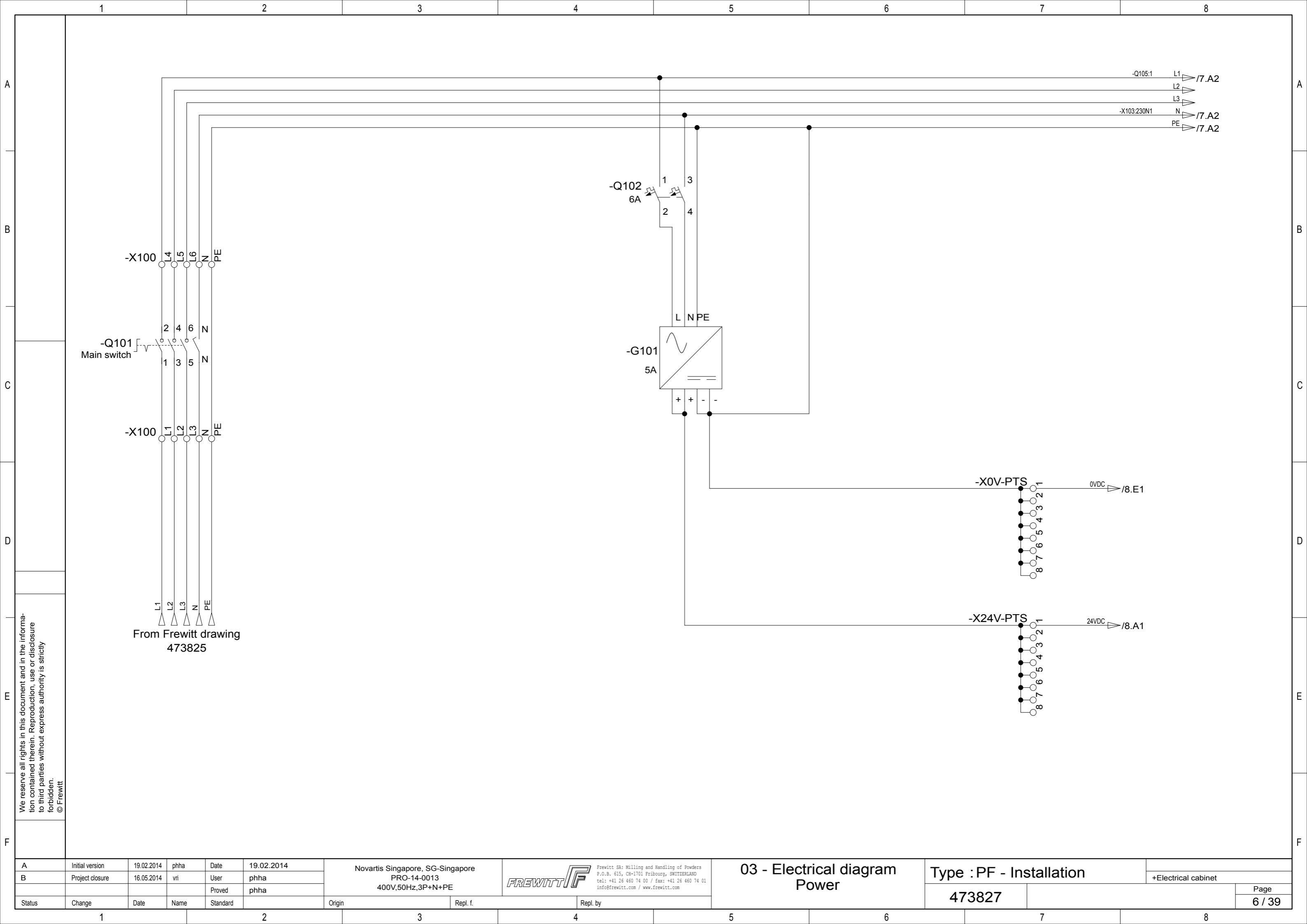
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.	Repl. by	

02 - Electrocabinet details
Electrocabinet dimensions

Type : PF - Installation		+Electrical cabinet	
473827		Page	
		5 / 39	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

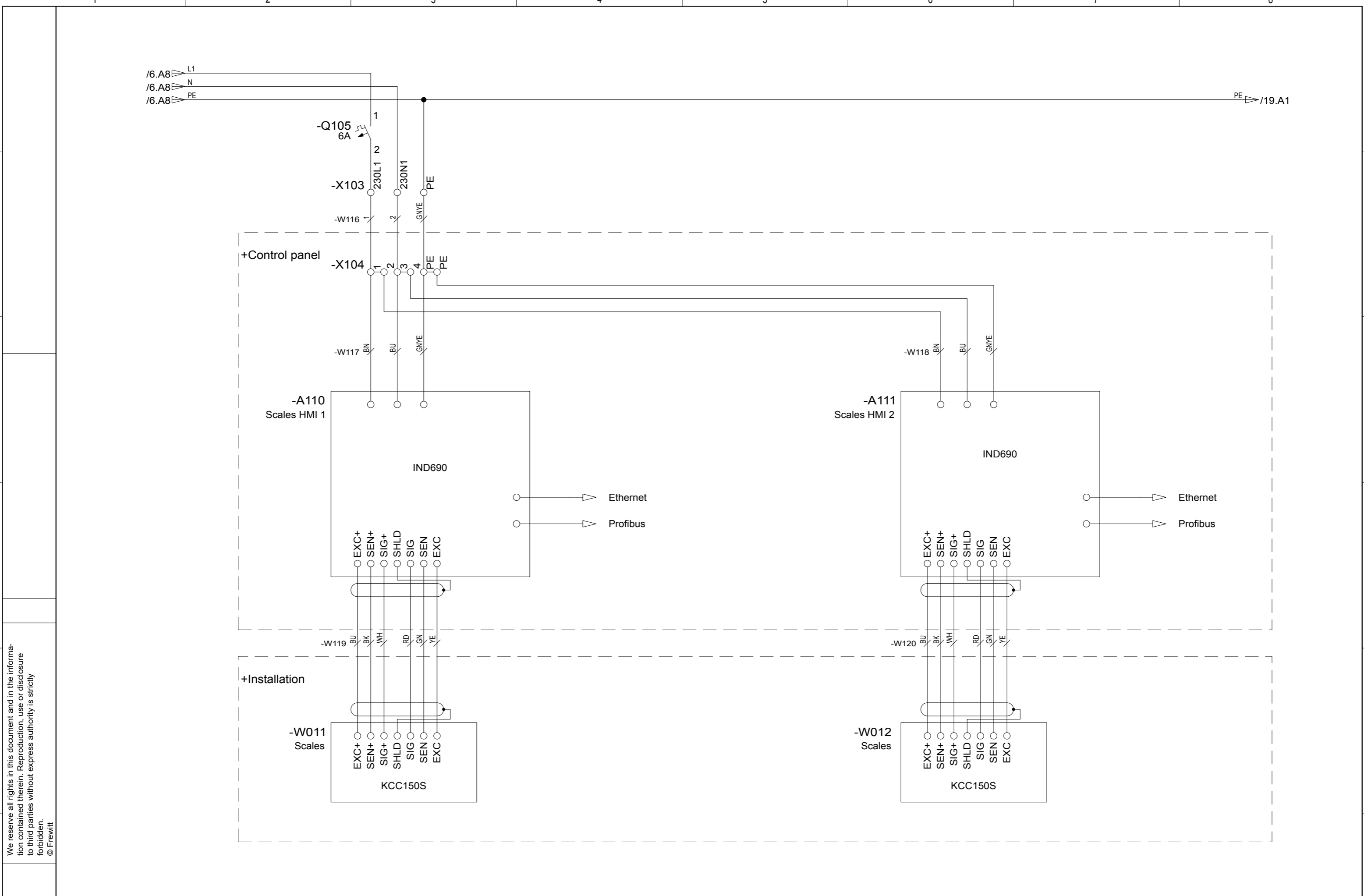
A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
			Proved	phha	
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE			Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.		Repl. by	

03 - Electrical diagram
Power

Type : PF - Installation		Page 6 / 39
473827		

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

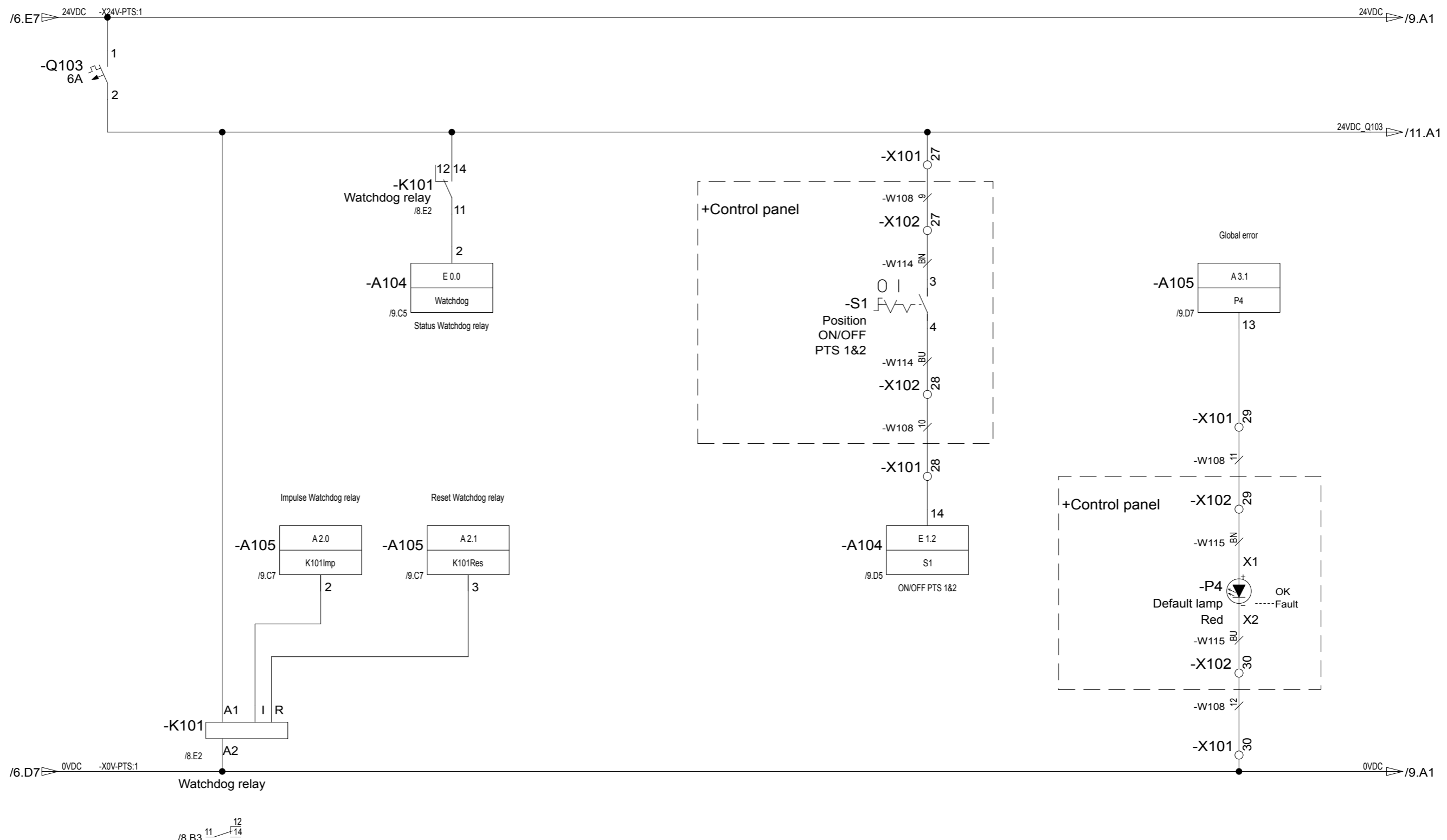


A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE			Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com
Origin	Repl. f.		Repl. by

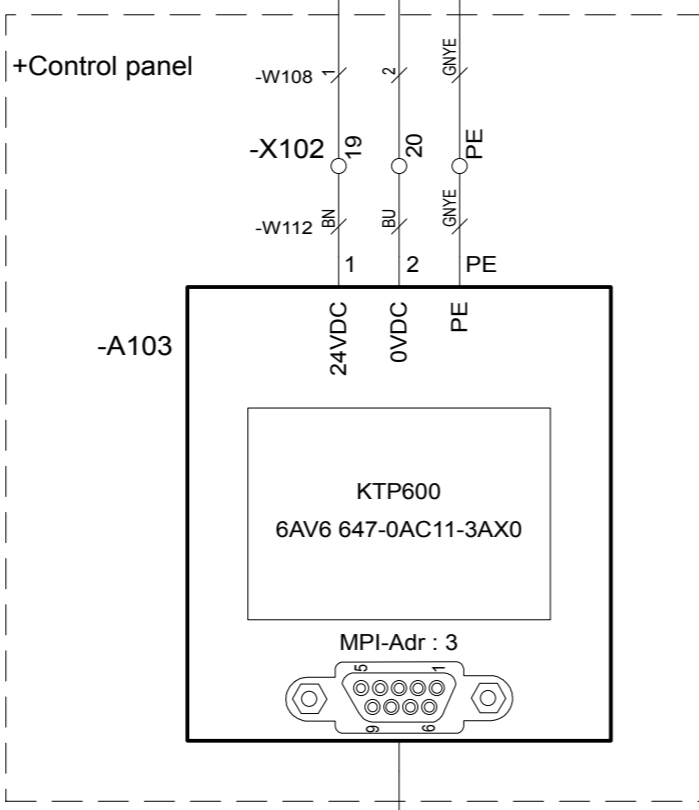
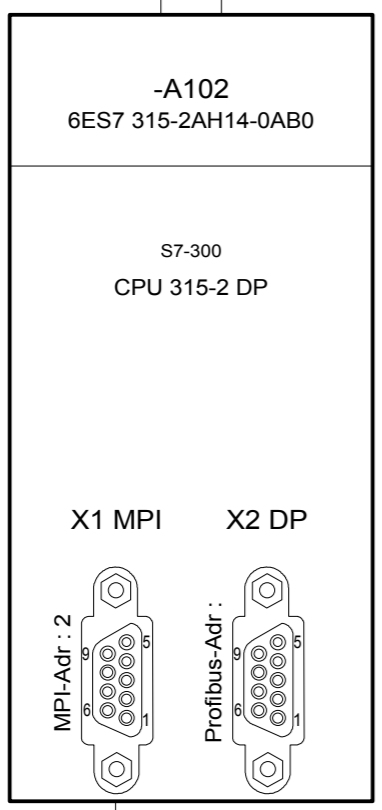
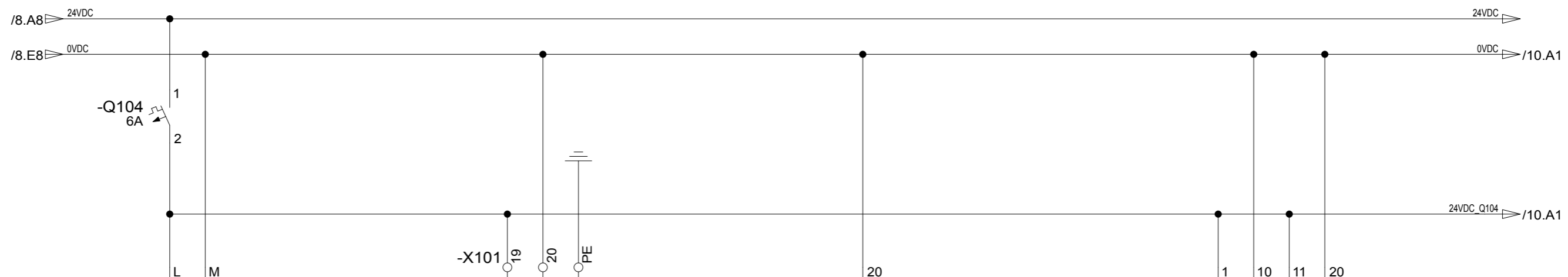
03 - Electrical diagram Scales

Type : PF - Installation		+Electrical cabinet	
473827		Page 7 / 39	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Emergency-Stop	Type : PF - Installation	473827	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha							8 / 39
Status	Change	Date	Name	Standard	Origin							Repl. f.	Repl. by

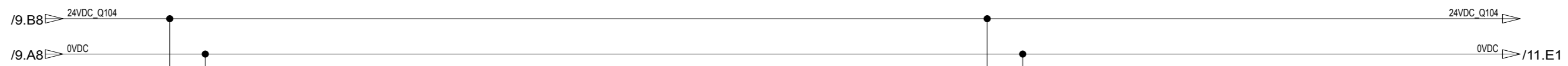


24V DC		-A104		
S7-300		6ES7 321-1BH02-0AA0		
SM 321				
2	E 0.0	/8.B3	Watchdog	Status Watchdog relay
3	E 0.1	/11.C4	P03	Compressed air supply OK
4	E 0.2	/12.C6	G07	Container MCG1 OK
5	E 0.3	/12.C7	G08	Container MCG2 OK
6	E 0.4	/13.C4	G01	Diverter device flap 1 closed
7	E 0.5	/13.C5	G02	Diverter device flap 1 open
8	E 0.6	/14.C4	G03	Diverter device flap 2 closed
9	E 0.7	/14.C5	G04	Diverter device flap 2 open
12	E 1.0	/15.C4	G05	Evacuation closed
13	E 1.1	/15.C5	G06	Evacuation open
14	E 1.2	/8.D5	S1	ON/OFF PTS 1&2
15	E 1.3	/17.B2	Reserve	Reserve
16	E 1.4	/17.B2	Reserve	Reserve
17	E 1.5	/17.B3	Reserve	Reserve
18	E 1.6	/17.B4	Reserve	Reserve
19	E 1.7	/17.B5	Reserve	Reserve

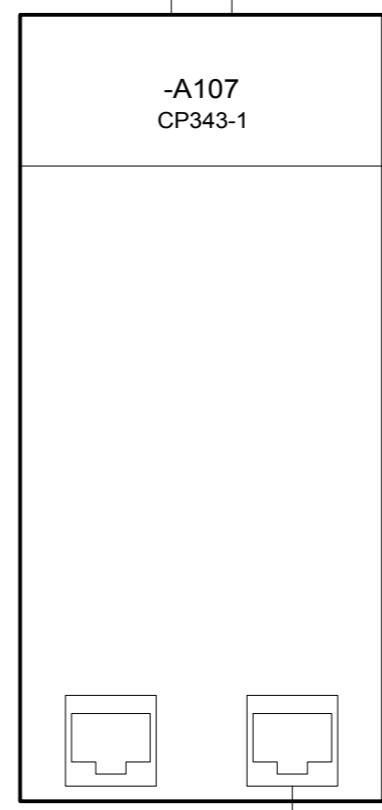
24V DC		-A105		
S7-300		6ES7 322-1BH01-0AA0		
SM 322				
2	A 2.0	/8.D2	K101Imp	Impulse Watchdog relay
3	A 2.1	/8.D3	K101Res	Reset Watchdog relay
4	A 2.2	/12.B2	SV05	Start PTS 1
5	A 2.3	/12.B4	SV06	Start PTS 2
6	A 2.4	/13.B2	SV07	Diverter flap 1
7	A 2.5	/14.B2	SV08	Diverter flap 2
8	A 2.6	/15.B2	SV09	Evacuation
9	A 2.7	/16.D2	K102	005 runs
12	A 3.0	/16.D5	K103	006 runs
13	A 3.1	/8.B7	P4	Global error
14	A 3.2	/17.D3	Reserve	Reserve
15	A 3.3	/17.D4	Reserve	Reserve
16	A 3.4	/17.D5	Reserve	Reserve
17	A 3.5	/17.D6	Reserve	Reserve
18	A 3.6	/17.D6	Reserve	Reserve
19	A 3.7	/17.D7	Reserve	Reserve

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram PLC	Type : PF - Installation	473827	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha							9 / 39
Status	Change	Date	Name	Standard	Origin							Repl. f.	Repl. by

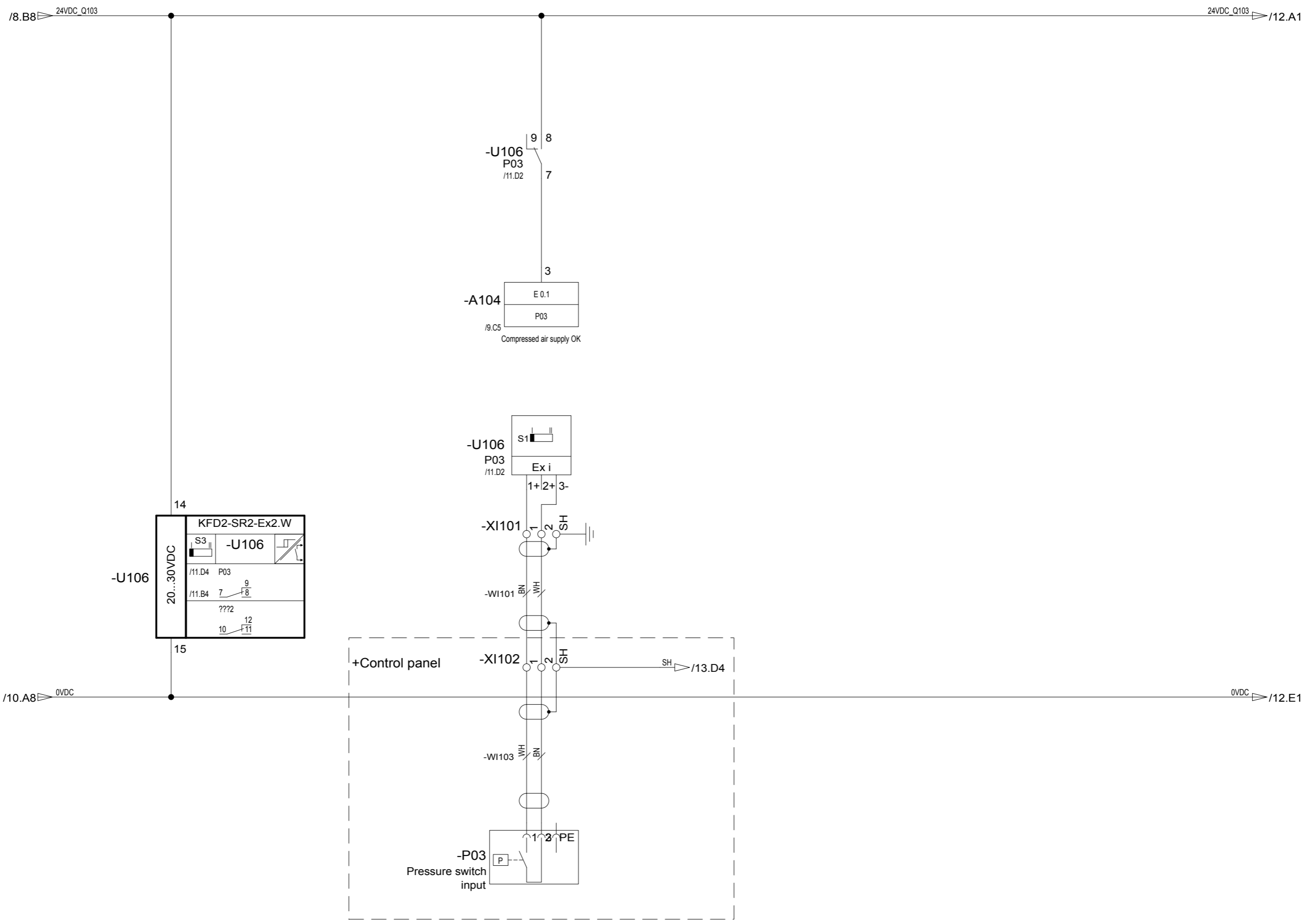


L+		M		24V DC			
		S7-300		SM 334		-A106	
						6ES7 334-OCE01-0AA0	
Channel	U / I	Adresse					
2	MV0+	PEW 128	/13.D8 P01				Underpressure control flap 1
3	M0-						
4	MIO+						
5	MV1+	PEW 130	/14.D8 P02				Underpressure control flap 2
6	M1-						
7	MI1+						
8	MV2+	PEW 132	/18.B2 Reserve				Reserve
9	M2-						
10	MI2+						
11	MV3+	PEW 134	/18.B3 Reserve				Reserve
12	M3-						
13	MI3+						
14	QV0	PAW 138	/18.D2 Reserve				Reserve
15	QMANA						
16	QI0						
17	QV1	PAW 140	/18.D3 Reserve				Reserve
18	QMANA						
19	QI1						



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

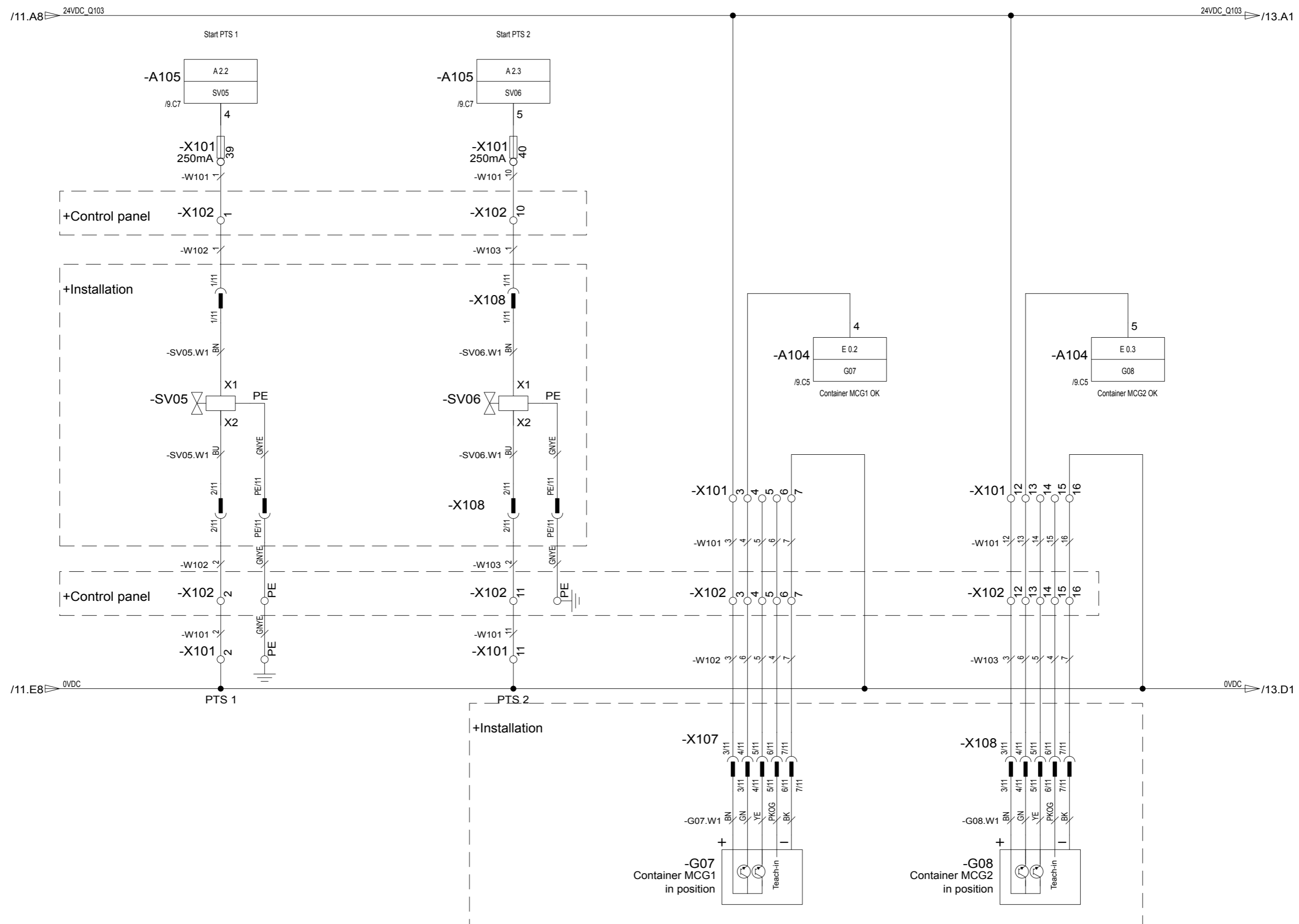
A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram PLC	Type : PF - Installation		+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha				473827	10 / 39		
Status	Change	Date	Name	Standard	Origin				Repl. f.	Repl. by		



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Pressure switch	Type : PF - Installation		+Electrical cabinet	Page 11 / 39
B	Project closure	16.05.2014	vri	User	phha				473827			
Status	Change	Date	Name	Standard	Origin					Repl. f.			Repl. by

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt



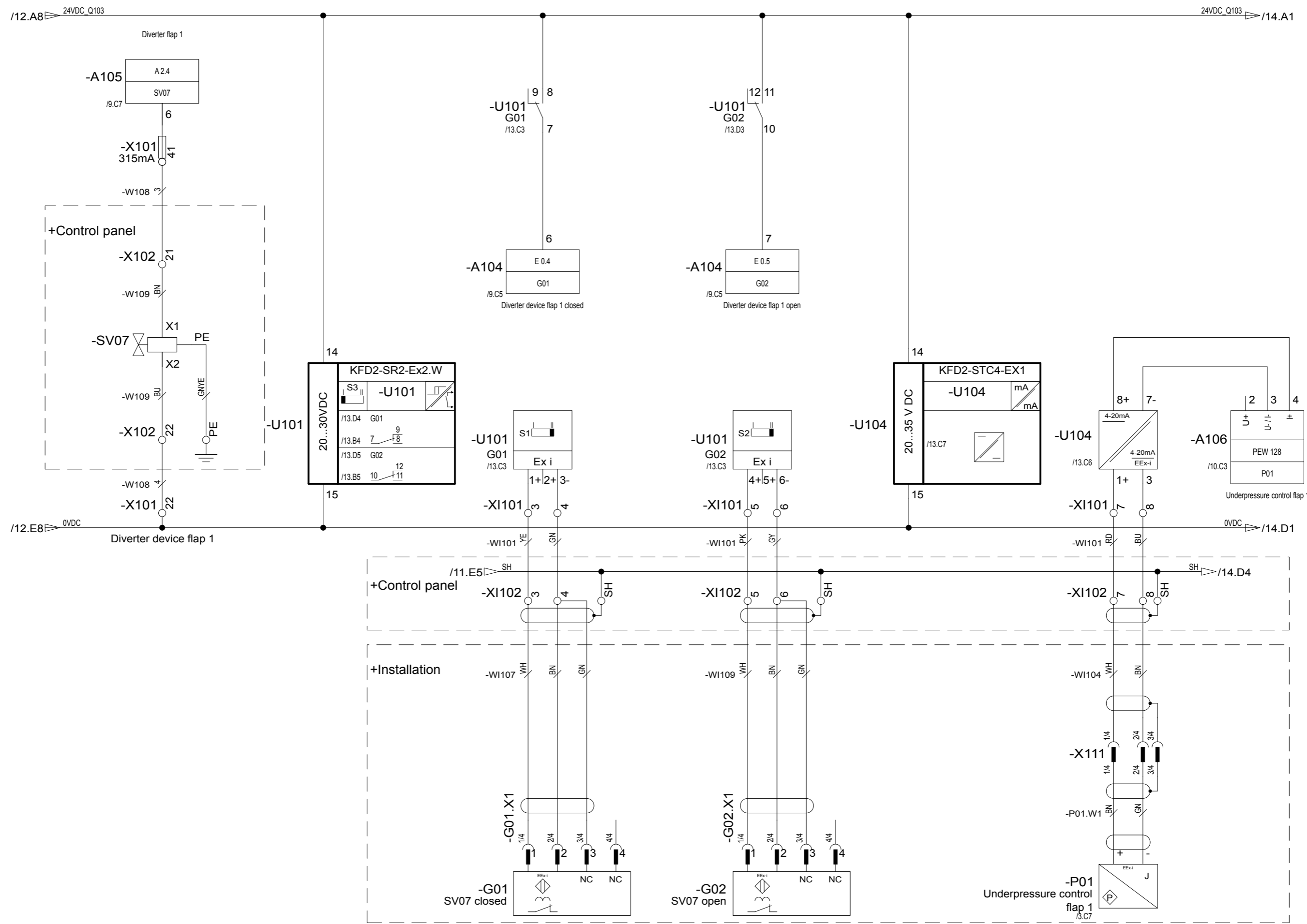
A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE				Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.	Repl. by			

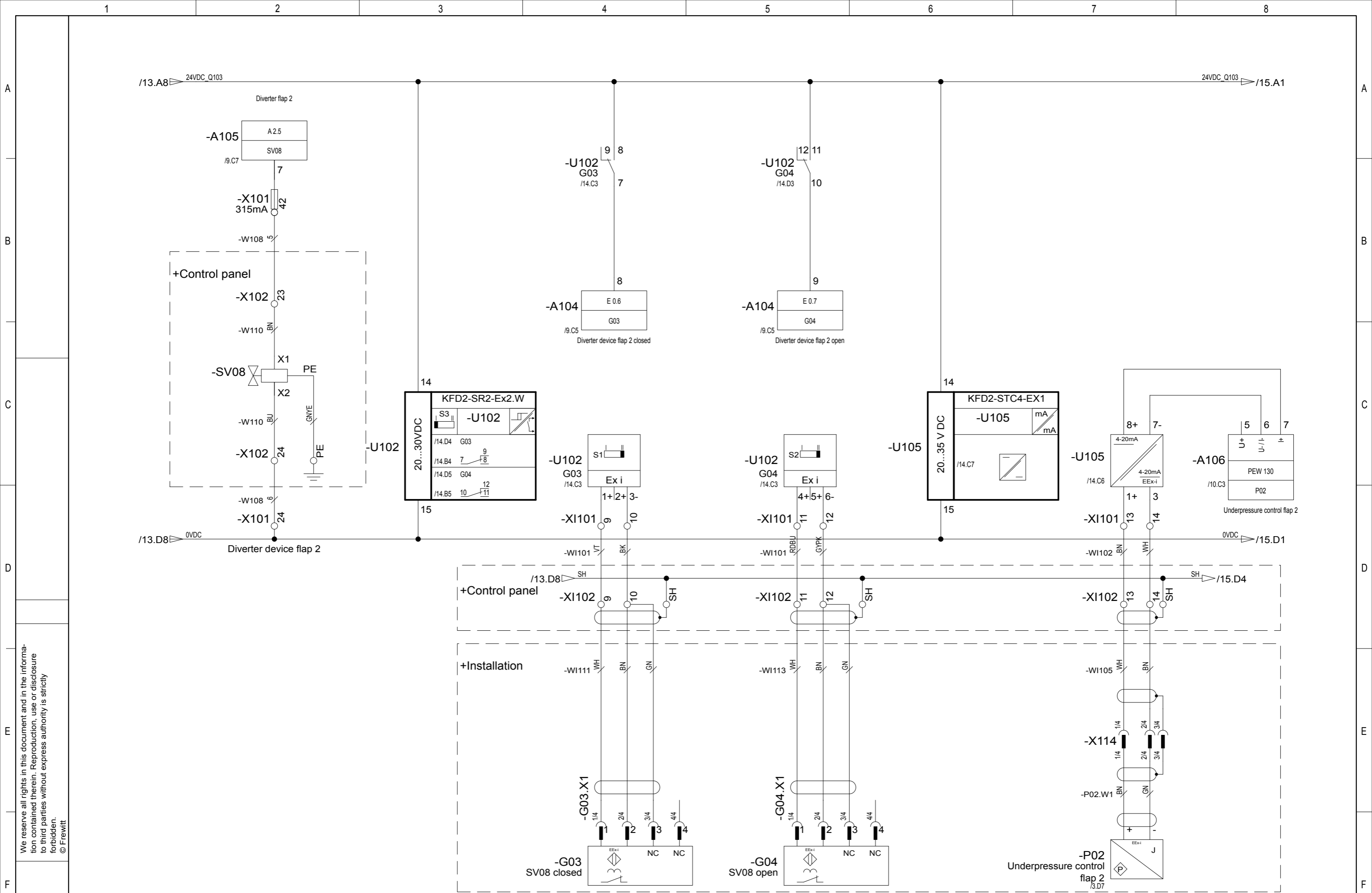
**03 - Electrical diagram
PTS**

Type : PF - Installation		+Electrical cabinet	
473827		Page 12 / 39	

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt



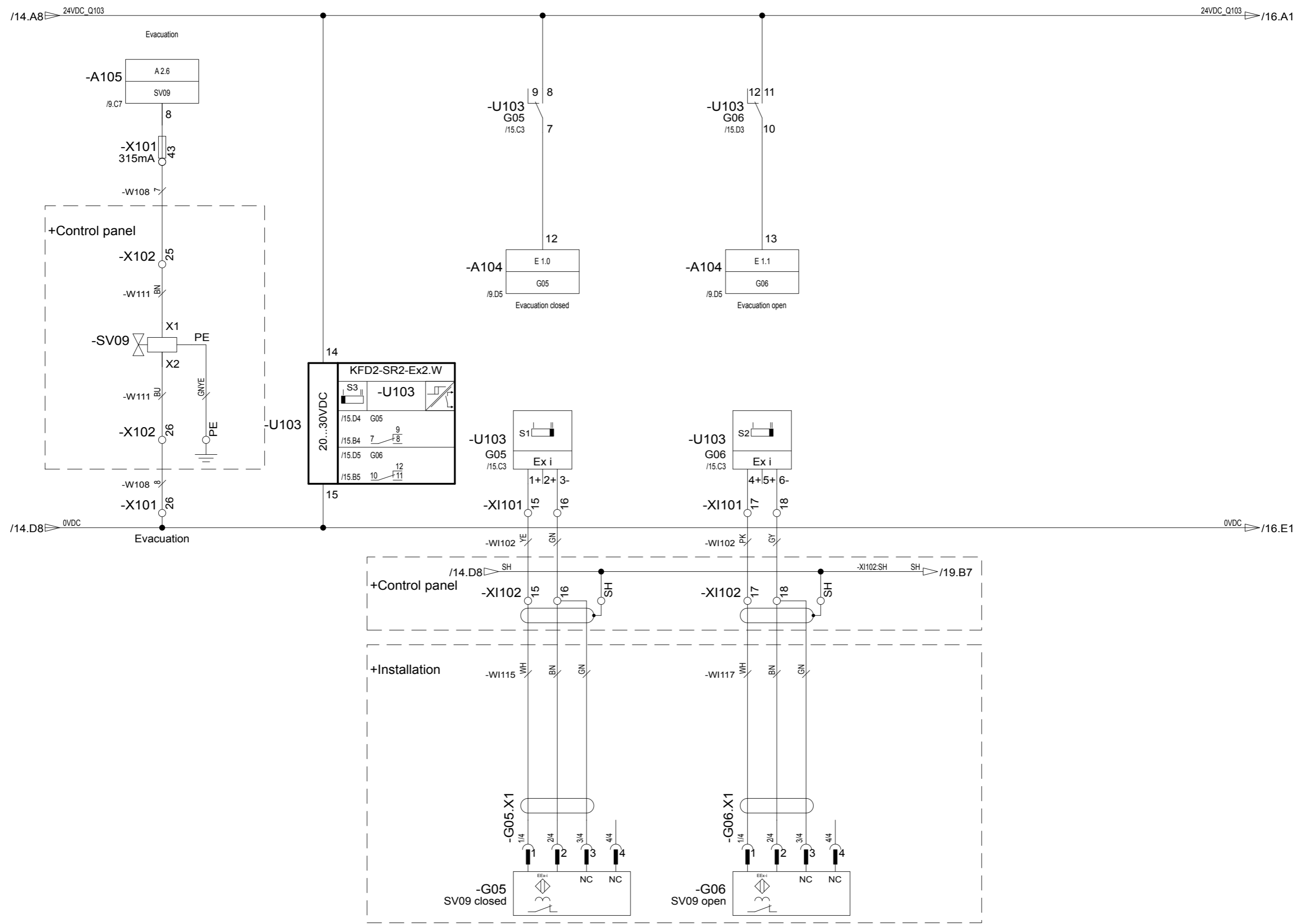
A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Diverter device	Type : PF - Installation	473827	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha							13 / 39
Status	Change	Date	Name	Standard	Origin							Repl. f.	Repl. by



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Diverter device	Type : PF - Installation	473827	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha							14 / 39
Status	Change	Date	Name	Standard	Origin							Repl. f.	Repl. by

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt



A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	Origin

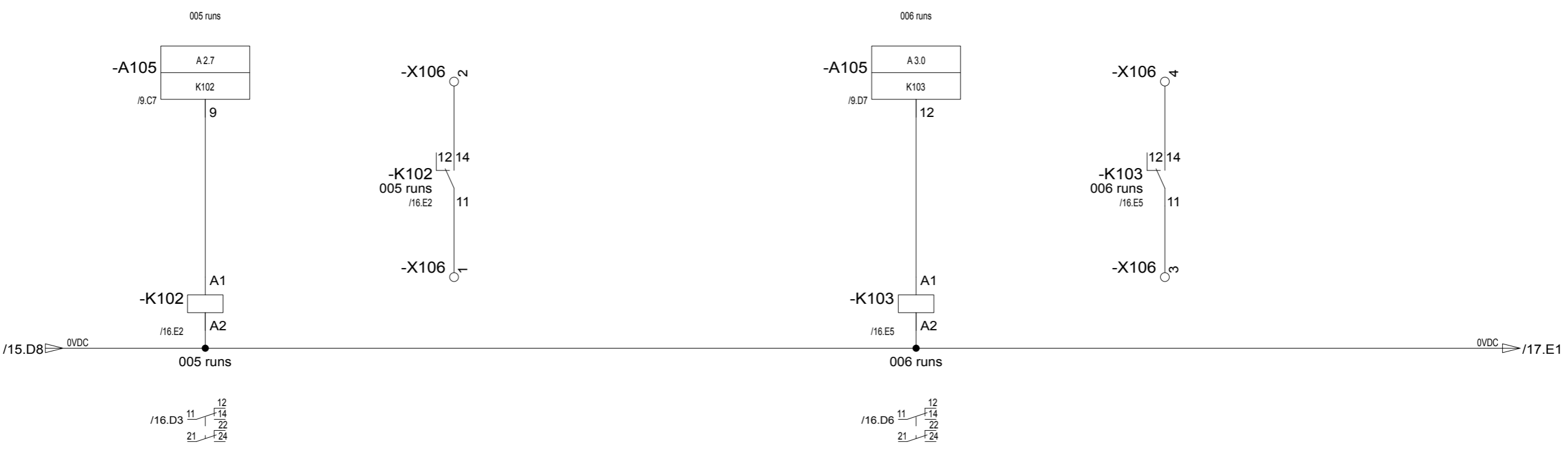
Novartis Singapore, SG-Singapore
PRO-14-0013
400V,50Hz,3P+N+PE

FREWITT
Frewitt SA: Milling and Handling of Powders
P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewitt.com / www.frewitt.com

03 - Electrical diagram Evacuation

Type : PF - Installation
473827
Page 15 / 39

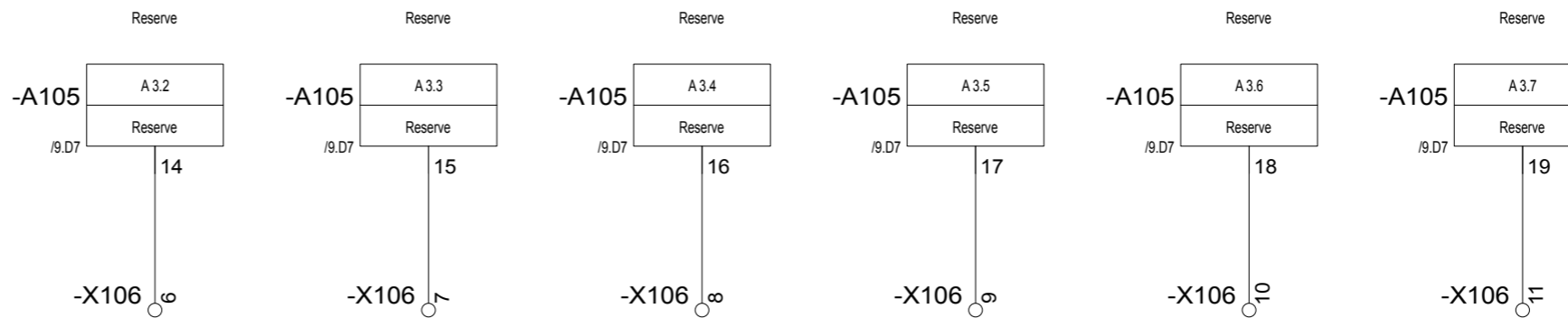
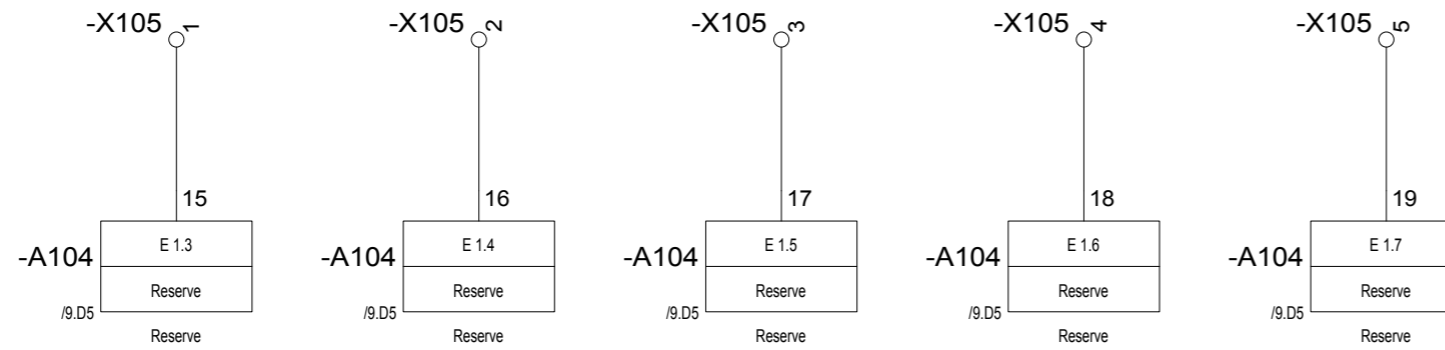
/15.A8 24VDC_Q103 24VDC_Q103 /17.A1



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram PTS	Type : PF - Installation		Page 16 / 39
B	Project closure	16.05.2014	vri	User	phha				+Electrical cabinet		
				Proved	phha				473827		
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by				

/16.A8 24VDC_Q103 24VDC_Q103 /18.A1

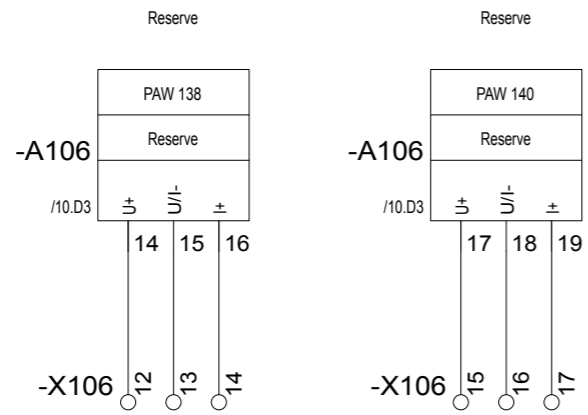
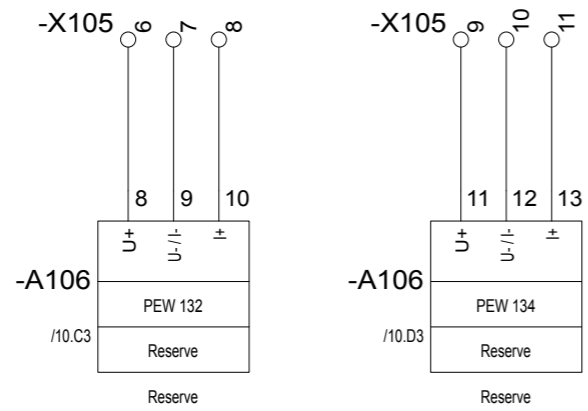


/16.E8 0VDC 0VDC /18.E1

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram PLC Reserve	Type : PF - Installation	473827	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha								17 / 39
Status	Change	Date	Name	Standard	Origin								Repl. f.	Repl. by

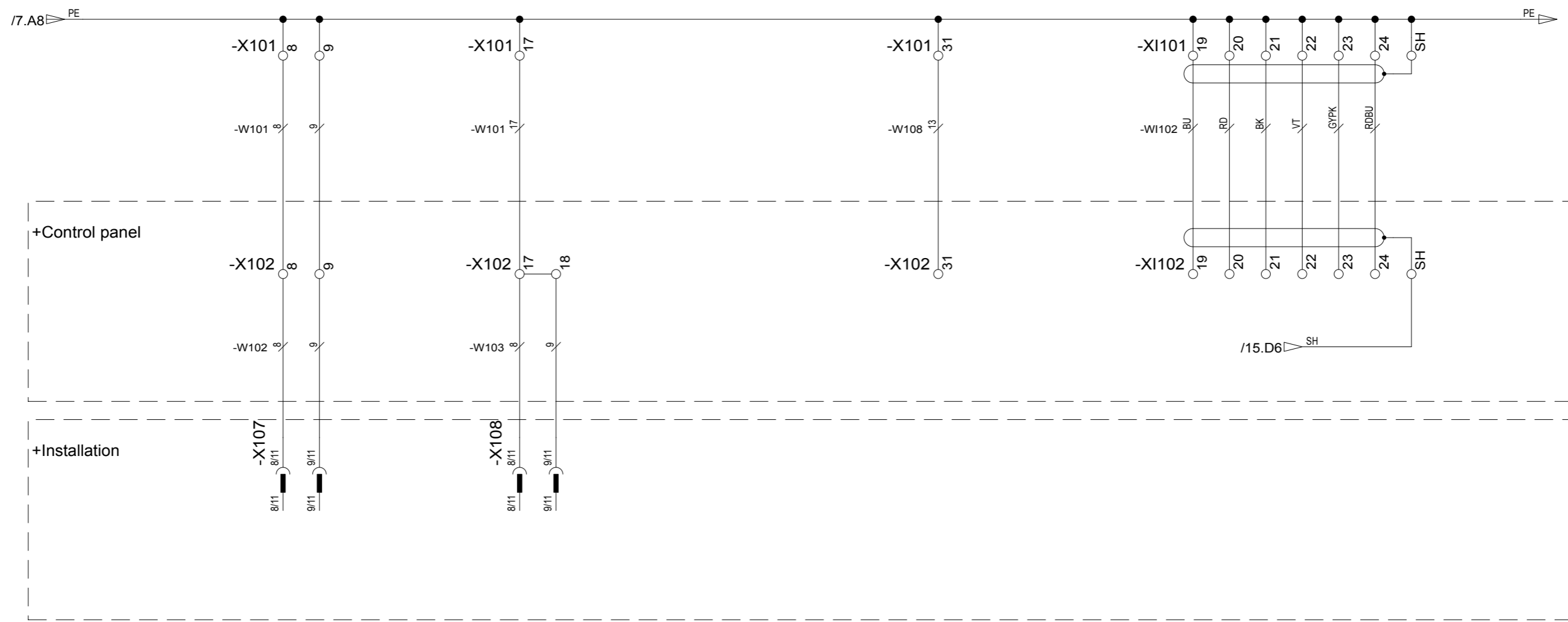
/17.A8 24VDC_Q103 24VDC_Q103



/17.E8 0VDC 0VDC

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram PLC Reserve	Type : PF - Installation		+Electrical cabinet	Page 18 / 39
B	Project closure	16.05.2014	vri	User	phha				473827			
				Proved	phha							
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by					



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Spare Cable	Type : PF - Installation	+Electrical cabinet	Page
B	Project closure	16.05.2014	vri	User	phha						
				Proved	phha						
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by	473827			19 / 39

A B C D E F

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt


Terminal strip -X100

Cable type	Cable designations	Placement in Schematics	Target Internal	Jumpers	Terminal number	Potential	Target External
		/6.C1	:1		PE L1	L1	
		/6.C1	:3		L2	L2	
		/6.C1	:5		L3	L3	
		/6.C2	:N		N	N	
		/6.C2		●	PE	PE	
		/6.B1	:2		L4	L1	
		/6.B1	:4		L5	L2	
		/6.B1	:6		L6	L3	
		/6.B2	:N		N	N	
		/6.B2		●	PE	PE	

Terminal UK 6 N [L1 - L6]
Terminal UK 6 N BU [N - N]
Terminal USLKG 6 N [PE - PE]

Terminal type

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	
Origin	Repl. f.	Repl. by	

**04 - Terminals Block
Terminals Block
-X100**

Type : PF - Installation
473827

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

Terminal strip -X101

Cable type	Cable designations	Target External	Potential	Terminal number	Jumpers	Target Internal	Placement in Schematics
Min. 18G0.5	-W101			PE			
Min. 14G0.5	-W108			1			
		+Control panel -X102	:2 0VDC	2	●		/12.E2
		+Control panel -X102	:3 24VDC_Q103	3	●		/12.D5
		+Control panel -X102	:4	4	●	+Electrical cabinet -A104	/12.D5
	GNVE	+Control panel -X102	:PE	PE	●	+Electrical cabinet -PE1	/12.E3
		+Control panel -X102	:5 0VDC	5			/12.D5
		+Control panel -X102	:6	6			/12.D5
		+Control panel -X102	:7 0VDC	7	●		/12.D5
		+Control panel -X102	:8 PE	8	●		/19.A2
		+Control panel -X102	:9 PE	9	●		/19.A3
				10			
		+Control panel -X102	:11 0VDC	11	●		/12.E4
		+Control panel -X102	:12 24VDC_Q103	12	●	+Electrical cabinet -A104	/12.D7
		+Control panel -X102	:13	13			/12.D7
		+Control panel -X102	:14 0VDC	14			/12.D7
		+Control panel -X102	:15	15			/12.D7
		+Control panel -X102	:16 0VDC	16	●		/12.D7
		+Control panel -X102	:17 PE	17	●		/19.A3
				18			
		+Control panel -X102	:19 24VDC_Q104	19			/9.B3
		+Control panel -X102	:20 0VDC	20	●		/9.B4
	GNVE	+Control panel -X102	:PE	PE	●	+Electrical cabinet -PE1	/9.B4
				21			
		+Control panel -X102	:22 0VDC	22	●		/13.D2
		+Control panel -X102	:24 0VDC	24	●		/14.D2
				23			
		+Control panel -X102	:26 0VDC	26	●		/15.D2
		+Control panel -X102	:27 24VDC_Q103	27			/8.B6
		+Control panel -X102	:28	28		+Electrical cabinet -A104	/8.C6
		+Control panel -X102	:29	29		+Electrical cabinet -A105	/8.C7
		+Control panel -X102	:30 0VDC	30			/8.E7
		+Control panel -X102	:31 PE	31	●		/19.A5
				32			
		+Control panel -X102	:1	39			/12.B2
		+Control panel -X102	:10	40			/12.B4
		+Control panel -X102	:21	41			/13.B2
		+Control panel -X102	:23	42			/14.B2

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore
PRO-14-0013
400V,50Hz,3P+N+PE



Frewitt SA: Milling and Handling of Powders
P.O.B. 615, CH-1701 Fribourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewitt.com / www.frewitt.com

04 - Terminals Block
Terminals Block
-X101

Type : PF - Installation	+Electrical cabinet
473827	Page 21 / 39

Terminal UKK 3 [1 - 32]
Terminal UK5-HESI 3004100_2 [39 - 42]
Terminal UKK 5-PE [PE - PE]

Terminal type

A B C D E F

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

Terminal strip -X106

Cable type	Cable designations	Placement in Schematics	Target Internal	Target External	Jumpers	Terminal number	Potential
						PE	
		/16.D3	:11			1	
		/16.D3	:14			2	
		/16.D6	:11			3	
		/16.D6	:14			4	
						5	
		/17.D3	:14			6	
		/17.D4	:15			7	
		/17.D5	:16			8	
		/17.D6	:17			9	
		/17.D7	:18			10	
		/17.D7	:19			11	
		/18.D2	:14			12	
		/18.D2	:15			13	
		/18.D2	:16			14	
		/18.D3	:17			15	
		/18.D3	:18			16	
		/18.D3	:19			17	
						18	
						PE	

Terminal type

Terminal	UKK 3 [1 - 18]	Terminal
Terminal	UKK 5-PE [PE - PE]	Terminal
Terminal		Terminal

A	Initial version	19.02.2014	phha	Date	19.02.2014
B	Project closure	16.05.2014	vri	User	phha
				Proved	phha
Status	Change	Date	Name	Standard	

Novartis Singapore, SG-Singapore
PRO-14-0013
400V,50Hz,3P+N+PE

Frewitt SA: Milling and Handling of Powders
P.O.B. 615, CH-1701 Fribourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewitt.com / www.frewitt.com

04 - Terminals Block Terminals Block -X106	Type : PF - Installation 473827	+Electrical cabinet Page 28 / 39
---	--	---

1		2		3		4		5		6		7		8	
<div style="display: flex; justify-content: space-between;"> <div style="width: 10%;"> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. © Frewitt</p> </div> <div style="width: 80%; text-align: center;"> <h1>Terminal strip -XI102</h1> </div> <div style="width: 10%;"></div> </div>															
Cable type	Cable designations														
	Placement in Schematics	/15.D5	/15.D5	/15.D5	/19.B6	/19.B7	/19.B7	/19.B7	/19.B7	/19.B7	/19.B7				
	Target Internal	+Electrical cabinet -XI101 :17	+Electrical cabinet -XI101 :18		+Electrical cabinet -XI101 :19	+Electrical cabinet -XI101 :20	+Electrical cabinet -XI101 :21	+Electrical cabinet -XI101 :22	+Electrical cabinet -XI101 :23	+Electrical cabinet -XI101 :24					
	Jumpers														
	Terminal number	17	18		19	20	21	22	23	24	PE	SH	SH	SH	SH
	Potential				PE	PE	PE	PE	PE	PE		SH	SH	SH	SH
	Target External	+Installation -G06.X1 :1	+Installation -G06.X1 :2	+Installation -G06.X1 :3											
	Cable type	Cable designations													
	DIN CY 3x0.25	-WI117	WH	BN	GN							SH			
	Min. 6x2x0.75	-WI101											SH		
	Securaflex 1x2x0.75	-WI103												SH1	
	DIN CY 3x0.25	-WI107													SH1
	DIN CY 3x0.25	-WI109													SH
	Securaflex 1x2x0.75	-WI104													
	DIN CY 3x0.25	-WI111													SH1
	DIN CY 3x0.25	-WI113													SH1

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	04 - Terminals Block Terminals Block -XI102		Type : PF - Installation 473827		+Control panel	
B	Project closure	16.05.2014	vri	User	phha								Page	
Status	Change	Date	Name	Standard	Origin				Repl. f.	Repl. by			33 / 39	

Terminal UK 3 NBU [17 - 24 , SH - SH]
Terminal USLKG 3 [PE]
Terminal

Terminal type


Min. 6x2x0.75		-WI102											
		Cable type		Cable designations									
				Placement in Schematics				/14.D7		/15.D4		/15.D6		/19.B7
Target Internal													
		Jumpers				● ● ● ●							
		Terminal number		SH		SH		SH		SH			
		Potential		SH		SH		SH		SH			
Target External													
Cable type		Cable designations											
Securaflex 1x2x0.75		-WI105				SH							
DIN CY 3x0.25		-WI115				SH1							
DIN CY 3x0.25		-WI117				SH1							

Terminal strip -XI102

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

Terminal UK 3 NBU [SH - SH]
Terminal
Terminal

Terminal type

A		Initial version		19.02.2014		phha		Date		19.02.2014		Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		04 - Terminals Block Terminals Block -XI102		Type : PF - Installation 473827		+Control panel		Page	
B		Project closure		16.05.2014		vri		User		phha												34 / 39	
Status		Change		Date		Name		Standard		Origin		Repl. f.		Repl. by									

Bill of material

Article Number	Description	Manufacturer	Reference	Device	Quantity
418213	CPU	SIEMENS	6ES7 315-2AH14-0AB0 / Serial nbr : C-E2V15777	-A102	1
428608	Memory card	SIEMENS	6ES7 953-8LG30-0AA0	-A102	1
456668	Operator panel	SIEMENS	6AV6 647-0AC11-3AX0	-A103	1
418216	Digital input module	SIEMENS	6ES7 321-1BH02-0AA0 / Serial nbr : C-E2TD2525	-A104	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A104	1
418217	Digital output module	SIEMENS	6ES7 322-1BH01-0AA0 / Serial nbr : C-E2TB8050	-A105	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A105	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A106	1
418221	Analog I/O module	SIEMENS	6ES7 334-0CE01-0AA0 / Serial nbr : C-E1VW1916	-A106	1
460068	Communication processor	SIEMENS	6AG1343-1EX30-4XE0 / Serial nbr : 4LBED369005	-A107	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G01	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G01	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G01.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G01.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G02	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G02	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G02.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G02.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G03	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G03	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G03.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G03.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G04	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G04	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G04.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G04.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G05	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G05	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G05.X1	1

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	05 - Bill of material	Type : PF - Installation	473827	Page 35 / 39
B	Project closure	16.05.2014	vri	User	phha						
				Proved	phha						
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by				

Bill of material

Article Number	Description	Manufacturer	Reference	Device	Quantity
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G05.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-N0-V1	-G06	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G06	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G06.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G06.X1	1
473759	Détecteur de proximité à ultrasons	WAYCON	P43-T4Y-2D-001-200EEX	-G07	1
473759	Détecteur de proximité à ultrasons	WAYCON	P43-T4Y-2D-001-200EEX	-G08	1
456667	Power supply	SIEMENS	6EP1 333-3BA00 / Serial nbr : YSU/E2138307	-G101	1
452578	Watchdog relay	ABB	CM-WDS	-K101	1
456536	Relay	SIEMENS	LZS:RT4A4L24	-K102	1
456536	Relay	SIEMENS	LZS:RT4A4L24	-K103	1
418219	Rail	SIEMENS	6ES7390-1AE80-0AA0	-MR102	1
427997	Indicating lamp	SCHNEIDER ELECTRIC	XB4-BVB4	-P4	1
464937	Pressure transmitter	WIKA	IS-20-S	-P01	1
464936	Pressure transmitter	WIKA	IS-20-S	-P02	1
458154	Pressure switch	UNIVER	405 002 112 11	-P03	1
456655	Main switch	SIEMENS	3LD2203-1TL53	-Q101	1
457098	Protection switch	SIEMENS	5SY6 206-7 / Serial nbr : 6B10963A	-Q102	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q103	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q104	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q105	1
407798	Selector switch	SCHNEIDER ELECTRIC	XB4-BD21	-S1	1
409597	Auxiliary contact	SCHNEIDER ELECTRIC	ZBE-102	-S1	1
-	Solenoid valve	NASS MAGNET	1215 30.1-00/6896	-SV05	1
-	Solenoid valve	NASS MAGNET	1215 30.1-00/6896	-SV06	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U101	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U102	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U103	1
465586	Transmitter supply isolator	PEPPERL+FUCHS	KFD2-STC4-EX1	-U104	1


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	05 - Bill of material	Type : PF - Installation	473827	Page 36 / 39
B	Project closure	16.05.2014	vri	User	phha							
			Proved	phha								
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by					

Bill of material

Article Number	Description	Manufacturer	Reference	Device	Quantity
465586	Transmitter supply isolator	PEPPERL+FUCHS	KFD2-STC4-EX1	-U105	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U106	1
435710	Cable	HEINIGER	888 830 103 / TT flex 10G0.5	-W102	1
435710	Cable	HEINIGER	888 830 103 / TT flex 10G0.5	-W103	1
432309	Connector	SIEMENS	6ES7 972-0BB52-OXA0	-W107	2
437759	Cable	SIEMENS	6XV1830-OEN50	-W107	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W109	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W110	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W111	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W112	1
411612	Cable	HEINIGER	888 802 023 / TT flex CEE 2x1	-W114	1
411612	Cable	HEINIGER	888 802 023 / TT flex CEE 2x1	-W115	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W117	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W118	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-WI103	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-WI104	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-WI105	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI107	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI109	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI111	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI113	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI115	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-WI117	1
456539	Terminal	PHOENIX CONTACT	3001501	-X0V-PTS	8
456541	Terminal	PHOENIX CONTACT	0441083	-X0V-PTS	2
456539	Terminal	PHOENIX CONTACT	3001501	-X24V-PTS	8
456541	Terminal	PHOENIX CONTACT	0441083	-X24V-PTS	1
456540	Terminal	PHOENIX CONTACT	3004524	-X100	6
456542	Terminal	PHOENIX CONTACT	0442079	-X100	3

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

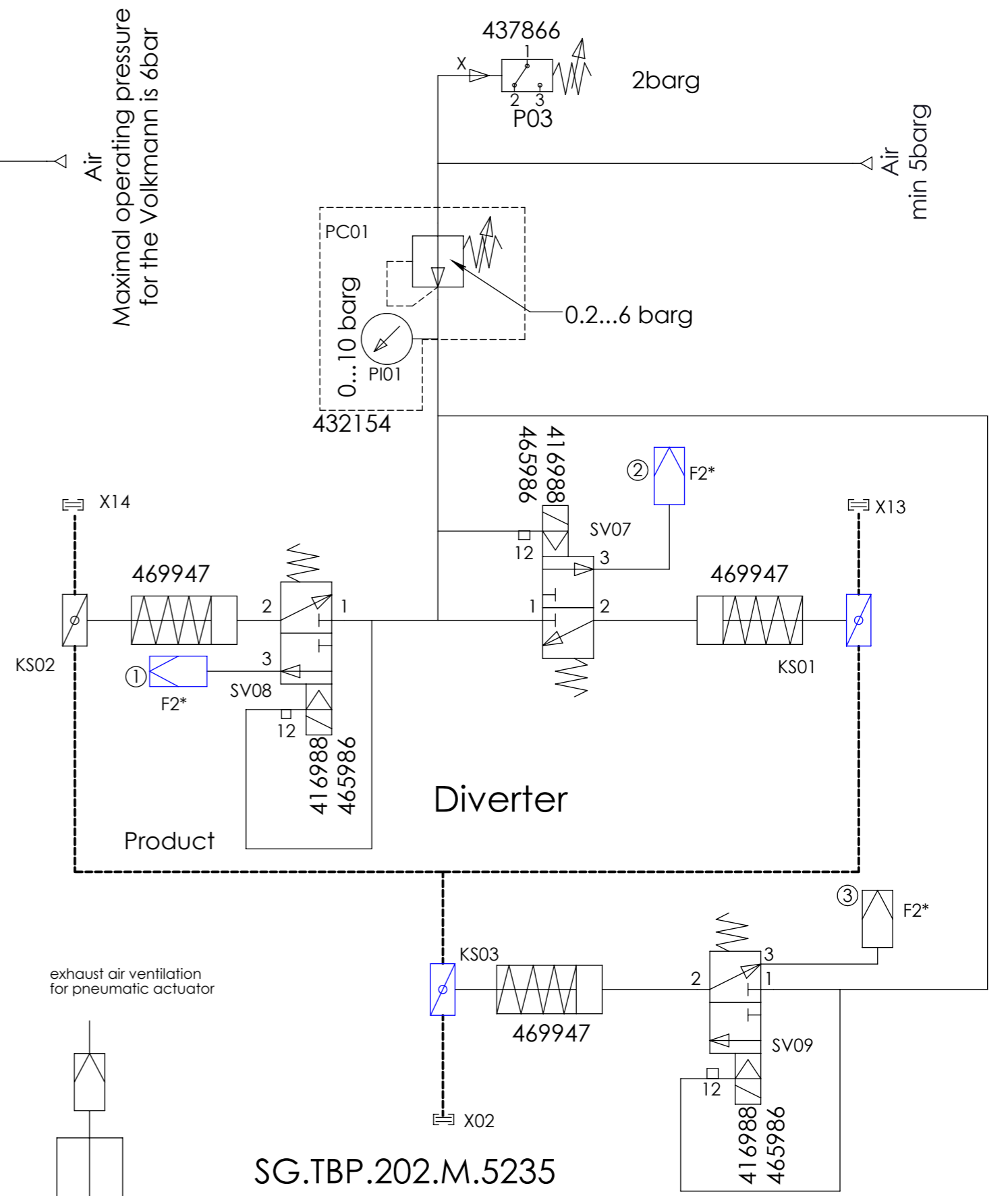
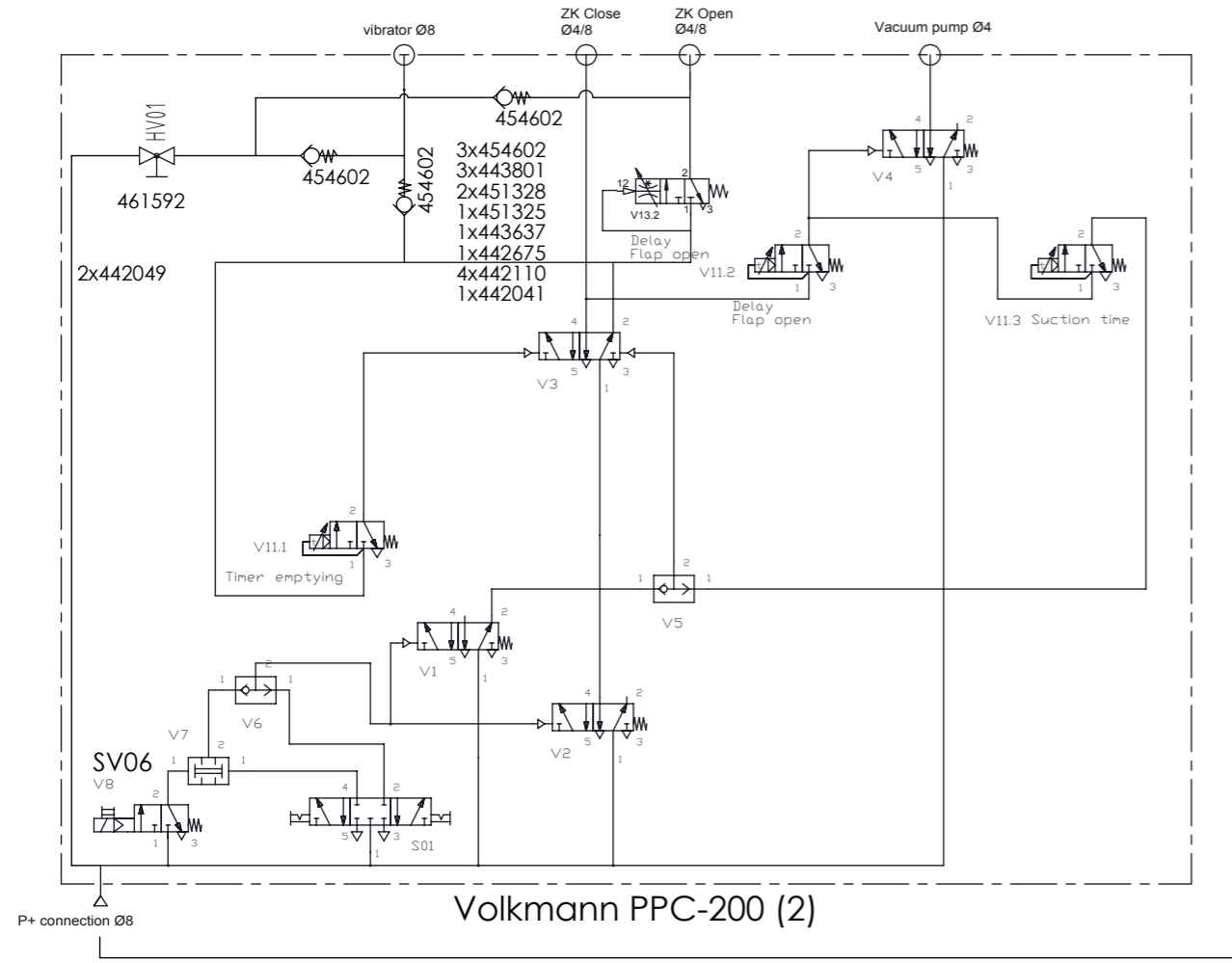
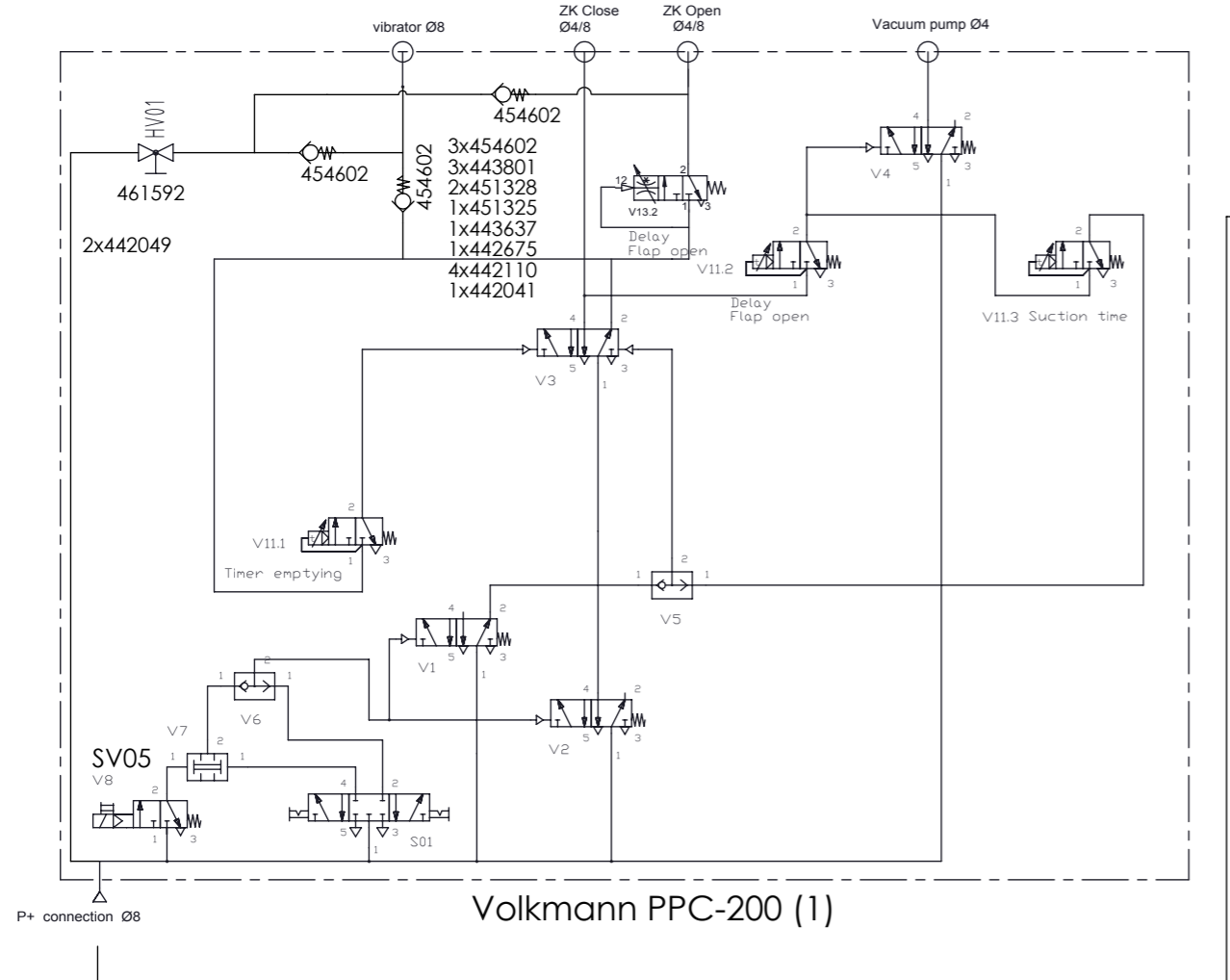
A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	05 - Bill of material	Type : PF - Installation	473827	Page 37 / 39
B	Project closure	16.05.2014	vri	User	phha							
			Proved	phha								
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by					

Bill of material

Article Number	Description	Manufacturer	Reference	Device	Quantity
457042	Terminal	PHOENIX CONTACT	3004977	-X100	2
414554	Fuse Terminal	PHOENIX CONTACT	UK5-HESI	-X101	5
456543	Terminal	PHOENIX CONTACT	2770011	-X101	16
456544	Terminal	PHOENIX CONTACT	2774211	-X101	3
456539	Terminal	PHOENIX CONTACT	3001501	-X102	31
456541	Terminal	PHOENIX CONTACT	0441083	-X102	8
456539	Terminal	PHOENIX CONTACT	3001501	-X103	1
456541	Terminal	PHOENIX CONTACT	0441083	-X103	2
456548	Terminal	PHOENIX CONTACT	3001514	-X103	1
456539	Terminal	PHOENIX CONTACT	3001501	-X104	2
456541	Terminal	PHOENIX CONTACT	0441083	-X104	2
456548	Terminal	PHOENIX CONTACT	3001514	-X104	2
456543	Terminal	PHOENIX CONTACT	2770011	-X105	6
456544	Terminal	PHOENIX CONTACT	2774211	-X105	2
456543	Terminal	PHOENIX CONTACT	2770011	-X106	9
456544	Terminal	PHOENIX CONTACT	2774211	-X106	2
409778	Male connector	HARTING	09 33 010 2601	-X107	1
409952	Female connector	HARTING	09 33 010 2701	-X107	1
435987	Hood	HARTING	19 30 010 1521	-X107	1
435988	Hood protection cover	HARTING	09 30 010 5423	-X107	1
436423	Housing	HARTING	09 30 010 0301	-X107	1
436425	Housing protection cover	HARTING	09 30 010 5425	-X107	1
409778	Male connector	HARTING	09 33 010 2601	-X108	1
409952	Female connector	HARTING	09 33 010 2701	-X108	1
435987	Hood	HARTING	19 30 010 1521	-X108	1
435988	Hood protection cover	HARTING	09 30 010 5423	-X108	1
436423	Housing	HARTING	09 30 010 0301	-X108	1
436425	Housing protection cover	HARTING	09 30 010 5425	-X108	1
406308	Protection cap	AMPHENOL	C016 00U000 010 12	-X111	1

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

A	Initial version	19.02.2014	phha	Date	19.02.2014	Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE	 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Erlibourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com	05 - Bill of material	Type : PF - Installation		Page 38 / 39
B	Project closure	16.05.2014	vri	User	phha				473827		
			Proved	phha							
Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by				



Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL :	Scale	Similar	Designed	24/01/2014	thle	
	up to	6	30	120	400	1000							2000
	Machining: ISO 2768-m	±0.10	±0.20	±0.30	±0.50	±0.80							±1.20	470264	Controlled	24/01/2014	thle
Welding Assembly: ISO 2768-c	±0.30	±0.50	±0.80	±1.20	±2.00	±3.00		Weight [kg]	Revised	24/01/2014	thle		
PTS Pneumatic PTS-200								A3		Atex			
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.								FREWITT SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		473528-SCH		Page	Ver.
										1/1	A		

Pneumatics 473528_A










Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Quantité Menge Quantity	Unité Einheit Unit	No Dessin Zeichnungs-Nr Drawing ID
. 451315	L-connector FF, NPFB-L-R38-G38-MF, 547725	1	Pce	473528
. 451295	T-Connector FFF, NPFB-T-3G38-F, 547747	3	Pce	473528
. 451330	Double nipple met. NPFB-D-2G38-M, 547806	2	Pce	473528
. 451322	Reducing nipple met. FM NPFB-R-G38-G14-FM, 547834	2	Pce	473528
. 437866	Pressure switch 1-10bar/42V G1/4,IP65,1.4305, 0196 458 03 1 006	1	Pce	473528
. 432154	Air line regulator G 1/4 0.2-6 bar	1	Pce	473528
. 451329	Double Nipple NPFB-D-2G14-M, 547803	2	Pce	473528
. 451294	T-connector FFF, NPFB-T-3G14-F, 547746	2	Pce	473528
. 442193	Connection CRQS-1/4-8, 162864	3	Pce	473528
. 451313	L-Connector FF, NPFB-L-R14-G14-MF, 547724	1	Pce	473528
. 416988	Distributor el-pn 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	3	Pce	473528
. 465986	Coil 24VDC IP65 MSFG-24/42-50/60	3	Pce	473528
. 461592	Valve MV 48 06 06 MB 3	2	Pce	473528
. 442049	Union QS-B-8-6-20, 130970	4	Pce	473528
. 454602	Non return valve H H-1/8-A/I - 3324	6	Pce	473528
. 442041	Coude union QSL-B-8-20, 130952	4	Pce	473528
. 443801	T-connector FFF, NPFB-T-3G18-F, 547745	6	Pce	473528
. 451328	Double nipple met. NPFB-D-2G18-M, 547800	4	Pce	473528
. 451325	SleeveQM-1/8-1/8, 2254	2	Pce	473528
. 443637	Push-in-fitting QS-b-1/8-8L, 153015	2	Pce	473528
. 442075	Push-in L-fitting QSL-B-1/8-6-20, 130927	2	Pce	473528
. 442110	Push-in L-fitting QSL-B-1/8-8-20, 130928	8	Pce	473528

Voir documents suivants.

Siehe folgende Dokumente.

See following documents

technical Datasheets - PPC-200VS PRO-12-0235 [155911 - 1.1]

-  Technical Datasheet 460043 <Connection> [118814 - 1.1]
-  _Op. instructions Sensors - TURK [124061 - 1.1]
-  EPDM-J-8129 - antistatique <Johannsen> [151966 - 1.1]
-  Techn.data Univer -R.00/R.01 1/4 [17142 - 0.1]
-  technical Datasheet Regulator with manometer [17522 - 0.1]
-  Pressostat 1-10bar / 42V, G1/4, IP65, 1.4305 [17880 - 0.1]
-  432322 Pressostat stainless serie 0196/0197 [22926 - 0.1]
-  techn.data 7959 MFH-3-1/4-S [158024 - 1.1]
-  Techn.Data - trigress [123007 - 1.1]

Raccordement process stérile, séparateurs tubulaires Clamp, types 981.22, 981.52 et 981.53

Doc No: 118814-1

Notice technique WIKA DS 98.52



Applications

- Pour montage et démontage directs et rapides
- Pour fluides purs et/ou en écoulement
- Industrie alimentaire
- Industrie biochimique et pharmaceutique, production d'agents actifs
- Lignes d'émaillage

Particularités

- Membrane 100% cylindrique (Europ. Pat. No. 0609846) pour éviter les volumes morts
- Autonettoyage dans toutes les positions de montage
- Nettoyage rapide au point de mesure sans résidus
- Adapté pour SIP et CIP

Description

Raccordement process

Type 981.22: Tri-clamp
Type 981.52: Clamp selon DIN 32 676
Type 981.53: Clamp selon ISO 2852
Diamètres (DN) voir tableau page 3

Pression nominale

PN 40 bar pour DN 8 ... DN 50 resp. DN 1/2" ... DN 2"
PN 25 à partir de DN 65 resp. DN 2 1/2"

Etendues de mesure adaptées

0 ... 0.6 bar jusqu'à 0 ... 25 resp. 40 bar

Matériau des parties en contact avec le fluide

Acier inox 1.4435 (AISI 316L)

Raccordement instrument

Manomètres soudés directement, transm. vissé sur adaptateur

Liquide de remplissage

KN 59 Neodee M-20, agréé FDA, certifié Kasher et Halal



Séparateur tubulaire, raccordement Clamp type 981.22 avec manomètre type 232.50 diamètre 100



Séparateur tubulaire, raccordement Clamp type 981.52 avec transmetteur de pression type S-10

Options

Raccordement process

- Autres diamètres (DN) et raccords selon Südmo, BBS et raccords process hygiéniques supplémentaires sur demande

Pression nominale

- Pression nominale plus élevée sur demande

Matériau des parties en contact avec le fluide

- Acier inox 1.4435 électropoli
- Matériaux spéciaux sur demande

Joint d'étanchéité

- Matériau NBR, PTFE ou EPDM

Montage instrument de pression

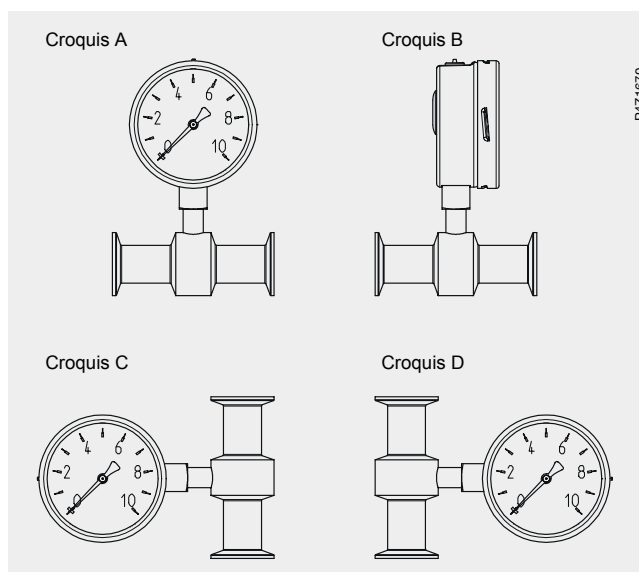
- Montage direct du transmetteur de pression
- Montage direct du manomètre, tuyauterie horizontale, merci de préciser: axe de l'aiguille perpendiculaire à l'écoulement (croquis A) ou parallèle (croquis B)
- Montage direct du manomètre, tube vertical, merci de préciser: appareil du côté gauche (croquis C) ou du côté droit (croquis D)
- Montage transmetteur de press. par élément de refroidiss.
- Montage par élément de refroidissement, tuyauterie horizontale; merci de préciser: axe de l'aiguille perpendiculaire à l'écoulement (croquis A) ou parallèle (croquis B)
- Montage par élément de refroidissement, tuyauterie verticale, merci de préciser: appareil du côté gauche (croquis C) ou du côté droit (croquis D)
- Montage par capillaire, merci de préciser à la commande: longueur du capillaire

Liquide de remplissage

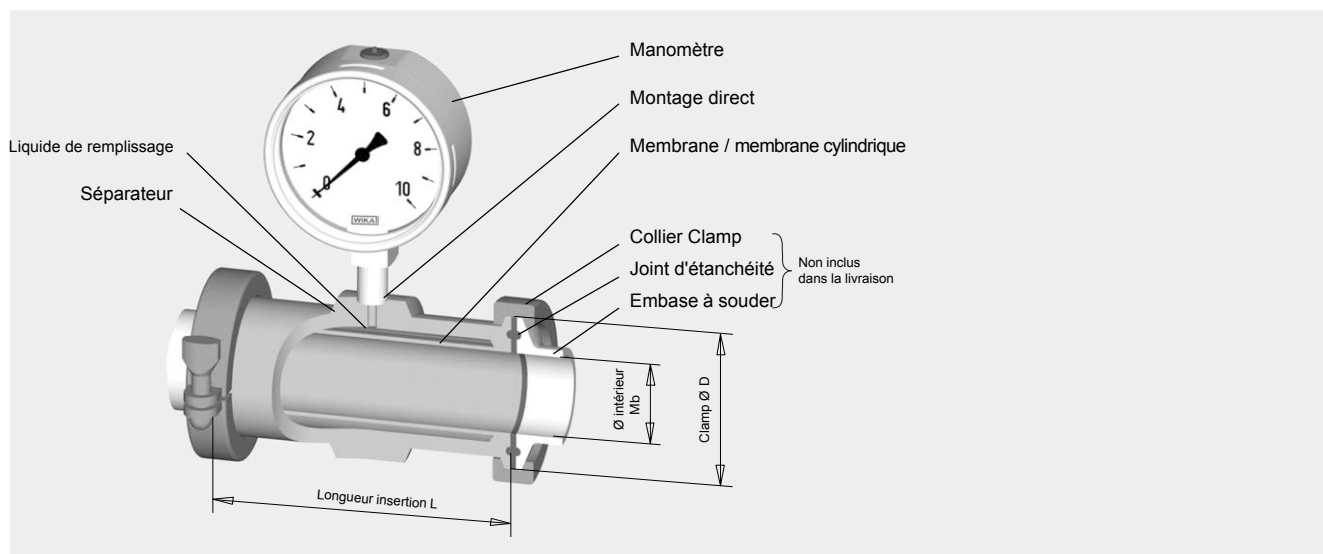
- KN 7 Glycerine, agréé FDA
- KN 12 Glycerine/eau, agréé FDA

Exécution spéciale

- Système de mesure adapté pour autoclavage, sur demande



**Exemple de montage sur tuyauterie d'un séparateur
type 981.22 monté directement avec manomètre**



Dimensions (mm)

Type 981.22

Tri-clamp pour tuyauterie selon ISO 1127

DN	Pour tuyauterie Ø extérieur x épaisseur	PN 1)	Dimensions (mm)		
			L	D	Mb
8	13.5 x 1.6	40	114	25	10.3
10	17.2 x 1.6	40	114	25	14.0
15	21.3 x 1.6	40	114	34	18.1
20	26.9 x 1.6	40	114	50.5	23.7
25	33.7 x 2	40	114	50.5	29.7
32	42.4 x 2	40	146	50.5	38.4
40	48.3 x 2	40	146	64	44.3
50	60.3 x 2	40	156	77.5	56.3
65	76.1 x 2	25	156	91	72.1

Tri-clamp pour tuyauterie selon BS4825 Part 3 et tube O.D.

DN	Pour tuyauterie Ø extérieur x épaisseur	PN 1)	Dimensions (mm)		
			L	D	Mb
1/2"	12.7 x 1.6	40	114	25	9.55
3/4"	19.05 x 1.6	40	114	25	15.7
1"	25.4 x 1.6	40	114	50.5	22.2
1 1/2"	38.1 x 1.6	40	146	50.5	34.9
2"	50.8 x 1.6	40	156	64	47.6
2 1/2"	63.5 x 1.6	25	156	77.5	60.3
3"	76.2 x 1.6	25	156	91	73.0

Tri-clamp pour tuyauterie selon ASME BPE

DN	Pour tuyauterie Ø extérieur x épaisseur	PN 1)	Dimensions (mm)		
			L	D	Mb
1"	25.4 x 1.65	40	114	50.5	22.1
1 1/2"	38.1 x 1.65	40	146	50.5	34.8
2"	50.8 x 1.65	40	156	64	47.5
2 1/2"	63.5 x 1.65	25	156	77.5	60.2
3"	76.2 x 1.65	25	156	91	72.9

1) Considérer la plage de pression du collier Clamp par rapport à l'étendue de mesure

Type 981.52

Clamp DIN 32 676 pour tuyauterie selon DIN 11850

DN	Pour tuyauterie Ø extérieur x épaisseur	PN 1)	Dimensions (mm)		
			L	D	Mb
25	28 x 1	40	114	50.5	26
32	34 x 1	40	146	50.5	32
40	40 x 1	40	146	50.5	38
50	52 x 1	40	156	64	50
65	70 x 2	25	156	91	66
80	85 x 2	25	156	106	81
100	104 x 2	25	156	119	100

Type 981.53

Clamp ISO 2852 pour tuyaut. selon ISO 2037 et BS 4825 Part1

DN	Pour tuyauterie Ø extérieur x épaisseur	PN 1)	Dimensions (mm)		
			L	D	Mb
25	25 x 1.2	40	114	50.5	22.6
28	28 x 1.2	40	114	50.5	25.6
33.7	33.7 x 1.2	25	146	50.5	31.3
38	38 x 1.2	25	146	50.5	35.6
40	40 x 1.2	25	146	64	37.6
51	51 x 1.2	25	156	64	48.6
63.5	63.5 x 1.6	25	156	77.5	60.3
70	70 x 1.6	25	156	91	66.8
76.1	76.1 x 1.6	25	156	91	72.9
88.9	88.9 x 2	25	156	106	84.9
101.6	101.6 x 2	25	156	119	97.6

1) Considérer la plage de pression du collier Clamp par rapport à l'étendue de mesure

Combinaisons possibles

Manomètres à tube manométrique

Le séparateur type 981.22, 981.52 ou 981.53 peut être associé à un manomètre à tube manométrique si les conditions d'utilisation suivantes sont respectées:

- Manomètre monté directement sur séparateur
- Températures autorisées:
Process: +10 ... +150 °C
Ambiante: +10 ... +40 °C

Choix		Raccordement Clamp avec diamètres (DN)				
		... 15 (3/4")	20 ... 28 (1")	32 (1 1/2") ... 51 (2")	63.5 ... 70 (2 1/2")	76.1 (3") ...
Manomètre	Type	23x.50.63	23x.50.63 23x.50.100	23x.50.63 23x.50.100	23x.50.100 23x.30.100	23x.50.100 23x.30.100
Plus basse étendue de mesure		0 ... 6 bar -1 ... 5 bar	0 ... 4 bar -1 ... 3 bar	0 ... 2 bar -1 ... 3 bar	0 ... 1 bar -1 ... 1.5 bar	0 ... 0.6 bar -1 ... 1.5 bar
Surpression admissible (en option)		-	2 x fin d'échelle	2 x fin d'échelle	2 x fin d'échelle	
Contacts inductifs (en option), adaptés en zone 1 et zone 2 (type 831)		-	-	possible	possible	possible

Transmetteurs de pression

Le séparateur type 981.22, 981.52 ou 981.53 peut être associé à un transmetteur de pression type S-10 ou un transmetteur universel type UT-10 si les conditions d'utilisation suivantes sont considérées:

- Transmetteur de pression monté directement sur séparateur
- Températures autorisées:
Process: +10 ... +150 °C
Ambiante: +10 ... +40 °C

Choix		Raccordement Clamp avec diamètres (DN)				
		... 15 (3/4")	20 ... 28 (1")	32 (1 1/2") ... 51 (2")	63.5 ... 70 (2 1/2")	76.1 (3") ...
Plus basse étendue de mesure		0 ... 6 bar	0 ... 2.5 bar	0 ... 1 bar	0 ... 600 mbar	0 ... 400 mbar

D'autres montages et des étendues de mesure plus faibles sont possibles après validation technique par WIKA.

Caractéristiques de commande

Type / Pression nominale (PN) / Standard Tuyauterie / Dimension tuyauterie / Diamètre intérieur / Diamètre du Clamp / Longueur d'insertion / Matériau / Joint d'étanchéité / Montage, si nécessaire longueur du capillaire / Liquide de remplissage / Type de manomètre / Conditions d'utilisation selon questionnaire / Options

Les appareils décrits ci-dessus correspondent de par leur construction, dimensions et matériaux aux règles de l'art actuelles. Nous nous réservons le droit d'en modifier les spécifications.



WIKA Instruments

Parc d'Affaires des Bellevues - "Eragny Parc"
Immeuble Colorado
8 rue Rosa Luxembourg - 95610 Eragny-sur-Oise
BP 80261 - 95615 Cergy Pontoise Cedex
Tél : 01 34 30 84 84 Fax : 01 34 30 84 94
<http://www.wika.fr>



Ultraschallsensor
Reflexionstaster
RUC130-M30-LIAP8X-H1151/3GD
RUC300-M3047-LIAP8X-H1151/3GD
RUC600-M3065-LIAP8X-H1151/3GD

Item No. : 460 244
 Order No. : 10-1335
 Checked : 1. Juni 2010
 Rgb

Betriebsanleitung (Ex-Schutz relevanter Teil)

Die Betriebsanleitung ist mit der beiliegenden allgemeinen Betriebsanleitung D101311 0202 zu verwenden.

Bestimmungsgemäße Verwendung

Dieses Gerät erfüllt die Richtlinie 94/9/EG (ATEX) und ist gemäß EN50021, EN50281-1-1 und EN60947-5-2 geeignet für den Einsatz im explosionsgefährdeten Bereich. Für den bestimmungsgemäßen Betrieb sind die nationalen Vorschriften und Bestimmungen einzuhalten.

Einsatz in explosionsgefährdeten Bereichen gemäß Klassifizierung

II 3 G und II 3 D (Gruppe II, Kategorie 3 G, Betriebsmittel für Gasatmosphäre und Kategorie 3 D, Betriebsmittel für Staubatmosphäre).

Kennzeichnung (siehe Gerät oder technisches Datenblatt)

Ⓢ II 3 G und EEX nA II T6 X „nicht funkend“ nach EN50021 und Ⓢ II 3 D IP65 T 60 °C X nach EN50281-1-1

Zulässige Umgebungstemperatur am Einsatzort

-20...+40 °C

Installation / Inbetriebnahme (siehe auch Errichtungsbestimmungen EN60079-14/EN50281-1-2)

Die Geräte dürfen nur von qualifiziertem Personal aufgebaut, angeschlossen und in Betrieb genommen werden. Das qualifizierte Personal muss Kenntnisse haben über Zündschutzarten, Vorschriften und Verordnungen für Betriebsmittel im Ex-Bereich. Prüfen Sie, ob die Klassifizierung (siehe oben „Kennzeichnung“ und Kennzeichnung auf dem Gerät) für den Einsatzfall geeignet ist.

Einbauhinweise / Montage

Vermeiden Sie statische Aufladungen an Kunststoffgeräten und Kabeln. Reinigen Sie das Gerät nur mit einem feuchten Tuch. Montieren Sie das Gerät nicht in den Staubstrom und vermeiden Sie Staubablagerungen auf den Geräten. Die Geräte und Kabel sind vor mechanischen Beschädigungen und starken elektromagnetischen Feldern zu schützen. Die Anschlussbelegung und die elektrischen Kenngrößen entnehmen Sie bitte der Gerätekenzeichnung oder dem technischen Datenblatt. Entfernen Sie, um Verschmutzung zu vermeiden, evtl. vorhandene Verschlussstopfen der Kabelverschraubungen bzw. der Stecker erst unmittelbar vor dem Einführen von Leitungen bzw. dem Aufschrauben der Kabeldose.

Besondere Bedingungen für den sicheren Betrieb

Bei Geräten mit M12-Steckverbindung verwenden Sie bitte den im Lieferumfang enthaltenen Sicherheitsclip SC-M12/3GD. Falls Sie keinen Sicherheitsclip verwenden, stellen Sie bitte durch ein ausreichendes Anzugsmoment sicher, dass die Überwurfmutter nicht von Hand zu lösen ist. Trennen Sie die Steckverbindung oder die Anschlussleitung nicht unter Spannung. Bringen Sie in geeigneter Form dauerhaft einen Warnhinweis in der Nähe der Steckverbindung an mit folgender Aufschrift: Nicht unter Spannung trennen / Do not separate when energized. Gerät muss vor jeglicher mechanischer Beschädigung geschützt werden.

Instandhaltung / Wartung

Reparaturen sind nicht möglich. Die Zulassung erlischt durch Reparaturen oder Eingriffe am Gerät, die nicht vom Hersteller ausgeführt werden. Die wichtigsten Daten aus der Herstellerbescheinigung sind aufgeführt.



D101543 0405

GWA 4NEB 839 1813-10

Irrtümer und Änderungen vorbehalten / Subject to change without notice / Sous réserve de modifications • © Hans Turck GmbH & Co. KG 2005

Hans Turck GmbH & Co. KG • D-45466 Mülheim/Ruhr • Tel. 0208/4952-0 • Fax 0208/4952-264 • E-Mail: turckmh@turck.com • www.turck.com

Handwritten scribbles or illegible text in the upper left quadrant.

Gegenseitige Beeinflussung

Synchronisation
Um eine akustische Kopplung zu vermeiden, sollten RUC-Sensoren gleichen Typs synchronisiert werden, falls sie sich in räumlicher Nähe zueinander befinden. Die Sensoren der Baureihe RUC...-M30...-LIAP8X-H1151 sind in der Lage, sich durch einfaches Verbinden der Synchronisationsleitung X1 selbst zu synchronisieren.

Cross Interference

Synchronisation
To avoid the problem of acoustic coupling when RUC sensors of the same type are used in close proximity, the synchronisation feature should be used. The sensors, series RUC...-M30...-LIAP8X-H1151, are capable of self-synchronisation when connected to the synchronisation line X1.

Influence réciproque

Synchronisation
Pour éviter un couplage acoustique de détecteurs RUC du même type, leur synchronisation est recommandée s'ils se trouvent à une distance trop faible l'un de l'autre. Les détecteurs de la série RUC...-M30...-LIAP8X-H1151 peuvent être synchronisés en raccordant la ligne de synchronisation X1.

Abwechselndes Betreiben der Sensoren (Multiplexen)

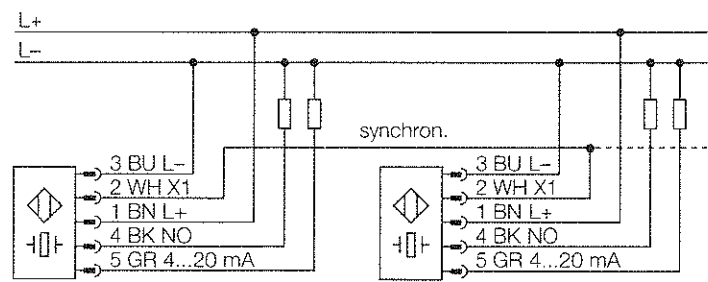
Die Ultraschall-Sensoren können zu einem Verbund zusammengeschaltet werden. Bis zu 10 Adressen können dabei miteinander betrieben werden. Dazu ist keine zusätzliche Elektronik erforderlich. Es müssen lediglich die Freigabe-Eingänge (X1-Leitung) aller Sensoren im Verbund zusammengeschaltet werden. Bei der Programmierung mittels RU-PDI (siehe Zubehör) wird jedem Gerät die Anzahl der im Verbund befindlichen Adressen mitgeteilt. Nach der Verdrahtung und Zusammenschaltung der Versorgungsspannung führen die Sensoren dann automatisch den Multiplexbetrieb durch.

Alternate sensor operation (multiplex mode)

The ultrasonic sensors can be used in an interconnected assembly. Up to 10 addresses may be operated together. Additional electronics are not needed for this purpose; it is only required that the enable inputs (X1 line) of sensors within the assembly are interconnected. When using the programming device RU-PDI (see accessories), the number of interconnected addresses must be entered. After wiring and interconnecting the supply voltage, the sensors automatically adopt the multiplex operation mode.

Fonctionnement alternant des détecteurs (multiplexage)

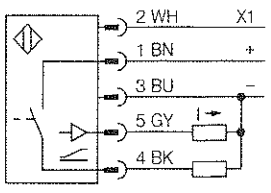
Les détecteurs ultrasoniques permettent un fonctionnement en groupe. Jusqu'à 10 adresses peuvent fonctionner l'une avec l'autre. Une électronique supplémentaire n'est pas requise à cet effet. Seules les entrées d'activation (ligne X1) de tous les détecteurs doivent être interconnectées en groupe. Lors de la programmation par le RU-PDI (voir accessoires) le nombre d'adresses interconnectées en groupe est communiqué à tout appareil. Après le câblage et la connexion de la tension d'alimentation, les détecteurs passent automatiquement au fonctionnement Multiplex.



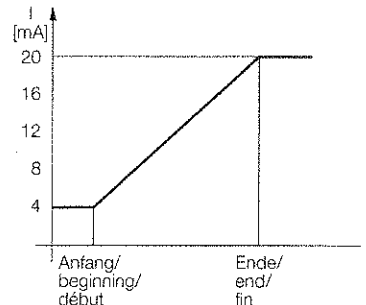
Synchronisation bzw. Multiplexen durch Verbinden der X1-Leitungen
Synchronisation or multiplexing through connection of the X1-lines
Synchronisation ou multiplexage par la connexion des lignes X1

Anschlussbild/Wiring diagram/Schéma de raccordement

X1 = Synchronisations- bzw. Freigabeeingang/
synchronisation or enable input/
entrée de synchronisation ou d'acquiescement



Kennlinie/Characteristic curve



Messbereich / measuring range / plage de mesure

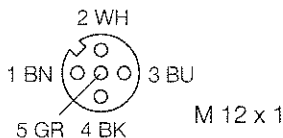
RUC...M30...

Anschluss

Die Ultraschall-Sensoren werden mit dem Steckverbindersystem M12 x 1 angeschlossen (als Zubehör gesondert zu bestellen).

Wiring

The ultrasonic sensors are connected with M12 x 1 connectors (must be ordered separately).



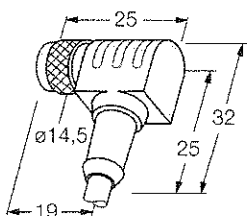
Raccordement

Les détecteurs ultrasoniques sont raccordés à l'aide du système de connecteur M12 x 1 (à commander séparément).

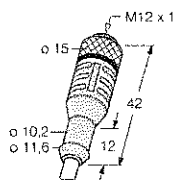
● Kabelkupplungen

● Female connectors

● Connecteurs femelles



WWAK4.5-2/P00
Ident-Nr. 80 085 83
Ident-No.: 80 085 83
No d'ident: 80 085 83

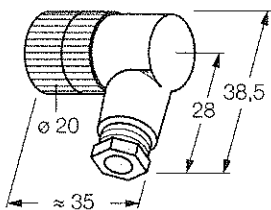


WAK4.5-2/P00
Ident-Nr. 80 085 76
Ident-No.: 80 085 76
No d'ident: 80 085 76

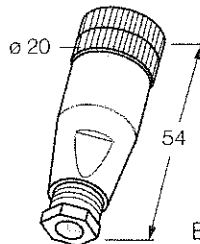
● Konfektionierbare Kabelkupplung

● Field-wireable female connectors

● Connecteurs confectionnables



B8251-0
Ident-Nr. 69 046 02
Ident-No.: 69 046 02
No d'ident: 69 046 02



B8151-0
Ident-Nr. 69 046 01
Ident-No.: 69 046 01
No d'ident: 69 046 01

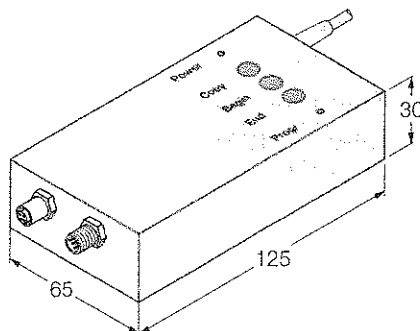
Spezielle Kabellängen und Leitungsqualitäten auf Anfrage; weitere Informationen im Katalog Steckverbinder.

Special cable lengths and qualities available on request. Further information in our connector catalogue.

Longueurs et qualités spéciales de câble sur demande. Pour plus d'informations voir catalogue connecteurs.

Zubehör/Accessories/Accessoires

Programmiergerät RU-PDI
Programming device RU-PDI
Appareil de programmation RU-PDI
Ident-Nr.: 18 900 00
Ident-No.: 18 900 00
No d'ident: 18 900 00



4NEB8391715-10-000



D101311 0705

**Ultraschall-Sensoren
RUC...M30...-LIAP8X-H1151**

**Ultrasonic sensors
RUC...M30...-LIAP8X-H1151**

**Détecteurs ultrasoniques
RUC...M30...-LIAP8X-H1151**

Montagehinweise

Die Ultraschall-Sensoren der Bauform RUC...M30...-LIAP8X-H1151 dürfen in beliebiger Lage (Ausrichtung) montiert werden; maximales Anziehdrehmoment: 60 Nm.

Achtung:

Um Beeinträchtigungen der Eigenresonanzfrequenz zu verhindern, müssen Materialablagerungen (z. B. Staub, Feuchtigkeit) auf der Schallwandleroberfläche unbedingt vermieden werden.

Mounting instructions

The RUC...M30...-LIAP8X-H1151 ultrasonic sensors series may be installed and aligned in any position; maximal fixing torque: 60 Nm.

Caution:

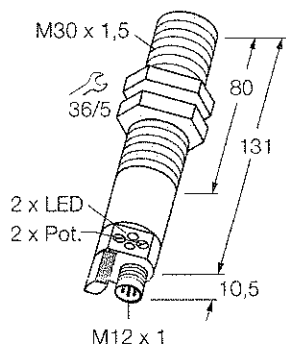
In order to avoid influence on the self-resonant-frequency, build-up of dust, humidity etc. on the transducer surface must be avoided.

Indications de montage

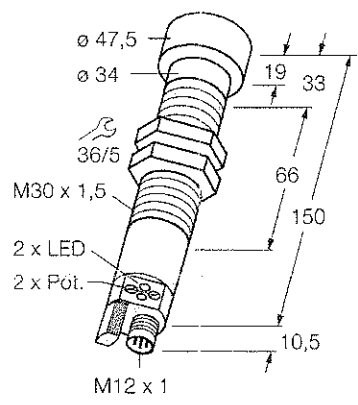
Les détecteurs ultrasoniques de la série RUC...M30...-LIAP8X-H1151 peuvent être montés indifféremment dans toutes les positions (orientation); couple de serrage maximum: 60 Nm.

Attention:

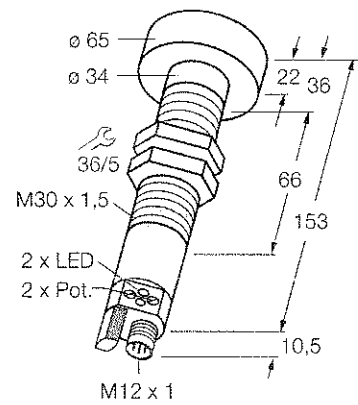
Pour éviter une influence possible de la fréquence de résonance propre, on doit éviter absolument les dépôts de matériaux (par ex. poussière, humidité) sur la surface du convertisseur ultrasonique.



RUC30-M30-LIAP8X-H1151
RUC130-M30-LIAP8X-H1151



RUC300-M3047-LIAP8X-H1151



RUC600-M3065-LIAP8X-H1151

Einbauvorschriften/Mounting instructions/Prescriptions de montage

Typ/Type/Type	e [cm]	f [cm]	g [cm]	h [cm]
- RUC30-M30-LIAP8X-H1151	≥ 120	≥ 15	≥ 6	≥ 3
- RUC130-M30-LIAP8X-H1151	≥ 400	≥ 60	≥ 30	≥ 15
- RUC300-M3047-LIAP8X-H1151	≥ 1200	≥ 150	≥ 60	≥ 30
- RUC600-M3065-LIAP8X-H1151	≥ 2500	≥ 250	≥ 80	≥ 40

1) Bei ungünstiger Ausrichtung des Objekts muss in Abhängigkeit des Winkels α ein größerer Abstand f gewählt werden. Die Werte für den Mindestabstand f gelten für $\alpha = 0^\circ$.

If the object is aligned unfavourably, a larger distance f must be observed depending on the angle α . The minimum distance values f apply to $\alpha = 0^\circ$.

Si l'objet est aligné défavorablement, il faut choisir une distance f plus large en fonction de l'angle α . Les valeurs de la distance minium f sont valables pour $\alpha = 0^\circ$.

RUC...M30...

Einstellung des Schaltbereichs

Der Anfang des Schaltbereichs wird mit dem Potentiometer S1 eingestellt. Das Ende wird mit dem Potentiometer S2 festgelegt.

Der Messbereich ist abWerk fest eingestellt:

RUC30-M30-...	: 6...30 cm
RUC130-M30-...	: 20...130 cm
RUC300-M3047-...	: 40...300 cm
RUC600-M3065-...	: 60...600 cm

Mit dem Programmiergerät RU-PDI kann der Schaltbereich unabhängig vom Messbereich eingestellt werden (siehe Zubehör).

Switching range adjustment

The lower limit of the switching range is adjusted with the potentiometer S1. The upper range limit is adjusted using potentiometer S2.

The factory measuring ranges are:

RUC30-M30-...	: 6...30 cm
RUC130-M30-...	: 20...130 cm
RUC300-M3047-...	: 40...300 cm
RUC600-M3065-...	: 60...600 cm

When using the programming device RU-PDI, the switching range can be adjusted independently of the measuring range (see accessories).

Réglage de la plage de détection

Le potentiomètre S1 permet de régler le début de la plage de détection. La fin est réglée par le potentiomètre S2.

La plage de mesure des appareils est fixe:

RUC30-M30-...	: 6...30 cm
RUC130-M30-...	: 20...130 cm
RUC300-M3047-...	: 40...300 cm
RUC600-M3065-...	: 60...600 cm

L'appareil de programmation RU-PDI permet de régler la plage de détection indépendamment de la plage de mesure (voir accessoires).

Achtung:

- Bei Blinken der LED ist $S2 < S1!$
- Betrieb im Nahbereich (Blindzone) unzulässig; Mindestschaltabstand S_{min} beachten:

RUC30-M30-...	: 6 cm
RUC130-M30-...	: 20 cm
RUC300-M3047-...	: 40 cm
RUC600-M3065-...	: 60 cm

Caution:

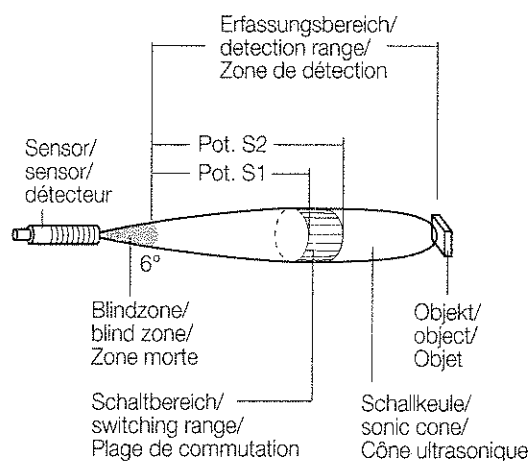
- If the LED flashes $S2 < S1!$
- Close range operation (blind zone) is not permitted; the minimum sensing distance S_{min} has to be considered:

RUC30-M30-...	: 6 cm
RUC130-M30-...	: 20 cm
RUC300-M3047-...	: 40 cm
RUC600-M3065-...	: 60 cm

Attention:

- LED clignotante $S2 < S1!$
- L'utilisation à courte distance (dans la zone morte) n'est pas autorisée; Distance minimale S_{min} à respecter:

RUC30-M30-...	: 6 cm
RUC130-M30-...	: 20 cm
RUC300-M3047-...	: 40 cm
RUC600-M3065-...	: 60 cm



Spezifikation Compound J-8129

J-8129

Elastomer	<i>Ethylen-Propylen-Dien-Kautschuk</i>
ASTM D 1418	EPDM
DIN ISO 1629	EPDM
Handelsnamen	<i>Vistalon, Royalene, Buna EP, Nordel, Keltan</i>
Shore	40
Farbe	<i>schwarz</i>
RAL-Nr.	
Konformität	<i>FDA-konform</i>
Dichte	0
Eigenschaften	<i>antistatisch</i>

allgemeine Infos zum Elastomer EPDM

Temperaturbereich *-30°C bis +120°C*

Gasdurchlässigkeit *gross*

Positive Eigenschaften *Wasser bis 98°C, Dampf (bis 130°C), Silikonöle und -fette, Aceton (Dimethylketon), Alterung, Witterung, Schwefelsäure 50%ig bei 100°C, Ozon-Luft-Gemisch (50 PPHM Ozon), Basen, Säuren, Bremsflüssigkeiten auf Glykolbasis, polare Lösemittel*

Negative Eigenschaften *Mineralöle und -fette, Normalbenzin bleifrei (Ottokraftstoff), chlorierte/aliphatische/aromatische Kohlenwasserstoffe (Benzin / Propan / Butan / Toluol / Benzol / Perchlorethylen)*

Brennverhalten und Geruch *brennt sehr gut in eigener Flamme, russend*

Art der Rückstände *sehr feinkörnig, ganz leicht schmierig*

Charakteristische Merkmale *riecht nach Kerzenwachs*

Bitte beachten sie, dass die angegebenen Werte unter allgemeine Infos zum Elastomer EPDM von der jeweiligen Mischung des Werkstoffes, dem sogenannten Compound, abhängig sind. Die Daten sind Erfahrungswerte, welche meistens erreicht werden. Es können aber Abweichungen auftreten. Die Johannsen AG übernimmt keine Haftung für die gemachten Angaben.

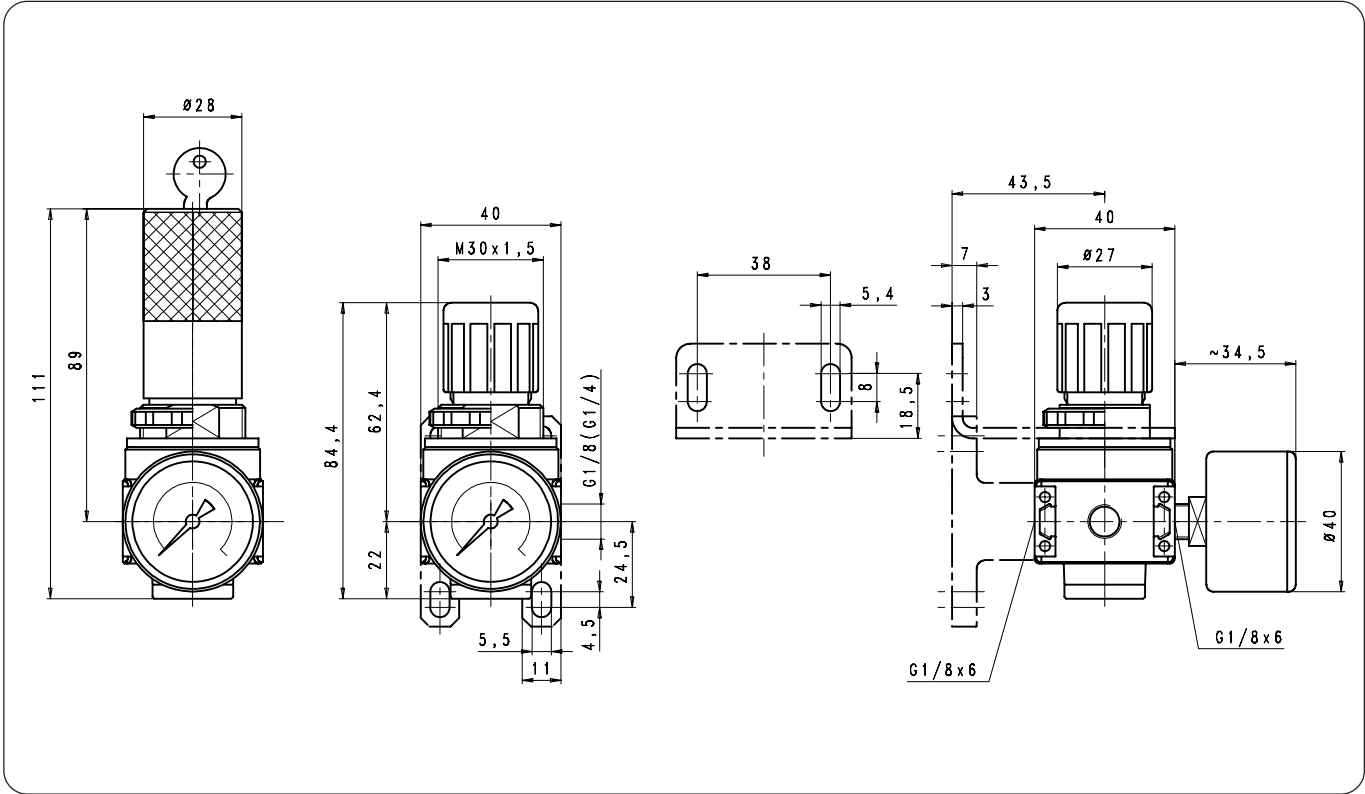
Mittwoch, 19. September 2012

Johannsen AG
Zimmerlistrasse 6
CH-8040 Zürich

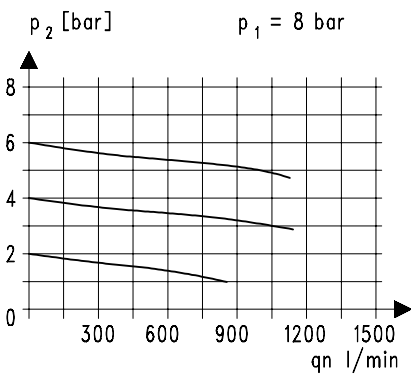
T: +41 44 401 09 00
F: +41 44 401 11 51
info@johannsen-ag.ch
www.johannsen-ag.ch

MWST-Nr. 237 739

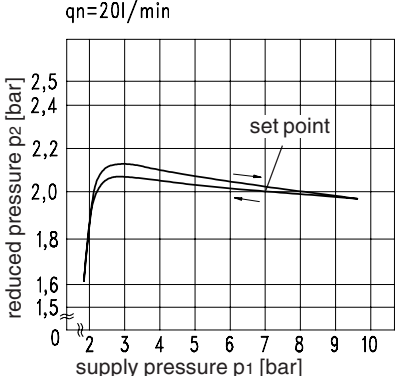
dimensions (mm)



flow characteristics

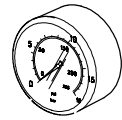


pressure characteristic



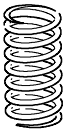
accessories

gauge



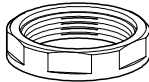
type:
G 40. 3/ 6 R
G 40. 6/10 R
G 40.10/16 R

spring



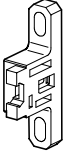
type:
0,1- 3: C.11-81
0,2- 6: C.11-82

panel mounting ring M 30 x 1,5



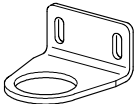
type: C.00-34

mounting bracket assembly



type: ZW.00

mounting bracket



type: MW.30

FICHE TECHNIQUE*Technical Datasheet***Article Numéro: 432154****Art. : 432154**

Univer AG
 Sumpfstasse 26
 6312 Steinhausen

Pos.	Article	Quantité	Designation
------	---------	----------	-------------

Régulateur avec manomètre*Regulator with manometer*

Type	RE.01 G
Pression	0,5 – 10 bar
<i>Pressure</i>	
Raccord	G 1/4
<i>Connection</i>	

Manomètre Tecsis :*manometer*

Type	413 095 79 292
Affichage	0-10 bar
<i>Indicator</i>	
Diamètre	40 mm
<i>Diameter</i>	
Raccord	G 1/8
<i>Connection</i>	

Equerre set de fixation :*Regulator with manometer*

Type	ZW.00
------	-------

Membrandruckschalter aus nichtrostendem Stahl 1.4305 mit eingebautem Wechsler und einstellbarer Rückschaltdifferenz, max. Spannung 250V

0186

Kolbenausführung mit Silberkontakten

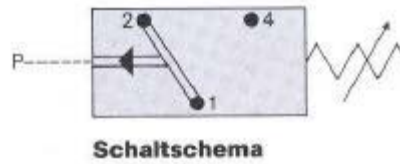
0187

Membrandruckschalter aus nichtrostendem Stahl 1.4305 mit Goldkontakten eingebautem Wechsler und einstellbarer Rückschaltdifferenz, max. Spannung 42 V

0196

Kolbenausführung mit Goldkontakten

0197



Item No: 432322
Doc No: 17880-0



Zulassungen nur für Baureihen 0186 und 0187



Technische Daten

Schaltleistung :	Silberkontakte siehe Seite 29 Goldkontakt 50 mA / max. 24 V
Schutzart :	IP 65, Klemmen IP 00
Schalzhäufigkeit :	200 / min
Temperaturbeständigkeit :	je nach Membranqualität - 30°C bis + 120° C je nach Dichtungsqualität -30° C bis +120° C
max. Spannung :	Silberkontakte 250 V ~ Goldkontakte 42 V
Rückschaltdifferenz :	10 bis 30% im Werk einstellbar
Mech. Lebensdauer Membranausführung :	10 ⁶ Schaltspiele (bei Schalldrücken bis 50 bar)
Mech. Lebensdauer Kolbenausführung :	10 ⁶ Schaltspiele
Gehäuse :	aus nichtrostendem Stahl (1.4305)

Membranqualität / Dichtungswerkstoff

1	NBR	Hydrauliköl, Maschinenöl, Terpentin, Heizöl, Luft usw.
2	EPDM	Wasser, Wasserstoff, Meerwasser, Azethylen, Ozon, Bremsflüssigkeit usw.
3	FKM	Hydraulikflüssigkeiten (HFA, HFB, HFC, HFD), Benzin usw.

Zahl der gewählten Membranqualität / des Dichtungswerkstoffes in das Einzelkästchen eintragen.

Typ 0186 - Membranausführung 0196 - Membranausführung	Gewinde	Einstellbereich bar	Toleranz in bar (Raumtemp.)	Überdrucksicher bis bar *
457 03 003	G ¼	0,5 - 5	± 0,2	300
458 03 006	G ¼	1 - 10	± 0,5	
459 03 009	G ¼	10 - 50	± 3,0	
461 03 012	G ¼	10 - 100	± 3,0 - 5,0	

Typ 0187 - Kolbenausführung 0197 - Kolbenausführung	Gewinde	Einstellbereich bar	Toleranz in bar (Raumtemp.)	Überdrucksicher bis bar *
460 03 003	G ¼	50 - 200	± 5,0	600

0 1 8 6	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
0 1 9 6	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
0 1 8 7	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
0 1 9 7	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>

Schutzart IP 65:

Die Typenprüfung ist nicht uneingeschränkt auf alle Umweltbedingungen übertragbar. Die Überprüfung, ob die Steckverbindung anderen als den angegebenen Bestimmungen und Vorschriften entspricht bzw. ob diese in speziellen, von uns nicht vorhersehbaren Anwendungen eingesetzt werden kann, obliegt dem Anwender

Bei Einsatz von Sauerstoff sind die einschlägigen Unfallverhütungsvorschriften zu beachten. Außerdem empfehlen wir einen maximalen Betriebsdruck von 50 bar nicht zu überschreiten.

Statische Werte. Dynamische Werte 30 bis 50 % niedriger.

Die Werte beziehen sich auf den hydraulischen bzw. pneumatischen Teil des Druckschalters.

0196 / 0197

Diaphragm/piston pressure switches 24 V



Stainless steel (1.4305) body

With changeover switch and gold contacts

Max. voltage 24V

Overpressure safe to 300 / 600 bar^{*)}

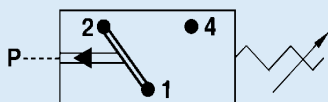


With external thread

- Also available with switching point preset in our works.
- For ready-wired variants, see page 30 onwards.
- Other body materials and connection threads on request.



- Accessories: see page 29



- For further technical data, see page 21.

0196 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (RT)	Thread	Order number	p _{max.} in bar
0.5 - 5	± 0.2	G 1/4"	0196 457 03 003	300 ^{*)}
1 - 10	± 0.5		0196 458 03 006	
10 - 50	± 3.0		0196 459 03 009	
10 - 100	± 3.0 - 5.0		0196 461 03 012	

0197 Piston pressure switches

Adjustment range in bar	Tolerance in bar (RT)	Thread	Order number	p _{max.} in bar
50 - 200	± 5.0	G 1/4"	0197 460 03 003	600 ^{*)}

Order number

019X XXX XX X XXX

Add figure for diaphragm/seal material

NBR	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	1
EPDM	Hydrogen, acetylene, ozone, brake fluid etc.	=	2
FKM	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	3
See page 21 for temperature ranges of diaphragm materials			

Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

^{*)} Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

Degree of protection IP 65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

Pressure Switches

27 A/F

Changeover contacts
With silver or gold contacts



- High-quality micro-switch for reliable switching
- Switching point easy to adjust ¹⁾
- Hysteresis can be set in our works ²⁾
- Self-cleaning contacts for a long working life (only 250 V versions)
- High overpressure safety
- Long working life under harsh operating conditions
- Connection plug or protective cap to protect against moisture and dirt, and thus easy replacement on site by service personnel
- Various thread connections available to suit your installation
- Ready-wired variants - see pages 30-33
- A choice of zinc-plated steel or stainless steel as body material and a selection of diaphragm materials ensure high resistance to media

¹⁾ Switches we have preset are secured with sealing paint and have the switching pressure stamped on their body.

²⁾ Except for Series 0140/0141

TECHNICAL DATA



	Voltage			Max. current			Body material					
	24 V	42 V	250 V	50 mA	2 A	4 A	Gold contacts	Silver contacts	Adjustable hysteresis	Zinc-plated steel	Stainless steel 1.4305	DIN valve connector
0140 ¹⁾			•		•			•		•		
0141 ¹⁾			•		•			•		•		
0170		•				•		•	•	•		
0171		•				•		•	•	•		
0180 ¹⁾			•			•		•	•	•		
0181 ¹⁾			•			•		•	•	•		
0184 ¹⁾			•			•		•	•	•		•
0185 ¹⁾			•			•		•	•	•		•
0186 ¹⁾			•			•		•	•	•	•	
0187 ¹⁾			•			•		•	•	•	•	
0190	•			•			•		•	•		
0191	•			•			•		•	•		
0196	•			•			•		•		•	
0197	•			•			•		•		•	

¹⁾ For further details of switching performance, see page 7

TECHNICAL DATA

Degree of protection:	IP 65 with valve connector installed Terminals IP 00
Switching frequency:	200 / min.
Temperature stability:	NBR -30° ... +100°C EPDM -30° ... +120°C FKM -5° ... +120°C
Mechanical life expectancy:	10 ⁶ cycles (at pressures up to 50 bar)
Vibration resistance:	10 g / 5-200 Hz Sinus
Shock resistance:	294 m/s ² ; 14 ms half-sine-wave
Switching performance:	see page 7

CE Marking

Directives of the European Council

**Machinery Directive,
EMC Directive
Low Voltage Directive
ATEX Directive**

Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.

SUCO pressure switches are electrical equipment and therefore fall under the Low Voltage Directive 73/23/EC.

A EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.



Accessories

For 27 A/F pressure switches

Protective cap

With two cable entries
for 1.7 - 2.3 mm cable diameter
Not suitable for voltages above 42 V !

Order No.: 1-1-70-621-007



Connection plug

Cable gland Pg9
(clamping range 6 - 9 mm)

Order No.: 1-1-80-652-002



Application matrix for accessories

Pressure-switch range	Protective cap 1-1-70-621-007	Connector plug 1-1-80-652-002	Connector plug with indicator light to DIN 43650
0140 / 0141			
0170 / 0171	•	•	
0180 / 0181	• (up to max. 42V)	•	
0184 / 0185			• (for 24V and 250V on request) see also page 25
0190 / 0191	•	•	
0186 / 0187	• (up to max. 42V)	•	
0196 / 0197	•	•	

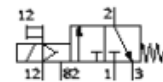
Solenoid valve MFH-3-1/4-S

Part number: 7959

A usually ships same day/next day

Standard product

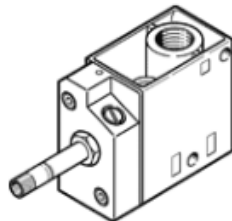
FESTO



This type is suitable for vacuum.

General operating conditions [PDF](#)

Data sheet [PDF](#)



Data sheet

Feature	values
Valve function	3/2 closed, monostable
Type of actuation	electrical
Standard nominal flow rate	800 l/min
Working pressure	-0.95 ... 10 bar
Design structure	Poppet seat
Type of reset	mechanical spring
Protection class	IP65
Nominal size	7 mm
Grid dimension	32 mm
Sealing principle	soft
Assembly position	Any
Manual override	detenting
Type of piloting	Piloted
Pilot air supply	external
Pilot pressure	1 ... 8 bar
Switching time off	29 ms
Switching time on	10 ms
Operating medium	Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated
Note on operating and pilot medium	Lubricated operation possible (subsequently required for further operation)
Medium temperature	-10 ... 60 °C
Ambient temperature	-5 ... 40 °C
Product weight	320 g
Electrical connection	Via F coil, must be ordered separately
Mounting type	Optional on manifold rail with through hole
Auxiliary pilot air port 12	M5
Pilot exhaust port 82	M5
Pneumatic connection, port 1	G1/4
Pneumatic connection, 11	G1/4
Pneumatic connection, port 2	G1/4
Pneumatic connection, port 3	G1/4
Materials information for seals	NBR
Materials information, housing	Aluminum die cast

Kipphebelventile 2/2- oder 3/2-Wege, G¹/₈" – G¹/₄"-Gewinde

Vanne à levier basculant 2/2- ou 3/2-vois, filetage G¹/₈" – G¹/₄"

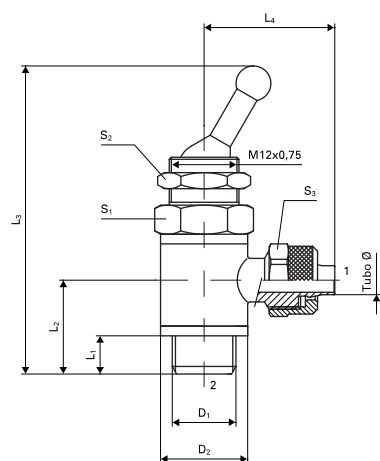
Technische Daten

Betriebsdruck	0 - 10 bar
Temperaturbereich	0° bis max. +70°C
Hebel	Messing vernickelt
Ventilkörper	Messing vernickelt
Innenteile	Messing vernickelt
O-Ring	NBR
Lippendichtung	NBR
Flachdichtung	PA
Kugel	POM
Feder	Edelstahl 1.4310
Gewindeanschluss	zylindrisch nach ISO 228-1 metrisch nach ISO R-262

Caractéristiques techniques

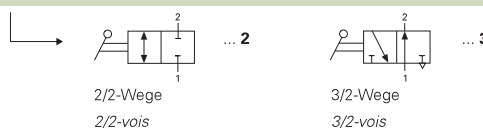
Pression de service	0 - 10 bar
Température de service	0° à max +70°C
Levier	laiton nickelé
Corps de la soupape	laiton nickelé
Pièce intérieure	laiton nickelé
Joint toriques	NBR
Membrane à levier	NBR
Joint	PA
Bille	POM
Ressort	acier inox 1.4310
Raccord filetage	cylindrique selon ISO 228-1 métrique selon ISO R-262

Typ MV 46 - MC

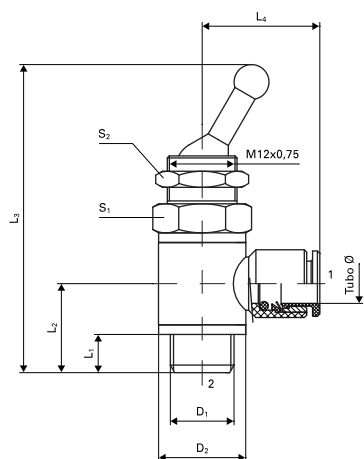


Kipphebelventil
Vanne à levier basculant

Typ MV 46 - MC	Tubo Ø	D ₁	D ₂	L ₁	L ₂	L ₃	L ₄	S ₁	S ₂	S ₃
MV 46 04 18 MC ...	4-2,5	1/8"	14	6	16	55	21,5	14	15	7
MV 46 06 18 MC ...	6-4	1/8"	14	6	16	55	25	14	15	12
MV 46 06 14 MC ...	6-4	1/4"	18	8	19	60	26,5	17	15	12
MV 46 08 18 MC ...	8-6	1/8"	14	6	16	55	25	14	15	14
MV 46 08 14 MC ...	8-6	1/4"	18	8	19	60	27,5	17	15	14
MV 46 10 14 MC ...	10-8	1/8"	18	8	19	60	28,5	17	15	16

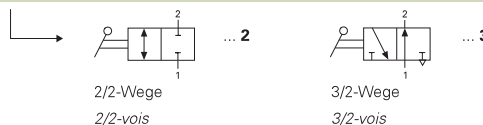


Typ MV 46 - MB



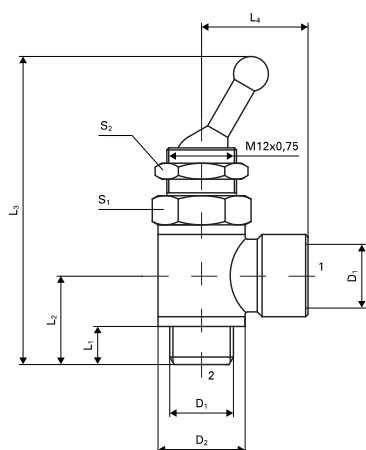
Kipphebelventil
Vanne à levier basculant

Typ MV 46 - MB	Tubo Ø	D ₁	D ₂	L ₁	L ₂	L ₃	L ₄	S ₁	S ₂
MV 46 04 18 MB ...	4	1/8"	15	6	16	55	18,5	14	15
MV 46 06 18 MB ...	6	1/8"	15	6	16	55	22	14	15
MV 46 06 14 MB ...	6	1/4"	18	8	19	60	23,5	17	15
MV 46 08 18 MB ...	8	1/8"	15	6	16	55	22,5	14	15
MV 46 08 14 MB ...	8	1/4"	18	8	19	60	24	17	15
MV 46 10 14 MB ...	10	1/4"	18	8	19	60	26	17	15



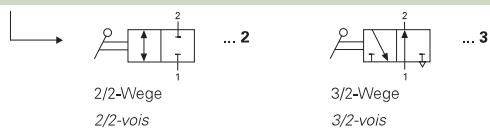
Schwenkringstück aus POM
Bague orientable en POM

Typ MV 46 - RA

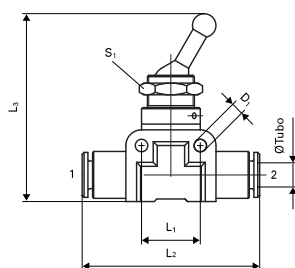


Kipphebelventil
Vanne à levier basculant

Typ MV 46 - RA	D ₁	D ₂	L ₁	L ₂	L ₃	L ₄	S ₁	S ₂
MV 46 18 18 RA ...	1/8"	1/8"	6	16	55	16	14	15
MV 46 14 14 RA ...	1/4"	1/4"	8	19	60	22	17	15

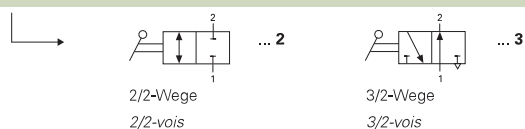


Typ MV 48



Kipphebelventil, Körper aus POM
Vanne à levier basculant, corps en POM

Typ MV 48	Tubo Ø	D ₁	L ₁	L ₂	L ₃	S ₁
MV 48 06 06 ...	6	3,2	15	45	49	15 (M12 x 0,75)
MV 48 08 08 ...	8	3,2	15	46	50	15 (M12 x 0,75)





NEOFLUX® CLEANFLOW MAGNET (GOUDSMIT)

(SEE FOLLOWING DOCUMENTS)

- [-] **GOUDSMIT-cleanflow magnet-SECF [156436 - 1.1]**
 - [] Goudsmit - Neoflux® cleanflow magnet - User Manual [144024 - 2.1]
 - [] _Goudsmit CLEANFL SECF383337-A [156437 - 1.1]
 - [] Goudsmit - Data sheet SECF383337-A [156442 - 1.1]
 - [] Declaration of Incorporation Cleanflow magnet, SECF - Goudsmit [148067 - 1.1]
 - [] _EX Declaration of Conformity - Magnetic rods Goudsmit [156447 - 1.1]
 - [] FDA - EPDM, CR, Polyolefinen <Angst-Pfister > [156450 - 1.1]

GOUDSMIT

MAGNETIC SYSTEMS

User Manual

Quick-cleaning Neoflux® cleanflow magnet, series SECF...

- ☺ Suited for removal of ferromagnetic parts out of powders and granulates
- ☹ Not suited for badly flowing (sticky) products



*The descriptions and pictures in this manual, used for explanation, may differ from your execution.
We have enclosed the as-built drawing of the delivered article.*

GOUDSMIT magnetic systems b.v.

P.O. Box 18 5580 AA Waalre

Petunialaan 19 5582 HA Waalre

The Netherlands

Telephone : +31 (0)40 221 32 83

Telefax : +31 (0)40 221 73 25

Internet : www.goudsmit-magnetics.nl

E-mail : systems@goudsmit-magnetics.nl



Version overview of standard manual

Version overview:

Version	Date	Description
1.0	09-2004	First version of the English version of the user manual.
1.1	10-2006	<ol style="list-style-type: none"> 1. Revisions page added. 2. All types of SECF clean flows gathered in this general user manual. 3. Remarks regarding ATEX versions added (pages 7, 8, 9, 12, 19 and 22)
1.2	06-2008	Chapter Trouble shooting changed
2.0	08-2009	Specification sheet and declaration by the manufacturer separated from manual
2.1	12-2009	CE sign removed from front page and CE remark added to id. Plate on page 7

Foreword

Read this user manual thoroughly and ensure that you fully understand its contents before operating the device.

If you have any queries or require further explanation regarding any subject specifically related to the magnet, please do not hesitate to contact **GOUDSMIT magnetic systems**

All technical information contained in this manual, together with any relevant drawings and technical descriptions we supply, remain our property. It may not be used other than for the benefit of service to, or operation of the product. It may not be copied, duplicated or disclosed to any third parties without our prior written permission.

Extra manuals may be ordered by contacting our support staff. They will require the device description, article number and the order number (ORxxxxxx) on the identification plate.



- This manual and the declaration by the manufacturer should be valued as a part of your device
- Both should remain with the device if it is sold
- The manual must be made available to all operators, service technicians, and others who work with the device during its complete life-cycle.

List of contents

Version overview of standard manual	3
Foreword	4
List of contents	5
General	6
This Manual.....	6
Ferromagnetism.....	6
Conditions of supply and guarantee.....	7
Delivery.....	8
<i>General</i>	8
<i>Identification plate</i>	8
<i>Description Goudsmit Ex code dust zones</i>	11
<i>ATEX explosive zone measures</i>	12
Safety	13
General.....	13
Danger of dust explosion.....	14
Danger of magnetic field.....	16
Device description	17
Intended use / user indications.....	17
Deliverable specials.....	18
Working principle.....	19
Construction.....	20
Magnet bar cleaning / Fe disposal.....	22
Installation	24
Transport and placing procedures.....	24
Magnet bar protection	25
Closure material / grounding.....	26
<i>Electrical connections & EX</i>	27
Startup	28
Checks before and during startup.....	28
Maintenance	29
Magnet bars.....	29
Cleaning & ATEX.....	30
Malfunctions/Service	31
Spare Parts	32
Storage and Dismantling	33

General

This Manual

This user manual contains information for the correct functioning and maintenance of your device. It also contains instructions for avoiding possible injury and serious damage and allowing a safe and as trouble-free functioning of the product as possible. Read this manual thoroughly before putting the device into operation, familiarise yourself with the operation and control of the device and follow all instructions precisely.

- *The data published in this instruction manual are based on the available information at the time of delivery. This is issued subject to later amendment.*
- *We retain the right to amend or modify the construction and/or model of our products at any time whatsoever without any obligation to modify any previously supplied products accordingly.*

Ferromagnetism

The working principle of the device rests on (Ferro)magnetism.

Ferromagnetism is the basic mechanism by which certain materials such as iron, cobalt and nickel form magnets or are attracted to magnets. Magnetics are formed by the application of an external magnetic field. Magnetics that remain magnetic after the external magnetic field is removed, are permanent magnets. Temporary magnets lose their magnetism after the external magnetic field is removed. Most alloys of iron, cobalt and nickel are magnetic. However, some stainless steel alloys like AISI304 or AISI316 are only slightly magnetic.

Because in most cases it will be Fe parts that will be Ferro-magnetically influenced, we will use the term 'Fe' in this user manual when we mean ferromagnetic material.

Conditions of supply and guarantee

The conditions of supply are the **“General Conditions for the supply and erection of mechanical, electrical and electronic products” (SE01)**, as in September 2001 published by **Orgalime**, in Brussels.

These conditions can also- if desired – be requested by writing to Goudsmit Magnetic Systems B.V., as also mentioned in our written quotation.

The guarantee prescriptions are mentioned in these conditions

The guarantee on your equipment will be void if:

- service and maintenance is not performed in accordance with the instruction manual or by servicemen who are not especially trained to do the work. We strongly recommend that specific magnetic service and maintenance be carried out by Goudsmit personnel);
- Modifications are made to the equipment without our prior written permission;
- non-original parts or non 100% exchangeable parts are used;
- lubrication products other than those prescribed are used;
- the equipment is used injudiciously, incorrectly, negligently or not in accordance with its intent and/or purpose (see chapter “Intended use / user instructions”).



All parts that are subject to wear are excluded from the guarantee

Remaining remarks / warnings:

- Use the device only for the application for which it has been designed (see chapter *“Intended use / user instructions”*);
- Use the device only when it is in technically perfect condition, and ensure that all protective hoods or inspection covers, including all safety circuits, have been fitted and installed in the correct manner;
- Ensure that device maintenance is appropriate and in accordance with the instructions provided in this user manual;
- Any eventual faults, in particular those that may influence safety, should be attended to immediately and remedied before renewed operation. Should you, after estimating the risks of an unsolved fault, still think it is safe to keep the device into operation, then warn the operators and maintenance staff of these faults and the danger(s) caused by these faults.

Delivery

General

Check the shipment immediately on delivery for:

- Possible damage and/or shortcomings as a result of transport.
- Ask the transporter to draw up a transport damage report immediately in case of damage.
- Completeness of the delivery/deliveries, the absence of anything (additionally) ordered.



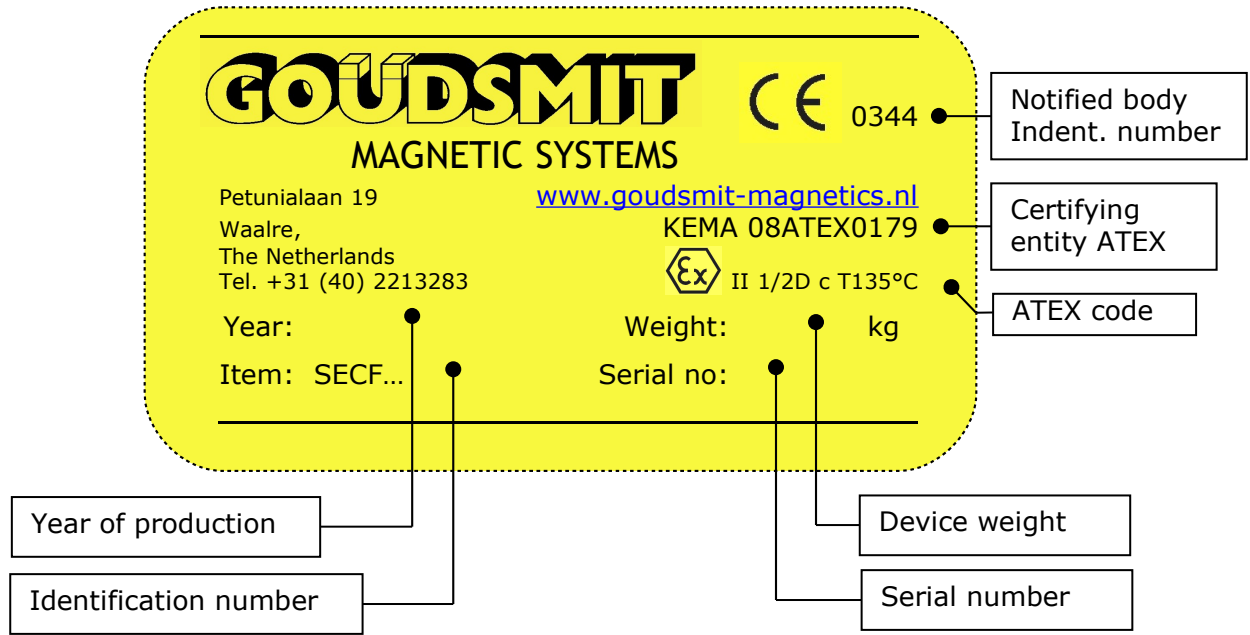
Always immediately contact **GOUDSMIT magnetic systems** in the event of any damage and/or mistaken delivery.

Identification plate

On the device you will find an identification plate as pictured below. **Information on this plate is of great importance in case of service.** That is why we advise to maintain this plate on the device at all times. Ensure that it is always legible by cleaning regularly (cleaning!). This is especially important if fast delivery of spare parts is requested




Only of application
in ATEX executions



Don't forget to make note of the Serial Number and the Item number in case of breakdown(s) and or delivery of spare parts.
If your identification plate is damaged, contact us and we will send a new one as soon as possible.

Description Goudsmit Ex code dust zones

When the device is ordered for use in a dust Ex zone, then a dust Ex code is added to the identification plate, which describes the category to which the device complies:

1. Code example:  II 1D/2D c T140°C
2. Explanation:
 - II → explosion group (I is underground mining, II is other)
 - 1D/2D → Category (1 = very high, 2 = high, 3 = normal) (D = dust)
 - Zone (20 , 21 , 22) (allowed to be used in)
 - 1D inside device / 2D outside device
 - c → Type of Ex protection used by Goudsmit
 - T140°C → Maximum surface temperature in relation to dust

When the device complies to category 1D, then the name and number of the certifying entity are also added to the identification plate, as also the certification number of the device.

ATEX explosive zone measures

3. If the device has been ordered for use in an Explosive area, then it is manufactured in compliance to the correct IP class. Ensure that no higher surface temperature arises than permitted by ATEX.

The ATEX marking on the Goudsmit identification plate only applies to the product produced by Goudsmit.

4. The ATEX certified magnetic device requires additional purchase parts to be carried out to the ATEX standard. This includes control units, connection box(es), switch(es), sensor(s) and pneumatic parts.

The ATEX purchase parts are provided with their own ATEX markings.



The final ATEX classification of the assembled apparatus may be lower than the ATEX marking indicated on the Goudsmit identification plate, if the mounted parts have a lower ATEX marking.

Safety

This chapter describes what dangers there are in connection with the device. Warning pictograms are placed on the device where necessary. This chapter explains the meaning of possibly placed pictograms.



Get to know the relevant warning pictograms!

- ! Regularly check that all warning pictograms are still present and legible, clean if necessary. Ensure that new pictograms are applied at the correct locations if there have been lost or damaged.

General

The device is provided with screens where necessary. Nevertheless, ensure that all persons in the vicinity of the device, or those working in the immediate surroundings, wear sufficient personal safety equipment such as overalls, safety glasses, ear protectors, helmet, steel-toed safety shoes, etc. Areas of the device considered dangerous are recognisable by the warning pictograms applied to the device. If the device remains easily accessible to persons, then extra safety precautions (e.g. fencing) should be installed. If safeguards are not possible then ensure that comprehensive instructions are given, possibly supplemented by work directions, part of which can be formed by this manual.

Danger of dust explosion

If this device is made according to an EX dust category (1D/2D/3D, acc. to ATEX 95-directive 94/9/EC) it can accordingly be used in a dust zone (20/21/22, acc. to (ATEX 137-directive 99/92/EC). The Ex category is then described on the identification plate → see also chapter General \ [Identification plate](#).

Ensure that the device complies to the right explosion category.



**Danger – dust
explosion**
(no sticker on device)

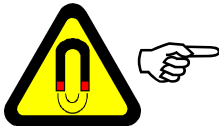


Also check whether **the identification plates of mounted parts** show the right Ex category for the Ex zone in which the device will be used.

Danger of magnetic field

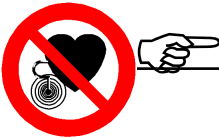
The magnets generate a powerful magnetic field that strongly attracts ferromagnetic (Fe) materials. Always take into account that these materials may suddenly be very powerfully drawn towards the magnet. This applies to steel workbenches and steel tools, but also to Ferromagnetic materials carried on your person, such as coins in your wallet or your keys. Wherever possible make use of non-magnetic tools and workbenches fitted with a wooden worktop and preferably a non-Fe frame (for instance stainless steel).

! Always be aware that Ferromagnetic parts will be attracted -- even personal items - if you are closer than 0.3 meter to a magnet.



Danger - strong magnetic field

! People fitted with pacemakers should on no account enter the magnetic field (within a radius of at least 1 meters).



Prohibited for people with pacemakers

! Credit cards, chip cards, computer disks/tapes, computer screens, watches, etc. may be damaged or destroyed if they enter the magnetic field (within a radius of at least 0.5 meter).



Danger to magnetic cards

According to the latest scientific consensus, Magnetic radiation has no adverse effects to health.

Device description

Intended use / user indications

Products

- Suited for separating ferromagnetic* (Fe) particles out of free falling powder and granular product streams, grain size up to 10 mm, such as plastics, flour, sugar, coffee beans, etc.
- Not suited for fatty powders or raw materials with particle size over 10 mm.

Fe particles

- Suited for use in product streams with Fe particles of **30 µm** and larger, dependant on magnet type. *See product specs for exact values.*
- Product stream has to be free from Fe or other parts that can cause damage to the magnet bar tubes (like dents/bumps)

Temperatures

- Suited for surrounding temperatures of -20°C up to +40°C and
- Suited for product temperature range of -40°C up to +80°C or wider, dependant on magnet type. *See product specs for exact values.*

The magnet is to be protected against higher temperatures than prescribed, because the magnet might **lose magnetic force permanently** when exposed to high temperatures

Free space

Make sure that there is approximately 0,5 meter of free space around the clean flow magnet to perform and ease the inspection and maintenance operation, like mounting or dismounting the magnet bars

Air pressure

The (relative) over pressure in the product channel has to be less then 0,2 bar.

The (relative) under pressure in the product channel has to be less then 0,5 bar.

Noise level

Vibrations

The magnet is to be protected against strong external vibrations, because the magnet might **lose magnetic force permanently** and or the brittle ceramic magnet material might break.

Cleaning

Minimum 2x per day cleaning (Fe disposal) of the device is advised for an optimal magnetic Fe separation and to prevent Fe accumulation on the magnet bars and the problems that can be caused by that. Clean magnets have the best Fe separation result. So, make sure to clean more often than assumed to be necessary, to achieve a satisfactory result of the magnet device.

! Clean more often when necessary and less often when proven possible!

For dirt cleaning: see chapter [Maintenance](#)

Deliverable specials

High temperatures

When high temperatures occur, there is the possibility to use other magnet material than the (standard) applied Neoflux® or Ferroxdure magnet material.

Abrasive products

If you have an abrasive product, we can supply the magnet bars and /or inside housing with a protective coating, like for instance a tungsten carbide coating.

Use in FOOD product flows

The SECF can be adapted so that it can be used in your specific food flow. It's standard tubes executions already have little gaps in the, already complete SS, product channel. The product channel (or even complete housing + magnet bars) can be delivered in gap-free SS AISI304(L) or AISI316(L), or in combination with other – for instance prescribed or delivered by customer – food improved materials. Surface treatments like electrolytic polishing, staining, etc. are possible on request.

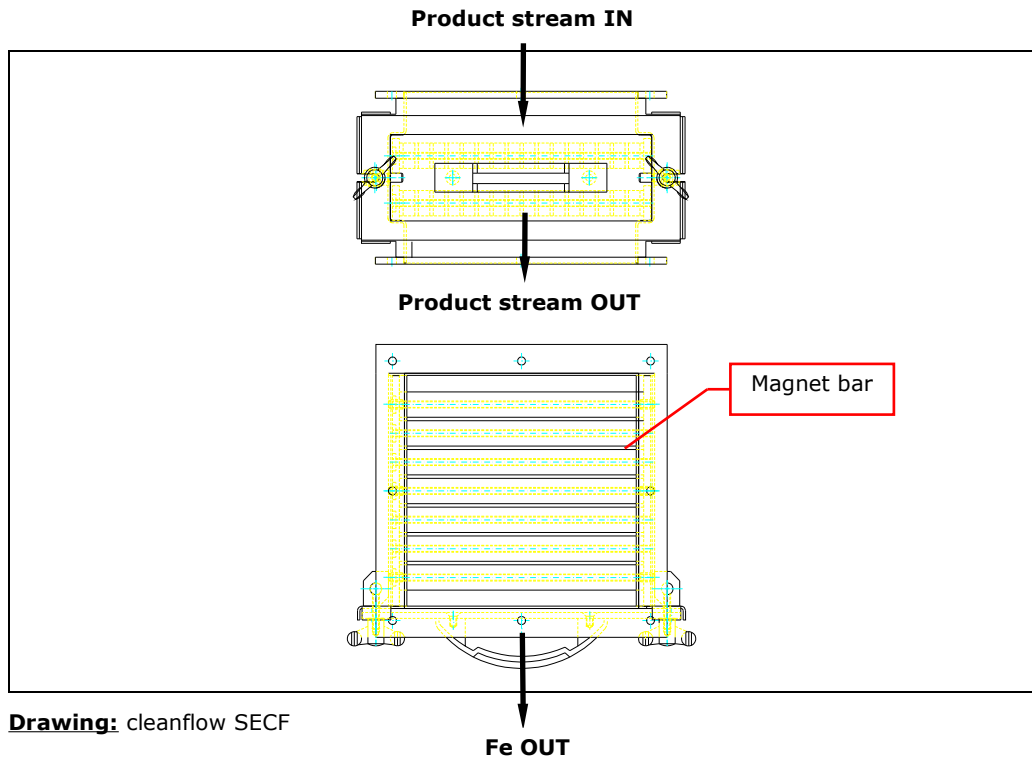
ATEX

The standard clean flow magnets SECF are ATEX II 1/2D executed, suited for use in dust explosive atmospheres zone 20 inside, zoned 21 outside.

It is however your own responsibility to take the right precautions when using the SECF in dust explosive atmospheres, like in-time cleaning to prevent for thick accumulating dust layers, and suitable grounding measures.

Read this manual thoroughly for all ATEX measures.

Working principle



Drawing: cleanflow SECF

- The SECF manual cleaning cleanflow magnet is designed to separate Fe (ferromagnetic*) parts out of a product stream falling through the cleanflow magnet.
- In the product channel **1 or more magnet bar layers** are placed. When more layers, the layers are placed over another in a way that the material stream passes the bars like in a cascade. The product stream will therefore always pass minimum 1 magnet bar very closely.
- The Fe particles in the product stream will be attracted by the magnets and will "cling" onto the tubes, while the cleaned material streams further.
- The Fe parts will stay on the tubes until it will be removed manually. This can be done by taking out the magnet unit (**Fe out**) and executing a cleaning / Fe disposal action.

*ferromagnetic: see chapter. *General/Ferromagnetism*

☹ *Unfortunately, product that gets stuck in-between and under separated Fe parts will fall off with it while cleaning the magnet bars of Fe parts, and thus cause some "material loss".*



Before each cleaning / Fe disposal cycle, the product stream has to be interrupted

For an extra description of the cleaning / Fe disposal process:

➔ Also see chapter Magnet bar cleaning / Fe disposal.

Construction

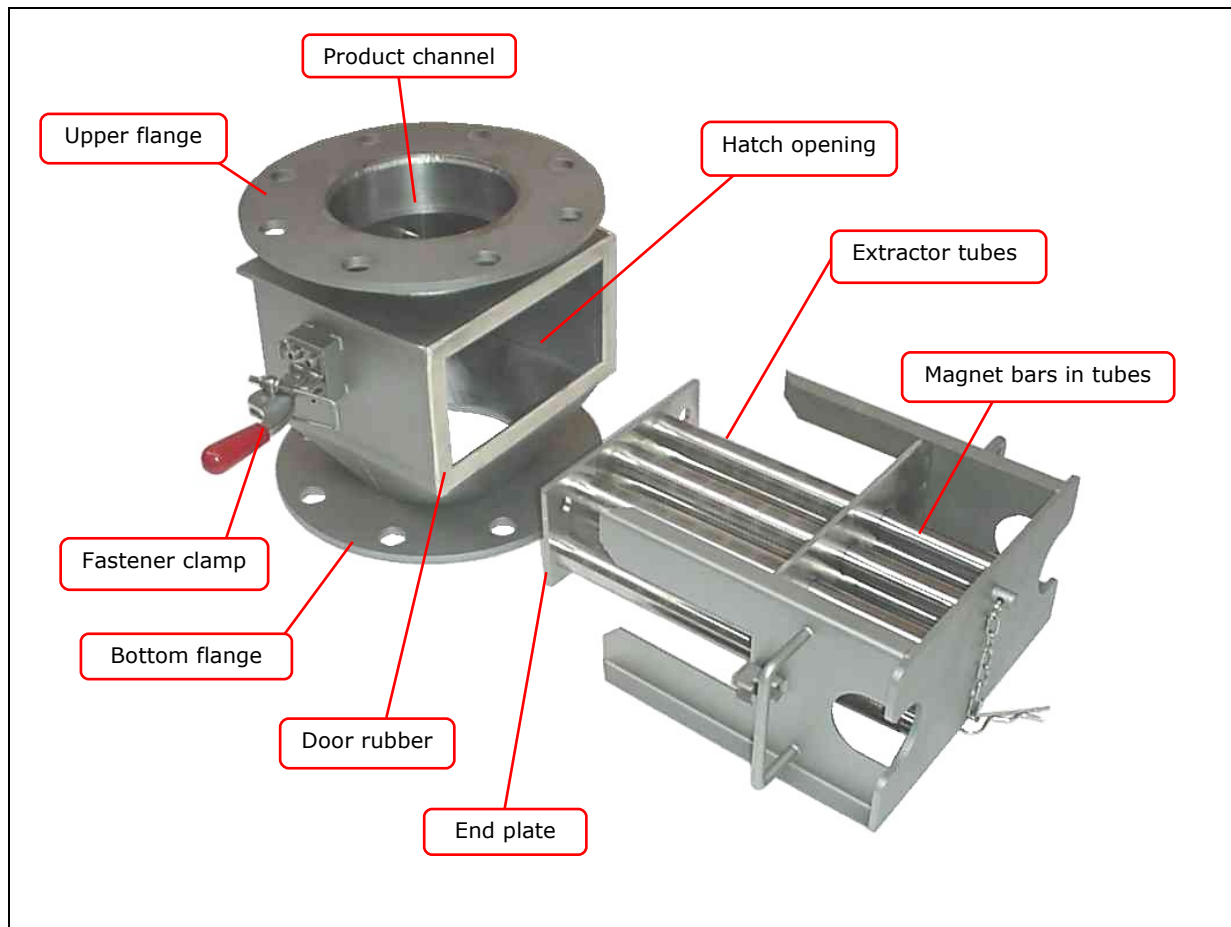


Photo: construction of Neoflux® extractor type SECF (other types: see next page)

- The standard SECF has flanges with bolt holes for easy mounting in your product channel. Other couplings can also be ordered.
- The SECF has **1 or more layers of magnet bars**. When more layers, the layers are placed over another in a way that the product passes the bars like in a cascade. The product will therefore always pass minimum 1 magnet bar very closely.
- The magnet bars consist of a magnet package with bushes, a magnet package in a surrounding SS tube, or a magnet package in a surrounding SS tube in a SS extractor tube – the extractor type. The tube versions are waterproof.
- If the magnet device is an extractor type, then the magnet bars and SS tubes are each welded to an **end plate**, which means that the extractor tubes and magnet bars can be shoved in and out of one another as complete units.
- The assembled magnet bar unit can be shoved into the product channel through the **hatch opening**.
- The hatch can be tightened and held dust-closed by the **fasteners** and the mounted door **rubber band**.

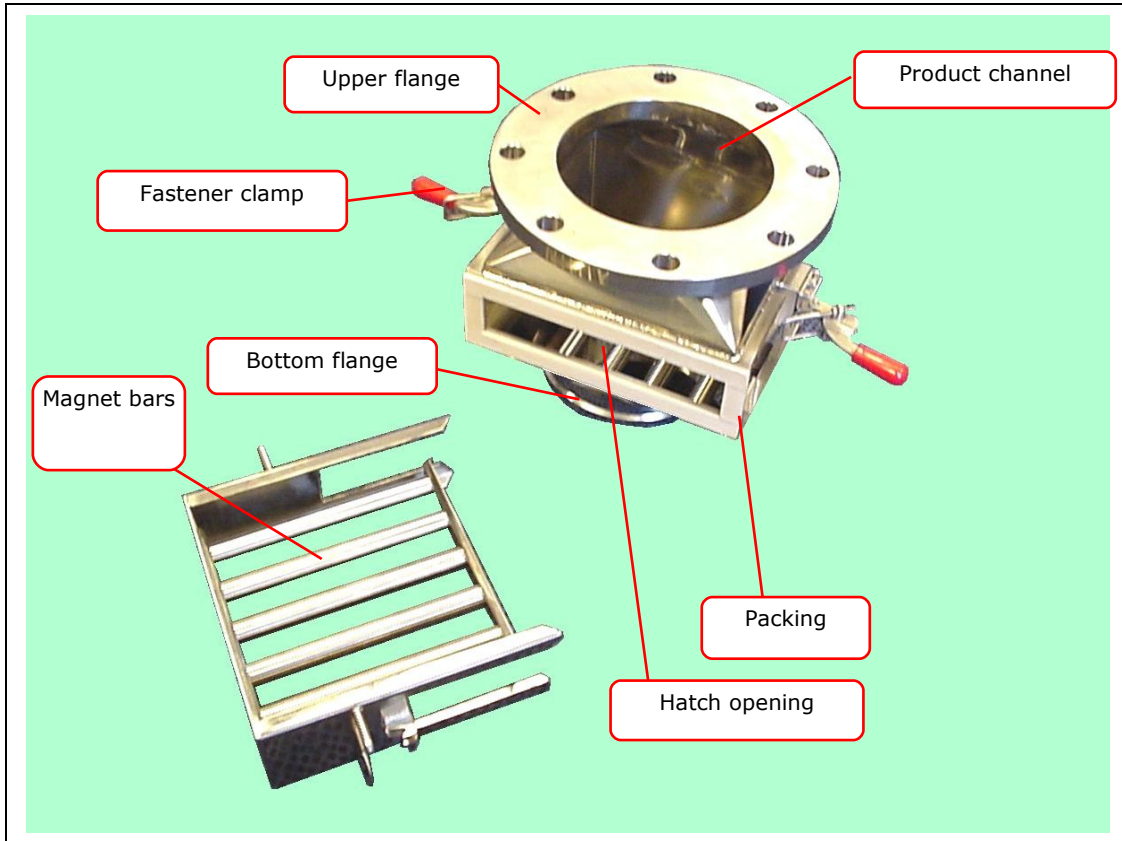


Photo: construction of Neoflux® (Neodymium) non-extractor type cleanflow SECF

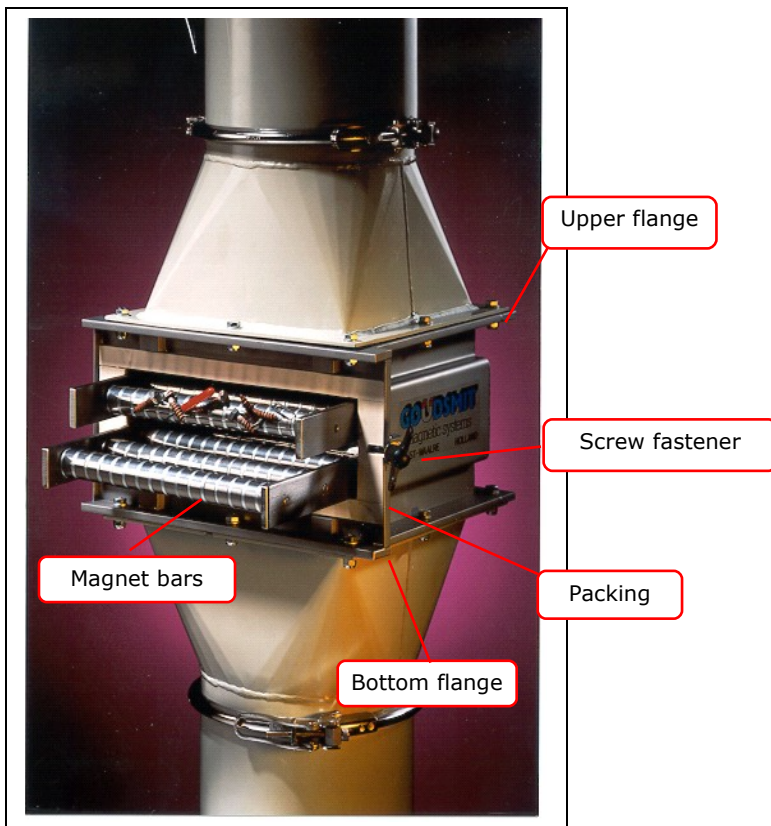


Photo: construction of Ferroxidure (ferrite) non-extractor type cleanflow SECF

Magnet bar cleaning / Fe disposal

Minimum 2x per day cleaning (Fe disposal) of the device is advised for an optimal magnetic Fe separation and to prevent Fe accumulation on the magnet bars and the problems that can be caused by that. Clean magnets have the best Fe separation result. So, make sure to clean more often than assumed to be necessary, to achieve a satisfactory result of the magnet device.

! Clean more often when necessary and less often when proven possible!

For dirt cleaning: see chapter **Maintenance**

Pay attention to personal dangers / wear protective clothing, glasses, shoes and hand gloves:

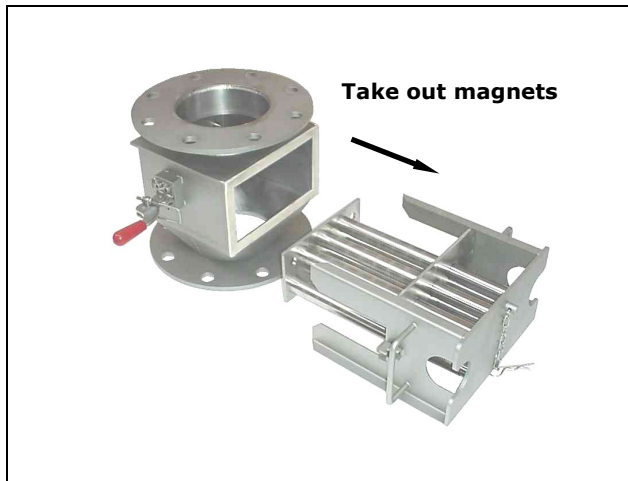


Photo: Cleaning of cleanflow SECF

Cleaning order of extractor type SECF:

1. Stop the product stream;
2. Loosen the door fasteners;
3. Shove the assembly of magnet bars + extractor tubes out of the housing;
4. Shove the magnet bar unit out of the extractor tube unit;
 - catch the Fe parts that now will fall off the tubes;
 - place the magnet bar unit far enough away from the extractor tube unit on a clean surface;
5. Wipe clean with a brush of soft cloth and or blow clean the extractor tubes (not in the direction of or over the magnet bars!);
6. Clean the magnet bars and or inside extractor tubes when necessary (with a soft cloth or a suitable cleaning fluid);
7. Shove back the magnet bar unit into the extractor tube unit; make sure that no (new) dirt gets trapped in-between the bars and tubes!
8. Shove the assembly of magnet bars and extractor tubes back into the housing;
9. Tighten the door fasteners;
10. (Re-)Start the product stream

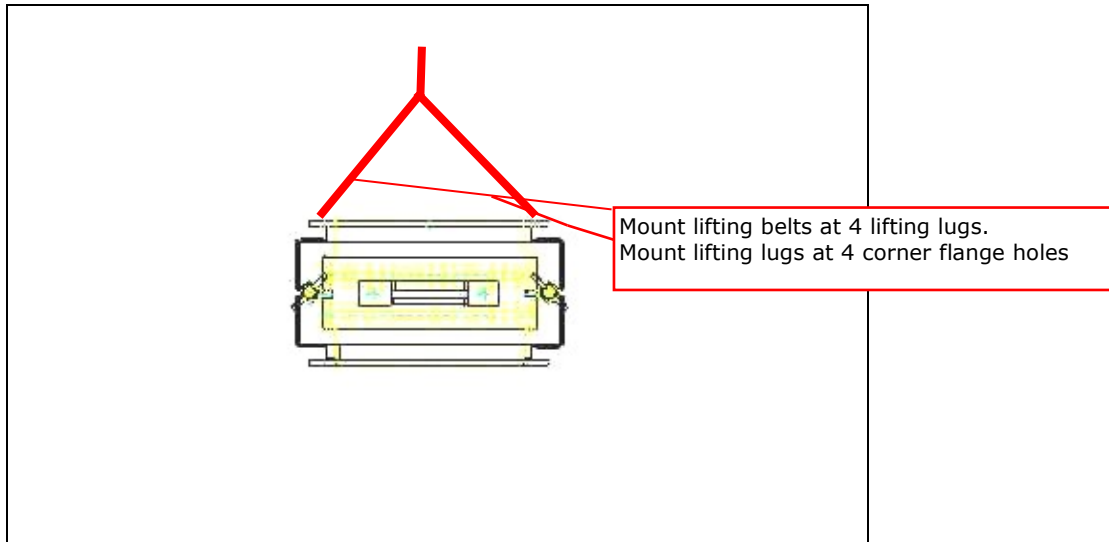
Cleaning order of non-extractor type SECF:

1. Stop the product stream;
2. Loosen the door fasteners and take away the hatch when it is a loose hatch;
3. Shove the magnet bar unit out of the housing;
4. Place the magnet bar unit far enough away from the housing on a clean surface;
5. Wipe the Fe off with a brush or soft cloth and after that blow clean the magnet bars when necessary;
6. Shove back the magnet bar unit into the housing;
7. Place the hatch when it is a loose hatch (not fixed to the magnet bar unit);
8. Tighten the door fasteners, so that the hatch closes the housing dust-tight;
9. (Re-)Start the product stream

Installation

Transport and placing procedures

- Bolt a lifting lug to each of the 4 corners of the top flange of the magnet housing for stable lifting and further transport. Keep each corner at the same level for proper alignment before installation. Pay attention to possible unequal weight distribution.



Drawing: SECF lifting and transport

- Use proper lifting devices that suit with device's weight.



The weight of the device is stated on the identification plate.

- Clear the area under the magnet during lifting and transport.
- Mount the flanges of the device tightly to the inlet and outlet flange of your product channel. Improper alignment and loose assembly may cause leakage of raw product.
- Ensure that the product channels are strong enough to support the weight of the clean flow magnet and raw product in it. Reinforce them when necessary.
- Install the cleanflow magnet device SECF in a well reachable height for the operators. A good height eases the working and cleaning process.
- Work safely; make sure there is enough working space, use proper scaffolding, ladders and other help materials, so the device can be installed without safety risks.

Magnet bar protection

- The cleanflow SECF has fragile tubes or bushes around the magnet material for protection. These tubes and bushes have a small wall thickness, which ensures an optimal grade of Fe separation. Disadvantage is however, that large, heavy Fe and or other particles in the product flow can create bumps in the tubes and bushes, and consequently damage the magnet material underneath.



Ensure that large, heavy parts are filtered out of your product flow before it passes the cleanflow!

Advise: place a sieve (filter) in front of the clean flow!

- see also chapter [Maintenance](#)



Damage to the magnet bars and/or damage caused by damaged bars is not covered by guarantee.

Closure material / grounding

Make sure that all closure and or packing material between the magnet device and your product channel has a surface resistance of less than 1 G Ω at (23 \pm 2) °C and (50 \pm 5)% relative humidity.

Sufficient grounding is also possible by placing a suitable grounding over the connections between the magnet device and your product channel.

Electrical connections & EX

When the device is placed in an Ex zone, everything you add or change to the device's electrical installation must be executed and documented according to the regulations for the specific Ex zone.

Startup

Checks before and during startup



It is essential to comply with the safety notes in this user manual during startup!

Before startup, make sure that:

- the device / the installation has no damages or malfunctions;
- all connections (electrical, mechanical, pneumatical) have been made properly;
- the device / the installation is placed and situated correctly;
- all protective covers (when of application) have been fitted correctly;
- there are no other sources of danger present

During startup, make sure that:

- the device / the installation has no damages or malfunctions;
- all other parts of the device / the installation function as described in chapter [Device description](#), completed with the function descriptions in the added data sheet.

Maintenance



Magnetic systems attract dust and Fe particles. Regular cleaning of any device fitted with a magnetic system is therefore essential. A clean magnet functions considerably more efficient than a heavily contaminated magnet.

All parts are best cleaned by pressurised air and/or soft cloth. Also it is possible to deep clean with special cleaning fluids that do not harm the materials



Regularly check that all warning pictograms and the identification plate are present at the correct locations on the device. If warning pictograms or the identification plate should get lost or damaged, then immediately apply new ones at the original locations.

Always inform operating personnel well in advance regarding planned inspections, maintenance, repairs and when attending to failures or breakdowns. Make someone responsible who also exercises supervision.

Magnet bars

- As a following of the passing product (abrasive or not) and the Fe contamination the magnet bars / extractor tubes can wear out.



Wear as a following of abrasive product can be reduced by coating the outside bars, with for instance tungsten carbide.
Please contact **GOUDSMIT magnetic systems** for advice.

- During maintenance and or cleaning one has to be careful with the magnet bars to prevent them from getting damaged.
- Heavy parts (Fe or product), may hit the bar in a way that bumps occur. The bumps will possibly block the movement of the magnet bars inside the SS tubes (extractor type) and so damage the magnet material, or damage the magnet material underneath the SS protection bushes or tubes (non-extractor type) .




When a magnet bar and or extractor tube is damaged it has to be replaced by another (spare) one immediately to prevent further damage to the magnet bar and or cleanflow. The damaged bar and or extractor tube can be sent to **Goudsmit Magnetic Systems** for repair/revision.

Cleaning & ATEX

Avoid dust clouds and dust build up to prevent explosion risk. If dust particles heat up they can create a burning deposit, which can ignite a dust cloud and cause an explosion. A dust cloud may also ignite if exposed to heat or flame.

Malfunctions/Service

	CAUTION!
	<p>Improper handling of the magnet device may lead to damages. Potential damage to body and property!</p> <ul style="list-style-type: none"> • Any repair to GOUDSMIT magnet devices may be performed by qualified personnel only. • Be aware that permanent magnetic material attracts ferromagnetic material with great force when it gets in reach of the magnetic field • Consult GOUDSMIT MAGNETIC SYSTEMS customer service

Malfunctions

In case of malfunctions, consult the following table in order to determine the cause of the malfunction and its possible remedy. In case a specific malfunction can't be found in the table, consult the GOUDSMIT Magnetic Systems customer service.

Malfunction	Possible cause	Possible remedy
Magnet does not separate ferromagnetic (Fe) particles out of the product stream, or separates them badly	Magnet bar is overloaded with Fe parts	Clean the magnet more frequently
	Not-attracted objects are not ferromagnetic	Check if particles to be separated are ferromagnetic, using a permanent magnet
	Fe parts close to the magnet reduces the magnetic field	Check if there is ferromagnetic material close to the magnet bars. If so try to replace the Fe construction
Magnets do not move in the extractor tubes any more or move badly (extractor types clean flow)	Tube is dented	Replace dented tube
	To much Fe on tube(s)	Clean magnet bars of caught Fe parts more often

Customer service

Please have the following information available if you require customer service assistance:

- Identification plate (complete)
- Type and extent of the problem
- Time the problem occurred and any accompanying circumstances
- Assumed cause

Spare Parts

As a result of the robustness and quality of **GOUDSMIT magnetic systems** products the device possesses high operational reliability.

If however a specific component requires replacement, the correct component may be ordered by quoting the type number stated on the *identification plate* or on one of the drawing(s) added to this user manual in the added data sheet.

The spare parts are mostly parts subject to wear, such as:

The extractor tube unit, magnet bars and door packing.

We advise to have one or more magnet bars and an extractor unit (extractor type) as a spare part when necessary!



Following mutual consultation **GOUDSMIT magnetic systems** will arrange rapid and correct delivery.

Storage and Dismantling

Storage:

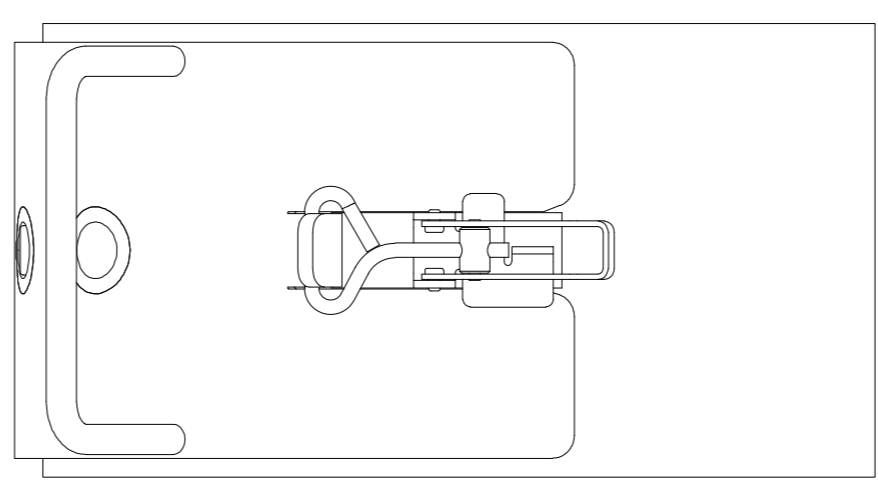
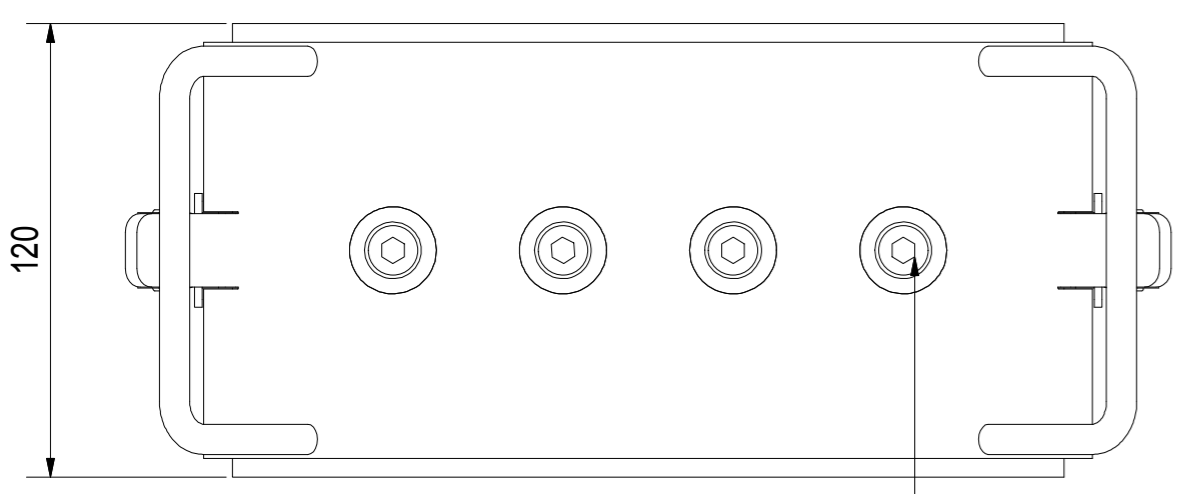
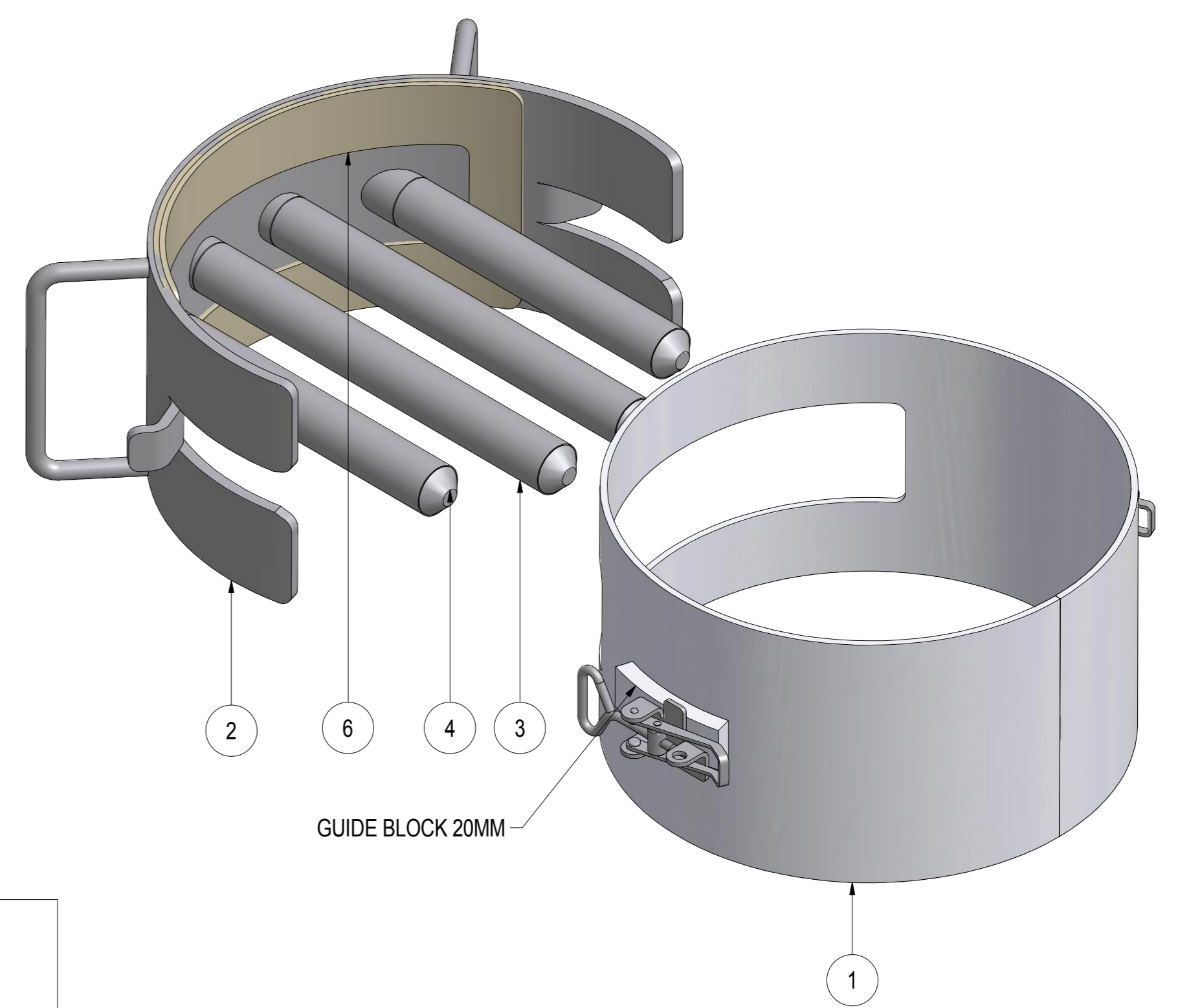
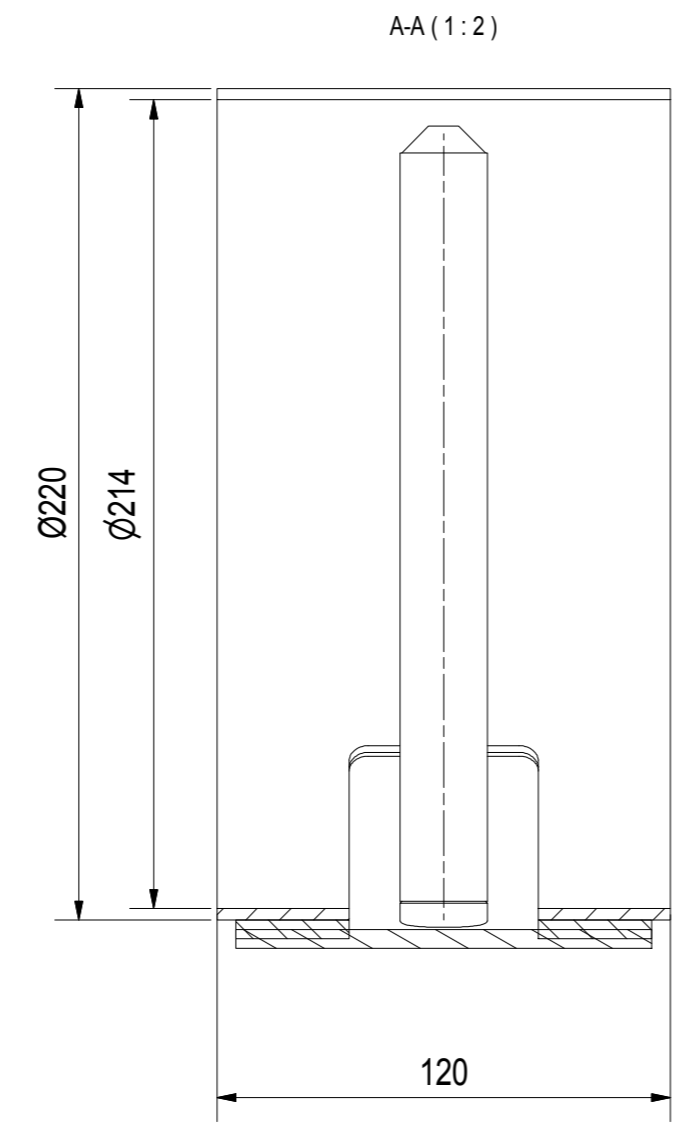
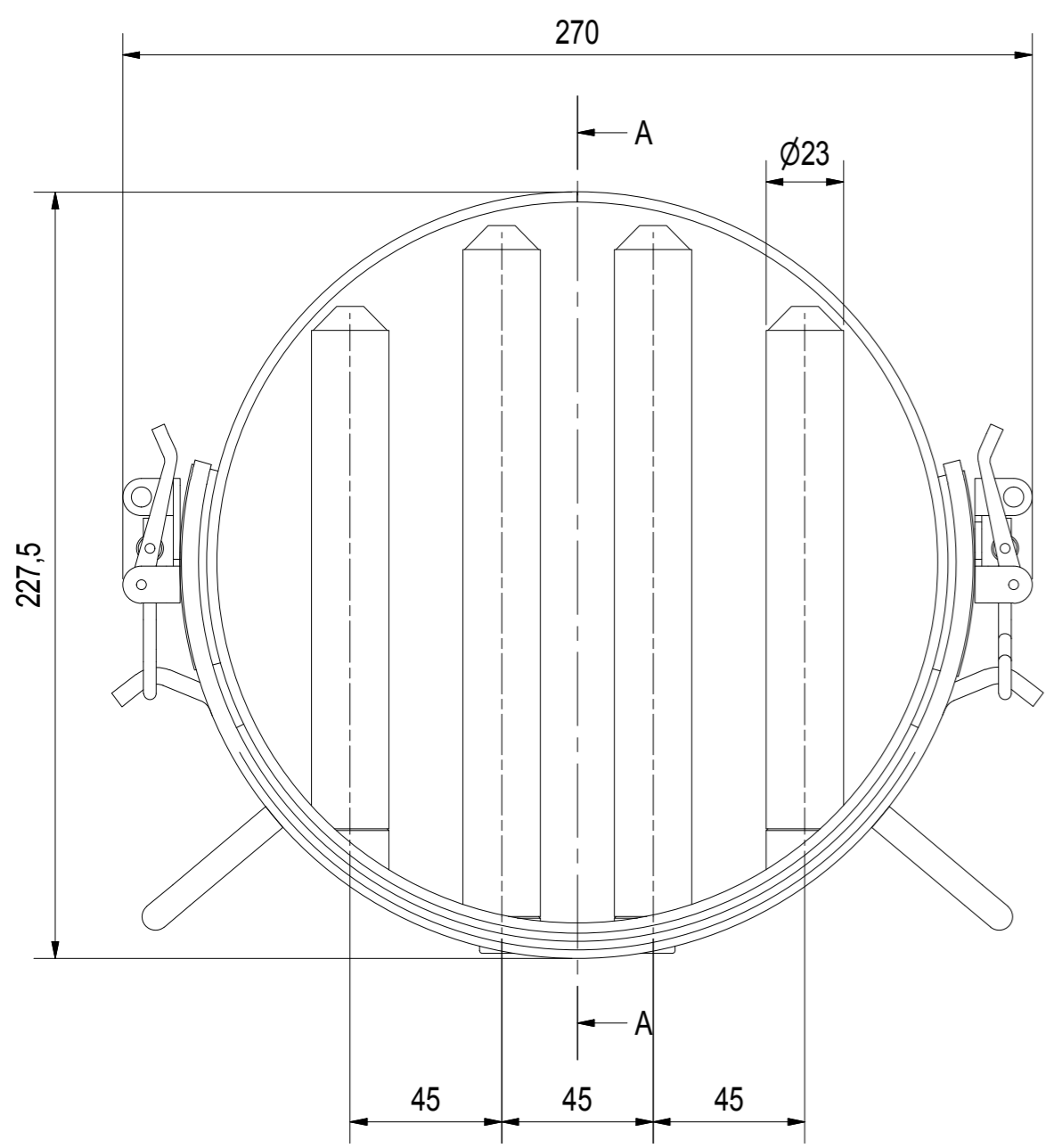
If the device will not be used for a long period of time, we advise to store the device in a dry, safe place and to conserve fragile and/or sensitive parts.

Dismantling / scrapping:

On scrapping and/or disposal of the device's parts separately, take into account the different nature of the components (magnets, iron, aluminium, electrical parts, insulating materials, etc.). Preferably entrust the task to a specialised company, and always observe the local regulations in regard to disposal of industrial waste.

Always be aware of magnetism. Inform the disposer about the dangers of magnetism. See also chapter [Safety](#).

6	DATE	BY	DESCRIPTION
REV	07-02-2013	FS	REFERENCE DRAWING A240697



ITEM	QTY	PART NUMBER	DESCRIPTION	DIMENSIONS
6	1	S240909	GASKET 5MM EPDM FDA	
5	4	51.0208016	SCHR CIL BZK M08x16 RVS A2	
4	2	SBANC100030-155	BAR N42 D23 M8 R316L P25 CON	
3	2	SBANC100030-205	BAR N42 D23 M8 R316L P25 CONE	
2	1	A240696	WELD ASSY MAGNET PLATE CF200	
1	1	A240695	CLEANFLOW DN200 NDFEB D23	

Scale: 1:2	Sheet: A2	General tolerance: ISO 2768 mK
Date: 07-02-2013	Drawn: FS	Unit: st
Drawn according to: ISO268 ISO1101 ISO2553		GOUDSMIT MAGNETIC SYSTEMS
© All rights reserved. Reproduction is not permitted without written permission of GOUDSMIT Magnetic Systems BV		
Description: CLEANFL DN200 NDFEB D23 POLISH		Lookup: SECF200
		Artnr: SECF383337
		Rev: A

Data sheet SECF383337-A

Specifications

General

<u>Description</u>	Neoflux® Cleanflow magnet DN200
<u>Summary</u>	Connection DN200 - 4 extractor bars Ø23 mm - GSN-42 magnet quality
<u>Appliance</u>	Free flowing powder and granular products, such as plastics, flour, sugar and coffee beans, not suited for fatty powders. For little Fe-pollution (cleaning up to 2x/day).
<u>Working principle</u>	The product makes contact with the magnet, and passing Fe-particles are caught
<u>Capacity</u>	8 to 20 m ³ /h (depending on product type)
<u>Max particle size</u>	10 mm
<u>Fe-particle size that can be caught</u>	≥30 µm
<u>Cleaning/Fe-particles disposal</u>	Manual
<u>Build-in length</u>	120 mm
<u>Interface/connection dim's</u>	DN200 mm
<u>Materials - product touched</u>	SS 1.4404 (AISI316L)
<u>Materials housing</u>	SS 1.4404 (AISI316L)
<u>Material gaskets/seals</u>	EPDM, Food Safe / FDA
<u>Surface treatment/finishing</u>	SF5, Ra 0.4 µm
<u>Maximum operating/product temperature</u>	60°C
<u>Min/max surrounding temperature</u>	-20°C to 40°C

Magnet info

<u>Magnet system type</u>	Magnet bars
<u>Magnet dimensions</u>	bar Ø23 mm
<u>No of magnets</u>	4
<u>Magnet quality</u>	NdFeB GSN-42, Br 13.200 Gauss (at 20° C), Tmax 80° C
<u>Magnetic field strength</u>	10.700 Gauss on magnet

Physical info

<u>Length x Width x Height</u>	228 x 270 x 120 mm
<u>Weight</u>	

Overview of technical documents in delivery

- User Manual
- Declaration of Incorporation
- Data sheet
- Main drawing: SECF383337-A
- Food Safe / FDA declaration

Declaration of Incorporation / ATEX II 1D-2D

Declaration of Incorporation acc. to annex IIB of the Machinery Directive 2006/42/EC
and Declaration of Conformity acc. to ATEX 94/9/EG

We,

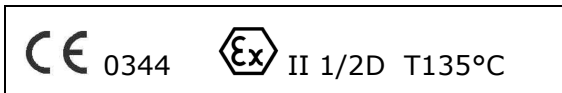
Goudsmit Magnetic Systems B.V.
Petunialaan 19
5582 HA Waalre
The Netherlands

herewith declare, on our own responsibility, that the device:

Article description: **Cleanflow magnet, series SECF...**

1. is in accordance with the conditions of the Machinery Directive 2006/42/EC;
2. as a component conforms to directive 94/9/EC and specifically to standards **EN 13463-1:2001, EN13463-5:2003** and **EN50281-1-1:1998+A1**

The machinery carries following marking and according may be used in dust zone 20 inside product chute / zone 21 outside product chute (according directive 99/92/EC):



Notified Body: DEKRA Certification B.V. Utrechtseweg 310, 6812 AR Arnhem, the Netherlands.

And if the device is supplied with electrical parts built-on:

3. as a component conforms to directive 2006/95/EC, relating to electrical equipment designed for use within certain voltage limits;
4. as a component conforms to directive 2004/108/EC, relating to electromagnetic compatibility.

And if the device is to be incorporated into machinery or assembled with other machinery and thereby:

5. has to be mechanically and/or electrically connected in the right manner and extended by safety protections where needed to constitute relevant machinery guidelines;

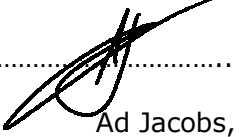
The underlying technical file is compiled under responsibility of mr. Ad Jacobs, Chief Technical Officer.

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated had been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Waalre, The Netherlands, 14-11-2011

Signature manufacturer:

on behalf of Goudsmit:

.....


Ad Jacobs,
Chief Technical Officer

Ex Declaration

regarding the use of permanent magnets in potential explosive atmospheres in zones 0,1,2
and 20,21,22

We,

Goudsmit Magnetic Systems B.V.
Petunialaan 19
5582 HA Waalre
The Netherlands

hereby declare, that products:

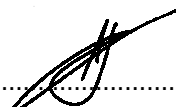
Product description: Cleanflow Magnet

do not fall within the scope of application specified in directive 94/9/EC. A risk assessment has substantiated that permanent magnets do not have any internal potential sources of ignition. They can be used for their intended purpose in potentially explosive gas atmospheres in zones 0, 1 and 2, as well as in potentially explosive dust atmospheres in zones 20, 21 and 22.

Waalre, The Netherlands, 23-7-2012

on behalf of Goudsmit:

Signature manufacturer:



.....

Ad Jacobs,
Chief Technical Officer

TECHNISCHES DATENBLATT		
TECHNICAL DATA SHEET		
FICHE TECHNIQUE		
204CM288 FDA		
1. Grund Basis Base	EPDM+CR+Polyolefinen	
2. Zellstruktur Cellular structure Structure cellulaire	Geschlossen – Closed – Etanche	
3. Farbe Colour Couleur	Crème	
4. Spezifisches Gewicht Density Masse volumique	95 ± 15 kg/m³	
5. Shore Härte 00 Shore hardness 00 Dureté Shore 00	40 ± 10	
6. Drückfestigkeit Compression-Deflection bei – at - à Résistance à la compression	-25%	38 (32 - 44) Kpa*
7. Druckverformungsrest Compression set 50%/22h bei , at , à Déformation rémanente	23°C	20%* ≤ 25%
8. Vakuum-Wasseraufnahme Vacuum-water absorption Absorption d'eau sous vide	3%* ≤ 5%	
9. Temperaturbereich Temperature range Température d'utilisation	Bestand – Constant – Continue Höchstwert – Intermittent - Intermittent	-50°C / +80°C +120°C
10. Lineare Schrumpfung nach : Lineair shrinkage after : 7 Tagen bei 70°C Retrait linéaire après :	max.- 5%	
11. Bruchdehnung Ultimate elongation Allongement à la rupture	> 300 %	
12. Zugfestigkeit Tensile strength Résistance à la rupture	≥ 300 kPa	
13. FDA approval	Ingredients are approved	
14. Beständigkeit Resistance Résistance	Luft + U.V. – Air + U.V. – Air + U.V. Ozon – Ozone – Ozone Öl – Oil – Huile	120 hr QUV. vortrefflich – excellent – excellent 72 h /39°C/ 50 pphm no cracks vortrefflich – excellent – excellent
15. Spezifikationen, Normen Specifications, standards Spécifications, normes	MIL-C-R6130, Type 11, grade A,B,C. ASTM D 1056 (1999) SAW J 18 (1992) Mil-C-3133, SCE 42 & SCE 7 UL 94 HF 1	OK / Pass 2C2 2C2 OK / Pass Self-Extinguishing / Pass
16. Wärmeleitfähigkeit Thermal Conductivity Conductibilité thermique	0.037 kcal/m/h/°C	

durchschnittlicher Wert / Average value / Valeur moyenne indicative

Die o.g. Werte müssen als Hinweise betrachtet werden und sind ohne Rechtsverbindlichkeit

The above given information should be considered as a guide but cannot be regarded as an engagement from our side

Les valeurs données ci-dessus doivent être considérées comme indicatives et ne sauraient en aucun cas constituer un engagement de notre part.

CERTIFICATES

We declare that the security and design of the equipment described below are conform to the requirements of following European directives:

Machinery Directive : 2006/42/CE

ATEX : 94/9/CE

Manufacturer : Frewitt SA, route du Coteau 7, CH-1763 Granges-Paccot

Description :	Pneumatic transport system	Type :	PTS
Year of manufacture :	2014	Serial Nr :	14001335180
	int. II		1D T130°C
	ext. II		3D T130°C



The following technical standards have been applied in order to implement the basic health and safety requirements mentioned in the EC directives in an appropriate manne :

General principles of construction	EN ISO 12100-1/2
Safety distance	EN ISO 13857
Design and ordering system	EN ISO 13849-1
Prevention / protection of the explosion	EN 1127-1
Non-electrical equipment:	
general requirements	EN 13463-1

Any alteration or inappropriate uses of this equipment makes this declaration invalid.

Index

- ▶ EC declaration of conformity of PPC-200VS with G540+VS250
- ▶ EC declaration of conformity of butterfly valve with pneumatic actuator
- ▶ EC declaration of conformity of Cleanflow magnet Neoflux

Chief executive officer (CEO)

Antoine Virdis

Technical department

Olivier Bianchi / Yves Grossrieder

Granges-Paccot, 27. janvier 2014

Original-EG-Konformitätserklärung

Original -EC Declaration of Conformity



Wir, die **Volkman GmbH**
We

mit Sitz **Schloitweg 17**
of **59494 Soest**

erklären hiermit, dass das im Folgenden bezeichnete Produkt
hereby declare that the product described below

Bezeichnung designation	Vakuumfördersystem vacuum conveying system	Typ type	PPC200VS mit G540 + VS250 PPC200VS with G540 + VS250
Kommission commission	VIA AG	ID-Nr. ID-No	633960-1-001
Baujahr year of construction	03 / 2014	Baumuster:	TÜV 02 ATEX 7005 X EC type-examination certificate

TÜV Ref. **0035 (TÜV Rheinland Industrie Service GmbH, Haumannplatz 4, D-45130 Essen)**
TÜV Ref.

den einschlägigen Anforderungen der folgenden Richtlinie(n)
complies with all relevant provisions of the directive(s)

- Richtlinie 2006/42/EG (Maschinenrichtlinie)**
Directive 2006/42/EC (Machinery Directive)
- Richtlinie 94/9/EG (ATEX-Richtlinie)**
Directive 94/9/EC (ATEX Directive)
- Richtlinie 2004/108/EWG (EMV-Richtlinie)**
Directive 2004/108/EEC (EMC Directive)

und deren Ergänzungen entspricht.
as amended.

Das Produkt erfüllt die Anforderungen folgender harmonisierter Norm(en)
The product complies with all relevant provisions of the following harmonised standard(s)

- | | |
|---|---|
| <input checked="" type="checkbox"/> DIN EN ISO 12100: 2011-03 | <input checked="" type="checkbox"/> DIN EN ISO 4414: 2011-04 |
| <input checked="" type="checkbox"/> DIN EN 13463-1: 2009-07 | <input checked="" type="checkbox"/> DIN EN 13463-5: 2011-10 |
| <input checked="" type="checkbox"/> DIN EN 60204-1/A1: 2009-10 | <input checked="" type="checkbox"/> DIN EN 1127-1: 2011-10 |

Dokumentationsbevollmächtigter für techn. Unterlagen: Derk Naujokat
Documentation authorized person for technical information

Adresse des Dokumentationsbevollmächtigten: Adresse des Herstellers
Address of documentation authorized person: Address of manufacturer

Ort, Datum **Soest, 28.03.2014**
Place, Date

Name, Unterschrift
name, signature

Heinz-Werner Eickhoff
Volkman GmbH

Position
function

Technische Leitung
Technical Management

Entsprechungen: Richtlinie 2006/42/EG; Richtlinie 2004/108/EWG
Compliant with Richtlinie 94/9/EG; EN ISO 17050-1: 2005
Directive 2006/42/EC; Directive 2004/108/EEC
Directive 94/9/EC ; EN ISO 17050-1: 2005

Original-EG-Konformitätserklärung

Original -EC Declaration of Conformity



Wir, die **Volkman GmbH**
We

mit Sitz **Schloitweg 17**
of **59494 Soest**

erklären hiermit, dass das im Folgenden bezeichnete Produkt
hereby declare that the product described below

Bezeichnung designation	Vakuumfördersystem vacuum conveying system	Typ type	PPC200VS mit G540 + VS250 PPC200VS with G540 + VS250
Kommission commission	VIA AG	ID-Nr. ID-No	633960-1-002
Baujahr year of construction	03 / 2014	Baumuster:	TÜV 02 ATEX 7005 X EC type-examination certificate

TÜV Ref. **0035 (TÜV Rheinland Industrie Service GmbH, Haumannplatz 4, D-45130 Essen)**
TÜV Ref.

den einschlägigen Anforderungen der folgenden Richtlinie(n)
complies with all relevant provisions of the directive(s)

- Richtlinie 2006/42/EG (Maschinenrichtlinie)**
Directive 2006/42/EC (Machinery Directive)
- Richtlinie 94/9/EG (ATEX-Richtlinie)**
Directive 94/9/EC (ATEX Directive)
- Richtlinie 2004/108/EWG (EMV-Richtlinie)**
Directive 2004/108/EEC (EMC Directive)

und deren Ergänzungen entspricht.
as amended.

Das Produkt erfüllt die Anforderungen folgender harmonisierter Norm(en)
The product complies with all relevant provisions of the following harmonised standard(s)

- | | |
|---|---|
| <input checked="" type="checkbox"/> DIN EN ISO 12100: 2011-03 | <input checked="" type="checkbox"/> DIN EN ISO 4414: 2011-04 |
| <input checked="" type="checkbox"/> DIN EN 13463-1: 2009-07 | <input checked="" type="checkbox"/> DIN EN 13463-5: 2011-10 |
| <input checked="" type="checkbox"/> DIN EN 60204-1/A1: 2009-10 | <input checked="" type="checkbox"/> DIN EN 1127-1: 2011-10 |

Dokumentationsbevollmächtigter für techn. Unterlagen: Derk Naujokat
Documentation authorized person for technical information

Adresse des Dokumentationsbevollmächtigten: Adresse des Herstellers
Address of documentation authorized person: Address of manufacturer

Ort, Datum **Soest, 28.03.2014**
Place, Date

Name, Unterschrift
name, signature

Heinz-Werner Eickhoff
Volkman GmbH

Position
function

Technische Leitung
Technical Management

Entsprechungen: **Richtlinie 2006/42/EG; Richtlinie 2004/108/EWG**
Richtlinie 94/9/EG; EN ISO 17050-1: 2005
Compliant with **Directive 2006/42/EC; Directive 2004/108/EEC**
Directive 94/9/EC ; EN ISO 17050-1: 2005

Declaration of Incorporation / ATEX II 1D-2D

Declaration of Incorporation acc. to annex IIB of the Machinery Directive 2006/42/EC
and Declaration of Conformity acc. to ATEX 94/9/EG

We,

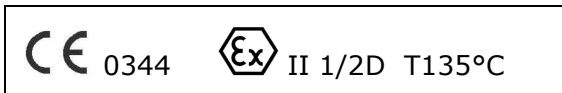
Goudsmit Magnetic Systems B.V.
Petunialaan 19
5582 HA Waalre
The Netherlands

herewith declare, on our own responsibility, that the device:

Article description: **Cleanflow magnet, series SECF...**

1. is in accordance with the conditions of the Machinery Directive 2006/42/EC;
2. as a component conforms to directive 94/9/EC and specifically to standards **EN 13463-1:2001, EN13463-5:2003** and **EN50281-1-1:1998+A1**

The machinery carries following marking and according may be used in dust zone 20 inside product chute / zone 21 outside product chute (according directive 99/92/EC):



Notified Body: DEKRA Certification B.V. Utrechtseweg 310, 6812 AR Arnhem, the Netherlands.

And if the device is supplied with electrical parts built-on:

3. as a component conforms to directive 2006/95/EC, relating to electrical equipment designed for use within certain voltage limits;
4. as a component conforms to directive 2004/108/EC, relating to electromagnetic compatibility.

And if the device is to be incorporated into machinery or assembled with other machinery and thereby:

5. has to be mechanically and/or electrically connected in the right manner and extended by safety protections where needed to constitute relevant machinery guidelines;

The underlying technical file is compiled under responsibility of mr. Ad Jacobs, Chief Technical Officer.

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated had been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Waalre, The Netherlands, 14-11-2011

on behalf of Goudsmit:

Signature manufacturer:

.....


Ad Jacobs,
Chief Technical Officer



Declaration of Conformity

according to

EC - Directive 98/37/EC, annex II A relating to machinery
 EC - Directive Equipment and protective systems intended for use in Potentially Explosive Atmospheres 94/9/EC, ATEX 95

The manufacturer

Nocado GmbH & Co. KG
 Kirchweg 3
 26629 Großefehn

herewith declares that the following products

Nocado butterfly valves DN 15 – 150 TÜV08ATEX554362

with the marking  0044  II1/2 G/D c II B

in the delivered version correspond to the above mentioned directives and the following DIN EN standards.

Directive/Standard	Title	Issue	Remarks
DIN EN 1127-1	Explosion prevention and protection	1997	Harmonised standard
DIN EN 13463-1	Non-electrical equipment for use in potentially explosive atmospheres	2002	Harmonised standard
DIN EN 13463-5	Non-electrical equipment for use in potentially explosive atmospheres	2003	Harmonised standard
DIN EN ISO 12100-1	Safety of machinery	2004	Harmonised standard
DIN EN ISO 12100-2	Safety of machinery	2004	Harmonised standard

Unauthorised alterations made to the products described above will void this declaration of conformity.

Großefehn, 22nd of September 2008

Günter Saathoff
 Director of
 Construction Department

Relevé de contrôle EN 10204-2.2 pour les matériaux des pièces utilisées. **Werkzeugnis EN 10204-2.2 für die Werkstoffe der produktberührenden Teile.** **Test report EN 10204-2.2 for material of product contact parts**

Nous certifions que les parties en contact avec le produit des pièces utilisés sont, soit en:

Hiermit bestätigen wir, dass die produktberührten Teile der obengenannten Zerkleinerungsmaschine aus folgenden Werkstoffen hergestellt sind:

We certify herewith that the used parts of above-mentioned device are made of:

Acier inoxydable:

Rostfreier Stahl:

Stainless steels:

AISI
316 / 316L

Joints (conforme FDA) :

Dichtungen (FDA-konform) :

Seals (FDA conform) :

ABRAFLEX
EPDM
PTFE
PUR-MHF-AS
Silicone

ABRAFLEX
EPDM
PTFE
PUR-MHF-AS
Silikon

ABRAFLEX	
EPDM	
PTFE	
PUR-MHF-AS	
Silicone	

En outre, nous certifions qu'aucun élément d'amiante n'a été utilisé dans nos machines.

Desweiteren bestätigen wir, dass in unserer Anlage keine asbesthaltigen Teile enthalten sind.

Furthermore, we certify that no asbestos material has been used for manufacturing the machine.

Les parties **pas en contact avec le produit** des pièces utilisés sont, soit en :

Nichtproduktberührten Teile aus folgenden Werkstoffen hergestellt sind :

The **used parts** of above-mentioned devise (**not in contact with the product**) are made of :

AISI
304 / 304L

Frewitt Fabrique de Machines SA

R. Rybarikova

Documentalis
 Dokumentalist
 Documentalist

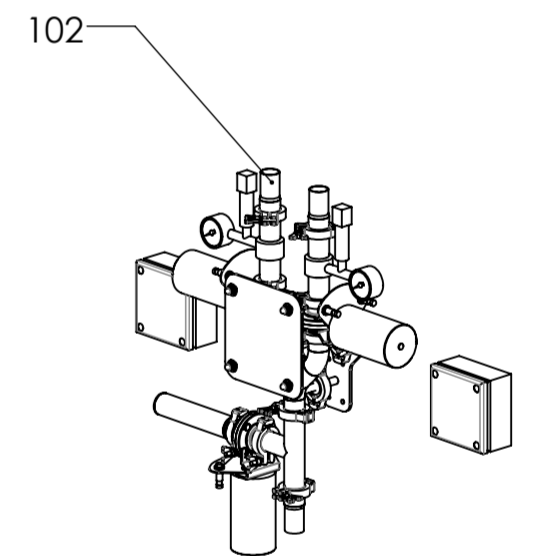
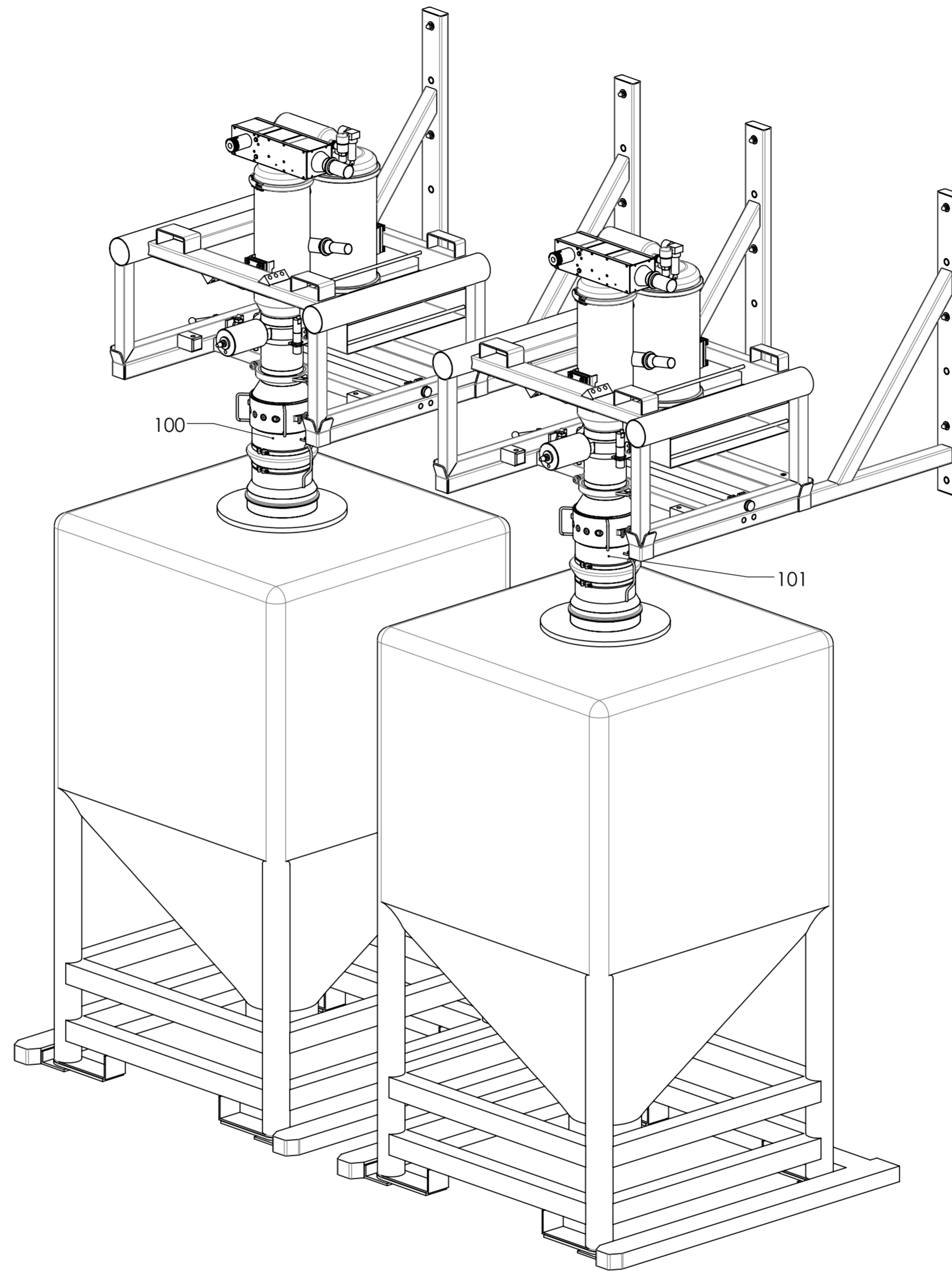
Voir documents suivants.

Siehe folgende Dokumente.

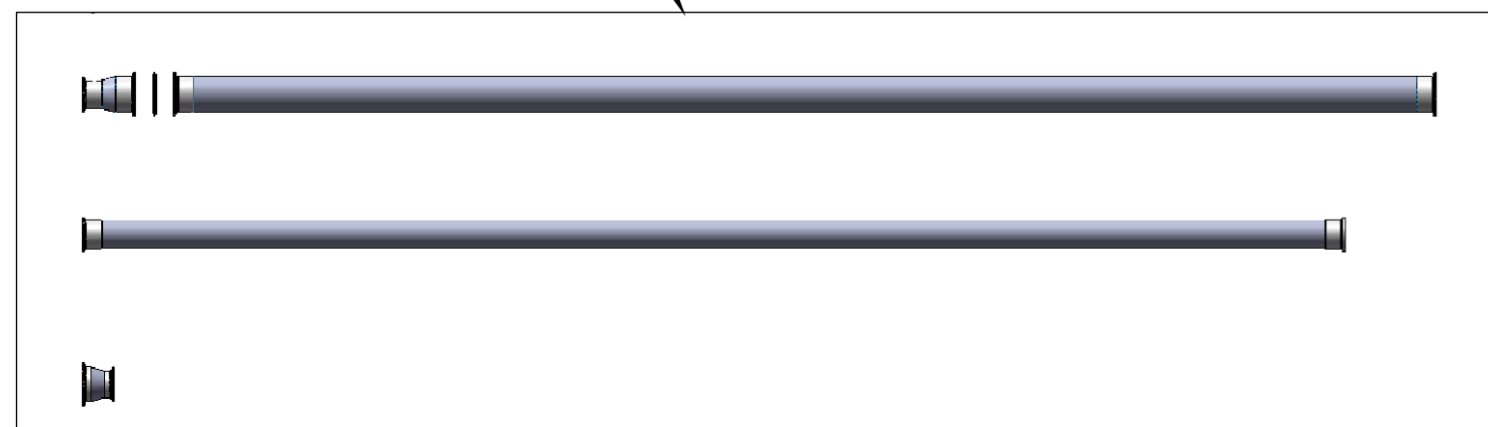
See following documents

Pos.	Item number	Control drawing	Materials certificates EN-10204-3.1B FDA	Surface quality certificates
100	473525	473525-CMA	X	X
101	473525	473525-CMA	X	X
102	473516	473516-CMA	X	X
103	474798	474798-CMA	X	X

X = delivered
0 = undelivered



103



Dimensions without tolerance [mm]	above	6	30	120	400	1000
	up to	6	30	120	400	1000
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00

MATERIAL :

Scale	Similar	Designed	22/01/2014	thle
%	469852	Controlled	15/05/2014	ygr
Weight [kg]		Revised	15/05/2014	ygr
A2	36371.42	Atex		

PRO-14-0013 / PPC-200VS

Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.



Frewitt SA: Milling and Handling of Powders
P.O.B. 615, CH-1701 Fribourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewitt.com / www.frewitt.com

473515-CMA

Page Ver.
1/1 A

Pos. 500-501 Dessin / Zeichnung / Drawing : 473525-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	EPDM	437890	169108
501	Silicone	405881	26019

Pos 102 473516 Dessin / Zeichnung / Drawing : 473516-CMA

Pos. 1 464937 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.58	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	12.70	0.22	64.56	1.98	17.78	0.02	0.00

Pos. 2 464936 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.18	12.43	0.00	64.80	1.67	18.29	0.04	0.00

Pos. 100 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.60	0.00	0.00	0.01	0.01	0.00	0.05	0.02	0.13	12.88	0.12	65.10	1.42	17.57	0.07	0.00
2	316/316L	0.00	0.00	0.03	0.00	0.00	0.00	2.44	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.56	10.77	0.24	68.04	1.58	16.15	0.12	0.00

Pos. 101 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.70	0.03	0.00	0.01	0.02	0.00	0.03	0.02	0.20	13.18	0.10	64.94	1.55	17.15	0.05	0.00
2	316/316L	0.00	0.00	0.00	0.01	0.00	0.01	2.30	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.10	10.69	0.35	68.97	1.03	16.36	0.13	0.00

Pos. 102 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.75	0.02	0.01	0.01	0.02	0.00	0.05	0.00	0.23	13.04	0.21	66.08	1.11	16.36	0.07	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.28	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.05	11.08	0.34	70.04	1.07	16.99	0.10	0.00

Pos. 103 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.01	0.00	0.00	2.17	0.01	0.00	0.00	0.03	0.00	0.00	0.08	9.98	0.46	68.89	1.34	16.99	0.02	0.01	
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.23	0.01	0.00	0.01	0.01	0.00	0.06	0.01	0.08	10.03	0.50	68.72	1.25	17.05	0.02	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	1.98	0.00	0.01	0.00	0.03	0.00	0.00	0.01	0.30	10.28	0.02	69.37	1.08	16.83	0.08	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	EPDM	469947	151784

Pos. 104 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.01	2.21	0.01	0.00	0.01	0.02	0.00	0.04	0.01	0.04	10.49	0.47	68.81	1.21	16.65	0.04	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.01	0.01	2.15	0.00	0.00	0.00	0.03	0.00	0.07	0.00	0.07	10.41	0.30	69.51	0.77	16.65	0.01	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.05	0.02	0.00	0.00	0.02	0.00	0.01	0.01	0.28	10.50	0.22	69.26	1.11	16.43	0.07	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	EPDM	469947	151784

Pos. 105 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.20	0.00	0.00	0.01	0.02	0.01	0.00	0.02	0.09	10.17	0.57	68.47	1.88	16.51	0.04	0.01
2	316/316L	0.00	0.00	0.03	0.00	0.01	0.00	2.23	0.02	0.02	0.00	0.02	0.00	0.04	0.01	0.14	10.58	0.74	68.66	1.63	16.84	0.04	0.00
3	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.10	0.01	0.00	0.00	0.01	0.00	0.08	0.00	0.26	10.38	0.20	69.31	1.25	16.76	0.10	0.01

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	EPDM	469947	151784

Pos. 106 464968 Dessin / Zeichnung / Drawing : 464968-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.01	0.00	0.01	2.26	0.02	0.01	0.01	0.02	0.00	0.04	0.00	0.41	10.63	0.42	68.70	1.09	16.25	0.10	0.00
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.14	0.02	0.01	0.01	0.02	0.00	0.05	0.02	0.25	10.50	0.00	69.28	0.64	16.99	0.07	0.00
3	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.88	0.00	0.01	0.01	0.00	0.00	0.05	0.01	0.40	13.74	0.46	65.59	1.46	16.71	0.09	0.01
4	316/316L	0.00	0.00	0.00	0.01	0.00	0.00	2.17	0.00	0.00	0.01	0.01	0.00	0.03	0.00	0.04	10.92	0.23	69.80	0.76	16.95	0.06	0.00
5	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.04	0.00	0.00	0.01	0.00	0.05	0.00	0.27	10.68	0.04	69.31	0.70	16.86	0.07	0.00
6	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.84	0.03	0.01	0.01	0.02	0.01	0.06	0.00	0.23	13.93	0.29	65.54	1.49	16.82	0.08	0.00
7	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.04	0.00	0.00	0.01	0.01	0.00	0.04	0.00	0.35	11.10	0.43	68.60	1.07	16.22	0.11	0.01
8	316/316L	0.00	0.00	0.02	0.01	0.00	0.01	2.09	0.01	0.01	0.00	0.00	0.01	0.04	0.00	0.30	10.74	0.11	69.40	0.84	16.93	0.08	0.00

Pos. 107 460022 Dessin / Zeichnung / Drawing : 460022-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.03	0.00	0.00	0.00	0.02	0.00	0.05	0.02	0.30	10.08	0.11	69.31	0.80	17.19	0.08	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.10	0.03	0.00	0.01	0.01	0.00	0.14	0.00	0.42	9.84	0.44	68.15	1.57	17.21	0.07	0.00

Pos. 108 463739 Dessin / Zeichnung / Drawing : 463739-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.00	0.01	0.00	0.00	3.50	0.00	0.01	0.01	0.02	0.00	0.23	0.00	0.28	14.52	0.17	63.32	1.65	16.12	0.15	0.01
2	316/316L	0.00	0.00	0.01	0.00	0.01	0.02	2.06	0.01	0.00	0.00	0.02	0.00	0.01	0.02	0.40	11.25	0.11	68.34	1.41	16.30	0.05	0.00
3	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.36	0.04	0.01	0.00	0.02	0.00	0.09	0.00	0.27	11.60	0.24	68.59	1.14	16.54	0.07	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	PTFE	455217	56867

Pos 103 474798 Dessin / Zeichnung / Drawing : 474798-CMA

Pos. 100 471025 Dessin / Zeichnung / Drawing : 474798-CMA

471025-1 471025 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.00	0.00	0.00	0.01	2.42	0.00	0.02	0.00	0.01	0.00	0.02	0.00	0.16	10.55	0.16	69.32	0.80	16.73	0.05	0.03
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.19	0.05	0.01	0.00	0.01	0.00	0.09	0.01	0.41	10.68	0.39	68.18	1.77	16.60	0.09	0.00
3	316/316L	0.00	0.02	0.00	0.00	0.00	0.01	2.35	0.04	0.01	0.01	0.02	0.01	0.00	0.12	10.99	0.16	69.44	1.64	16.83	0.08	0.03	

471025-2 471025 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.01	2.22	0.00	0.01	0.01	0.03	0.00	0.00	0.01	0.19	10.59	0.09	68.61	1.68	16.41	0.12	0.03
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.11	0.04	0.01	0.00	0.02	0.00	0.11	0.00	0.45	10.41	0.36	68.05	1.78	16.56	0.08	0.01
3	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.04	0.01	0.01	0.01	0.01	0.00	0.04	0.02	0.03	10.24	0.19	69.97	1.26	16.18	0.06	0.00

471025-3		471025 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.70	0.02	0.01	0.00	0.01	0.00	0.05	0.01	0.13	11.77	0.33	69.75	1.78	16.83	0.08	0.03
2	316/316L	0.00	0.02	0.02	0.01	0.00	0.00	2.38	0.02	0.00	0.00	0.02	0.00	0.04	0.00	0.37	10.96	0.30	67.91	2.00	16.93	0.10	0.02
3	316/316L	0.00	0.00	0.00	0.01	0.00	0.00	2.45	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.19	10.09	0.48	69.26	1.18	16.92	0.06	0.01

471025-4		471025 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.02	0.00	0.00	0.00	0.00	2.36	0.01	0.02	0.01	0.03	0.00	0.08	0.02	0.05	10.88	0.34	68.60	2.02	16.81	0.11	0.04
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.15	0.04	0.01	0.01	0.02	0.00	0.08	0.00	0.32	10.45	0.34	67.97	1.68	16.83	0.09	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.25	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.16	10.26	0.50	68.74	1.34	16.62	0.04	0.00

Pos. 101 472378-1		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.14	0.00	0.00	0.02	0.02	0.00	0.00	0.03	0.08	10.76	0.15	67.14	1.83	17.77	0.05	0.00
2	316/316L	0.00	0.01	0.00	0.00	0.00	0.01	2.18	0.02	0.00	0.01	0.01	0.00	0.16	0.00	0.12	10.50	0.00	67.49	2.01	17.41	0.07	0.00

472378-2		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.34	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.44	11.22	0.13	66.79	1.37	17.56	0.08	0.00
2	316/316L	0.00	0.01	0.01	0.01	0.00	0.00	2.26	0.02	0.00	0.01	0.01	0.00	0.04	0.02	0.33	11.52	0.14	65.91	2.04	17.60	0.06	0.00

472378-3		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.01	2.13	0.05	0.02	0.00	0.04	0.00	0.00	0.01	0.29	11.56	0.27	66.20	1.31	18.02	0.07	0.00
2	316/316L	0.00	0.02	0.02	0.00	0.00	0.01	2.14	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.10	11.25	0.03	67.39	1.58	17.34	0.08	0.00

472378-4		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.08	0.01	0.00	0.00	0.02	0.00	0.04	0.01	0.33	11.15	0.21	65.64	1.35	19.04	0.10	0.01
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.01	2.17	0.01	0.01	0.01	0.03	0.00	0.00	0.00	0.15	10.74	0.01	67.50	1.89	17.40	0.06	0.00

472378-5		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.28	0.01	0.00	0.02	0.00	0.00	0.09	0.00	0.34	11.07	0.23	66.42	1.41	18.05	0.07	0.01
2	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.14	0.03	0.01	0.01	0.00	0.00	0.06	0.02	0.13	10.79	0.00	67.76	1.76	17.24	0.05	0.00

472378-6		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.14	0.01	0.00	0.00	0.02	0.00	0.03	0.01	0.10	10.67	0.25	66.84	1.76	18.11	0.04	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.15	0.00	0.01	0.01	0.03	0.00	0.07	0.01	0.33	11.64	0.12	66.19	1.82	17.57	0.06	0.01

472378-7		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.00	0.00	0.01	2.01	0.03	0.00	0.01	0.02	0.00	0.07	0.03	0.34	11.16	0.22	65.78	1.07	19.14	0.08	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.02	0.00	0.05	0.01	0.41	10.85	0.05	67.02	1.62	17.69	0.08	0.01

472378-8		472378 Dessin / Zeichnung / Drawing : 474798-CMA																					
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.15	0.02	0.01	0.01	0.03	0.00	0.00	0.05	0.32	11.07	0.10	66.59	1.76	17.84	0.05	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.19	0.03	0.00	0.01	0.01	0.00	0.09	0.00	0.23	11.44	0.13	66.35	1.74	17.70	0.07	0.00

472378-9 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.20	0.03	0.00	0.00	0.02	0.00	0.00	0.02	0.34	10.97	0.10	66.45	1.33	18.45	0.07	0.00
2	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.18	0.00	0.00	0.01	0.00	0.03	0.00	0.02	0.42	11.38	0.30	66.22	1.76	17.56	0.05	0.00

472378-10 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.00	0.01	0.00	2.21	0.03	0.00	0.01	0.03	0.00	0.00	0.01	0.38	11.00	0.32	65.86	1.67	18.39	0.08	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.23	0.01	0.01	0.00	0.00	0.01	0.00	0.03	0.17	11.01	0.25	66.10	1.90	18.25	0.03	0.00

472378-11 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.09	0.03	0.00	0.01	0.01	0.00	0.07	0.00	0.19	10.66	0.00	67.02	1.70	18.12	0.07	0.02
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.85	0.00	0.00	0.00	0.02	0.01	0.06	0.00	0.31	13.13	0.43	64.78	1.59	16.74	0.08	0.00

472378-12 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.07	0.01	0.00	0.01	0.01	0.00	0.03	0.03	0.13	10.83	0.14	67.02	1.78	17.87	0.05	0.01
2	316/316L	0.00	0.00	0.03	0.00	0.00	0.00	2.35	0.17	0.02	0.00	0.00	0.00	0.00	0.04	0.25	10.51	0.41	66.56	1.93	17.68	0.05	0.01

472378-13 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.09	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.22	11.02	0.53	66.81	1.60	17.61	0.05	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.26	10.98	0.40	67.03	2.16	16.97	0.09	0.00

472378-14 **472378 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.23	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.24	10.48	0.17	66.68	1.62	18.42	0.10	0.00
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.06	0.02	0.01	0.00	0.01	0.00	0.10	0.00	0.15	11.11	0.17	66.92	2.19	17.20	0.04	0.00

Pos. 102 **472377 Dessin / Zeichnung / Drawing : 474798-CMA**

Pos. 472377-1 **472377 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.31	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	10.17	0.00	69.88	0.80	16.76	0.05	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.16	0.05	0.01	0.01	0.01	0.00	0.12	0.02	0.33	10.42	0.00	70.02	0.80	16.96	0.07	0.00
3	316/316L	0.00	0.01	0.01	0.00	0.00	0.01	2.20	0.02	0.00	0.00	0.01	0.00	0.06	0.04	0.07	10.28	0.51	67.98	1.31	17.78	0.11	0.01
4	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.21	0.01	0.01	0.01	0.01	0.00	0.09	0.00	0.34	10.93	0.26	66.99	1.00	18.05	0.07	0.00
5	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.07	0.00	0.00	0.01	0.01	0.00	0.00	0.03	0.36	10.15	0.16	67.24	0.79	19.07	0.06	0.00

Pos. 472377-2 **472377 Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.02	0.02	0.00	0.00	0.00	2.21	0.01	0.00	0.01	0.01	0.00	0.00	0.03	0.09	10.37	0.00	68.95	1.11	17.03	0.13	0.02
2	316/316L	0.00	0.00	0.02	0.01	0.00	0.00	2.04	0.04	0.01	0.01	0.02	0.00	0.08	0.01	0.28	9.78	0.52	68.83	1.06	17.22	0.07	0.00
3	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.08	9.78	0.04	68.82	0.85	17.97	0.17	0.00
4	316/316L	0.00	0.01	0.02	0.01	0.00	0.01	2.13	0.00	0.01	0.02	0.01	0.00	0.10	0.00	0.30	10.95	0.22	66.79	1.43	17.93	0.06	0.00
5	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.07	0.00	0.01	0.00	0.01	0.00	0.19	0.00	0.19	11.38	0.22	66.67	1.12	18.07	0.06	0.01

Pos. 500-502 **Dessin / Zeichnung / Drawing : 474798-CMA**

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No :
500	PUR-MHF	472378	165583
501	PUR-MHF	472377	165583
502	PUR-MHF	472377	165583

Protocole établi par (visa)	H.Rey		le
Report established by (visa)			am
Protokoll erstellt von (visa)			on
			15-20.05.2014

Voir documents suivants.

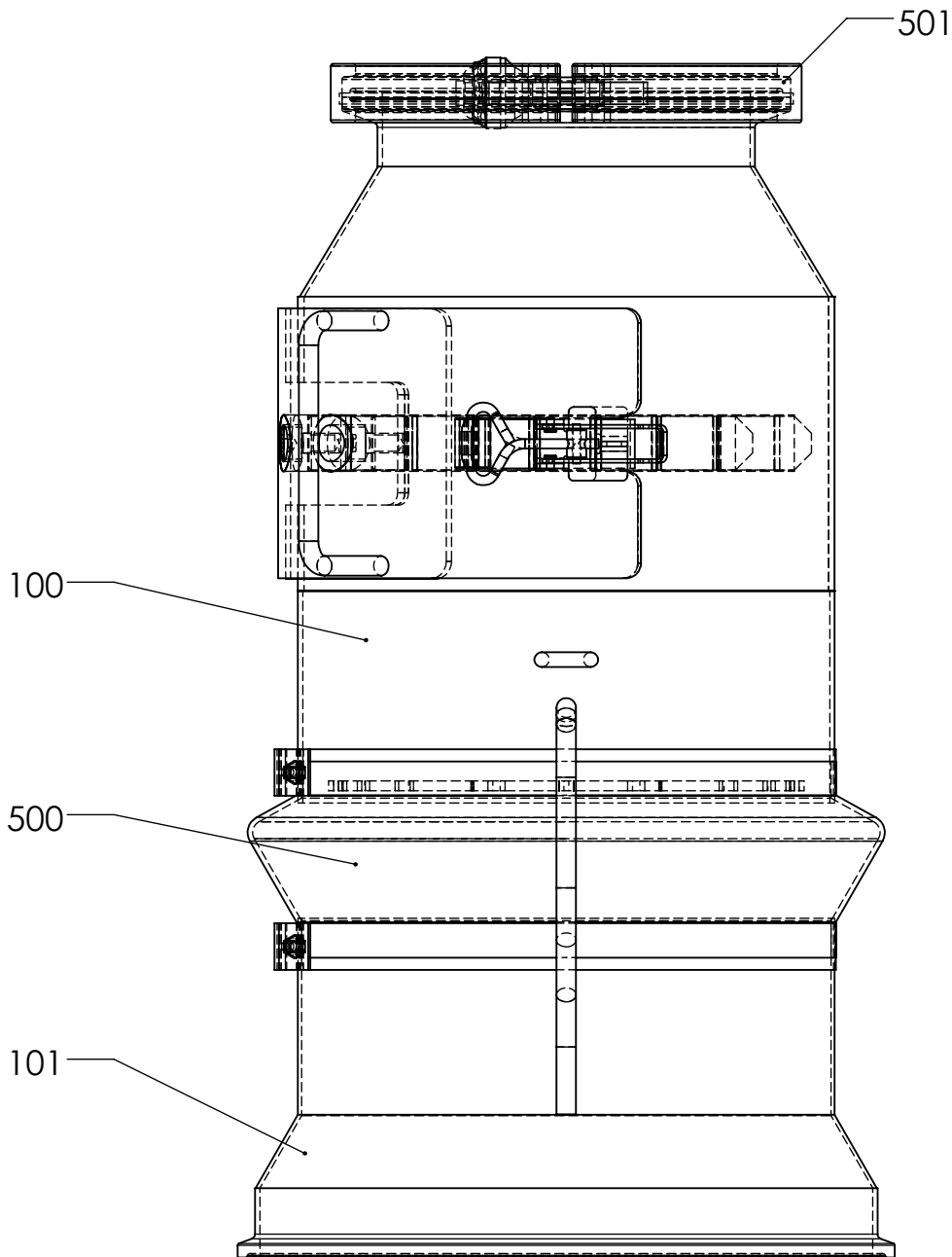
Siehe folgende Dokumente.

See following documents

Voir documents suivants.

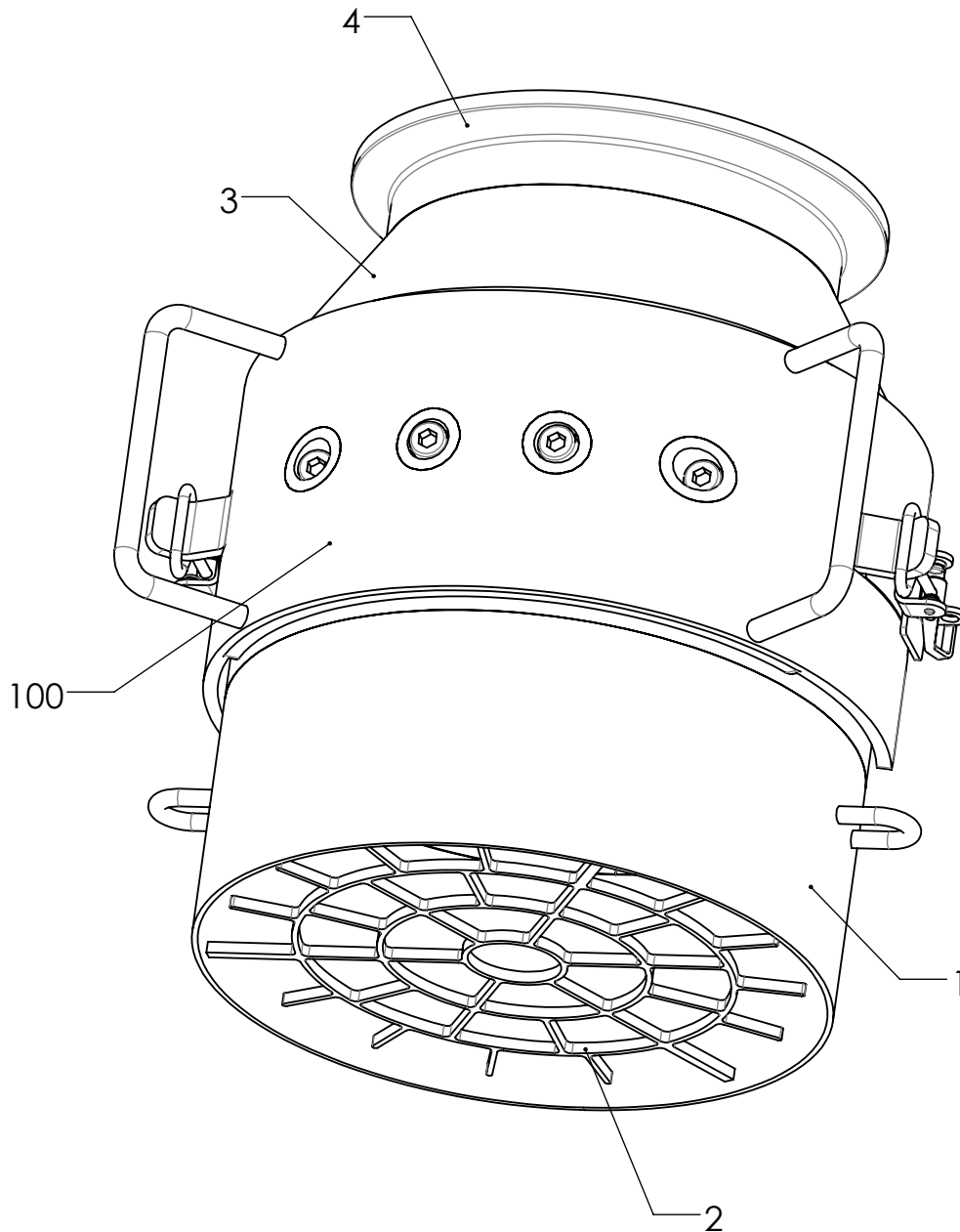
Siehe folgende Dokumente.

See following documents



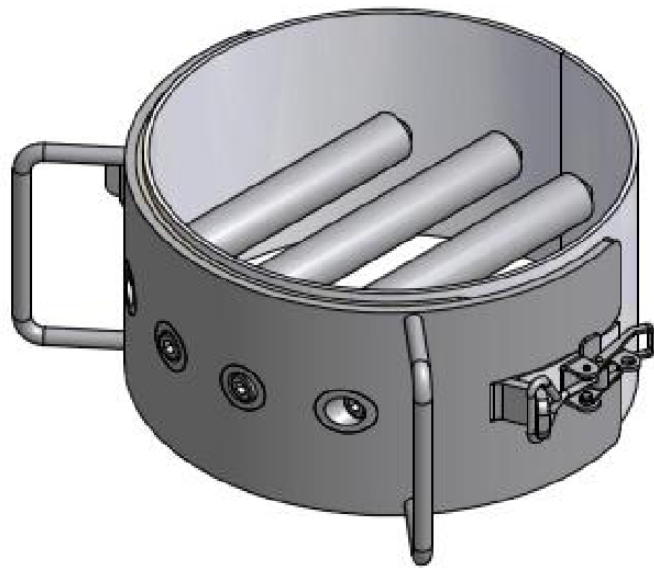
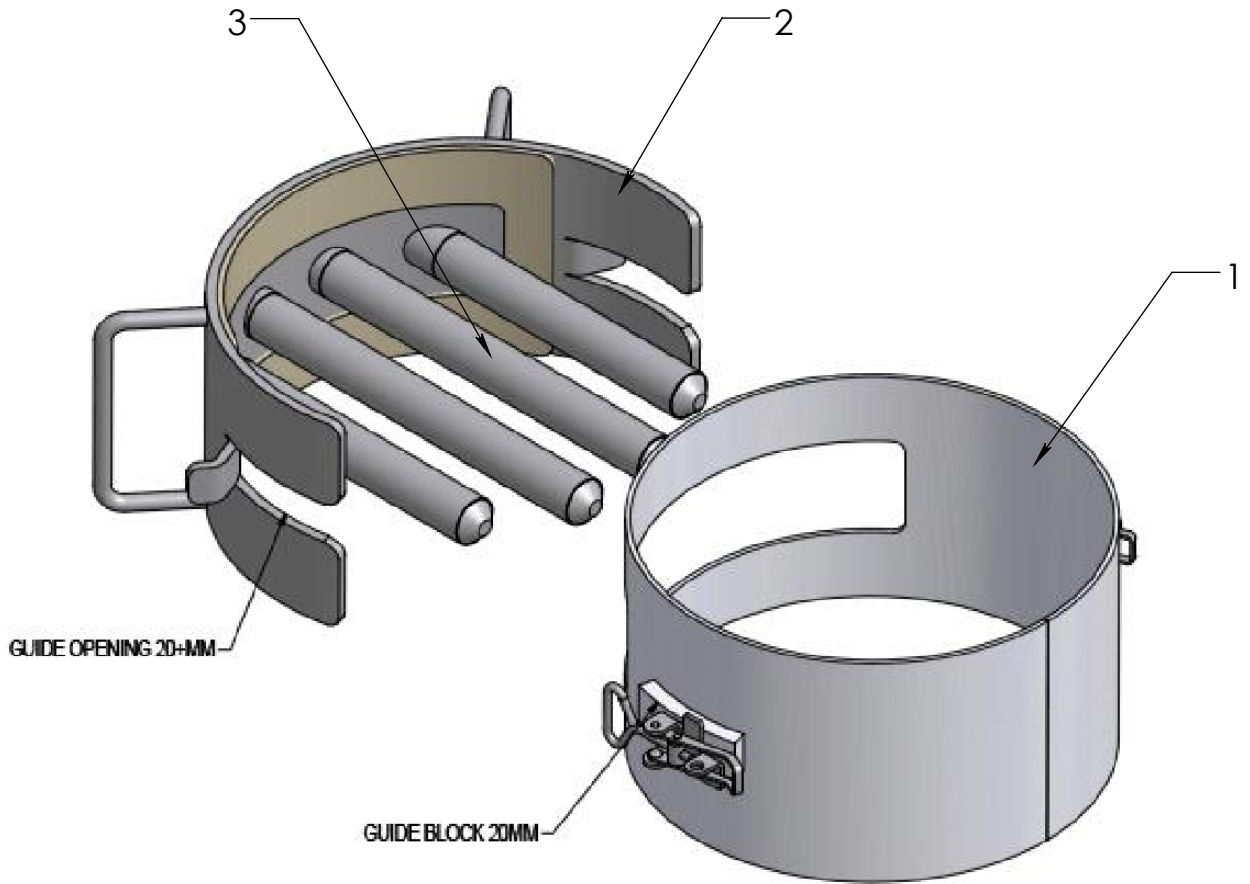
Position	Item number
100	469865-CMA
101	464847-CMA
500	437890
501	405881

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL :						
	up to	6	30	120	400	1000					2000		
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	23/01/2014	thle	
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%	469864	Controlled	23/01/2014	thle	
Entonnoir de sortie								Weight [kg]	Revised	23/01/2014	thle		
								A4	5.54	Atex			
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.								Frewitt SA; Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		473525-CMA		Page	Ver.
												1/1	A

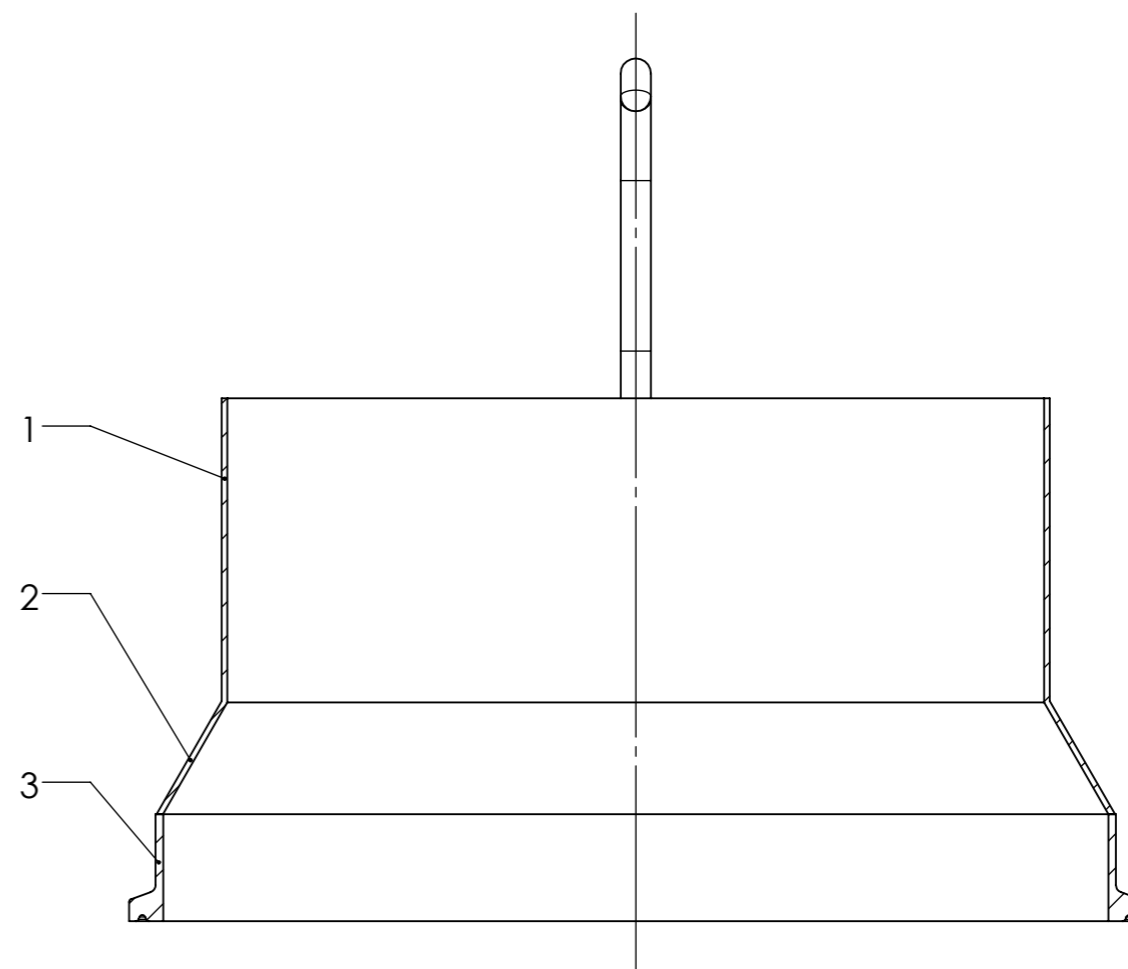
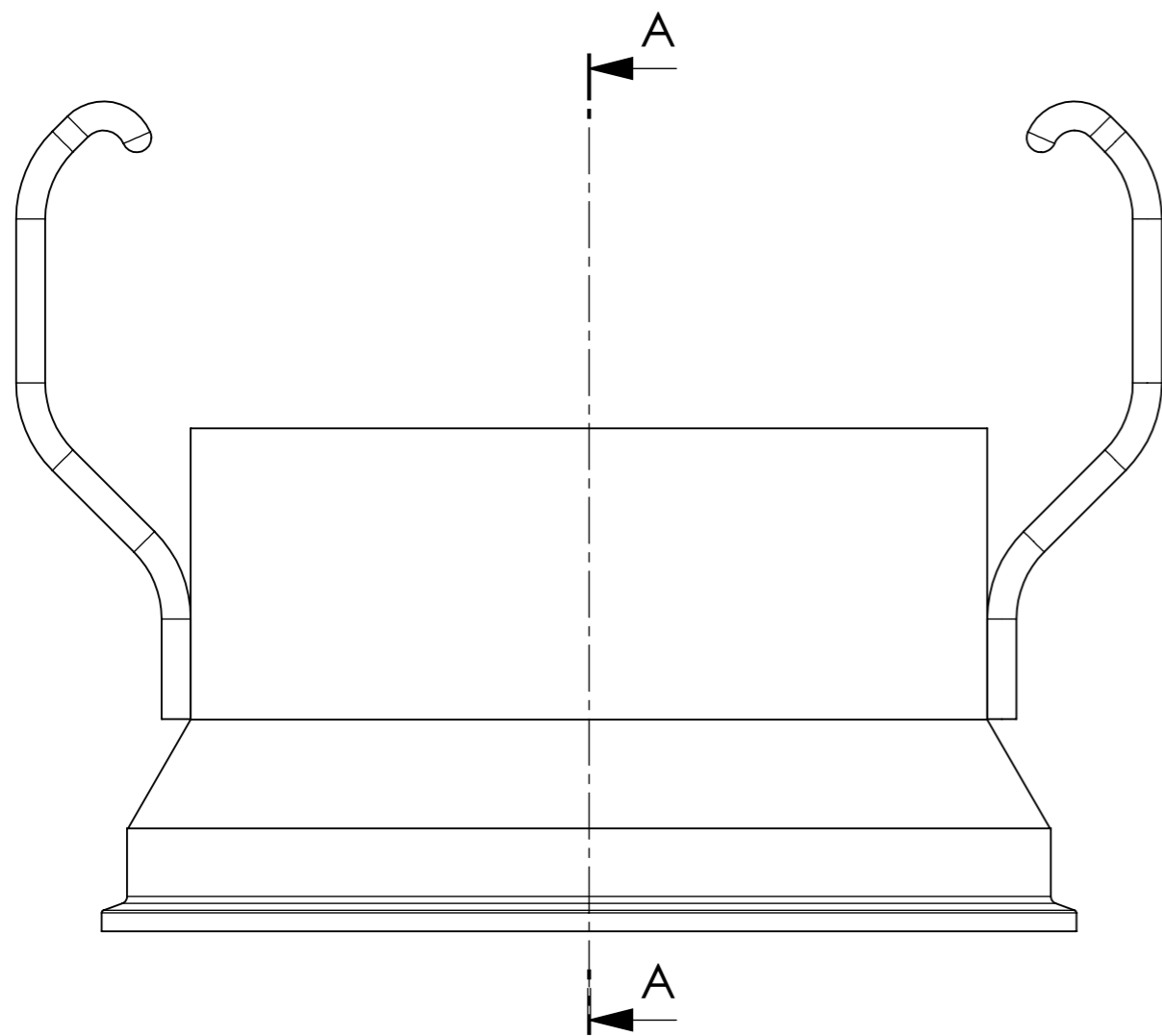


Position	Item number
1	---
2	---
3	---
4	---
100	470252-CMA

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316/316L					
	up to	6	30	120	400	1000					2000	
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale %	Similar	Designed	11/12/2012	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	Weight [kg]	Controlled	11/02/2014	edgu	
Entonnoir de sortie DN200									A4	2.22	Revised	11/02/2014	edgu
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA; Milling and Handling of Powders P.O.B. 615; CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				469865-CMA		Page	Ver.	
										1/1	A	



Dimensions without tolerance [mm]	above up to	6	30	120	400	1000	2000	MATERIAL : 316/316L				
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale %	Similar	Designed	04/02/2013	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00			Controlled	04/02/2013	thle
Barreau magnétique								⊕	Weight [kg]	Revised	04/02/2013	thle
								A4	.	Atex		
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA; Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				470252-CMA		Page	Ver.	
										1/1	A	



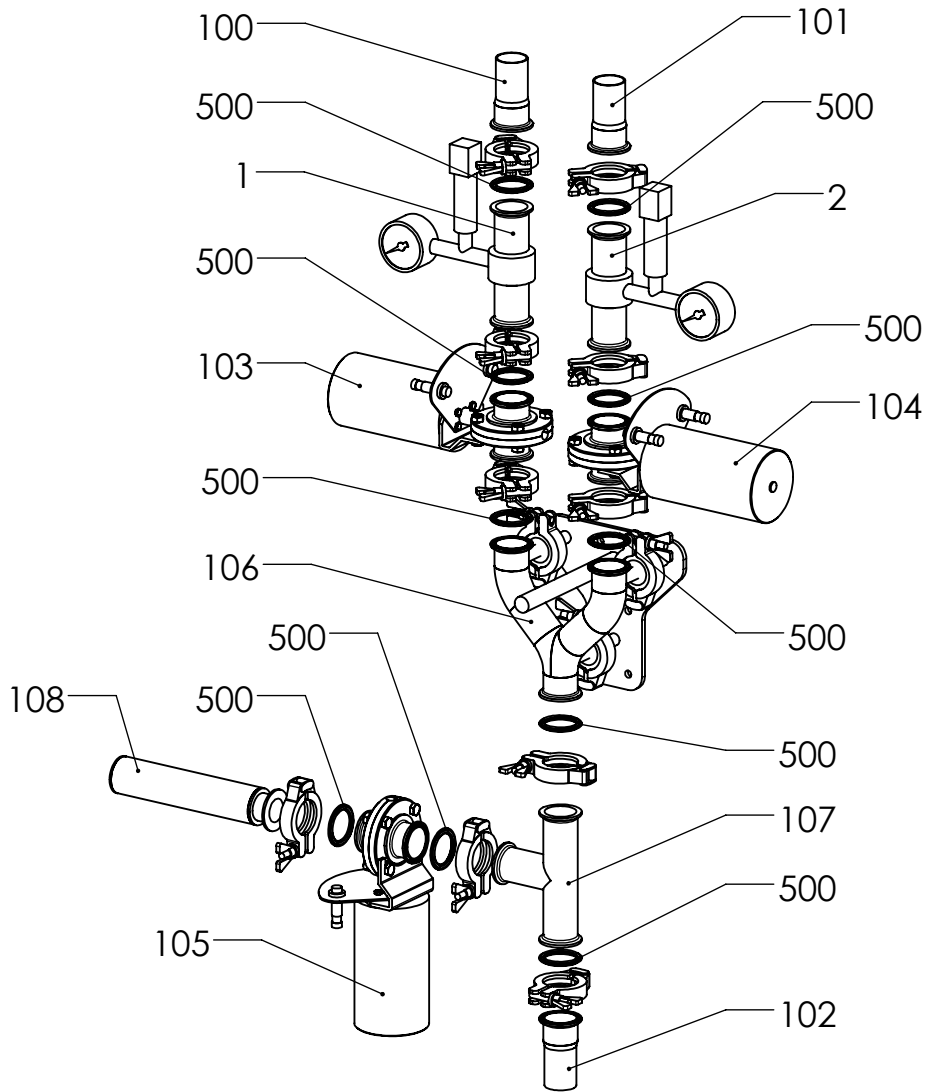
A-A

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316/316L								
	up to	6	30	120	400	1000									
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	11/05/2011	thle			
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%	456214	Controlled	20/12/2012	thle			
Tube de liaison container								A3	Weight [kg]	Revised	20/12/2012	thle			
										Atex					
<small>Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.</small>										<small>Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com</small>		464847-CMA		Page	Ver.
										1/1		A			

Voir documents suivants.

Siehe folgende Dokumente.

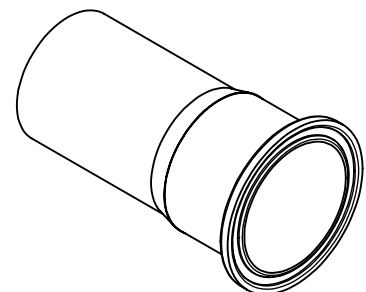
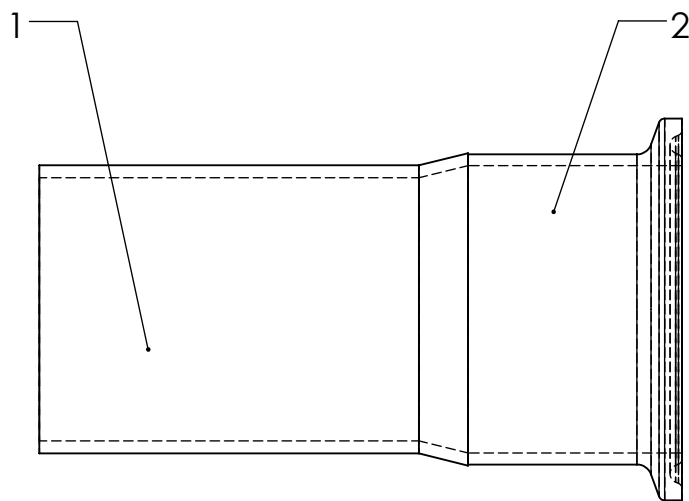
See following documents




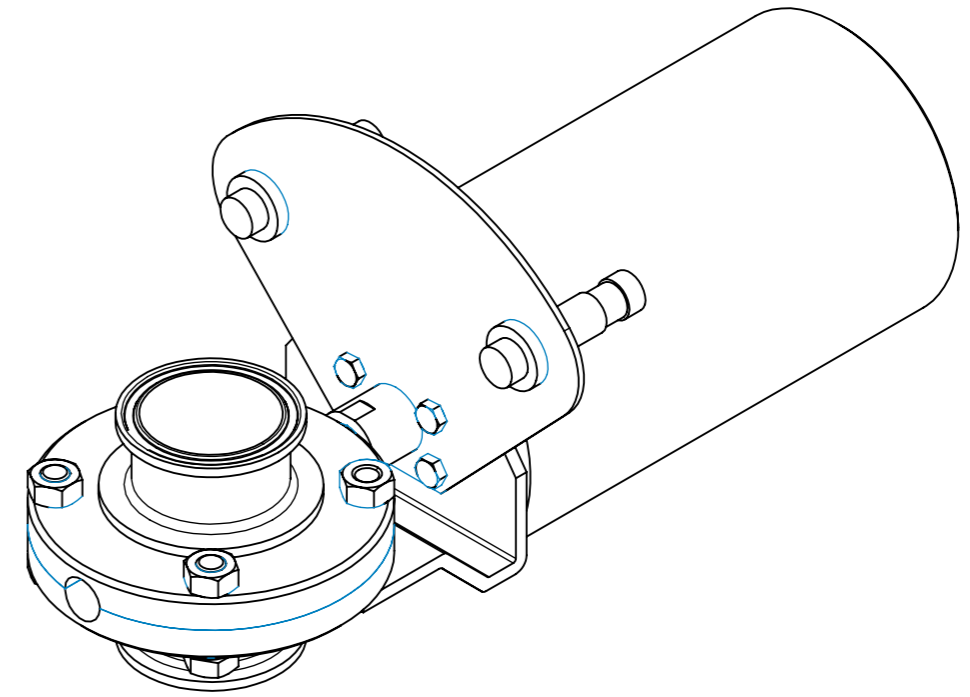
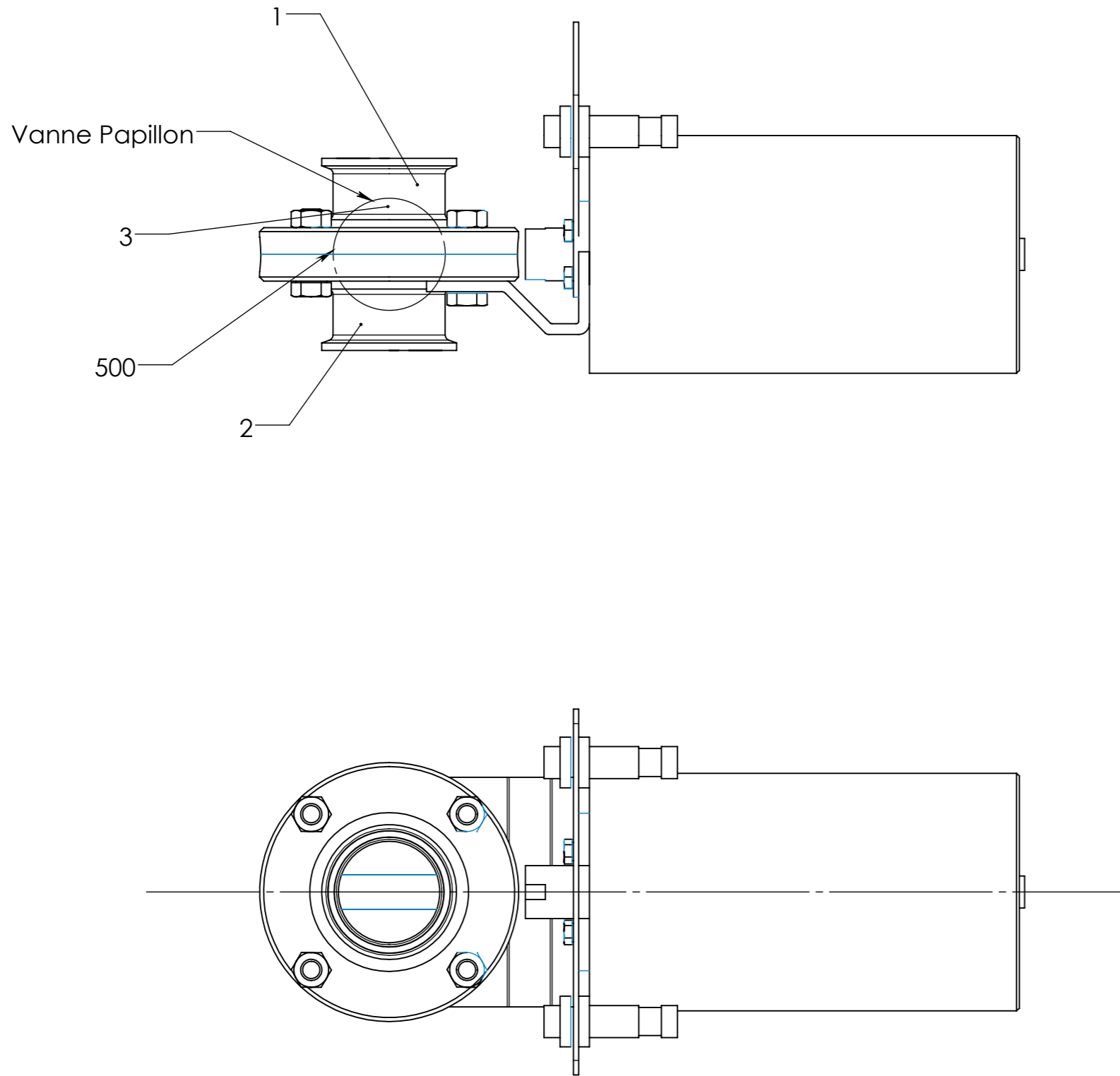
Pos.	Item number	Control drawing	Materials certificates EN-10204-3.1B FDA	Surface quality certificates
1	464937	473516-CMA	X	X
2	464936		X	X
100	464965	464965-CMA	X	X
101	464965		X	X
102	464965		X	X
103	469947	469947-CMA	X	X
104	469947		X	X
105	469947		X	X
106	464968	464968-CMA	X	X
107	460022	460022-CMA	X	X
108	463739	463739-CMA	X	0
500	455217	---	X	0

X = delivered
0 = undelivered

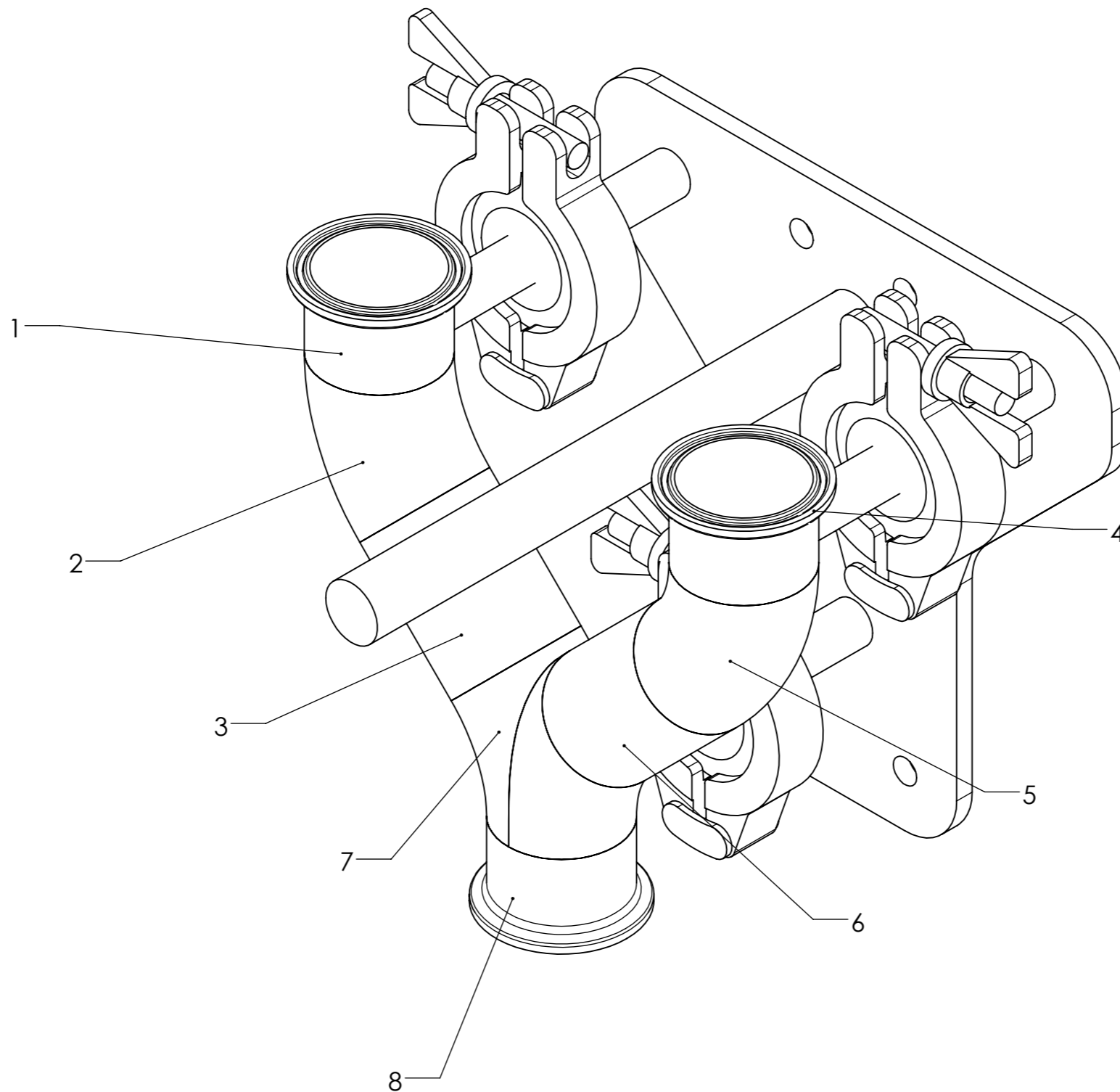
Dimensions without tolerance [mm]	MATERIAL :											
	above up to	6	30	120	400	1000	2000					
Machining: ISO 2768-m	±0.10	±0.20	±0.30	±0.50	±0.80	±1.20						
Welding Assembly: ISO 2768-c	±0.30	±0.50	±0.80	±1.20	±2.00	±3.00						
Séparateur DN40							Scale	Similar	Designed	22/01/2014	thle	
							%	464951	Controlled	14/05/2014	thle	
							Weight [kg]	Revised	14/05/2014	thle		
								A4	54.14	Atex		
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.									Frewitt SA; Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		Page	Ver.
											473516-CMA		1/1	A




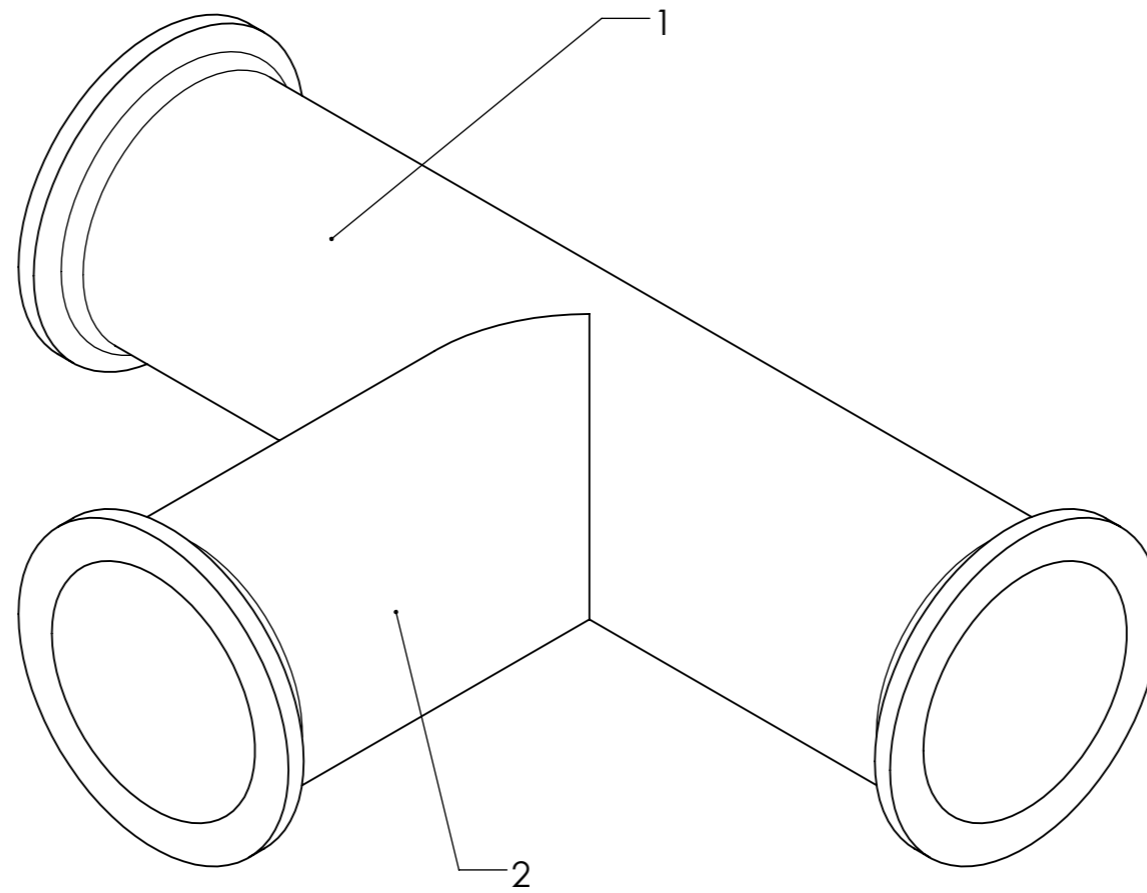
Dimensions without tolerance [mm]	above up to	6	30	120	400	1000	MATERIAL :316 / 316L						
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	18/05/2011	thle	
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%	460024	Controlled	11/02/2014	thle	
Embout Volkmann Ø38								Weight [kg]	Revised	11/02/2014	thle		
								A4	0.14	Atex			
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA; Milling and Handling of Powders P.O.B. 615; CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				464965-CMA		Page	Ver.		
										1/1	A		




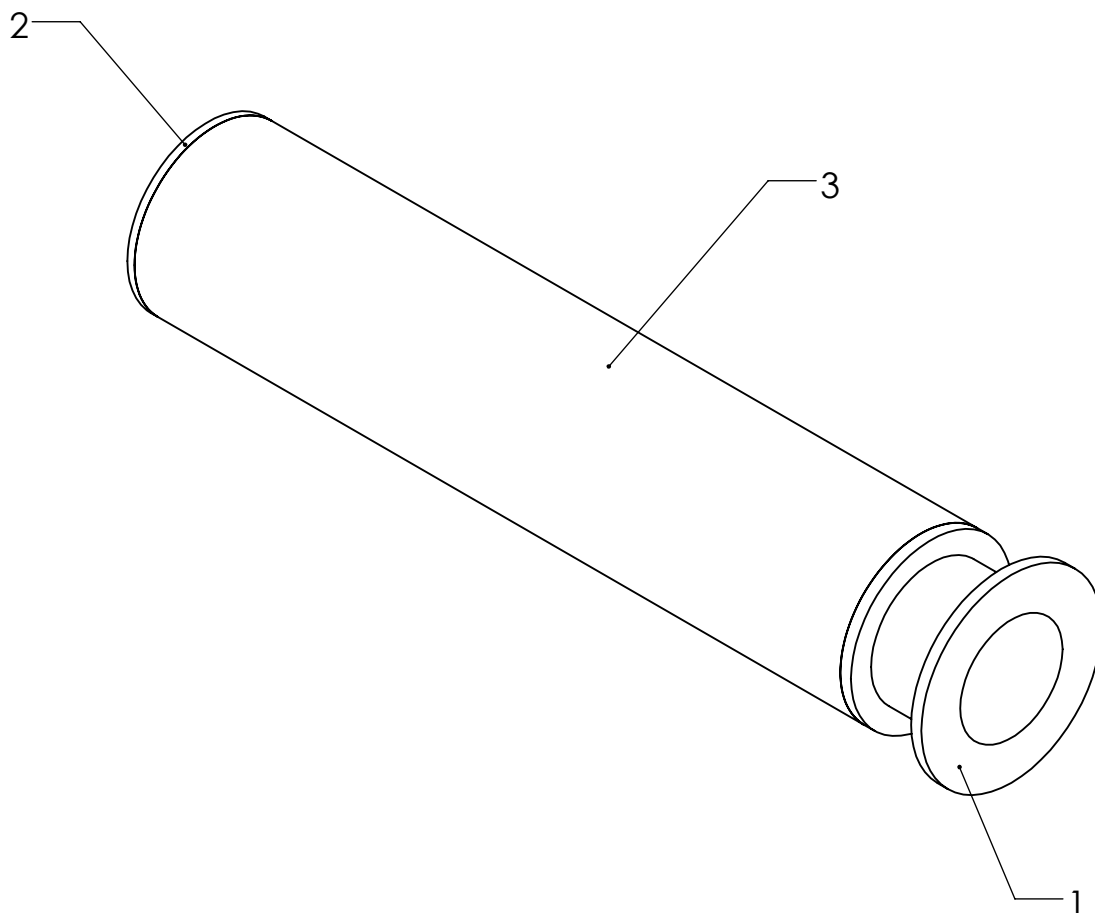
Dimensions without tolerance [mm]	above up to	6	6	30	120	400	1000	MATERIAL : 316L					
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	19/12/2012	thle	
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%	459992	Controlled	19/12/2012	thle	
Vanne papillon DN40 action. pneumatique joint EPDM								A3	Weight [kg]	Revised	19/12/2012	thle	
										Atex			
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.										Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		Page	Ver.
								469947-CMA		1/1	A		




Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316 / 316L					
	up to	6	30	120	400	1000	2000	Scale	Similar	Designed	18/05/2011	thle
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	%	460010	Controlled	19/12/2012	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	Weight [kg]		Revised	19/12/2012	thle
Tube Y DIN								⊕		Atex		
								A3	5.48			
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				464968-CMA		Page	Ver.	
										1/1	A	



Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316L				
	up to	6	30	120	400	1000	Scale	Similar	Designed	10/06/2010	ygr
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	%		Controlled	10/06/2010	ygr
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	⊕	Weight [kg]	Revised	10/06/2010	ygr
Klemm-T-Stück DIN							A3	0.397	Atex		
							Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.		 Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		460022-CMA		Page	Ver.
										1/1	A

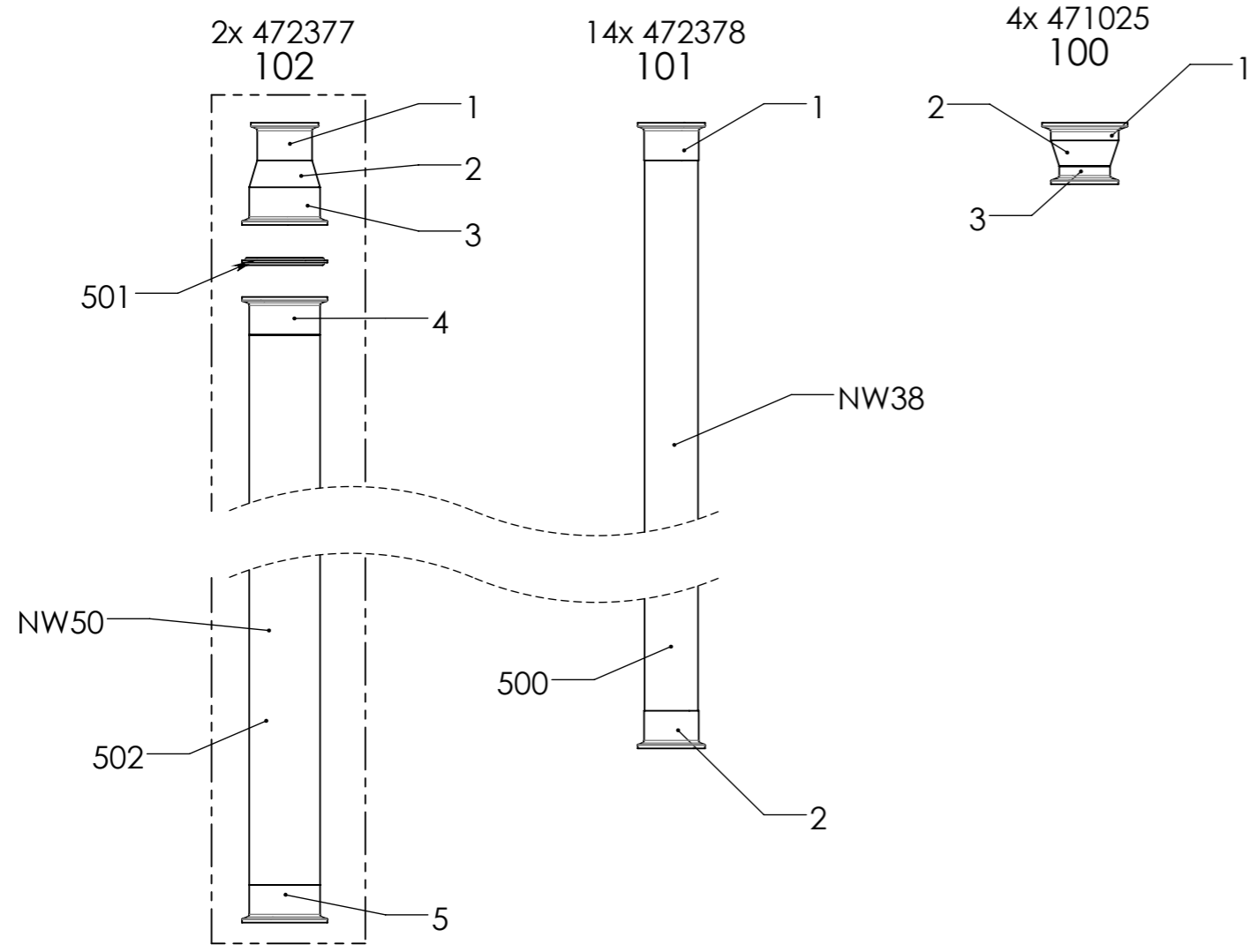


Dimensions without tolerance [mm]	above up to	6	30	120	400	1000	MATERIAL : 316/316L					
		6	30	120	400	1000	2000	Scale %	Similar	Designed	20/05/2011	thle
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20			Controlled	18/11/2013	tgr
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	⊕	Weight [kg]	Revised	18/11/2013	tgr
Filtre inox							A4	N/A	Atex			
							Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.		 Frewitt SA; Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		463739-CMA		Page	Ver.
										1/1	A	

Voir documents suivants.

Siehe folgende Dokumente.

See following documents



Pos.	Item number	Control drawing	Materials certificates EN-10204-3.1B FDA	Surface quality certificates
100	471025	474798-CMA	X	X
101	472378	474798-CMA	X	X
102	472377	474798-CMA	X	X
500	472378	474798-CMA	X	0
501	472377	474798-CMA	X	0
502	472377	474798-CMA	X	0

X = delivered
0 = undelivered

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : N/A								
	up to	6	30	120	400	1000									
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	14/05/2014	ygr			
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%		Controlled	15/05/2014	ygr			
Tubes supplémentaires PRO-14-0013 pour PTS								A3	Weight [kg]	Revised	15/05/2014	ygr			
										Atex					
<small>Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.</small>										Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com		474798-CMA		Page	Ver.
												1/1		A	

Voir documents suivants

(Certificats FDA sont dans l'ordre croissant)

Siehe folgende Dokumente

(FDA-Zertifikate werden in aufsteigender Reihenfolge)

See following documents

(FDA certificates are in ascending order)



TRE Engineering GmbH
Aussergrütstrasse 2
CH-6319 Allenwinden

Doc No: 26019-4

Tel. 041 727 27 70
Fax 041 727 27 71
E-Mail office@tregmbh.ch
www.tregmbh.ch

CERTIFICATE OF CONFORMITY

For the materials listed below our producer is giving the following confirmation :

Stainless steels.

We are only using stainless steel grades which are corresponding with the requirements of the food industry and are strictly produced according to the existing standards.

Materials for joints in Clamping connections and screwed pipe connection with nut

Materials for joints which are commonly being used in the food industry are :

- NBR
- EPDM
- VMQ
- FKM
- PTFE


We are confirming that the articles listed below comply regarding the raw material selection exactly with FDA-regulations § 177.2600 :

- gaskets NBR,
- gaskets EPDM,
- gaskets VMQ,
- gaskets FKM,
- gaskets PTFE,
- gaskets enveloped PTFE-FKM

all six in sizes from DN 6 to DN 300 and 1/2" to 12".

The selected raw materials for these articles are complying with the FDA-regulations 21, CFR 177.1550, as well as with the BGA recommendations, 160ieth communication, recommendation LI of March 1st 1983.

January 2009


TRE ENGINEERING GmbH

Item No. : 403230
Order No. : 10-2022
Checked : 23.11.2010
RyH

STAHLCON GMBH

VERTRIEB VON EINBAUELEMENTEN FÜR TECHNISCHE ANLAGEN

STAHLCON GMBH . KRINGSTRASSE 13 : D-71144 STEINENBRONN

Frewitt SA
Mme Christelle Thion
Route du Coteau 7
CH-1763 Granges-Paccot
Schweiz

FDA-Zertifikat

Nummer 68574
Datum 03.01.2013
Kunden-Nr. 40603
Lieferanten-Nr. 362400
Ihre Bestellung
Lieferdatum 03.01.2013
Erfasst AL

Pos	Artikel	Beschreibung	Menge
-----	---------	--------------	-------

Zertifizierung von Dichtungen nach FDA

Die oben aufgeführten Dichtungen stammen aus der EU und werden vom Hersteller wie folgt zertifiziert:

CERTIFICATION OF COMPLIANCE

We hereby certify that the elastomer compounds: Viton, EPDM, Silicone and Nitrile, used in the manufacture of our hygienic sealing gaskets are in compliance with the Food and Drug Association (FDA) Code of Federal Regulations for rubber and rubber-like materials. This under Title 21, paragraph 177.2600 and also meets the criteria of the Class I materials classification of the 3-A Sanitary Standards, U.S.D.A. and standard 51 of the N.S.F.

We hereby confirm that no Phthalate Esters are contained in any plasticisation agent used during the manufacturing process.

We hereby certify that the PTFE resins from which our solid and envelopped gaskets are produced have been tested in our suppliers laboratory and found to be in compliance with FDA code of Federal Regulations for PTFE and Fluorocarbons resins. This under Title 21 Paragraph 177.1550 for use in contact with foodstuffs. The material also meets the criteria of the Class I materials classification of the 3-A Sanitary standard 51 of the N.S.F.

Max Mönkemöller

Anschrift:
STAHLCON GMBH
Kringstraße 13
D-71144 Steinenbronn

TELEFON
+49(0)7157 5386-0
TELEFAX
+49(0)7157 5386-11

E-MAIL
info@stahlcon.de
INTERNET
www.stahlcon.de

GESCHÄFTSFÜHRER
Max Mönkemöller

REGISTERGERICHT
Böblingen HRB 5993
USt.Id Nr.: DE 147 865 860
St.Nr. 9906801903

SITZ DER GESELLSCHAFT
Steinenbronn

Konformitäts-Bescheinigung

Spiralschlauch **ABRAFLEX SL**

Schlauch-NW: 38mm
Schlauchlänge: 2 x 20m
Artikel-Nr.: 21010038

Kunde: VIA AG
CH-4112 Bättwil
Best.Nr.: Tel.:08.08.2011

Die für die Schlauchwand verwendeten
Roh- und Zusatzstoffe sind lebensmittelecht nach:

FDA 21 CFR 177.2600 und 178.2010
EG-Richtlinie 2002/72/EG und 2007/19/EG.

Ebenfalls Zulassung für die gesamte Schlauchleitung nach
neuen EG-Richtlinien 2002/72/EG und 2007/19/EG

sowie ableitfähig (gemäss BGR 132, ehemals ZH 1/200
bei Erdung der Spirale.

CH-5436 Würenlos, 08.08.2011

Polyflex AG

(M.Schmid)

POLYFLEX AG
LANDSTR. 2
5436 WÜRENLOS

Werksbescheinigung nach DIN 50049-2.1 / EN 10204

Certificate of compliance according to DIN 50049-2.1 / EN 10204

Besteller / Customer

Frewitt Fabrique de machines SA
Route du Coteau 7
1763 Granges-Paccot

Einkäufer / Purchaser

Mme C. Thion

Bestellung Nr. / Order No.

Unsere Auftrags-Nr. / Our Order No.

unsere Referenz / Our Reference

P. Huber

Unsere Lieferschein-Nr. / Our Delivery-Note No. Positionen / items

Pos.1 Dichtungen in EPDM

Wir bestätigen hiermit, dass die unter dem oben aufgeführten Auftrag gelieferten Produkte mit den Angaben des/der Lieferscheins/Auftragsbestätigung/Rechnung übereinstimmen und dass die Lieferung den Vereinbarungen bei der Bestellannahme entspricht.

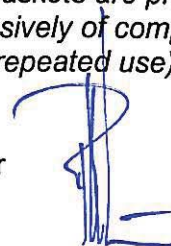
Wir bestätigen ferner, dass der Werkstoff EPDM der Dichtungen nach den Richtlinien der „FDA“ gefertigt sind und nur Mischungskomponenten enthalten, die nach FDA § 177.2600 / 177.1550 (Rubber Articles intended for repeated use) erlaubt sind.

We hereby certify, that the items delivered with the above mentioned order comply with the delivery note / order confirmation / invoice comply and that the delivered items comply with the term of the order contract.

We hereby certify that the material EPDM used as Gaskets are produced in accordance with the regulations of the „FDA“. The mixture consists exclusively of components allowed as per FDA § 177.2600 / 177.1550 (Rubber Articles intended for repeated use).

Gossau, 23.10.12

P. Huber



Zum Schreiben an:

Seite 2

(Note: In conformance of the guidelines for food contact, measurements should be realize e.g. limitations of individual components, constituent migration etc. from the manufacturer. Even if, as in this case, an official statement from the manufacturer is available, these tests should be performed on the end product by the processor using the corresponding foods or food simulation materials. Times and temperatures should be chosen to reflect actual conditions during the normal use of the articles, in accordance with the rule of the guidelines for food contact. It is the responsibility of the processor to ensure that the article is suitable for the intended purpose. Permanent use over 40°C and sterilizing with superheated steam are not recommended.

Best regards,

NORRES Schlauchtechnik GmbH

Yvonne Limbeck

Our quality management system is certified according to DIN/ISO 9001.

Prüfanweisung 8.2.4-8, Anlage 1 Revision 0

Abnahmeprüfzeugnis 3.1

(EN 10204 - 3.1., DIN 50049 - 3.1.)

Artikelnummer: 35101021018

ErstellDatum: 29.11.2013

Charge: 3333

Ersteller: Adamschik Abt.QM

Bemerkung: Materialcharge: Z 0107

Prüfbedingungen

Norm:	DIN/ EN 28031 (April 1993), identisch mit ISO 8031: "Gummi- und Kunststoffschläuche und -schlauchleitungen. Bestimmung des elektrischen Widerstandes."
Konditionierung:	Mind. 16h bei Raumtemperatur im Labor gelagert und anschließend unter gleichen Bedingungen geprüft. Normprüfklima mit mindestens 50% Luftfeuchtigkeit.
Prüfkörper:	Abweichend von der Norm wird nur eine Probe geprüft
Elektrodenabstand:	100 mm (+/- 15 mm). Die Messwerte 1, 2 und 3 wurden an drei um 45° radial versetzten Punkten 5s +/- 1s nach Anlegen der Prüfspannung ermittelt.
Elektrodenmaterial:	Leitsilberlack
Prüfspannung:	<= 40V bei Widerständen kleiner 10e6 Ohm, 500V bei größeren Widerständen
Prüfmittel:	Ohmmeter QM-0555 bei Widerständen kleiner 10e6 Ohm, QM-0631 bei größeren Widerständen.

Prüfdurchführung:	Meßwert 1	Meßwert 1	Meßwert 1	Sollwert
Oberflächenwiderstand Schlauchinnenschicht (Gemessen gemäß ISO 8031 mit zwei an der Innenfläche angebrachten Elektroden)	3,8x10e8	3,4x10e8	3,3x10e8	< 1,0 x 10e9 Ohm
Oberflächenwiderstand Schlauchaußenschicht (Gemessen gemäß ISO 8031 mit zwei an der Außenfläche angebrachten Elektroden)	1,9x10e8	2,0x10e8	2,4x10e8	< 1,0 x 10e9 Ohm
Durchgangswiderstand innen (Ableitwiderstand) (Gemessen gemäß ISO 8031 mit einer Elektrode einerseits an der Innenfläche und einer Elektrode andererseits am blanken Stahldraht)	1,8x10e8	1,6x10e8	1,7x10e8	< 1,0 x 10e9 Ohm
Durchgangswiderstand außen (Ableitwiderstand) (Gemessen gemäß ISO 8031 mit einer Elektrode einerseits an der Außenfläche und einer Elektrode andererseits am blanken Stahldraht)	9,1x10e7	8,9x10e7	1,0x10e8	< 1,0 x 10e9 Ohm
Ableitwiderstand Drahtenden/Klemmprofil (Gemessen gemäß ISO 8031 mit zwei in einem Abstand von 100 mm +/- 15 mm an der abisolierten, blanken Armierung angebrachten Elektroden)				< 1,0 x 10e6 Ohm

Prüfergebnis:**Antistatisch**

(Oberflächen- und Durchgangswiderstand <1,0x10e9 Ohm)

**elektrisch leitfähig**

(Oberflächen- und Durchgangswiderstand <1,0x10e4 Ohm)

Vorstehende Angaben sind die Ergebnisse unserer Qualitätsprüfung und beruhen auf Stichproben. Sie entbinden den Käufer nicht von der Eingangskontrolle und haben nicht die Bedeutung, die Eignung des Produktes für einen konkreten Eignungszweck zuzichern.

FDA Konformitätserklärung

Auftraggeber	Frewitt SA 1701 Fribourg
Lieferdatum	div.
Artikel	Manchettes
U/Bestätigung	div.
Qualität	J-8129 EPDM, 40 ShA, noir, antistatique
Herstelldatum	div.
Konformität	FDA 21CFR§177.2600

Zürich, 21.02.2014
Thomas Flückiger



Johannsen AG
Im Langhag 5
CH-8307 Effretikon



August 26, 2005

Dr. Luciana Husfeld
KLUBER LUBRICATION MUNCHEN KG.
GEISENHAUSENER STR. 7
81379 MÜNCHEN
GERMANY

RE: Kluberpaste® UH1 84-201
Category Code: H1
NSF Registration No. 136305

Dear Dr. Luciana Husfeld:

NSF has processed the application for Registration of **Kluberpaste® UH1 84-201** to the NSF Registration Guidelines for Proprietary Substances and Nonfood Compounds (2004), which are available at <http://www.nsf.org>. The NSF Nonfood Compounds Registration Program is a continuation of the USDA product approval and listing program, which is based on meeting regulatory requirements including FDA 21 CFR for appropriate use, ingredient and labeling.

This product is acceptable as a lubricant with incidental food contact (H1) for use in and around food processing areas. Such compounds may be used on food processing equipment as a protective anti-rust film, as a release agent on gaskets or seals of tank closures, and as a lubricant for machine parts and equipment in locations in which there is a potential exposure of the lubricated part to food. The amount used should be the minimum required to accomplish the desired technical effect on the equipment. If used as an anti-rust film, the compound must be removed from the equipment surface by washing or wiping, as required to leave the surface effectively free of any substance which could be transferred to food being processed.

NSF Registration of this product is current when the NSF Registration Number, Category Code, and Registration Mark appear on the NSF-approved product label, and the registered product name is included in the current NSF White Book Listing of Nonfood Compounds at the NSF website (<http://www.nsf.org>). The NSF Registration Mark can be downloaded from the NSF website, at http://www.nsf.org/business/about_NSF/nsf_marks_download.asp.

NSF Listing of all registered Nonfood compounds by NSF International is not an endorsement of those compounds, or of any performance or efficacy claims made by the manufacturer.

Registration status may be verified at any time via the NSF web site, at <http://www.nsf.org>. Changes in formulation or label, without the prior written consent of NSF, will void registration, and will supersede the on-line listing.

Sincerely,

A handwritten signature in black ink, appearing to read 'Carmen Grindatti'.

Carmen Grindatti
NSF Nonfood Compounds Registration Program

Company No: N04391

Attestation d'état de surfaces des éléments en contact avec le produit.	Bescheinigung der Oberflächenqualität für die produktberührten Elemente.	Certificate for surface quality of the parts in contact with the product.
--	---	--

Selon la méthode de mesure
décrite dans la norme EN ISO
4288, nous certifions que les
parties en contact avec le
produit ont un état de surface
conforme à la commande, soit:

Basierend auf die in der Norm
EN ISO 4288 beschriebenen
Messmethode, bestätigen wir,
dass die Oberflächenqualität der
produktberührten Teile der
Bestellung entspricht, d.h.:

According to the procedure for
roughness inspection EN ISO
4288, we guarantee that all
product contact parts have been
manufactured with a surface
quality according to the order,
i.e.:

Intérieur:

Innen:

Inside:

$Ra \leq 0.4 \mu m$

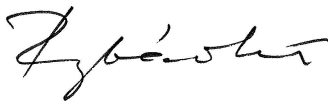
Extérieur:

Aussen:

Outside:

$Ra \leq 1.4 \mu m$

Frewitt Fabrique de Machines SA



R. Rybarikova

Documentalis
Dokumentalist
Documentalist

N° Série:

Serien-Nr.
14001335180

Serial Nr.

REF: 473515-CMA

Appareil de mesure / Messapparat / Measurin unit :	Mitutoyo Sufitest SJ-301	
N° série / Serien-Nr. / Serial Nr. :	400197	
N° Etalon / Massstab-Nr. / Standard Nr. :	522	
Poition de mesure:	Intérieur	Extérieur
Massnahmenposition:	I = innen	E = Aussen
Measure position:	Inside	Outside

Ref	Positon mesure Massnahmenposition Measure position	Mesure N° Mass Nr. Measure Nr.	Norme Norm Stand	Profil Profil Profile	Filtre Filter Filter	Eva.-L Ausw.-L Eva.-L	λC	N	Vitesse Gesch. Speed	Drive Vorschub Drive	Ra
Pos 100 - C005											
Pos.100											
469865	I	1	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.16um
469865	I	2	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.101											
464847	I	1	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
464847	I	2	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.08um
Pos 101 - C006											
Pos.100											
469865	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
469865	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.101											
464847	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
464847	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
Pos 102											
Pos.1											
464937	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um
464937	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
Pos.2											
464936	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.20um
464936	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.100											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
Pos.101											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.15um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.15um
Pos.102											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
Pos.103											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
Pos.104											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
Pos.105											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.17um
Pos.106											
464968	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
464968	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.26um
Pos.107											
460022	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.14um
460022	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.19um
Pos 103											
100											
Pos.100-1											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
Pos.100-2											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.33um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.32um

Pos.100-3											
471025	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.38um
471025	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.100-4											
471025	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
471025	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um

101

Pos.101-1											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.34um
Pos.101-2											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.101-3											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.22um
Pos.101-4											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.26um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.101-5											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.32um
Pos.101-6											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.18um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.101-7											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.101-8											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.33um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
Pos.101-9											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.28um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.24um
Pos.101-10											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos.101-11											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
Pos.101-12											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.20um
Pos.101-13											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.34um
Pos.101-14											
472378	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
472378	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um

102

Pos.102-1											
472377	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.36um
472377	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
Pos.102-2											
472377	J	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um
472377	J	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um

Protocole établi par (visa) Protokoll erstellt von (Visa) Report established by (Visa)	H.REY		le am on	16-20.05.2014
--	-------	--	----------------	---------------

C005

①

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:23:43
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.31μm

C005

②

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:24:42
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.32μm

C005

③

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:22:24
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.12μm

C006

①

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:15:14
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.22μm

C006

②

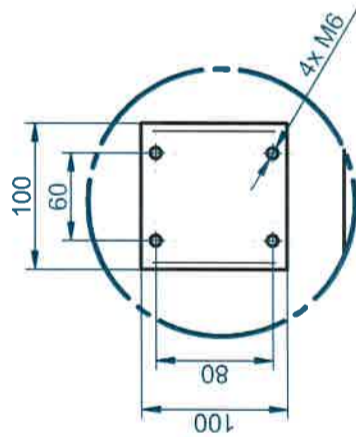
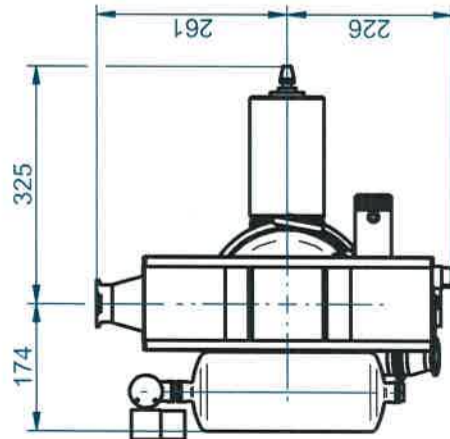
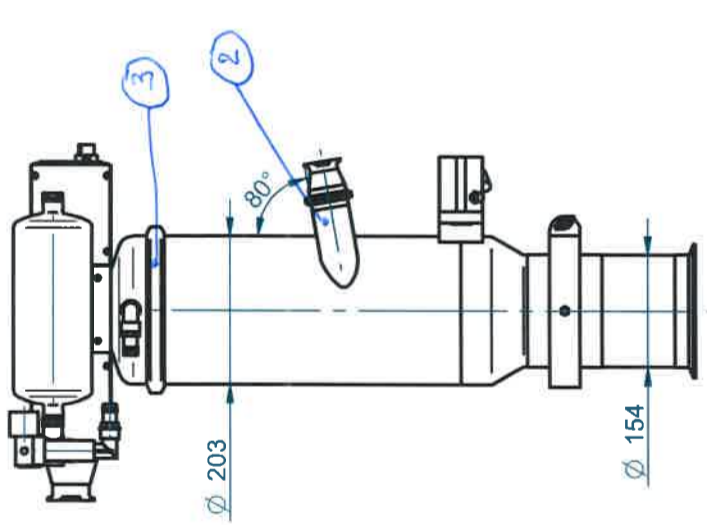
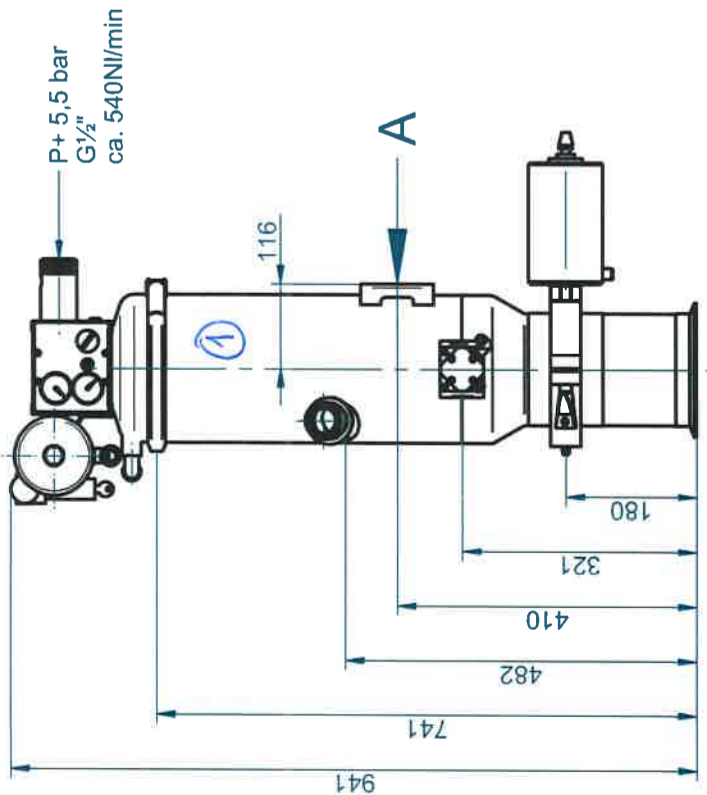
Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:17:57
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.16μm

C006

③

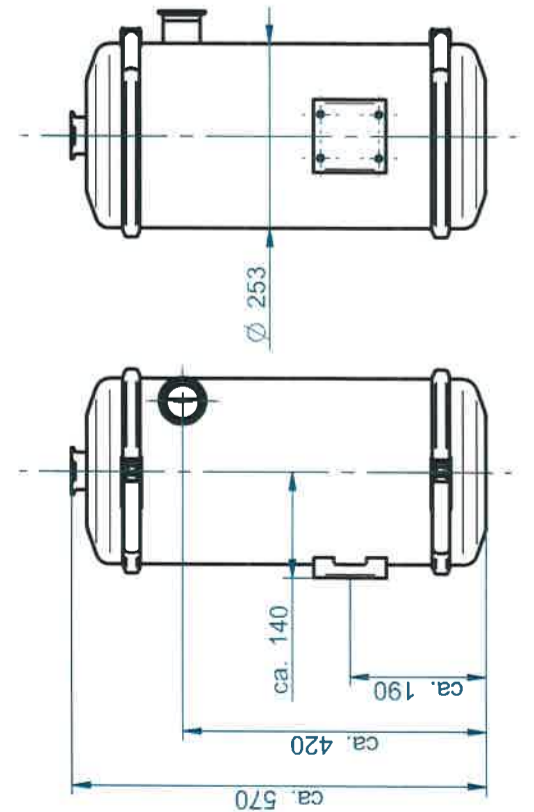
Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:19:17
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ESC
 DRIVE ON
 STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.18μm

Polzeifiltereinheit VS200 (2x) Sonderausführung

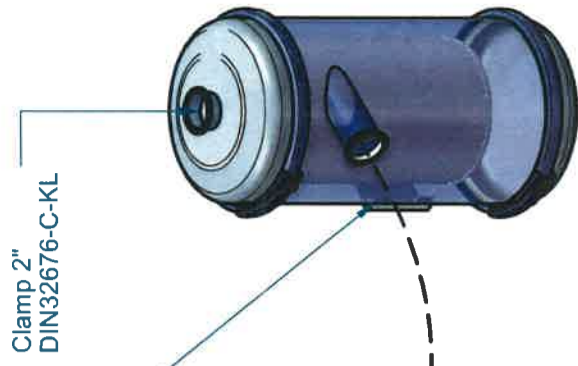
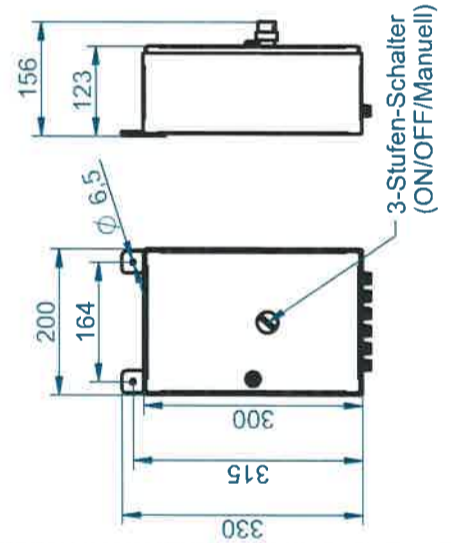


EINZELHEIT A

Polzeifiltereinheit VS200 (2x) Sonderausführung

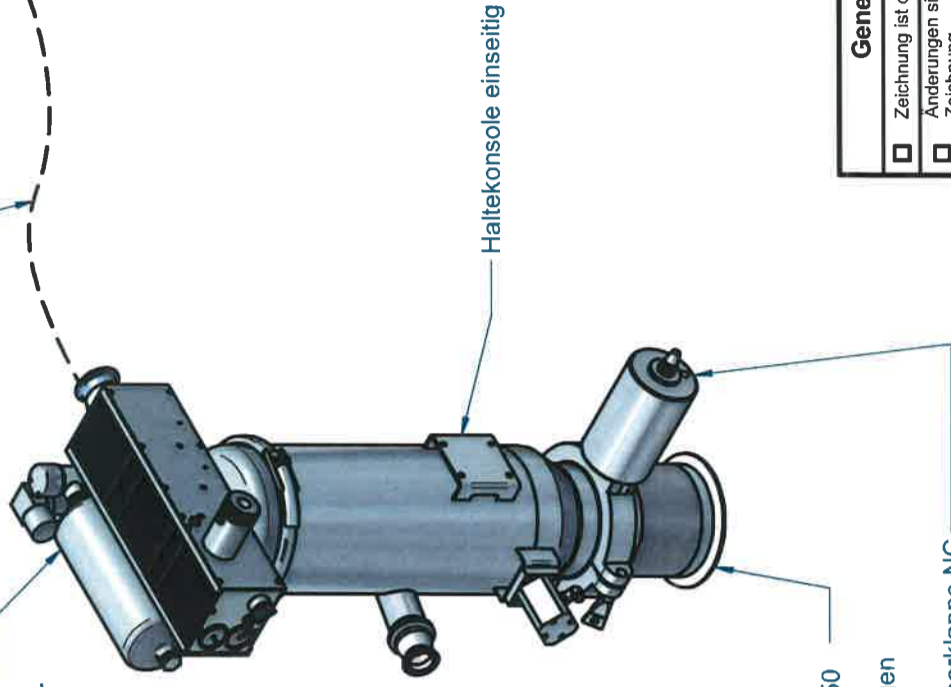


Pneumter PT3SE (1x) Sonderausführung



Haltekonsole einseitig
Abluftschlauch PUR50-AS-FDA
vergossen mit Clamp 2" DIN32676-C-KK
Länge: 1,8m

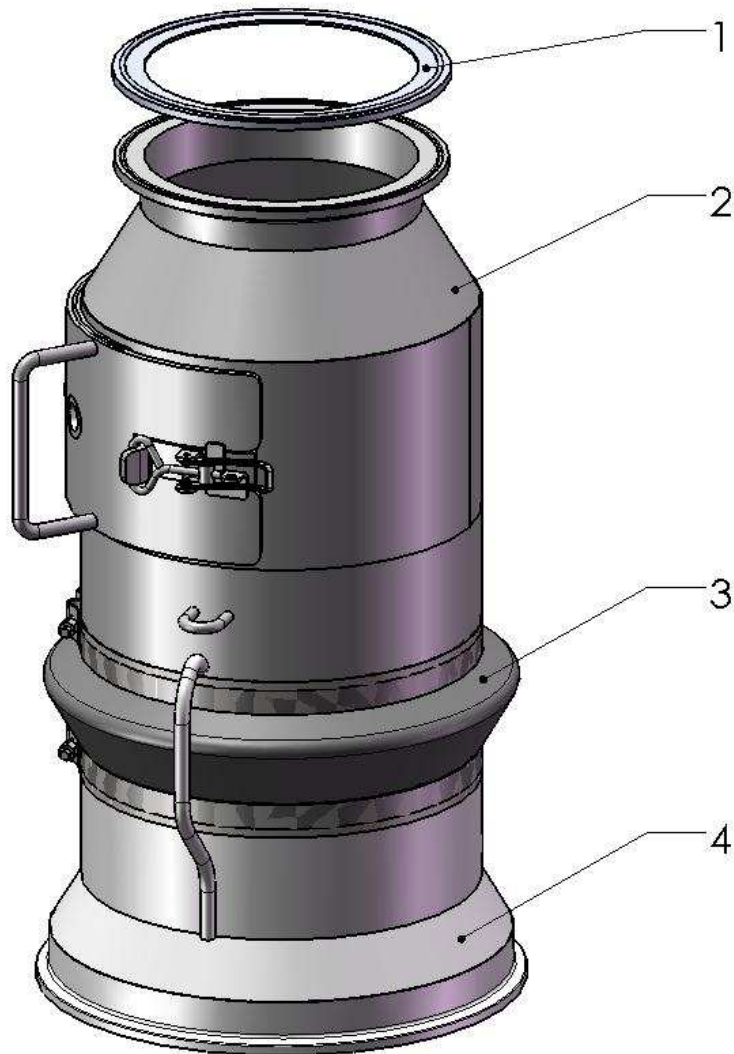
GLA 2L VA
p+max 3bar
einstellbar über
Druckregler
abschließbar



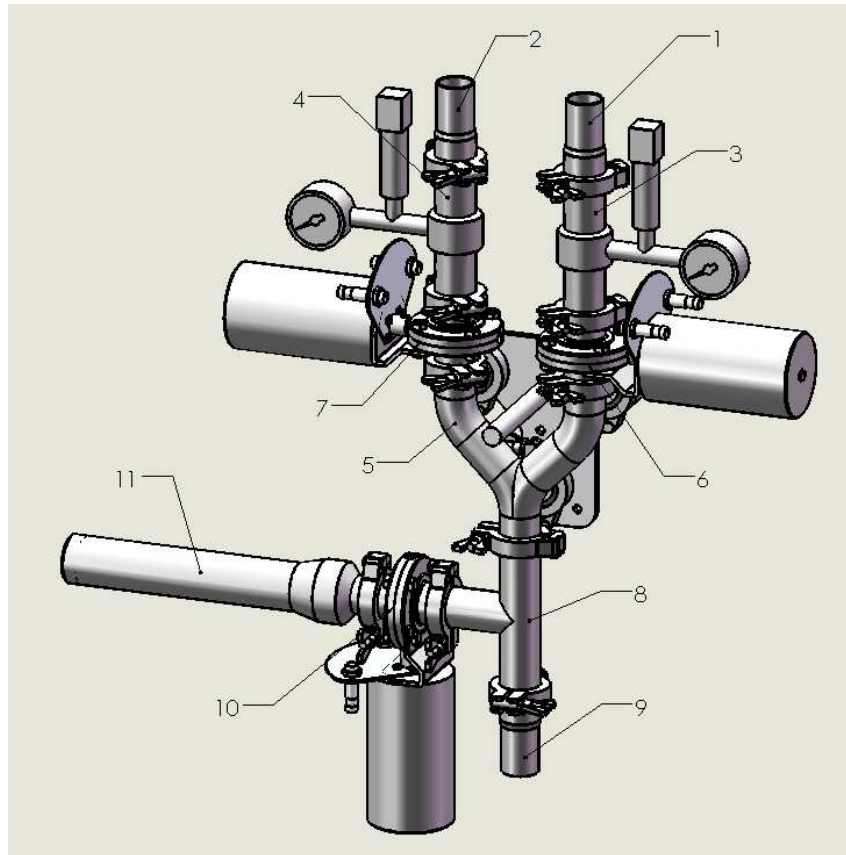
Clamp DN150
DIN32676-A
zur bauseitigen
Befestigung
Antrieb Entleerklappe NC

Genehmigung der Zeichnung	
<input type="checkbox"/> Zeichnung ist ohne Änderungen genehmigt	
<input type="checkbox"/> Änderungen siehe Zeichnung	<input type="checkbox"/> neue Genehmigungszeichnung erforderlich
Name:	Datum:
Firma:	
Unterschrift:	

Werkstoff / Material:	1.4404 / diverse	Scale:	1:10
Benennung / Denomination:	PPC200VS mit Polzeifilter	Original	A3
Kom.:	Via / Frewitt / Novartis	Blatt von/Sheet of	1 / 1
Best.-Nr.:	31-9'356/14	Ersetzt durch / Replaced by:	-
Zeichnungs-Nr. / Drawing-No.:	140522-01-001-A		
VOLKMAN GmbH Vakuumtechnik Schloifweg 17 59494 Soest		Date	Name
1 MC in NC, vergessene Schläuche		11.02.14	AH
Änderung/Modification		17.2.14	MP
Index / Änderung/Modification			
Name			
Allgemeinereferenzen Spannde Bearbeitung DIN ISO 2768 T1 - mittel Performende Bearbeitung DIN ISO 2768 T1 - sehr grob Schutzvermerk nach DIN / ISO 16016 / 2007 beachten			



Pos.	Description / Bezeichnung / Description	Quantité Menge Quantity	Surface/cm ² Fläche Area
1	405881 : Gasket	1	8.5
2	469865 : Funel	1	2657.9
3	437890 : Flexible rubber	1	496.2
4	464847 : Funel	1	1019.5
Total cm²			4182.1



Pos.	Description / Bezeichnung / Description	Quantité Menge Quantity	Surface/cm ² Fläche Area
1	464965 : Connexion	1	96.2
2	464965 : Connexion	1	96.2
3	464936 : Pressure transmitter	1	174.3
4	464937 : Pressure transmitter	1	174.3
5	464968 : T-piece	1	397.4
6	469947 : Pneumatic valve	1	120.5
7	469947 : Pneumatic valve	1	120.5
8	460022 : T-Stück	1	263.4
9	464965 : Connexion	1	96.2
10	469947 : Pneumatic valve	1	120.5
11	463739 : Filter	1	498.2
Total cm²			2157.7

Projet / Projekt / Project: PRO-14-0013

Type / Typ / Type : PTS

N° de série / Serien Nr. / Serial Nr.: 14001335180

Client / Kunde / Customer : Novartis Pharmaceutical Manufacturing ; SG-Singapore

Used seals (FDA-conform)

Silikon, EPDM, PTFE

Remarks:

We confirm that the seals that are used by Novartis are resistant to the used cleaning agents like on previous delivered machines as long the cleaning agents have not be changed.
From experience the used seals on the installation are compatible with the under listed products as long this product was also used on the already delivered machines.

- 1) Metformin
- 2) Hydroxy Propyl Cellulose (HPC)
- 3) Magnesium Stearate
- 4) Vildagliptin

Shelf life information:

We preconize maximum 2 year of storage in a dry and not luminous storage place.

**Edouard Gummy**

Chef de projet (Project Manager)

Granges-Paccot, le 15.05.2014

Doc No: 127802-1



Product Service

ZERTIFIKAT

Nr. Z2 06 09 13277 076

Zertifikatsinhaber: Festo AG & Co. KG

 Rüter Str. 82
 73734 Esslingen
 DEUTSCHLAND

**Produktions-
stätte(n):**

49331

Prüfzeichen:

Produkt: Pneumatikschlauchleitungen
**Modell(e): PUN-H-Schläuche
PUN-H-DUO**

Kenndaten:	Größen mm:	3x0,5 / 4x0,75 / 6x1 / 8x1,25 10x1,5 / 12x2 / 16x2,5 DUO 4x0,75 / 6x1 / 8x1,25 / 10x1,5
	Farben:	natur, blau, schwarz; DUO blau/schwarz
	Material:	Polyurethan
	Einsatztemperatur:	bis 60°C
	Einsatzbereich:	nicht geeignet für Nahrungsmittel mit Alkoholanteil > 15 %

Geprüft nach:	DIN EN 1672-2:2005 2002/72/EG PPP 57006:2004 Code of Federal Regulations Title 21 (FDA) § 177.2600, § 178.2010
----------------------	--

Das Produkt wurde auf freiwilliger Basis auf die Einhaltung der grundlegenden Anforderungen geprüft und kann mit dem oben abgebildeten Prüfzeichen gekennzeichnet werden. Eine Veränderung der Darstellung des Prüfzeichens ist nicht erlaubt. Umseitige Hinweise sind zu beachten.

Prüfbericht Nr.: 71300186-001

Datum, 2006-10-13



Seite 1 von 1

Client:

Kunde:

Customer:

Novartis Pharma
 SG-Singapore

N° Série:

Serien-Nr.
 14001335180

Serial Nr.

Appareil de mesure / Messapparat / Measuring unit :	TES 1350
N° série / Serien-Nr. / Serial Nr. :	971205674
Norme / Norm / Standard :	dBA (DIN45635)

Conditions de mesure

La mesure est faite:
 - à 1m
 - à hauteur de la chambre de broyage
 - à vitesse max.
 - avec l'outillage monté
 - avec les accessoires montés
 - à vide (sans produit)

Messbedingungen

Die Messung wird gemacht:
 - bei einer Distanz von 1 m
 - auf Mahlkammerhöhe
 - mit maximaler
 Geschwindigkeit
 - mit montiertem Werkzeug
 - mit montiertem Ein- und
 Auslaufzubehör

Measuring conditions

Measurement is made:
 - at a distance of 1 m
 - at height of milling chamber
 - with maximum speed
 - with installed tools
 - with installed inlet and outlet
 accessories

Lp [dBA] : 74.10

Protocole établi par (visa)
 Protokoll erstellt von (Visa)
 Report established by (Visa)

H. Rey



le
 am
 on
 21.05.2014

Voir documents suivants.

Siehe folgende Dokumente.

See following documents



Certificate of calibration No. 258-16620-1

Translation

Subject

Revolution counter
Jaquet, DHO 907
S/N 0606.214692, METAS 411967

Order

Calibration at different speed of rotation

Applicant

Frewitt Fabrique de Machines SA
Route du Coteau 7
1763 Granges-Paccot

Traceability

The reported measurement values are traceable to national standards and thus to internationally supported realizations of the SI-units.

Date of calibration

31.07.2012

Marking

Calibration label METAS 07/12

3003 Bern-Wabern, 3. April 2013

For the Measurements

Nikola Misic

Sector Traffic, Acoustics and Vibration

Walter Fasel, Head of Sector

Certificate of calibration No. 258-16620-1**Extent of the Calibration**

The revolution counter was tested on your desired or in a specific measuring range by different revolutions per minutes (rpm).

Measurement Procedure

The revolution counter has been tested according to the design with a mechanical speed encoder or with electronic or optical signals.

Measurement Conditions

Temperature ambient: (22 ± 2) °C.

Measurement Results

A table and a detailed diagram can be found in the appendix.
The diameter of the perambulator is: 48.45 ± 0.1 mm.

Uncertainty of Measurement

The reported uncertainty of measurement is stated as the combined standard uncertainty multiplied by a coverage factor $k = 2$. The measured value (y) and the associated expanded uncertainty (U) represent the interval ($y \pm U$) which contains the value of the measured quantity with a probability of approximately 95 %. The uncertainty was estimated following the guidelines of the ISO (GUM:1995).

The measurement uncertainty contains contributions originating from the measurement standard, from the calibration method, from the environmental conditions and from the object being calibrated. The long-term characteristic of the object being calibrated is not included.

Model: **Jaquet**
Type: **DHO 907**Metas Nr.: **411967**
Serial Nr.: **06.06.214692**

Appendix

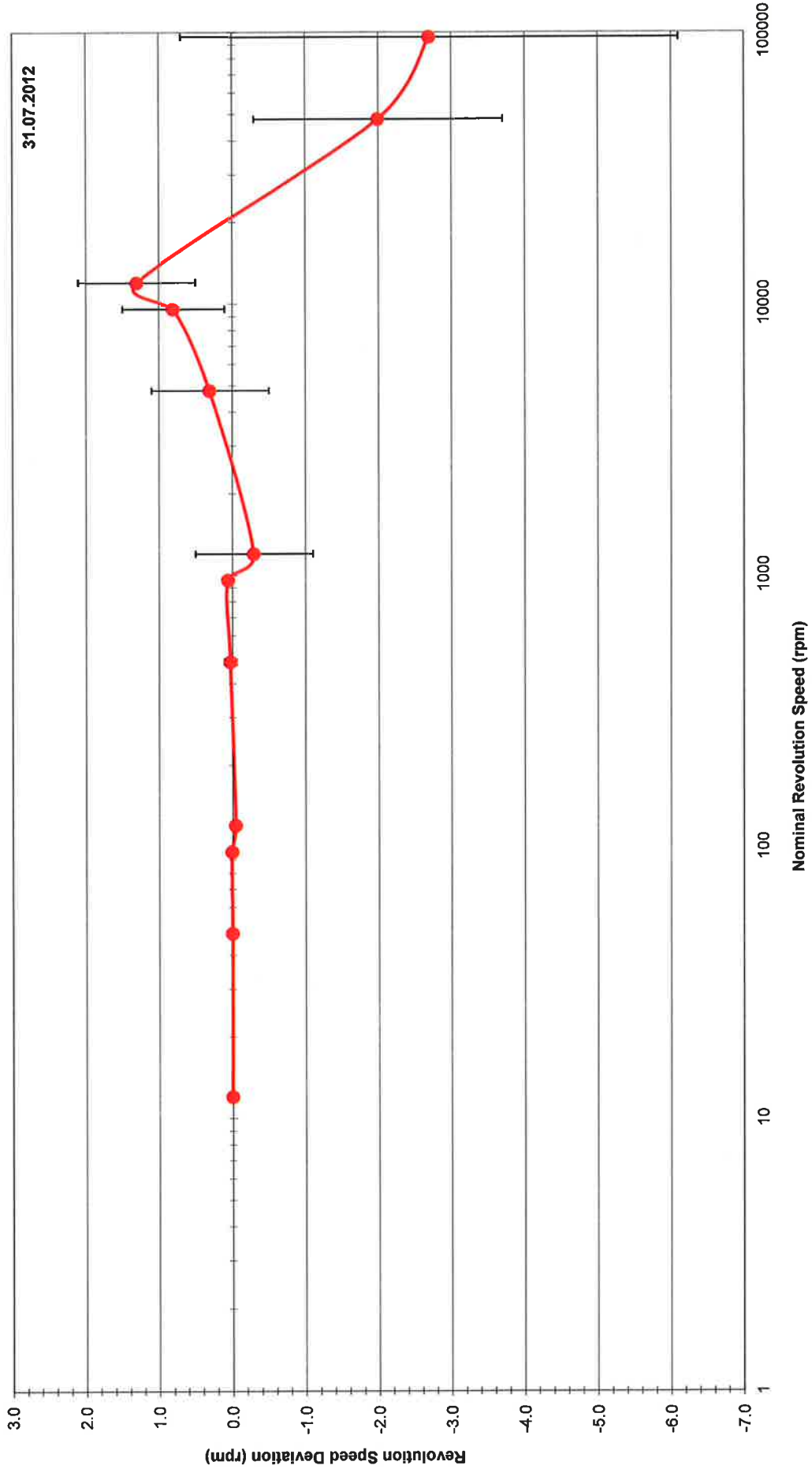
31.07.2012

Measurement Results

Rotation speed Range	Deviation rpm	Uncertainty of measure ± rpm
12	-0.005	0.007
48	-0.005	0.007
96	0	0.008
120	-0.05	0.07
480	0.02	0.08
960	0.05	0.07
1200	-0.3	0.8
4800	0.3	0.8
9600	0.8	0.7
12000	1.3	0.8
48000	-2	1.7
96000	-2.7	3.4

The specified values represent the mean value from 6 measurements.

Model: **Jaquet** Type: **DHO 907** Metas Nr.: **411967** Serial Nr.: **06.06.214692**





Formulaire : **Equipements de test et de mesure**

MANUEL DE MANAGEMENT

Document: 23806-3-fr.doc

P4 /Contrôle

du: 22.04.09

Page : 1 de 2

N° appareil N°: 305	Catégorie : Force
N° article Frewitt : 426113	Service utilisateur : Contrôle
Désignation : Tachymètre	Constructeur : Jaquet
Type : DHO 907 Combi	Vendeur : Jaquet AG - 4009 Bâle
N° de série : 214692	Année d'achat : 2006
Plage(s) : 10 - 10000 T/min	Prix d'achat : 370 CHF
Tolérance (s) : + - 1 %	

Etalonnage interne	Etalonnage externe
<u>Périodicité :</u> mois	<u>Périodicité :</u> 36 mois
<u>Procédure de contrôle :</u>	<u>Effectué chez :</u> Office fédéral de la métrologie - 3003 Berne-Wabern.
	<u>Procédure de contrôle :</u> Etalonnage entre 10 et 96000 T/min standard. Au laboratoire trafic, à l'att. de Mr. Fasel Walter.

Type de contrôle: Ctrl externe	(si ext.) Certificat reçu : OUI	Equipement conforme : OUI				
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Vi sa
mm	mm	mm	?	29/06/09	41	Hre
mm	mm	mm	?	Remarque :		
mm	mm	mm	?			

Type de contrôle: ?	(si ext.) Certificat reçu : ?	Equipement conforme : ?				
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Visa
mm	mm	mm	?			
mm	mm	mm	?	Remarque :		
mm	mm	mm	?			

Type de contrôle: ?	(si ext.) Certificat reçu : ?	Equipement conforme : ?				
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Vi sa
mm	mm	mm	?			
mm	mm	mm	?	Remarque :		
mm	mm	mm	?			

Type de contrôle: ?		(si ext.) Certificat reçu : ?		Equipement conforme : ?		
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Vi sa
mm	mm	mm	?			
mm	mm	mm	?			Remarque :
mm	mm	mm	?			

Type de contrôle: ?		(si ext.) Certificat reçu : ?		Equipement conforme : ?		
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Visa
mm	mm	mm	?			
mm	mm	mm	?			Remarque :
mm	mm	mm	?			

Type de contrôle: ?		(si ext.) Certificat reçu : ?		Equipement conforme : ?		
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Vi sa
mm	mm	mm	?			
mm	mm	mm	?			Remarque :
mm	mm	mm	?			

Type de contrôle: ?		(si ext.) Certificat reçu : ?		Equipement conforme : ?		
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Visa
mm	mm	mm	?			
mm	mm	mm	?			Remarque :
mm	mm	mm	?			

Type de contrôle: ?		(si ext.) Certificat reçu : ?		Equipement conforme : ?		
Mesure de référence	Mesure effective	Mesure après correction	Conforme ?	Date du ctrl	Contrôleur N°	Vi sa
mm	mm	mm	?			
mm	mm	mm	?			Remarque :
mm	mm	mm	?			

Certificate of Calibration



N° de Certificat : S - 110802-1R

Nous attestons que l'instrument ci-dessous atteint ou dépasse les spécifications électriques publiées par le fabricant, sur tous les points mesurés. Toutes les mesures sont traçables par des standards nationaux ou internationaux, ou ont été dérivées par une technique approuvée.

We certify that the below instrument meets or exceeds the manufacturers published electrical specifications at the points tested. All measurement are traceable to national or international standards or have been derived by approved ratio technique.

Page 1 de / of 1

CALIBRATION INFORMATION

Type / Model: FLUKE 87

N° de série / Serial Number: 60321248

N° d'inventaire / Asset Number: 111

Client / Customer : FREWITT SA

N° de Commande / Work Order : 11-160

Date de l'étalonnage: 2 août 2011

STANDARDS USED FOR CALIBRATION

<u>Asset Number</u>	<u>Description</u>	<u>Cal. Date</u>	<u>Due Date</u>
s2001	Fluke 5520A Multi product calibrator	28 mars 2011	28 mars 2012

Renato Ricci

Signed: 

Report of Calibration

Servilec SA

UNIT UNDER TEST: **FLUKE 87**
 SERIAL NUMBER : **60321248**
 ASSET NUMBER : **111**
 CERTIFICATE N° : **S-110802-1R**
 CUSTOMER : **FREWITT SA**
 TEMPERATURE : **(23 +/- 3) °C**
 HUMIDITY : **less than 70%**
 TEST RESULT : **PASS**
 PERFORMED ON : **02.08.2011**
 CALIBRATED BY : **Renato Ricci**



REMARKS:

Page 1 de 4

Standards Used

Asset	Description	Cal Date	Due Date
s2001	Fluke 5520A Multi product calibrator	28.mars 2011	28.mars 2012

Test Data

Test	Parameter	----- Unit Under Test -----			ERROR in (% of TOL)	User
		Reading	Tolerance	UUT Error		
DISPLAY TEST						
Result of Operator Evaluation						Pass
AC VOLTAGE TESTS						
400mV Range						
2	350.0 mV @ 60 Hz	349.0mV	2.90mV	-0.286%	35%	Pass
3	350.0 mV @ 1 kHz	349.2mV	3.90mV	-0.229%	21%	Pass
4	350.0 mV @ 5 kHz	346.8mV	7.40mV	-0.914%	43%	Pass
5	350.0 mV @ 20 kHz	349.4mV	9.00mV	-0.171%	7%	Pass
4V Range						
6	3.500 V @ 60 Hz	3.492V	27.00mV	-0.229%	30%	Pass
7	3.500 V @ 1 kHz	3.490V	39.00mV	-0.286%	26%	Pass
8	3.500 V @ 5 kHz	3.465V	74.00mV	-1.00%	47%	Pass
9	3.500 V @ 20 kHz	3.468V	90.00mV	-0.914%	36%	Pass
40V Range						
10	35.00 V @ 60 Hz	34.92V	270.00mV	-0.229%	30%	Pass
11	35.00 V @ 1 kHz	34.98V	390.00mV	-571ppm	5%	Pass
12	35.00 V @ 5 kHz	34.94V	740.00mV	-0.171%	8%	Pass

Test	Parameter	Reading	Tolerance	UUT Error	ERROR in (% of TOL)	User
13	35.00 V @ 20 kHz	34.90V	900.00mV	-0.286%	11%	Pass
400V Range						
14	350.0 V @ 60 Hz	349.2V	2.70V	-0.229%	30%	Pass
15	350.0 V @ 1 kHz	349.9V	3.90V	-286ppm	3%	Pass
16	350.0 V @ 5 kHz	349.4V	7.40V	-0.171%	8%	Pass
17	100.0 V @ 20 kHz	99.5V	4.00V	-0.500%	13%	Pass
18	200.0 V @ 20 kHz	199.8V	6.00V	-0.100%	3%	Pass
19	300.0 V @ 20 kHz	299.7V	8.00V	-0.100%	4%	Pass
20	350.0 V @ 10 kHz	348.5V	9.00V	-0.429%	17%	Pass
1000V Range						
21	900 V @ 60 Hz	903V	8.00V	0.333%	38%	Pass
22	900 V @ 1 kHz	904V	13.00V	0.444%	31%	Pass
23	900 V @ 5 kHz	903V	22.00V	0.333%	14%	Pass
FREQUENCY TESTS						
19.999kHz Range						
24	19.000 kHz @ 150 mV	18.999kHz	2.00Hz	-52.6ppm	50%	Pass
199.99kHz Range						
25	190.00 kHz @ 150 mV	189.99kHz	20.00Hz	-52.6ppm	50%	Pass
DC VOLTAGE TESTS						
4V Range						
26	3.500 V	3.501V	5.00mV	286ppm	20%	Pass
40V Range						
27	35.00 V	35.01V	50.00mV	286ppm	20%	Pass
28	-35.00 V	-35.00V	50.00mV	0.00ppm	0%	Pass
400V Range						
29	350.0 V	350.1V	500.00mV	286ppm	20%	Pass
1000V Range						
30	1000 V	1001V	2.00V	0.100%	50%	Pass
DC MILLIVOLT TEST						
400mV Range						
31	350.0 mV	350.1mV	500.00uV	286ppm	20%	Pass
RESISTANCE TESTS						
400 Ohm Range						
32	190.0 Ohm	190.10hm	500.00mOhm	526ppm	20%	Pass
40 kOhm Range						
33	19.00 kOhm	19.00kOhm	50.00Ohm	0.00ppm	0%	Pass
4 MOhm Range						
34	1.900 MOhm	1.903MOhm	5.00kOhm	0.158%	60%	Pass
40 MOhm Range						
35	19.00 MOhm	19.03MOhm	220.00kOhm	0.158%	14%	Pass
CONDUCTANCE TEST						
40nS Range						
36	10.00 nS	9.96nS	200.00pS	-0.400%	20%	Pass

Test	Parameter	----- Unit Under Test -----			ERROR in	
		Reading	Tolerance	UUT Error	(% of TOL)	User
CAPACITANCE TESTS						
5.00uF Range						
37	1.00 μ F	0.98 μ F	30.00nF	-2.00%	67%	Pass
0.500uF Range						
38	0.470 μ F	0.468 μ F	7.00nF	-0.426%	29%	Pass 3.22
0.0500uF Range						
39	0.0470 μ F	0.0471 μ F	700.00pF	0.213%	14%	Pass 3.22
DIODE TEST						
40	3.000 V	2.990V	61.00mV	-0.333%	16%	Pass
DC MILLIAMP TESTS						
DC MILLIAMP TESTS						
40mA Range						
40mA Range						
41	35.00 mA	35.02mA	90.00uA	571ppm	22%	Pass
400mA Range						
42	350.0 mA	350.0mA	900.00uA	0.00ppm	0%	Pass
AC MILLIAMP TESTS						
40mA Range						
43	35.00 mA @ 60 Hz	34.95mA	370.00uA	-0.143%	14%	Pass
44	35.00 mA @ 1 kHz	35.00mA	370.00uA	0.00ppm	0%	Pass
400mA Range						
45	350.0 mA @ 60 Hz	349.8mA	3.70mA	-571ppm	5%	Pass
46	350.0 mA @ 1 kHz	350.2mA	3.70mA	571ppm	5%	Pass
DC MICROAMP TESTS						
400uA Range						
47	350.0 μ A	350.1 μ A	1.00uA	286ppm	10%	Pass
4000uA Range						
48	3500 μ A	3499 μ A	9.00uA	-286ppm	11%	Pass
AC MICROAMP TESTS						
400uA Range						
49	350.0 μ A @ 60 Hz	349.4 μ A	3.70uA	-0.171%	16%	Pass
50	350.0 μ A @ 1 kHz	349.9 μ A	3.70uA	-286ppm	3%	Pass
4000uA Range						
51	3500 μ A @ 60 Hz	3495 μ A	37.00uA	-0.143%	14%	Pass
52	3500 μ A @ 1 kHz	3499 μ A	37.00uA	-286ppm	3%	Pass
DC AMP TESTS						
4000mA Range						
53	3500 mA	3500mA	9.00mA	0.00ppm	0%	Pass 4.00
10A Range						
54	10.00 A	10.00A	40.00mA	0.00ppm	0%	Pass
AC AMP TESTS						
4000mA Range						
55	3500 mA @ 60 Hz	3496mA	37.00mA	-0.114%	11%	Pass

Test	Parameter	----- Unit Under Test -----			ERROR in (% of TOL)	User
		Reading	Tolerance	UUT Error		
56	3500 mA @ 1 kHz	3500mA	37.00mA	0.00ppm	0%	Pass
10A Range						
57	10.00 A @ 60 Hz	10.05A	120.00mA	0.500%	42%	Pass
58	10.00 A @ 1 kHz	10.05A	120.00mA	0.500%	42%	Pass

End of Test Data



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Swiss Calibration Service

EN ISO/IEC 17025

Von der Schweizerischen Akkreditierungsstelle SAS akkreditierte Kalibrierstelle
Calibration Laboratory accredited by the Swiss Accreditation Service SAS

Akkr. Nr. **042**

**The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates**

Auftragsnummer: **1266**
Order number:

Zertifikat Nr.:
Certificate nr.:

7088b

Kalibrier-Zertifikat Certificate of Calibration

page 1 of 4 pages

Gegenstand: Sicherheitstester
Object:

Hersteller: GMC
Manufacturer:

Typ: Profitest 204
Model:

Ident. Nummer: 5522 8968
Ident. number:

Auftraggeber: GMC-Instruments Schweiz AG 8052 Zürich
Customer:

Bemerkungen: This instrument has been tested and calibrated in all functions.
Remarks: It meets the published specifications as given in the measuring protocol.

Datum der
Kalibrierung: 07.01.11
Date of calibration:

ELS-Elektronik GmbH
CH-8165 Schöfflisdorf
Datum:

Leiter der Kalibrierstelle:
Head of Calibration Laboratory:

K. Haus

Dieses Kalibrierzertifikat darf ohne die schriftliche Zustimmung des Laboratoriums nicht auszugsweise vervielfältigt werden. Messresultate, Messunsicherheiten mit Vertrauensbereich und Messverfahren sind auf den folgenden Seiten aufgeführt und sind Teil dieses Zertifikates. Dieses Kalibrierzertifikat dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten (SI).

This calibration certificate shall not be reproduced except in full, without written approval of the laboratory. The measurements, the uncertainties with confidence probability and calibrations methods are given on the following pages and are part of the certificate. This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).

Auftragsnummer: **1266**
Order number:Zertifikat Nr.:
Certificate nr.:**7088b****Kalibrierresultate / Calibration Results:**

Die angegebene erweiterte Messunsicherheit ist die Standardunsicherheit der Messung multipliziert mit einem Erweiterungsfaktor $k = 2$, was für eine Normalverteilung einem Vertrauensniveau von etwa 95 % entspricht.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %.

Test Conditions: Lab temperature $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$, relative humidity $45 \pm 5 \%$

Object: Sicherheitstester
Manufacturer: GMC
Model: Profitest 204
Ident. nr.: 5522 8968**Measurement Instruments used:**

Manufacturer / Model	Ident. nr.	last calibration
Calibrator Fluke 5520 A	7120206	08.07.10
Electrical Safety Calibrator Fluke 5320 A	S/N 510900307	05.05.10
Multimeter Fluke 287 Labor 1	96560130	07.09.10

Auftragsnummer: **1266**
Order number:Zertifikat Nr.:
Certificate nr.:**7088b**

Angelegter Wert Nominal value	Anzeige Prüfung Indicated UUT	Dim.	Frequency	Bereich Range	Abweichung Deviation	Messunsicherheit Measurement uncertainty	Test
Schutzleitertest							
Protective conductor resistance							
IAC gemessen an							
IAC measured at	0.11089	Ohm			13.9 Aac	1.08E-02	OK
358.09	360	mOhm	50 Hz		0.53%	3.28E-03	OK
Isolationsprüfung							
Insulation resistance							
Insulation resistance							
UINS measured at 10 MOhm				100 Vdc			
UINS gemessen an				126 Vdc		1.59E-02	OK
1.50	1.50	MOhm	DC	100 V	0.00%	7.70E-03	OK
9.00	9.04				0.44%	1.29E-03	OK
50.00	50.3				0.60%	2.74E-03	OK
Isolationsprüfung							
Insulation resistance							
UINS measured at 10 MOhm				250 Vdc			
UINS gemessen an				293 Vdc		6.86E-03	OK
1.50	1.50	MOhm	DC	250 V	0.00%	7.70E-03	OK
9.00	9.01				0.11%	1.30E-03	OK
50.00	49.9				-0.20%	2.76E-03	OK
Isolationsprüfung							
Insulation resistance							
UINS measured at 10 MOhm				500 Vdc			
UINS gemessen an				573 Vdc		3.69E-03	OK
1.50	1.50	MOhm	DC	500 V	0.00%	7.70E-03	OK
9.00	9.02				0.22%	1.30E-03	OK
50.00	49.8				-0.40%	2.76E-03	OK
Isolationsprüfung							
Insulation resistance							
UINS measured at 10 MOhm				1000 Vdc			
UINS gemessen an				1211 Vdc		1.87E-03	OK
10.00	10.0	MOhm	DC	1000 V	0.00%	1.15E-02	OK
50.00	50.4				0.80%	2.74E-03	OK

Auftragsnummer: **1266**
Order number:Zertifikat Nr.:
Certificate nr.:**7088b**

Angelegter Wert Nominal value	Anzeige Prüfung Indicated UUT	Dim.	Frequency	Bereich Range	Abweichung Deviation	Messunsicherheit Measurement uncertainty	Test
Ableitstromprüfung Leakage current							
1.00	1.01	mA	50 Hz		1.00%	1.25E-02	OK
1.50	1.51				0.67%	8.41E-03	OK
2.00	2.01				0.50%	6.35E-03	OK
2.50	2.51				0.40%	5.11E-03	OK
5.00	5.01				0.20%	2.62E-03	OK
Spannungsmessung Voltage							
115.0	117	V	DC		1.74%	9.87E-03	OK
230.0	232				0.87%	4.98E-03	OK
400.0	403				0.75%	2.87E-03	OK
990.0	997				0.71%	1.16E-03	OK
115.0	115	V	50 Hz		0.00%	1.01E-02	OK
230.0	230				0.00%	5.06E-03	OK
400.0	400				0.00%	2.96E-03	OK
990.0	989				-0.10%	1.31E-03	OK
Frequenzmessung Frequency							
50.0	50.0	Hz			0.00%	2.31E-03	OK
60.0	60.0				0.00%	1.92E-03	OK
400.0	400				0.00%	2.89E-03	OK

Analytical Reference Materials International

Provisional Certificate of Analysis

Certified Reference Material



Grade: 1¼Cr ½Mo / UNS K11572

Part Number (Q.A. NO.): IARM 35JN

Certificate Date: 10/18/2010

Certificate No.: 35JN-10182010-IARM-P

Revision Date: 03/10/2011

Interpretation of Data

1. Certified values listed below reflect analysis results submitted by qualified analytical laboratories using a combination of methods and instrumentation that emulate actual methods and instrumental techniques currently utilized in the analytical community and are reported as % wt. unless otherwise noted.
2. Any data reported and enclosed by a **parentheses ()** is a "best estimate" and is **NOT CERTIFIED**. This data could not be quantified sufficiently for certification. It was however, reported by enough laboratories to be considered as potentially present in the matrix of the material being examined.
3. The "Inter-laboratory Analysis Program" (ILAP) utilized in the establishment of the data are an ongoing program with permanent membership. Certain elements may be selected by a consensus of the members for more extensive testing. Therefore the data in **brackets []** indicates further testing is in process.
4. The "±Estimated Uncertainty" is enclosed by a **parentheses ()** below the individual element's concentration and is based on a Confidence Interval at 95%. Included in this estimated uncertainty, are the combined effects of method imprecision, material inhomogeneity, and any bias between methods.

Important: A "User Registration Card" accompanies all shipments. This card should be completed immediately upon receipt of materials with the appropriate user information. This is the only way in which ARMI can guarantee customer updates or possible data modifications!

<u>Aluminum</u> [0.029] [(0.001)]	<u>Antimony</u> [0.0018] [(0.0005)]	<u>Arsenic</u> [0.004] [(0.001)]	<u>Boron</u> [0.0003] [(0.0001)]	<u>Carbon</u> [0.129] [(0.003)]	<u>Calcium</u> [0.0006] [(0.0002)]	<u>Cobalt</u> [0.006] [(0.001)]	<u>Chromium</u> [1.18] [(0.02)]
<u>Copper</u> [0.087] [(0.002)]	<u>Manganese</u> [0.55] [(0.01)]	<u>Molybdenum</u> [0.45] [(0.01)]	<u>Nitrogen</u> [0.009] [(0.0005)]	<u>Niobium</u> [0.002] [(0.001)]	<u>Nickel</u> [0.086] [(0.002)]	<u>Oxygen</u> [(0.001)]	<u>Phosphorus</u> [0.006] [(0.001)]
<u>Lead</u> [(0.001)]	<u>Sulfur</u> [0.025] [(0.002)]	<u>Silicon</u> [0.60] [(0.01)]	<u>Tin</u> [0.005] [(0.001)]	<u>Titanium</u> [0.0020] [(0.0001)]	<u>Vanadium</u> [0.004] [(0.0004)]	<u>Tungsten</u> [(0.003)]	<u>Zirconium</u>

The laboratories participating in the "Inter-Laboratory Analysis Program" (ILAP) and certification of this material are as follows:

Anderson Laboratories, Inc. - Greendale, WI
Ellwood National Steel - Irvine, PA
Jorgensen Forge Corp. - Seattle, WA
Laboratory Testing, Inc. - Hatfield, PA
NSL Analytical Services - Cleveland, OH
Special Metals IncoTest - Hereford, UK

Colorado Metallurgical Services - Denver, CO
Essar Steel Algoma, Inc. - Sault Ste. Marie, ON
Kalco Metals, Inc - Wheatland, PA
Latrobe Specialty Steel Co. - Latrobe, PA
Outokumpu Stainless OY - Tornio Finland
Stork-MMA Laboratories - Newtown, PA

Traceability: All members of the "Inter-Laboratory Analysis Program" (ILAP) listed above validate test methods and instrument performance utilizing SRMs produced by the National Institute of Standards and Technology, (NIST) as well as other CRMs and RMs produced by recognized Certifying Bodies from around the world. The specific SRMs, CRMs, and RMs applicable to the material covered by this certificate are: NIST 1263, IARM 30C, 40B, 143B, EURO 077-1, NR 2D, MBH 15255, IARM 35B, LECO 501-503, 501-644, NIST 16F, 362, 364, 367, 368, C1152, C1153, C1154, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1261, 1261A, 1262, 1263A, 1264, 1265, 1754, 1761, 1762, 1763, 1764, 1765, 1766, 1767, BAS 401/1, 402/1, 403/1, 404/1, 405/1, 406/1, 407/2, 408/1, 409/1, 410/2, JSS ST01, ST02, ST03, ST04, ST05, ST06, JSS 168-4, 169-4, 170-4, 171-4, 172-4, 173-4, 174-4, 175-4, 190-1, 191-1, 192-1, 193-1, 194-1, 195-1, CZECH 184A, BS 12, 12B, 13, 13B, 14B, 156, 4142SE, CA-1, CA-2, CA-3, CA-4, CA1A, CA2A, CA3A, XAAS, XCCV, XCCS, MBH 12X353, LECO 501-506, 501-510, 502-416, NIST 293, 361, 363, LECO 501-644, NIST 898, 1263A, 1264A, 1761, BS 14B, ALPHA AR660, AR869, AR960, LECO 502-193, 762-747, IARM 35A, ALPHA AR872, NIST 1763, 1765, IARM 35B, LECO 501-510, 502-257, IST 1263A, 1766, 1767, BCS SS 401, SS 401/2, SS 404/2, SS 406/1, SS 407/2, SS 408/2, SS 409/2, SS 454/1, SS 459/1, SS 460/1, EURONORM 096/1, 097-1, LECO 501-502, 501-503, 502-256, NIST 361, 362, 363, 364, IARM 31C, 35C, 35F, 35G, LECO 501-504, 501-644, CKD 169, 170, BS CA-3, 14A, 50B, 64B, 68B, BCS 351, 408, 410, 451, 453, 454/1, 462/1, 483, IH R5657, LECO 501-551, 502-102, NIST 1217, 1225, 1763, IARM 35E, 35F, BS 4942, ALPHA AR660, AR872, IARM 35D

A specific line of traceability is established to NIST and other Certifying Bodies for those elements that are noted as "Certified Values" on the Certificates of Analyses referenced above.

See Reverse Side for Statistical Data and Additional Information Regarding this Material.

700 Corporate Cr., Suite A • Golden, Colorado 80401 • Telephone (303) 216-2621 • FAX (303) 216-2649

The following data and accompanying statements represent all pertinent information reported in the ILAP as it applies to the chemical characterization of this material as of 03/10/2011.

35JN	Al	As	B	C	Co	Cr	Cu	Mn	Mo	N	Nb	Ni	O	P	Pb
1	0.030	0.0033	0.00016	0.12	0.007	1.191	0.091	0.55	0.46	0.0078	0.001	0.086	0.00050	0.0045	0.001
2	0.030	0.0061	0.0003	0.130	0.007	1.144	0.086	0.539	0.452	0.0090	0.0019	0.085	0.00109	0.0068	0.0017
3	0.0280	0.0051	0.0002	0.132	0.0063	1.172	0.088	0.557	0.439	0.008	0.0026	0.088	0.00048	0.0052	0.0017
4	0.0280	0.0035	0.0004	0.1327	0.0054	1.2522	0.0877	0.557	0.450	0.00944	0.0016	0.0855	0.0014	0.0072	0.0001
5	0.0305	0.0025	0.0005	0.1224	0.0052	1.181	0.08045	0.5494	0.4373	0.00939	0.0022	0.0797	0.0010	0.0064	0.0001
6	0.028	0.0023	0.0004	0.125	0.005	1.23	0.080	0.5665	0.4725	0.00852	0.0023	0.089		0.005	
7	0.0259	0.0031	0.0002	0.128	0.0065	1.155	0.084	0.555	0.488	0.008		0.085		0.0056	
8	0.029		0.0002	0.1279	0.0077	1.159	0.0872	0.538	0.442	0.0087		0.088		0.0055	
9	0.0293			0.128	0.006	1.2122	0.0899	0.5543	0.442	0.0090		0.0926		0.0070	
10	0.0283			0.1262	0.0065	1.145	0.0908	0.53	0.4474	0.0071		0.080		0.006	
11	0.0273			0.129		1.165	0.088	0.554	0.4738	0.0096		0.089		0.0053	
12	0.0279			0.136		1.1652	0.090	0.5577	0.469	0.0097		0.0857		0.0076	
13	0.0306			0.1353		1.1786	0.0832	0.5505	0.443	0.0092				0.0078	
14				0.1285			0.0868		0.4496						
15									0.4476						
Mean	0.0287	0.0037	0.0003	0.1286	0.0063	1.1808	0.0866	0.5506	0.4542	0.0087	0.0019	0.0881	0.0009	0.0061	0.0009
STDV.	0.0014	0.0014	0.0001	0.0045	0.0009	0.0329	0.0038	0.0098	0.0151	0.0008	0.0006	0.0037	0.0004	0.0011	0.0008
Certified	0.029	0.004	0.0003	0.129	0.006	1.18	0.087	0.55	0.45	0.009	0.002	0.086	(0.001)	0.006	(0.001)
95% C.I.	0.001	0.001	0.0001	0.003	0.001	0.02	0.002	0.01	0.01	0.0005	0.001	0.002		0.001	
Methods	I,O	X,H,I,O	I,O	C,O	X,I,O	X,I,O	X,I,O	X,I,O	X,I,O	F,O	X,O	X,I,O	F	X,I,O	H,O

Legend: W = Classical, C = Combustion, F = Fusion, A = AA or GFAA, I = ICP or DCP, D = DC Arc, O = AES, X = XRF, G = GDAES or GDMS, H = Hollow Cathode AES

35JN	S	Si	Sn	Ti	V	W	Bi	Ca	H	Mg	Sb	Se	Ta	Zn	Zr
1	0.024	0.581	0.0047	0.0019	0.003	0.0046	<0.0001	0.00043	<0.0001	0.0001	0.0019	<0.00005	<0.001	0.0018	<0.001
2	0.0248	0.598	0.007	0.0022	0.0034	0.0018	0.0004	0.0008		<0.0001	0.0015	0.0005	0.0036	0.0006	0.0033
3	0.0224	0.612	0.0054	0.002	0.0037	0.0005	0.00002	0.0002		0.0001	0.0018	0.00005	<0.0001	0.0015	<0.0001
4	0.0224	0.5984	0.0054	0.0022	0.0025	0.0029	0.0001	0.001		0.0001	0.0010		0.003	0.0011	0.0146
5	0.0290	0.6085	0.0041	0.0020	0.0044	0.0025		0.0005		0.0005	0.0024		<0.0001	0.0014	0.0015
6	0.0277	0.61	0.0046	0.0023	0.0046			0.0007			0.0022				0.0011
7	0.0228	0.591	0.0072	0.0018	0.0037			0.0005							<0.0001
8	0.0235	0.590	0.0074	0.0019	0.0032										
9	0.0269	0.5938	0.003		0.004										
10	0.0292	0.5993	0.0053		0.0033										
11	0.0253	0.615	0.0041		0.0038										
12	0.0257	0.608	0.0061												
13		0.6035													
14		0.6126													
Mean	0.0253	0.6012	0.0054	0.0020	0.0036	0.0025	0.0002	0.0006	#DIV/0!	0.0002	0.0018	0.0003	0.0033	0.0013	0.0051
STDV.	0.0024	0.0101	0.0014	0.0002	0.0006	0.0015	0.0002	0.0003	#DIV/0!	0.0002	0.0005	0.0003	0.0004	0.0005	0.0064
Certified	0.025	0.60	0.005	0.0020	0.004	(0.003)		0.0006			0.0018			(0.001)	
95% C.I.	0.002	0.01	0.001	0.0001	0.0004			0.0002			0.0005				
Methods	C,O	X,I,O	X,I,O	X,O	X,I,O	X,I,O		I,O			X,H,O			X,H,I,O	

Legend: W = Classical, C = Combustion, F = Fusion, A = AA or GFAA, I = ICP or DCP, D = DC Arc, O = AES, X = XRF, G = GDAES or GDMS, H = Hollow Cathode AES

The International Standards Organization (ISO) definitions, expressed in ISO Guide 30-1992 list the following:

Certifying Body: Any technically competent body (organization or firm, public or private) that issues a reference material certificate, which provides the information, detailed in ISO Guide 31. The only generally accepted certifying body in the United States for primary standards - Standard Reference Materials (SRM) is the U. S. Department of Commerce, National Institute of Standards & Technology, (NIST), Gaithersburg, MD. All other certifying bodies in the United States produce Reference Materials (RM) or Certified Reference Materials (CRM).

Reference Material (RM): Material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials.

Certified Reference Material (CRM): Reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure, which establishes its traceability to an accurate realization of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence.

Inter-Laboratory Analysis Program (ILAP): Although ASTM Standard E691-87 applies to inter-laboratory studies to "Determine the Precision of a Single Test Method", it is also a well thought out and logical plan for conducting an inter-laboratory program involving multiple techniques. Therefore, the planning, conducting, analyzing, protocol, and treatment of data resulting from this inter-laboratory program were performed utilizing the guidelines established in ASTM E691-87.

Methods of Analysis: In view of the fact, that the "Inter-Laboratory Analysis Program" entails a wide variety of materials, no single analytical method would provide optimum data results. Therefore, the methods utilized were a combination of ASTM Standard Methods for classical wet chemistry, ICP, AA, Optical Emission, and X-Ray spectrometric methods. The determinations for Carbon, Sulfur, Nitrogen, and Oxygen are the result of combustion and OE instrument procedures.

Expiration of Certification: The certification of this IARM is valid indefinitely, within the uncertainty specified, provided the IARM is handled and stored in accordance with the instructions stated on this certificate. The certification is nullified if the IARM is damaged, contaminated, otherwise modified, or used in a manner for which it was not intended.

Instructions for Use: The test surface is the side opposite to the labeled surface, which includes the IARM number. The entire thickness of the unit is certified. However, the user is cautioned not to measure disks less than 2 mm thick when using X-ray fluorescence spectrometry. Each packaged disk has been prepared by finishing the test surface using a lathe. The user must determine the correct surface preparation procedure for each analytical technique. The user is cautioned to use care when either resurfacing the disk or performing additional polishing as these processes may contaminate the surface. When not in use, the material should be stored in a cool, dry location. This material was tested using both the solid disks and chips prepared from the disks. The certified values are considered representative of the overall average composition of the material. **Chips are not intended for Nitrogen, or Oxygen analysis.**

Selection of Materials: A "batch" or "series" is defined as a single bar of one continuous length and heat. The majority of materials are in wrought condition; other methods of manufacture are utilized as a less desirable resort. ILAP samples are taken by removing a section, a minimum of, every one-twelfth of total length from the entire bar. A portion of the section is converted to chips and thin (pin) disk for analysis by classical wet chemistry, ICP, AA, and combustion procedures, and the balance remains as a thick disk for OES and X-Ray analysis. This systematic sampling procedure results in the homogeneity being reflected as a product of the overall statistics and certified data. This method of homogeneity testing is in accordance with ISO Guide 34, regarding the systematic selection and testing of a representative number of units for the assessment of homogeneity.



William D. Britt, President, & General Manager
Analytical Reference Materials International Corporation

Certificate No.: 35JN-10182010-IARM-P
Certificate Date: 10/18/2010
Revision Date/No.: 03/10/2011

Apparail 405

Mitutoyo

Mitutoyo Corporation

20-1, Sakado 1-chome, Takatsu-ku,
Kawasaki, Kanagawa, 213-8533, Japan
Phone (044) 813-8230

ONE YEAR WARRANTY

Product Name Mitutoyo Sufitest SJ-301 Code No.

Serial No. 400197 Date Purchased

Mitutoyo Corporation conducts quality assurance under ISO 9000 certified quality system. This product conforms to the MITUTOYO inspection standard, and the standard (s) used for the calibration is /are traceable to the national(international) standard (s).

In the event that this product should fail within one (1) year from the original date of purchase through normal use conforming to the User's Manual provided with the product and Warning Label(s) on the product, we will repair or replace at our option, free of charge, upon its prepaid return to Mitutoyo with this WARRANTY card.

*Purchaser is requested to fill the blank above and retain the warranty card at hand. Return card only when requesting Warranty Service.

Y. Yamamoto
Quality Assurance Office
Y. Yamamoto Manager

This warranty shall not apply if the product and consumables have been subject to fair wear and tear, abuse through misuse or improper use/handling/storage/maintenance/service/repair or through adaptation/modification by the original purchase or any third party without prior written consent of Mitutoyo or as a result of damage by an actual disaster or circumstances beyond the control of Mitutoyo. To obtain service under this warranty the product must be returned to the store/dealer you purchased from along with the warranty card. Any postage, insurance, or shipping charges incurred in returning the product for service are the responsibility of the purchaser.

*This warranty is not transferable and is only valid within the country of the original purchase

*You may have additional rights under the laws of country of original purchase that do not allow the exclusion of implied warranties or the exclusion or limitation of certain damages if these laws apply, Mitutoyo's limitations and exclusions may not apply to you.

Quality Assurance under the ISO 9000 Registered Quality System

The latest status of the ISO9000 registration is posted on our website
<http://www.mitutoyo.co.jp>

Mitutoyo Sufitest SJ-301

DATE 13-05-2014
HEURE 09:13:00

NORME JIS2001
PROFIL R
FILTRE GAUSS
EVA-L 4.0mm
N 5
λc 0.8mm
λs 2.5μm
C. INCLIN. TOUS
VITESSE - M 0.5mm/s
PLAGE AUTO
ESC
PRE/POST ON
DRIVE STAND

R-PROFIL
EVA-L 4.0mm
λc 0.8mmX5
Ra 2.94μm

Mitutoyo

WA140 ⑫

保証書

商品名 コード番号

製造番号 お買い上げ日

《お願い》 お買い上げの際、上記各欄の必要な項目についてご記入ください。

当社は、品質保証の国際規格「ISO9000シリーズ」に基づく品質システムにより品質保証をおこなっており、この商品は、ミットヨ検査規格に適合し、使用した標準器は国家（国際）標準にトレーサビリティを確立しております。取扱説明書、本体貼付ラベルなどの注意書に従った正常な使用状態で保証期間内に故障した場合には、本書記載内容により無料修理をさせていただきます。

保証期間（お買い上げ日より）
本 体 1 年

株式会社 ミットヨ
神奈川県横浜市高港区坂戸1-20-1 〒213-8533
電話(044)813-8201 (代)

- 保証期間内でも次のような場合には有料修理となります。
 - ◆ 使用上の誤り、改造や不当な修理による故障または損傷
 - ◆ お買い上げ後の移送、輸送、落下などによる故障または損傷
 - ◆ 不適当な保守、保管、保存による故障または損傷
 - ◆ 異常電圧、指定外の使用電源（電圧、周波数）による故障または損傷
 - ◆ 消耗品の消耗による故障または損傷
 - ◆ 火災、地震、水害、落雷、その他の天災地変、公害、煙害、ガス害（硫化ガスなど）による故障または損傷
 - ◆ 本書のご提示がない場合
 - ◆ その他当社の責任とみなされない故障または損傷

■ 修理は、お買い上げの販売店または最寄りの当社営業所へご依頼ください。
*本保証書はお買い上げいただいた国においてのみ有効です。
*本保証書は再発行いたしませんので大切に保管してください。

■ 「ISO 9000 シリーズ」の品質システム審査登録を取得しています。
ISO9000の最新登録状況は当社ホームページにて公開しております。
<http://www.mitutoyo.co.jp>

ATEX - CERTIFICATION



Notification of recognition of the quality assurance production

Annex IV

- (1)
- (2) Equipment or protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**
- (3) Conformity certificate number: **SEV 09 ATEX 4137**
- (4) Equipment: **Machines in the type of protection Liquid Immersion "k", Control of Ignition Source "b", Constructional Safety "c", Increased Safety "e", Flameproof Enclosures "d" and Resistent Equipment**
- A list of the EC-Type Examination Certificates covered by this notification is held by the notified body.
- (5) Applicant: **Frewitt Fabrique de machines SA
Route du Coteau 7, CH-1763 Granges-Paccot**
- (6) Manufacturer: **Frewitt Fabrique de machines SA
Route du Coteau 7, CH-1763 Granges-Paccot**
- (7) Electrosuisse SEV, notified body number 1258 for Annex IV in accordance with article 9 of the council Directive 94/9/EC, notifies to the manufacturer that he has a production quality system which complies with Annex IV of the Directive.
- (8) This notification is based on audit report no. 09-IK-0183.03 dated 2012-11-15.
- (9) The results of a regular repeat evaluation of the quality assurance system form part of this notice.
- (10) This notification is valid until 2015-11-27 and can be withdrawn if the manufacturer no longer satisfies the requirements of Annex IV.
- (11) According to article 10 (1) of the Directive 94/9/EC the notified body assessing the examination phase must be indicated by showing the notified body number 1258 of Electrosuisse SEV beside the CE mark.

 **Electrosuisse
Notified Body ATEX**

Martin Plüss
Product Certification




Fehraltorf, 2012-11-27

SEV 09 ATEX 4137 / page 1 of 1



(1) **EG-Baumusterprüfbescheinigung**

(2) Geräte und Schutzsysteme zur bestimmungsgemässen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) Prüfbescheinigungsnummer: **SEV 06 ATEX 0133**

(4) Gerät: Steuerung Typ MA bzw. ES

(5) Hersteller: Frewitt Fabrique de machines SA

(6) Anschrift: Route du Coteau 7, CH-1763 Granges-Paccot

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Prüfbescheinigung festgelegt.

(8) Electrosuisse SEV, benannte Stelle Nr. 1258 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG), bescheinigt die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemässen Verwendung in explosionsgefährdeten Bereichen gemäss Anhang II der Richtlinien.

Die Ergebnisse der Prüfung sind im vertraulichen Prüfbericht 06-IK-0149.01 inkl. Erweiterung 1 und 2 festgehalten.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

EN 1127-1:11

EN 60079-0:12

EN 60079-31:09

(10) Falls das Zeichen «X» hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäss Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen des Gerätes.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

siehe Anlage Seite 2: (19) Kennzeichnung

 **Electrosuisse**
Benannte Stelle ATEX

Martin Plüss
Zertifizierung Produkte



Fehraltorf, 30.09.2013

SEV 06 ATEX 0133 / Seite 1 von 2

(13) **Anlage**(14) **EG-Baumusterprüfbescheinigung**(15) Beschreibung des Gerätes

Die Steuerung FREWITT Typ MA bzw. ES wird in den durch die Seriennummer bestimmten Ausführungsvarianten für gas- und/oder staubexplosionsgefährdete Bereiche in den Zündschutzarten „Druckfeste Kapselung“ und/oder „Schutz durch Gehäuse“ entsprechend den Anforderungen der Kategorien 2 oder 3 zur ausschliesslichen Verwendung in den Geräten zum Mahlen und Behandeln von Pulvern gefertigt.



Die geprüften Geräte sind Baugruppen, bestehend aus Komponenten, die ein Konformitätsbewertungsverfahren gemäss Artikel 8 der Richtlinie 94/9/EG durchlaufen haben sowie aus Teilen ohne Anforderungen an den Explosionsschutz.

Für jede Ausführungsvariante der Baugruppe wird ein thermischer Nachweis erstellt.

Installations- und Gebrauchsart: stationär
 IP Schutzgrad: IP54 bzw. IP65
 Umgebungstemperaturbereich (°C): -20 °C bis 40 °C

(16) Prüfbericht 06-IK-0149.01 inkl. Erweiterung 1 und 2(17) Besondere Bedingungen
keine(18) Grundlegende Sicherheits- und Gesundheitsanforderungen
Durch die angewandten Normen erfüllt.

(19) Kennzeichnung

	II 2G	Ex d* IIB T6 Gb	und / oder bzw.
	II 2D	Ex tb IIIC T85°C Db	
	II 3G	Ex d* IIB T6 Gb	und / oder
	II 3D	Ex tb IIIC T85°C Db	

(* = Ergänzung je nach eingebauten Geräten mit
gesonderten Konformitätsbewertungsverfahren)

 **Electrosuisse**
Benannte Stelle ATEX

Martin Plüss
Zertifizierung Produkte




Fehraltorf, 30.09.2013

SEV 06 ATEX 0133 / Seite 2 von 2



TÜV Rheinland/
Berlin-Brandenburg



(1) EG-Baumusterprüfbescheinigung

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) EG-Baumusterprüfbescheinigungsnummer

TÜV 02 ATEX 7005 X



(4) Gerät: Vakuumfördersysteme – Baureihe VR und PPC

(5) Hersteller: Volkmann GmbH

(6) Anschrift: Schloitweg 17, D – 59494 Soest

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die TÜV CERT-Zertifizierungsstelle für Ex-Schutz-Produkte der TÜV Anlagentechnik GmbH, Unternehmensgruppe TÜV Rheinland/Berlin-Brandenburg, bescheinigt als benannte Stelle Nr. 0035 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. 195/Ex005.00/02 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

DIN EN 1127-1

DIN EN 13463-1

(10) Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese sind nicht durch dieses Zertifikat abgedeckt.

(12) Die Kennzeichnung des Gerätes muß die folgenden Angaben enthalten:

II 1 D c 80°C / II 2 GD 100°C

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Köln, den 01.10.2002

Dipl.-Ing. K. Wettingfeld



DAR-Reg.-Nr.: ZLS-ZE-311/02

Die Zentralstelle der Länder für Sicherheitstechnik (ZLS) - vertreten im Deutschen Akkreditierungsrat - bestätigt hiermit, dass die TÜV CERT-Zertifizierungsstelle für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen im Sinne der Richtlinie 94/9/EG der TÜV Anlagentechnik GmbH, Unternehmensgruppe TÜV Rheinland/Berlin-Brandenburg, Am Grauen Stein, 51105 Köln, die Anforderungen des § 9 Abs. 2 Gerätesicherheitsgesetz sowie die Norm DIN EN 45 011 erfüllt und die Kompetenz besitzt, Ex-Schutz-Produkte im Geltungsbereich der EG-Richtlinie 94/9/EG entsprechend den Bestimmungen des Akkreditierungsbescheides Nr. 5 ZLS/3926-1/101/02 zu zertifizieren.

(13) **Anlage**

(14) **EG-Baumusterprüfbescheinigung TÜV 02 ATEX 7005 X**

(15) Beschreibung des Gerätes

Die Vakuumfördersysteme der Baureihe VR und PPC, mit den Typenbezeichnungen VR 170, VR 315, VR 450, PPC 170, PPC 250, PPC 315 dienen dem diskontinuierlichen Transport von Schüttgütern im Saugluftstrom. Die Systeme bestehen aus einer Multijektorvakuumpumpe, Ansauglanze, einem Auffangbehälter, Filtersystemen, Gegenbläser, Austragshilfen und Entleersystemen sowie einer pneumatischen Steuerung. Die Entleerklappe der Entleersysteme wird wahlweise pneumatisch oder durch Schwerkraft betätigt. Die Fördersysteme sind vollständig aus Edelstahl. Sämtliche Bauteile sind elektrisch leitend miteinander verbunden. Die Systeme unterscheiden sich lediglich im Durchmesser und in ihrem modularem Aufbau.

(16) Prüfbericht-Nr. 195/Ex005.00/02

(17) Besondere Bedingungen

Es dürfen nur Schüttgüter gefördert werden, deren Mindestzündenergie $> 3\text{mJ}$ ($> 1\text{mJ}^*$) ist. Es dürfen keine brennbaren Gase und Dämpfe in den Schüttgütern enthalten sein oder mitgefördert werden. Die maximale Stofftemperatur des Schüttgutes darf 80°C nicht überschreiten. Die Abgabe des eingesaugten Schüttgutes darf nicht unmittelbar in explosionsgefährdete Bereiche der Zone 0 und 1 eingebracht werden.

*) Bei Stoffen mit Mindestzündenergien von 1mJ bis 3mJ gelten besondere Einsatzbedingungen: Die eingesaugte Stoffmenge darf je Saugtakt die Masse von 10kg nicht überschreiten.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

keine zusätzliche Anforderungen

1. Ergänzung

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

zur EG-Baumusterprüfbescheinigung TÜV 02 ATEX 7005X

Gerät: Vakuumfördersystem PPC 450

Hersteller: Volkmann Vakuumtechnik GmbH

Anschrift: Schloitweg 17
D-59494 Soest

Beschreibung der Ergänzungen und Änderungen:

Das Vakuumfördersystem der Baureihe PPC, mit der Typenbezeichnung PPC 450 unterscheidet sich lediglich in der Größe von der bescheinigten Baureihe.

Siehe Anhang A19 vom 29.03.06

Technische Daten:

Die technischen Daten sind mit Ausnahme des Durchmesser von 450 mm identisch mit dem Fördersystem PPC 315.


Prüfbericht-Nr. 195/Ex 005.00.02


Der Prüfbericht ist auch für den PPC 450 gültig, da das betrachtete Gerät keine zusätzlichen Explosionsgefährdungen besitzt.

Zeichnung F-ATEX-06001-1.0 - siehe Anhang A6

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Köln, den 20.04.06


Dipl.-Ing. K. Wettingfeld



2. Ergänzung

gemäß Richtlinie 94/9/EG Anhang III Ziffer 6

zur EG-Baumusterprüfbescheinigung

TÜV 02 ATEX 7005X

Gerät: Vakuumfördersystem Baureihe VS, Typ: VS 150, VS 200, VS 250, VS 350, VS 450, VS 600

Hersteller: Volkmann Vakuumtechnik GmbH

Anschrift: Schloitweg 17
D-59494 Soest

(15) Beschreibung der Ergänzungen und Änderungen:


Das Vakuumfördersystem der Baureihe VS, mit den oben angegebenen Typenbezeichnungen unterscheidet sich lediglich in der Größe und ihrem modularem Aufbau von den bescheinigten Baureihen.

Der Entleerungsbehälter hat eine neue Entleerungsklappe, die Behältersegmente werden mit Spannring befestigt.

Der Entleerungsbehälter ist Teil einer Vakuumfördereinrichtung und im Inneren für die Zone 20 und im Aufstellungsbereich für die Zone 1 und 21 ausgelegt.

Weitere technische Änderungen betreffen den Einsatz der zulässigen Produkte und die geänderte Umgebungstemperatur. Diese Änderungen betreffen jetzt alle Baureihen.

Diese Ergänzung nimmt auch die Änderungen der Normen auf und bezieht die EN 13463-5:2003 mit in die Beurteilung ein. Demzufolge wird die Kennzeichnung ergänzt:

 II 1 D c 80°C / II 2 GD c 100°C (T4)

15.1 Technische Daten:

Durchmesser Abscheidbehälter:	150 bis 600 mm
Partikelgröße:	> 5 µm
Schüttdichte:	> 0,005 kg/dm ³
Mindestzündenergie:	> 3 mJ (> 1 ≤ 3 mJ gelten besondere Bedingungen)
Maximale Produkttemperatur:	-40°C ≤ Ta ≤ +80°C
Zulässige Umgebungstemperatur:	- 20 ≤ Ta ≤ +60 °C (soweit Teile der Gerätekombination dies zulassen)

Prüfbericht-Nr. 195/Ex 005.02.07

Besondere Bedingungen:

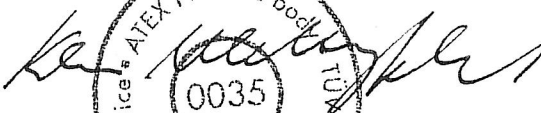

- 1.) Es dürfen nur Schüttgüter gefördert werden, deren Mindestzündenergien > 3mJ (> 1mJ*) überschreiten. Es dürfen keine brennbaren Gase und Dämpfe in den Schüttgütern enthalten sein oder mitgefördert werden. Die maximale Stofftemperatur des Schüttgutes darf 80°C nicht überschreiten. Die Abgabe des eingesaugten Schüttgutes darf nicht unmittelbar in explosionsgefährdete Bereiche der Zone 0 und Zone 1 erfolgen.

*) Bei Stoffen mit Mindestzündenergien von 1 mJ bis 3 mJ gelten besondere Einsatzbedingungen: Die eingesaugte Stoffmenge darf je Saugtakt die Masse von 10 kg nicht überschreiten.

- 2.) Die maximal zulässige Umgebungstemperatur beträgt 60 °C. Höhere Umgebungstemperaturen (max. 80 °C) sind durch zusätzliche Schutzmaßnahmen und entsprechende Auswahl der Anbaugeräte und Komponenten möglich.
- 3.) Das Vakuumfördersystem (Abscheider) muss leitend mit der Gesamtanlage verbunden sein; die Gesamtanlage ist zu erden oder in den Potentialausgleich des Gebäudes einzubinden.

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Köln, den 09.01.2008



Dipl.-Ing. K. Wettingfeld

(1) **EC design inspection certificate**

- (2) Devices and protective systems for intended use within potentially explosive areas – **Directive 94/9/EC**
- (3) Design inspection certificate number **TÜV 02 ATEX 7005 X**
- (4) Equipment: Vacuum Conveying Systems - series VR and PPC
- (5) Manufacturer: Volkmann GmbH
- (6) Address: Schloitweg 17, D - 59494 Soest
- (7) The design of this equipment as well as the different permissible designs are fixed in the annex to this design inspection certificate.
- (8) The TÜV CERT certification authority for explosion protection products of the TÜV equipment technology GmbH, entrepreneurial group TÜV Rheinland/Berlin Brandenburg, certifies as designated authority No. 0035 according to article 9 of the directive of the council of the European communities from 23 March 1994 (94/9/EC) the fulfilment of the fundamental safety and health requirements for the conception and building of devices and protective systems for the intended use within potentially explosive areas in accordance with appendix II of the directive.
The results of the examination are fixed in the confidential test report No. 195/Ex005.00/02.
- (9) The fundamental safety and health requirements fulfilled by agreement with DIN EN 1127-1 DIN EN 13463-1
- (10) If the indication "X" is at the end of the certificate number, it is referred to special conditions for the safe application of the equipment in the plant in the annex of this certificate.
- (11) This EEC design inspection certificate refers only to conception and building of the fixed equipment in accordance with directive 94/9/EC.
Further requirements of this directive apply to the production and the bringing into circulation of this equipment.
- (12) The marking of the equipment has to contain the following data:
Ex II 1 D C 80°C/II 2 GD 100°C TUEV CERT

Certification authority for explosion prevention

Cologne, 01 October 2002

Dipl.-Ing. K. Wettingfeld

(13) **Annex**

(14) **EC design inspection certificate TÜV 02 ATEX 7005 X**

(15) Description of the equipment

The vacuum conveying systems of the series VR and PPC, with the type designations VR 170, VR 315, VR 450, PPC 170, PPC 250, PPC 315 serve for the discontinuous transport of bulk materials in the suction air flow. The systems consist of a Multijector vacuum pump, suction lance, a reception container, filter systems, air shock tank, discharge aids and discharge systems as well as a pneumatic control. The discharge valve of the discharge systems is operated alternatively pneumatically or by gravity. The conveying systems are completely made of stainless steel. All construction units are connected electrically conductive with one another. The systems differ only in the diameter and in their modular structure.

(16) Test report No. 195/Ex05.00/02

(17) Special conditions

It is only allowed to convey bulk materials with a minimum ignition energy $> 3\text{mJ}$ ($> 1\text{mJ}$ *).

No inflammable gases and steams are allowed to be contained in the bulk materials or conveyed with them.

The maximum material temperature of the bulk material is not allowed to exceed 80°C . The discharge of the conveyed bulk material is not allowed to be done directly into potentially explosive areas of the zones 0 and 1.

*) For materials with minimum ignition energies of 1 mJ to 3 mJ special operating conditions apply: The conveyed amount of material is not allowed to exceed the mass of 10kg per suction cycle.

(18) Fundamental safety and health requirements

No additional requirements.

1st Addendum

acc. to Directive 94/9/EC Annex III number 6

to EC Design inspection certificate TÜV 02 ATEX 7005X

Equipment: Vacuum Conveying System PPC450

Manufacturer: Volkmann Vakuumtechnik GmbH

Address: Schloitweg 17

D-59494 Soest

Specification of addenda and modifications:

The Vacuum Conveying System of the series PPC, with the type designation PPC 450 differs only in the size from the certified series.

See annex A19 dd. 29 March 2006

Technical data:

The technical data are identical to the Vacuum Conveying System PPC 315 except the diameter of 450 mm.

Test report No. 195/Ex 005.00.02

The test report is also valid for the PPC 450 as the examined unit does not have additional explosion hazards.

Drawing F-ATEX-06001-1.0 – see annex A6

TÜV CERT-Certification authority for explosion prevention Cologne, 20 April 2006

Dipl.-Ing. K. Wettingfeld

2nd Addendum

acc. to Directive 94/9/EC Annex III number 6
to EC Design inspection certificate TÜV 02 ATEX 7005X

Equipment: Vacuum Conveying System series VS,
Type: VS 150, VS 200, VS 250, VS 350, VS 450, VS 600

Manufacturer: Volkmann Vakuumtechnik GmbH

Address: Schloitweg 17
D-59494 Soest

(15) Specification of addenda and modifications:

The Vacuum Conveying System of the series VS, with the a.m. type designations differs only in size and the modular design from the certified series.

The discharge container has got a new discharge valve, the container modules are fixed with clamping rings.

The discharge container is part of a vacuum conveying device and designed for zone 20 inside and for zones 1 and 21 at the installation location.

Further technical changes are related to the usage of the permitted products and the altered surrounding temperature. These changes are now related to all series.

This addendum also assimilates the changes of the norms and includes the EN 13463-5:2003 in the evaluation. As a result the marking is amended:

Ex II 1 D c 80 °C/II 2 GD c 100 °C (T4)

15.1 Technical data

Diameter of separator container:	150 to 600 mm
Particle size:	> 5 µm
Bulk density:	> 0.005 kg/dm ³
Minimum ignition energy:	> 3 mJ (> 1 ≤ 3 mJ special conditions apply)
Maximum product temperature:	-40 °C ≤ Ta ≤ +80 °C
Permissible surrounding temperature:	-20 °C ≤ Ta ≤ +60 °C (as far as parts of the equipment combination allow for this)

Test report No. 195/Ex 005.02.07

Special conditions:

- 1.) It is only allowed to convey bulk materials with a minimum ignition energy > 3mJ (> 1mJ *).
No inflammable gases and steams are allowed to be contained in the bulk materials or conveyed with them.
The maximum material temperature of the bulk material is not allowed to exceed 80 °C. The discharge of the conveyed bulk material is not allowed to be done directly into potentially explosive areas of the zones 0 and 1.

*) For materials with minimum ignition energies of 1 mJ to 3 mJ special operating conditions apply: The conveyed amount of material is not allowed to exceed the mass of 10kg per suction cycle.

- 2.) The maximum permissible surrounding temperature is 60 °C. Higher surrounding temperatures (max. 80 °C) are possible by additional protection measures and by a corresponding selection of accessory equipment and components.
- 3.) The Vacuum Conveying System (Separator) has to be connected electrically conducting to the total plant; the total plant has to be earthed or to be integrated into the potential equalisation of the building.

TÜV CERT-Certification authority for explosion prevention Cologne, 09 January 2008

Dipl.-Ing. K. Wettingfeld

VOLKMANN INSPECTION CERTIFICATES

V 18766



TA CHEN STAINLESS PIPE CO., LTD.

INSPECTION CERTIFICATE

ISO 9001-2008
Certificate No. 936925

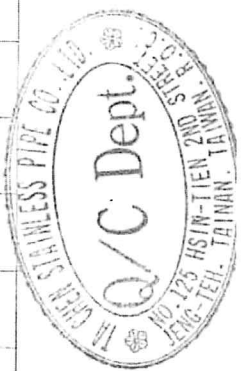
Commodity : STAINLESS STEEL PIPE NIPPLE
MALE THREAD TO ISO 7-1, FEMALE THREAD TO ISO228-1G
 Specification: ASTM A312/A312M 2012a
 Grade : IP316L
THE MATERIAL OF STAINLESS STEEL PIPES.
COMPLIANCE WITH THE ANNEX I PARAGRAPH 4-3 OF
THE EU PRESSURE EQUIPMENT DIRECTIVE 97/23/EC
 CERTIFICATE NO: TWN0936925

Customer : DACAPO STAINLESS STEEL

Destination : ROTTERDAM
 Customer's O/N : 31022415
 Factory O/N : HO27N7790
 Invoice No : HO27NF0334

EN 10204/3.1
NO.125 HSIN-TIEN 2ND STREET,
HSIN-TIEN JENG-TEH, TAINAN
TAIWAN, R.O.C.
TEL:+886 6 2701756
FAX:+886 6 2701382、2798057
 Certificate No : NF0334
 Date : 2013/09/16

No.	Size	Article	Thread	Part No.	Qty (pcs)	Heat No.	CHEMICAL ANALYSIS(%)										TENSION TEST	
							C	Si	Mn	P	S	Ni	Cr	Mo	Yield Strength MPA min 170	Tensile Strength MPA min 485	Elongation % min 35	
12	1/8"	FULL COUPLINGS	ISO228-1G		800	18239101	0.014	0.400	1.380	0.027	0.003	10.02	16.32	2.03	250	545	63	
13	1/4"	FULL COUPLINGS	ISO228-1G		64	18233901	0.018	0.390	1.420	0.029	0.002	10.03	16.27	2.04	240	548	61	
14	1/4"	FULL COUPLINGS	ISO228-1G		1936	18534501	0.016	0.370	1.390	0.040	0.001	10.04	16.08	2.02	220	550	45	
15	3/8"	FULL COUPLINGS	ISO228-1G		580	18068201	0.017	0.420	1.510	0.028	0.002	10.04	16.14	2.04	230	533	58	
16	3/8"	FULL COUPLINGS	ISO228-1G		220	18528001	0.024	0.370	1.400	0.030	0.008	10.02	16.17	2.02	267	538	55	
17	1/2"	FULL COUPLINGS	ISO228-1G		1750	122419	0.023	0.490	0.910	0.037	0.002	10.20	16.83	2.04	303	623	49	
18	3/4"	FULL COUPLINGS	ISO228-1G		1	122679	0.017	0.550	1.330	0.032	0.002	10.21	17.06	2.08	316	601	52	
19	3/4"	FULL COUPLINGS	ISO228-1G		299	122679C	0.017	0.550	1.330	0.032	0.002	10.21	17.06	2.08	321	614	51	
20	1"	FULL COUPLINGS	ISO228-1G		1560	123612A	0.021	0.510	1.150	0.038	0.001	10.20	16.70	2.03	292	601	52	
21	1-1/4"	FULL COUPLINGS	ISO228-1G		60	122178A	0.020	0.620	1.010	0.039	0.002	10.36	16.96	2.10	300	621	54	



REMARK: FULL COUPLINGS(SOCKETS) AND HALF COUPLINGS ARE MADE FROM PIPE.
 REMARK: ASTM A262 PRACTICE E.O.K.

Supervisor: H. Lin

INSPECTION CERTIFICATE EN 10204-3.1

Commodity : STAINLESS STEEL WELDED PIPE Customer : DCAPO STAINLESS STEEL TA CHEN STAINLESS PIPE CO., LTD.
 NO. 125 HSIN-TIEN 2ND ST.,
 JENG-TEH, TAINAN, TAIWAN
 TEL:(06)2793254 FAX:(06)2701382
 COUNTRY ORIGIN:TAIWAN

Shipment : TA CHEN STAINLESS PIPE CO., LTD.

Specification : ASTM A312-2011/ASME SA312-2010 Destination :

Grade : TP316L Certificate No : HO271738

Supply Condition : ANNEALED AND PICKLED Factory O/N : Date : 2013/9/16 INVOICE No : HO27NF0334

Item No.	Case No. (Crate No.)	Heat No. Metal Source	Size	Quantity (Pcs)	Weight (Kgs)	Chemical Composition in %									
						C	Si	Mn	P	S	Ni	Cr	Mo	N	
1		18239101	3/8"			0.014	0.400	1.380	0.027	0.003	10.020	16.320	2.030	0.039	
2		18233901	1/2"			0.018	0.390	1.420	0.029	0.002	10.030	16.270	2.040	0.039	
3		18534501	1/2"			0.016	0.370	1.390	0.040	0.001	10.040	16.080	2.020	0.010	
4		18068201	1/2"			0.017	0.420	1.510	0.028	0.002	10.040	16.140	2.040	-	
5		18528001	1/2"			0.024	0.370	1.400	0.030	0.008	10.020	16.170	2.020	0.039	
6		122419	3/4"			0.023	0.490	0.910	0.037	0.002	10.200	16.830	2.040	0.018	
Total															

Item No.	Tensile Test			Hardness Test HRB	Bend Test	Flattening Test	Heat Treatment TEMP. o F	Dimension And Surface Condition	Hydrostatic Test PSI	Remarks
	0.2% Yield Strength PSI	1% Yield Strength PSI	Tensile Strength PSI							
1	36250	79025	79025	71.00	OK	1904	OK	2500	1. RAW MATERIAL FOR PIPE FITTINGS	
2	34800	79460	79460	71.00	OK	1904	OK	2500		
3	31900	79750	79750	81.00	OK	1904	OK	2500		
4	33350	77285	77285	86.00	OK	1904	OK	2500		
5	38715	78010	78010	72.00	OK	1904	OK	2500		
6	44000	90400	90400	80.00	OK	1904	OK	2500		

George Yang

Manager of Inspection Section/George Yang

We hereby certify the above statement to be true and correct every detail
 TA CHEN has established a QMS according to ISO 9001, which is certified by LRQA (cert. no.TW936925)

INSPECTION CERTIFICATE EN 10204-3.1

Commodity : STAINLESS STEEL WELDED PIPE Customer : DACAPO STAINLESS STEEL
 Specification : ASTM A312-2011/ASME SA312-2010 Shipper : TA CHEN STAINLESS PIPE CO., LTD.
 : Destination :
 TA CHEN STAINLESS PIPE CO., LTD.
 NO. 125 HSIN-TIEN 2ND ST.,
 JENG-TEH, TAINAN, TAIWAN
 TEL: (06)2793254 FAX: (06)2701382
 COUNTRY ORIGIN: TAIWAN

Grade : TP316L Certificate No : HO271738
 Supply Condition : ANNEALED AND PICKLED Date : 2013/9/16 INVOICE No : HO27NF0334
 Factory O/N :

Item No.	Case No. (Crate No.)	Heat No. Metal Source	Size	Quantity (Pcs)	Weight (Kgs)	Chemical Composition in %									
						C	Si	Mn	P	S	Ni	Cr	Mo	N	
7		122679	1" SCH40S			0.017	0.550	1.330	0.032	0.002	10.210	17.060	2.080	0.021	
8		122679C	1" SCH40S			0.017	0.550	1.330	0.032	0.002	10.210	17.060	2.080	0.021	
9		123612A	1-1/4" SCH40S			0.021	0.510	1.150	0.038	0.001	10.200	16.700	2.030	0.013	
10		122178A	1-1/2" SCH40S			0.020	0.620	1.010	0.039	0.002	10.360	16.960	2.100	0.019	
11		10718A	2" SCH40S			0.018	0.470	1.250	0.035	0.001	10.100	17.100	2.050	0.041	
12		124233	2-1/2" SCH40S			0.022	0.580	1.030	0.033	0.001	10.170	16.760	2.020	0.016	
Total															

Item No.	Tensile Test			Hardness Test HRB	Bend Test	Flattening Test	Heat Treatment TEMP. o F	Dimension And Surface Condition	Hydrostatic Test PSI	Remarks
	0.2% Yield Strength PSI	1% Yield Strength PSI	Tensile Strength PSI							
7	45800	87100	87100	79.00	OK	1904	OK	2500	1. RAW MATERIAL FOR PIPE FITTINGS	
8	46500	89100	89100	78.00	OK	1904	OK	2500		
9	42300	87200	87200	79.00	OK	1904	OK	2100		
10	43500	90000	90000	80.00	OK	1904	OK	1900		
11	41100	85500	85500	80.00	OK	1904	OK	1600		
12	42300	87400	87400	79.00	OK	1904	OK	1800		

George Yang

We hereby certify the above statement to be true and correct every detail
 TA CHEN has established a QMS according to ISO 9001, which is certified by LRQA (cert. no. TOWN0936925)
 Manager of Inspection Section/George Yang

材质保证书

证明书序号码

CERTIFICATE NO: 201103137916

合同号:

CONTRACT NO:

上海亚泰特钢有限公司

SHANGHAI YATAI WITTH STEEL CO.,LTD

地址: 上海市金山区兴塔镇亭枫公路5889号

网址: www.chinapipelifitting.com

客户名称:

MATERIAL CERTIFICATE 3.1 (according to EN 10204:2004)

CUSTOMER: 哈表

DATE/日期: Mar.13,2011

Product	Drawing number	Qt	Heat number	Steel Grade	Chemical Composition [%]								Mechanical Test					
					C	Si	Mn	P	S	Cr	Mo	Ni	Yield Strength Rp0.2 [MPa]	Yield Strength Rp1 [MPa]	Tensile Strength [MPa]	Elongation [%]	Hardness [HB]	Impact test [J]
Forging for Clamp Liner DN100 L=28mm		406	YT102249	316L	0.011	0.591	1.26	0.039	0.011	16.52	2.07	10.05	245	542	550	47	165	

1. 表面质量, 尺寸均符合执行标准要求 2. 有质量异议时, 请详告证明书序号, 规格, 重量等 The above mentioned products, comply with the requirements of the purchasing order. Tel:021-57360026 Fax:021-57365995	产品名称/name of article:	外观检测 Surface&Appearance	合格 GOOD
	Material conforms to ASTM A182	尺寸检测 Dimension Inspection	合格



亚泰质检/QUALITY SYSTEM CHECK
 检验员 (INSPECTED BY):
 审核 (APPROVED BY):

M&S MCode EA047

证明书序号

CERTIFICATE NO: 201011274405

合同号:

CONTRACT NO:

材质保证书

上海亚泰特钢有限公司

SHANGHAI YATAI WTH STEEL CO.,LTD

地址: 上海市金山区兴塔镇亭枫公路5889号

网址: www.chinapipelifitting.com

客户名称:

CUSTOMER: 哈茨

MATERIAL CERTIFICATE 3.1 (according to EN 10204:2004)

DATE/日期: Nov.27.2010

Product	Drawing number	Qt	Heat number	Steel Grade	Chemical Composition [%]								Mechanical Test				
					C	Si	Mn	P	S	Cr	Mo	Ni	Yield Strength Rp0.2 [MPa]	Yield Strength Rp1 [MPa]	Tensile Strength [MPa]	Elongation [%]	Hardness [HRC]	Impact test [J]
Forging for Liner SD DN 80 (85X2.0)		288	YT102249	316L	0.011	0.591	1.26	0.039	0.011	16.52	2.07	10.05	542	550	47	165	
Forging for Clamp Liner DN150 L=28mm		252	YT102249	316L	0.011	0.591	1.26	0.039	0.011	16.52	2.07	10.05	542	550	47	165	

1 表面质量, 尺寸均符合执行标准要求
 2 有质量异议时, 请详告证明书序号, 规格, 重量等
 The above mentioned products, comply with the requirements of the purchasing order.
 Tel:021-57360026 Fax:021-57365995

产品名称/name of article:	外观检测 Surface & Appearance	合格 GOOD
Material conforms to ASTM A182	尺寸检测 Dimension Inspection	




上海亚泰特钢有限公司
 质量检验专用章

Notes: HRB, HRC-HARDNESS TEST 硬度测试 EDT-EDDYING 涡流探伤 UT-ULTRASOUND TEST 超声探伤
 WP-WATER PRESSURE TEST 水压测试 FT-FLATTENDING TEST 压扁试验 DET-DRIFT EXPANDING TEST 扩口试验
 *-Y, NB, AL; X100 B, N, O; X100 C-GOOD 合格章 (复印无效 COPYING WITHOUT AVAIL)



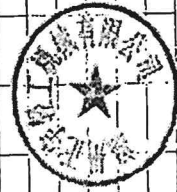
检验员 (INSPECTED BY):
 审核 (APPROVED BY):

质量检验保证书		Forging Producer :															
INSPECTION CERTIFICATE (according to EN10204 3.1)		Wenzhou Zhengyu Light Industry Machinery Co.Ltd Food Machinery Industrial Park, Shacheng, Longwan Wenzhou, Zhejiang, China															
CERTIFICATE NO BGSYX1107110016900 CONTRACT NO: X1QP001941 日期 Date: 2012-7-11 SPECIFICATION: ASTM A479 单位: 温州正业轻工机械有限公司																	
炉号 Heat No. 规格 Matr. Products name (Forging form) 化学成分 CHEMICAL COMPOSITION 力学试验 Mechanical test (Same material)																	
炉号 Heat No.	规格 Matr.	Product name (Forging form)	化学成分 CHEMICAL COMPOSITION	力学试验 Mechanical test (Same material)	硬度 HB	冲击 Impact											
			Qty	C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp 0.2 Mpa	Tensile Strength Rm	Elongation %	
261857	DN40	Clamp Liner 316L L=21.5mm	1012Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2.00	285	570	57	82
	DN25	Clamp Liner 316L L=21.5mm	797Pcs														
	DN50	Clamp Liner 316L L=21.5mm	109Pcs														
REMARKS				以上产品经过固溶处理 HEAT TREATMENT: 1040-1150℃ 快冷材料 GAUGE LENGTH L1=5.65SQRT(F0) L2=50MM L3=60MM L4=20MM L5=11.3SQRT(F0) 屈服强度 TEST OF INTERGRANULAR CORROSION : OK													
会验者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																	

质量检验保证书		Forging Producer :																
INSPECTION CERTIFICATE (according to EN10204 3.1)		Wenzhou Zhengyu Light Industry Machinery Co.Ltd Food Machinery Industrial Park,Shacheng,Longwan Wenzhou,Zhejiang,China																
																		
CERTIFICATE NO BGXYX1107110016900 CONTRACT NO: X1QP001941 日期 Date: 2012-7-11 SPECIFICATION: ASTM A479 单位: 温州正宇轻工机械有限公司																		
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	化学成分 CHEMICAL COMPOSITION										力学性能 Mechanical Test (base material)				
				C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp0.2 MPa	Yield Strength Rp0.1 MPa	Tensile Strength Rm	Elongation %	Hardness HB	Impact
261857	Clamp Liner 316L L=28mm	DN65	716Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2.00	285	570	57	82	
	Clamp liner 316L L=13mm	2 1/2"	409Pcs															
	Clamp Liner 316L L=28mm	DN80	515Pcs															
REMARKS: 以上产品经回火处理 HEAT TREATMENT: 1040-1150℃ 快冲件 GAUGE LENGTH L1=5.65SQR(TFO) L2=91MM L3=80MM L=200MM L=1.1SQR(TFO) 当用附注 TEST OF INTERGRANULAR CORROSION: OK																		
会检者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																		

2x PPC200VS - Clampstutzen 1 1/2" (Reduzierung)

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE (according to EN10204 3.1)</p>		<p>Forging Producer : Wenzhou Zhengyuan Light Industry Machinery Co.,Ltd</p>																	
<p>CERTIFICATE NO N11013011</p> <p>CONTRACT NO:</p> <p>日期 Date: 22-02-2011</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正源轻工机械有限公司</p>																			
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	熔体分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (base material)					
				C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Tensile Strength Rm Mpa	Elongation %	Hardness HB	Impact		
LZ118191	Clamp liner 316L L=21.5mm	2"	1049pcs																
	Clamp liner 316L L=21.5mm	ISO 2852 DN 1½ 7/38mm	975pcs																
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2½ 7/63.5mm	1046pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2	303	594	57	86			
	Clamp liner 316L L=13mm	1"	1223pcs																
	Clamp liner 316L L=13mm	1½"	796pcs																
	Clamp liner 316L L=13mm	2½"	592pcs																
REMARKS:				<p>以上产品经炉内处理 HEAT TREATMENT: 1040-1150°C 软冷注注 GAUGE LENGTH L1=65SQRT(FQ) L2=50MM L3=80MM L4=200MM L5=11.5SQRT(FH) 晶间腐蚀 TEST OF INTERGRANULAR CORROSION: OK</p> <p>本产品在上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>															



M & S M Code FZ026

2x PPC200VS - Reduzierungen 2" - 1 1/2" (Einsaugöffnungen)



MARCEGAGLIA S.p.A.

Sede legale ed amministrativa: via Brosciani, 16 - 46040 Gazzoldo degli Ippoliti - Mantova - Italy
 Tel. +39 0376 685 1 Fax +39 0376 685 600 www.gruppomargeaglia.com
 Stabilimento di Forlì: via Mattel, 20 - 47037 Fontimpolci - Forlì - Casena - Italy
 Tel. +39 0543 470 111 Fax +39 0543 470 105

Certificato di Collaudo Test certificate Abnahmeprüfzeugnis Certificat de contrôle
 Data 07/03/2013
 Datum
 Date

3.1 CERTIFICATO DI COLLAUDO EN 10204

Nr. 10513020134

M C o d e H 0 9 3 7

Cliente Customer Kunde Client	SIERSEMA KOMPONENTEN SERVICE	Ordine Cliente Customer's Order Bestellung Commande du Client	Q1203280	Ordine Marcegaglia MGI Order Unsere Auftragsbestätigung Notre confirmation de commande	1131000291 /000180
--	------------------------------	--	----------	---	--------------------

Tipo di Acciaio Steel type Werkstoff Nuance acier	TP 316L 1.4404 X2CrNiMo17-12-2	Norma di collaudo Test specification Prüfungsnormen Specification	AD2000-W2/W10 EN10217-7 TC2	Tolleranze Tolerances Toleranzen	DIN 11850	Trattamento Termico Heat treatment Wärmebehandlung Traitement thermique	1070°C Arta
--	--------------------------------------	--	-----------------------------	--	-----------	--	----------------

Tubi saldati longitudinalmente Welded tubes/Longitudinalgeschweißte Rohre/Tubes acés							Composizione Chimica Chemical Analysis/Chémische Analyse/Comp. Chimique								
Pos. Nr.	Partita Batch Partie nr Nr de partie	Quantità Quantity Menge Quantité	Peso Weight Gewicht Poids	Pezzi Pieces Stückzahl Pièces	Colata Heat Schmelze Coulée	St.Fornitura Condition Supply Lieferzustand Etat de commande	C (%)	Si (%)	Mn (%)	P (%)	S (%)	N (%)	Cr (%)	Mo (%)	Ni (%)
							0.03	1	2	0.045	0.015	0.11	18.5	2	10
1	13ZZ001898	366 MTL	467 KG	61 PZZ	17752		0.021	0.412	1.067	0.020	0.009	0.0531	16.904	2.0766	10.290
2	13ZZ001899	366 MTL	467 KG	61 PZZ	17578		0.015	0.368	1.103	0.024	0.009	0.0585	17.039	2.0884	10.400
3	13ZZ001900	366 MTL	467 KG	61 PZZ	17752		0.021	0.412	1.067	0.020	0.009	0.0531	16.904	2.0766	10.290
4	13ZZ001901	366 MTL	467 KG	61 PZZ	17578 X		0.015	0.368	1.103	0.024	0.009	0.0585	17.039	2.0884	10.400

	Carico di Sneramento 0.2% R _{0.2} Yield Strength Grenze Limite elastique	Carico di Sneramento 1.0% R _{1.0} Yield Strength Dehngränze Limite elastique	Carico di Rottura R _m Tensile Strength Zugfestigkeit Resistance rupture	Allungamento a rottura A ₅ Elongation Dehnung	Durezza HRE Hardness Härte Dureté	Sveglatura Flaring test Rupftest Evasement	Schweißnaht Fistertag test Rupftest Anschleissart	Piega a rovescio Reverse bend test Dachgefahrversuch von Rückwärts	Mandrinatura ed espansione And Expanding test Aufdehnversuch Mandrin, Exp.	Prova idraulica Hydraulic test Wasserdurchprüfung Erschwe Hörschwe	C.N.D. Eddy Current test Zerwürfungsprüfung Controlle Contrôle non destructif	Antimiscuglio Adhesion test Verwachsung Prüfung Controlle d'interdiffusion	Prova di rottura Rupture test Bruchversuch Rohrversuch de colature
Valori richiesti Required value Anforderungen Charakteristika erwarteten	190	225	490 690	40			EN ISO 8492			EN 10246-2	EN 10246-3	EN 10088-2	
Pos. Nr.	1 2 3 4	280 284 281 280	315 318 314 321	587 590 586 591	50 51 50 52		OK OK OK OK			OK OK OK OK	OK OK OK OK	OK OK OK OK	

Prova di trazione secondo Tensile test according to Zugversuch gemäß Essai de traction en according avec EN 10002-1:2004	Prova di corrosione intercrystalina secondo Intergranular corrosion test according to Prüfung auf Interkristalline Korrosion gemäß Essai de corrosion test according to OK-EN ISO 3651-2:1998	Controllo visivo e dimensionale Visual and dimensional control Sicht- und Abmessungskontrolle Contrôle visuel et dimensionnel OK	Omologazione AQUAP De 17204 e 2101 De 1720106 e 80116 De 17743-08-TU e 7443-08-TU De 177196-08-TU e 7433-08-TU
---	--	---	--

Marcatura Marking/ Kennzeichnung/Marqueuse			
1 Sigla Produttore Manufacturer trade mark Zeichen des Lieferwerks Tampon du producteur	5 Colata Heat Schmelze Coulée	9 Tubo Crudo - Ricotto Not annealed - Annealed tube Ungeglühtes - Geglühtes Rohr Pas recuit - Recuit	13 Provato Eddy Current Eddy Current Tested Wirbelstromgeprüft Epruvé courant de Foucault
2 Norma di collaudo Test specification Prüfungsnormen Specification	6 Saldato Welded Geschweisst Soudé	10 Tipo di classe Class type Profklasse Serie	14 Diametro e spessore in mm Diameter and Thickness mm Außendurchmesser und Wandstärke mm Diameter et epaisseur en mm
3 Tipo Acciaio 1 Grade 1 Werkstoff 1 Nuance 1	7 Stato di fornitura Supply condition Lieferzustand Etat de commande	11 Tubo N° Tube N° Rohr N° Tube N°	15 Diametro e spessore scheda Diameter and Thickness Schedule Außendurchmesser und Wandstärke Schedule Diameter et epaisseur en schedule
4 Tipo Acciaio 2 Grade 2 Werkstoff 2 Nuance 2	8 Laminato - Non laminato Induo bead removed - not remove Innonant geglättet - nicht geglättet Laminé - Pas laminé	12 Provato il Certificato With test mill Mit Werksabnahmezeugnis Demande le certificat	

Observazioni
 ACCORDING TO TUV AD2000-MERKBLATT W8/TRD100; DIRECTIVE 97/23/EC (PED) ANNEX I, PARAGRAPH 4.3; CHEMICAL COMPOSITION TO EN 10088; TUBES TO EN 10217-7 TC2; WELD FACTOR V=1.

Avviso di spedizione Shipping notice Versandanzeige Avis d'expédition	1005003059 8305302751	Noi certifichiamo che il prodotto fornito è conforme ai requisiti dell'ordinazione We Certify that material supplied complies with the requirements agreed on order Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellanahme entspricht Nous certifions que le produit fourni est conforme à la qualité de la commande Mod.001 Rev.04 09/2002	Marcegaglia S.p.A. Quality Department Resp. Laboratorio S.Toscana
--	--------------------------	---	--

2x PPC200VS - Entleerklappen NW150 Typ MC

1 / 16

Müller GmbH
Industrieweg 5
D-79618 Rheinfelden

Systemtechnik und Handling-
geräte aus Edelstahl

Telefon: +49 (0)7623 / 969-0
Telefax: +49 (0)7623 / 969-69

Managementsysteme ISO 9001
ISO 14001 / OHSAS 18001

E-Mail: info@mueller-gmbh.com
Internet: www.mueller-gmbh.com



Kunde: Volkmann GmbH
Customer: 59494 Soest

Best.-Nr.: 221707
Order-no.:

Hersteller: Müller GmbH
Manufacturer: D – 79618 Rheinfelden

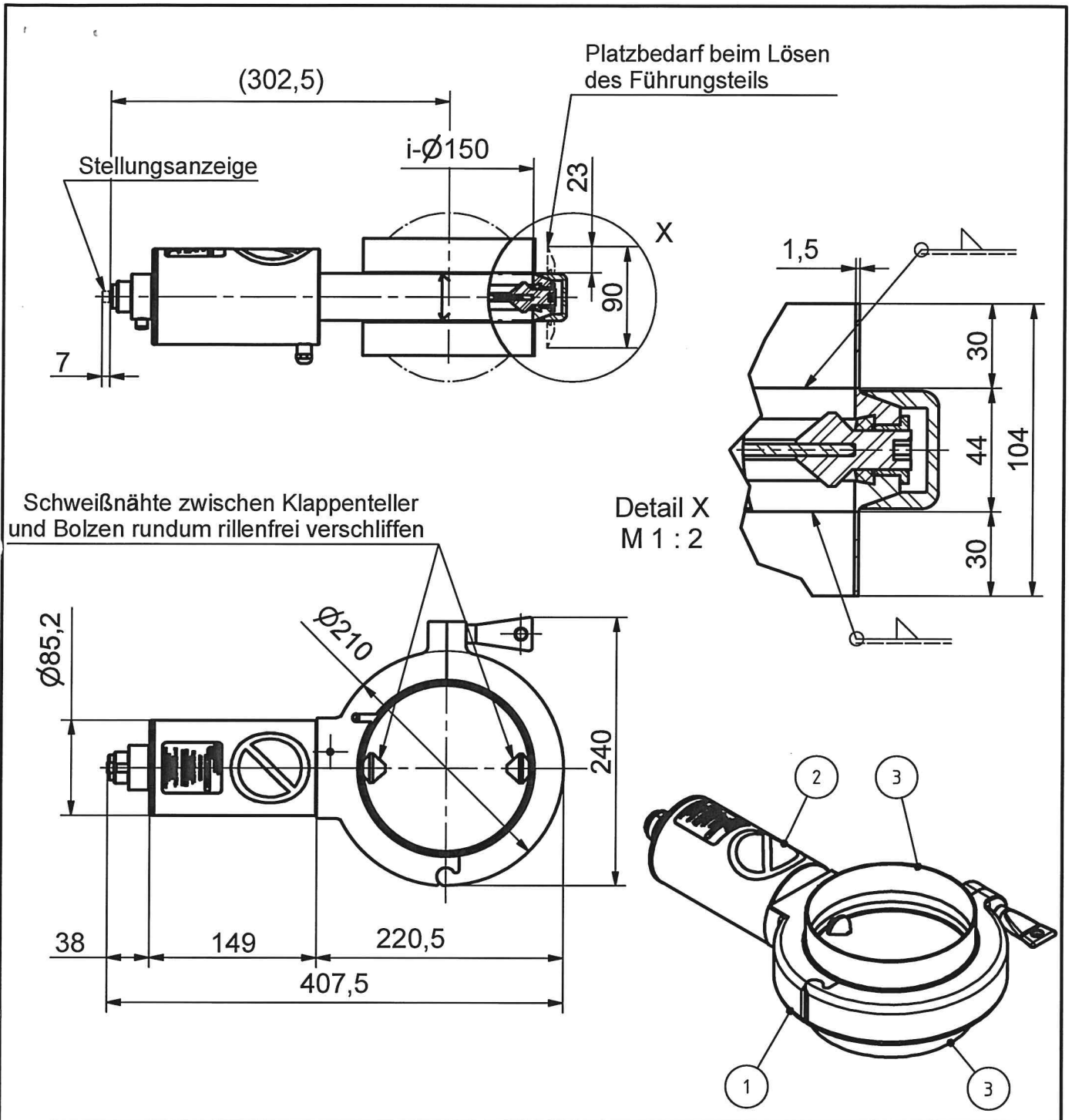
Auftrags-Nr.: 240242 Pos. 1
Order-no.:

Dokumentation zu Klappe NW 150 Typ MC / documentation to valve

Art.-Nr. 4K11088

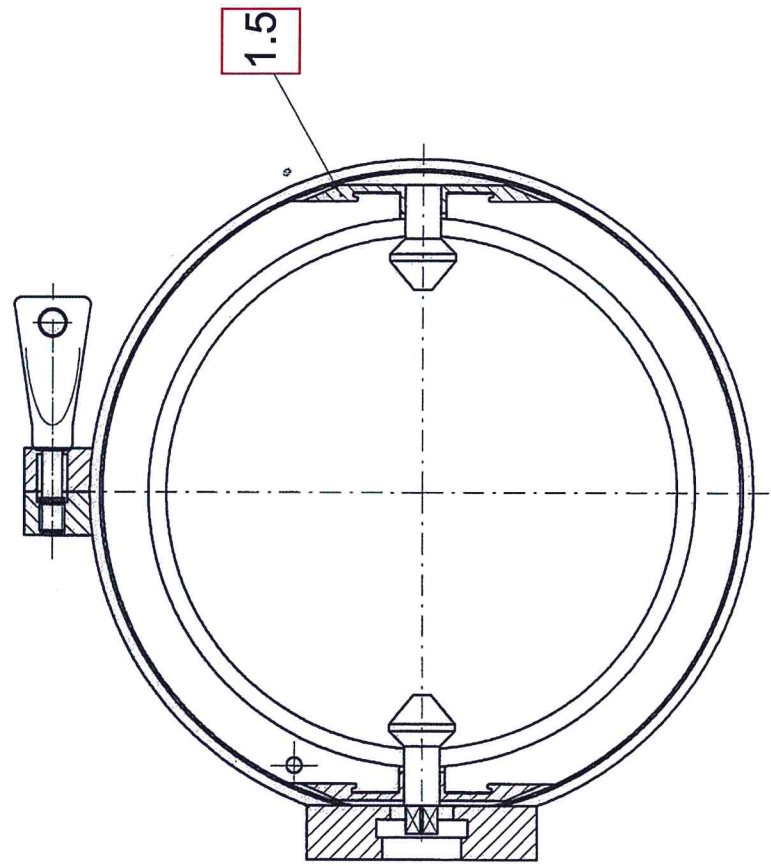
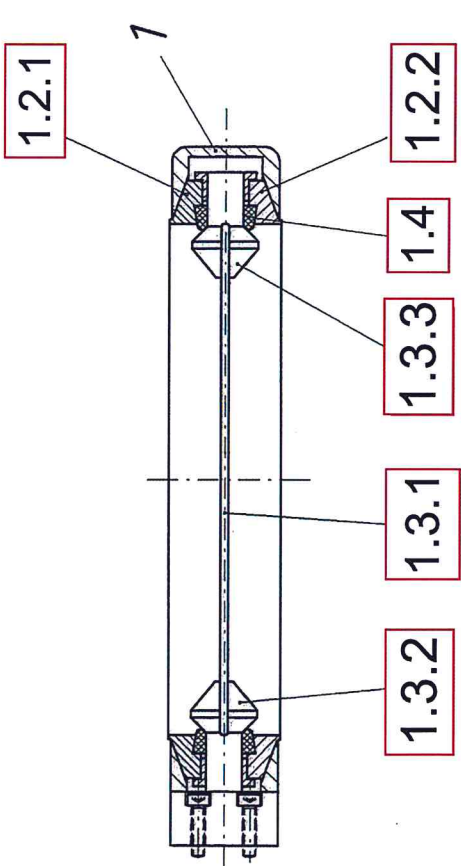
Pos. <i>pos.</i>	Bezeichnung <i>Description</i>	Art.-Nr. <i>art.-no.:</i> (Material-Nr.) <i>(material-no.)</i>	Werkstoff <i>material</i>	Schmelze-Nr.: <i>heat-no.:</i>	Zeugnis <i>document type</i>
1	Klappe MC 150 <i>valve</i>	40101508			
1.2.1	Flansch (breit) <i>flange (wide)</i>	4482147	1.4409 AISI 316L	E07818	2.2/3.1
1.2.2	Flansch (schmal) <i>flange (small)</i>	4482148	1.4409 AISI 316L	A39866	2.2/3.1
1.3.1	Klappenteller <i>valve disk</i>	40101508	1.4404 AISI 316L	005077	3.1
1.3.2	Bolzen mit Vierkant <i>bolt with square-end</i>	40101508	1.4462 AISI 318LN	172205	3.1
1.3.2	Bolzen ohne Vierkant <i>bolt without square-end</i>	40101508	1.4404 AISI 316L	073437	3.1
1.4	Dichtung <i>seal</i>	40101214	Silikon <i>silicone</i>	-	FDA / USP Class VI
1.5	Verriegelung <i>locking</i>	40101286	PPSU	-	FDA / USP Class VI
3	Auslaufstutzen NW150 <i>outlet tube</i>	(4288798)	1.4404 AISI 316L	C37AY1303251	3.1

Das Urheberrecht an diesen Zeichnungen und allen Belegen, die dem Empfänger persönlich anvertraut sind, verbleibt bei unserer Firma. Ohne unsere schriftliche Genehmigung dürfen sie nicht kopiert oder vervielfältigt, auch niemals dritten Personen mitgeteilt oder zugänglich gemacht werden. The copyright of drawings and of all annexes which entrusted to a person's care always remain the property of our firm. They must not be copied or duplicated nor shown to or placed at the disposal of third persons without our written consent.



Nicht tol. Maße in mm/Dimensions without tolerances in mm/Côtes sans tolérances en mm		DIN ISO 2768 Teil 1+2							
Nennmaßbereiche/Nominal Dimensions/Dimensions nominales	über/more than/plus de bis/up to/jusqa' à	0,5	3	6	30	120	400	1000	2000
Verformende Bearbeitung/Formed Components/Usinage par déformation	sehr grob/very large/large	-	±0,5	±1,0	±1,5	±2,5	±4,0	±6,0	
Spanende Bearbeitung/Machined Components/Usinage par enlèvement	mittel/medium/moyen	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	

Änderungen / Modifications a 06.02.2014 neuer Antrieb Kuepper		Gewicht/Weight	Format A4	Massstab/Scale 1:5
		Material		
		Bauteil / Model	MRF-0002272	
		Art. Nr.	4K11088	
KLAPPE NW150 MCP STELLMOTOR/AUSLAUF		Gezeichnet Drawn by	6.2.2014	K.Küpper
		Geprüft Checked by		
		Freigegeben Approved by		
		Ersatz für Replacement for		
		Zeichnung - Nr. Drawing - Nr.	K11088	a
Plot-Datum: 06.02.2014		Müller GmbH D-79618 Rheinfelden Industrieweg 5 www.mueller-gmbh.com		
		Blatt-Nr. 1 von 1		



MC-Klappe NW100, Art.Nr. 0101515
 MC-Klappe NW150, Art.Nr. 0101508
 MC-Klappe NW200, Art.Nr. 0101509
 MC-Klappe NW250, Art.Nr. 0101510
 MC-Klappe NW300, Art.Nr. 0101511

Nicht tol. Maße		non-tolerated dimensions				in mm DIN 7168				Rohmaterial	Stockliste
Bearbeitung		Nennmaßbereiche der Feinmaße				raw material				list of parts	
Genauigkeit	Grad	0,5	3	6	30	100	100	1000	1000	Benennung	Material art. -Nr.
Größtmaß	Größtmaß	+0,5	+0,5	+1,0	+1,5	+2,0	+3,0	+4,0	+4,0	Material art. no.	
Mittelmaß	Mittelmaß	+0,1	+0,1	+0,2	+0,3	+0,5	+0,8	+1,2	+1,2		
Änderungen	Änderung	a	b	c	d	e	f	g	h		
Modifikationen	Datum										
<p>Maßstab DIN A3 Gezeichnet 16.02.04 scale drawn 1:2 Maßstab DIN A3 Gezeichnet 16.02.04 scale drawn 1:2</p> <p>Kunde 16081 client Ersatz für replacement for</p>											
<p>MC-Klappe für Dokumentation MC KLA DOKU</p>											
<p>CH-4142 Mönchenste in CH-6260 Reiden D - 7888 Rheinfelden</p>											
<p>MÜLLER MC-KLAPPE</p>											
<p>Index</p>											

Das Urheberrecht an diesen Zeichnungen und allen Beilagen, die den Empfänger geschickt anvertraut sind, verbleibt jederzeit unserer Firma. Ohne unsere schriftliche Genehmigung dürfen sie nicht kopiert oder vervielfältigt, auch niemals dritten Personen mitgeteilt oder zugänglich gemacht werden.

Notre raison conserve en tout temps le droit de propriété sur ces dessins et annexes, confiés personnellement au destinataire. Ils ne doivent pas, sans notre autorisation écrite, être copiés, reproduits, communiqués à des tiers ou mis à leur disposition.

The copyright of these drawings and of all annexes which are entrusted to a person's care always remain the property of our firm. They must not be copied or duplicated nor shown to or placed at the disposal of third persons without our written consent.

Kuhn Edelstahl

Schafft Vertrauen. Rundum.

Müller GmbH
Zeugnisstelle
Industrieweg 5

79618 Rheinfelden

Prüfbescheinigungsart: **Attest nach EN 10204: 2005 - 2.2 + 3.1**
 Inspection document:
 Bescheinigungs-Nr.: **00033840**
 Document number:
 Rev.-Nr.:
 Rev. no.:
 Ausstellungsdatum: **29.11.2013**
 Date of issue:
 Seite: **1 / 2**
 Page:
 Auftrags-Nr.: **AB 00135776 Pos. 70**
 Order no.:
 Lieferschein-Nr.: **LS 00153764 Pos. 70**
 Delivery note no.:
 Fertigungs-Nr.: **P1-00610064-**
 Production no.:
 KK-Artikel-Nr.: **131266**
 KK part no.:
 Bescheinigungsaussteller: **Qualitätsstelle**
 Originator of the document:
 Ansprechpartner: **Stefanie Klein**
 Contact person:
 Telefon: **+49 (2195) 671-211**
 Telephone:
 Herstellerkennzeichen:
 Symbol of the manuf. work:
 Werksachverständigen-
 kennzeichen:
 Inspector's Stamp:



Umfang der Lieferung

Extend of delivery

Bestellnummer: Purchaser's order no.:	630968	Bestelldatum: Date of order:	05.03.2013
Menge: Quantity:	50 ST	Kunden-Nr.: Customer no.:	11182
Gegenstand: Part:	Edelstahl-Flansche (breit)	Zeichnungsnummer: Drawing no.:	482147
Abmessungen: Dimensions:	202.0 mm / 148.0 mm x 27.0 mm	Kunden-Artikel-Nr.: Customer article no.:	4482147
Werkstoffnummer: Material no.:	1.4409	Werkstoff: Material:	GX2CrNiMo19-11-2
Spezifikation: Specification:	DIN EN 10283 : 2010-06	Lieferzustand: Delivery condition:	+AT
Spezifikation 2: Specification 2:		Erzeugnisform: Casting process:	Schleuderguss Centrifugal casting
Spezifikation 3: Specification 3:		Erschmelzungsart: Steel making process:	E

Chemische Zusammensetzung: Schmelzanalyse [Gew.-%]

Chemical composition: Ladle analysis [wt.-%]

Anzahl Qty.	Schmelzennr. Cast number	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N			
	Min						18,00	9,00	2,00					
	Max	0,030	1,50	2,00	0,035	0,025	20,00	12,00	2,50	0,50	0,200			
50	E07818	0,023	0,64	0,82	0,019	0,003	18,70	9,94	2,31	0,18	0,155			

Klaus Kuhn Edelstahlgießerei GmbH
Otto-Hahn-Straße 12-14
42477 Radevormwald
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

Die Werksachverständige
Inspector
Stefanie Klein

This certificate is computer-generated and is valid without a signature.

Kuhn Edelstahl

Schafft Vertrauen. Rundum.



Prüfbescheinigungsart:

Attest nach EN 10204: 2005 - 2.2 + 3.1

Inspection document:

Bescheinigungs-Nr.:

00033840

Document number:

Rev.-Nr.:

Rev. no.:

Ausstellungsdatum:

29.11.2013

Date of issue:

Seite:

2 / 2

Probennummer und Wärmebehandlung

Test no. and heat treatment no.

Anzahl Schmelzen-Nr. Probennr.
No of pcs. Cast. number Test no.

50 E07818

Zugversuch

Tensile test

Probennr. Test no.	T	E-Modul	Rp 0.2	Rp 1.0	Rm	A	Z	T	K ₂ [J]				Härte Hardness			
	°C	GPa	MPa	MPa	MPa	%	%	°C	1	2	3	Ø	1	2	3	Ø
Min	RT		195	220	440	30		RT				80				
122576	RT		252	263	522	54	64	RT	242	252	240	244				

Die Prüfungen wurden nach den folgenden Normen durchgeführt:

The tests were executed acc. to the following standards:

Zugversuch: DIN EN 10002-1: 2001-12

Kerbschlagbiegeversuch: DIN EN 10045-1: 1991-04

Tensile test:

Charpy impact test:

Probenform: Ø 10 mm

Probenrichtung:

Probenrichtung:

Shape of test piece:

Direction of test piece:

Shape of test piece:

Direction of test piece:

mech.Werte nach 2.2

Die Lieferung wurde geprüft und entspricht den oben genannten Spezifikationen.

The products are tested and are found to be in accordance with the above specification.

Klaus Kuhn Edelstahlgießerei GmbH
Otto-Hahn-Straße 12-14
42477 Radevormwald

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

Die Werksachverständige
Inspector
Stefanie Klein

This certificate is computer-generated and is valid without a signature.

Kuhn Edelstahl

Schafft Vertrauen. Rundum.

Müller GmbH

Zeugnisstelle

Industrieweg 5

79618 Rheinfelden

EINGEGANGEN

05.03.2013

K... ..

Prüfbescheinigungsart:

Inspection document:

Bescheinigungs-Nr.:

Document number:

Rev.-Nr.:

Rev. no.:

Ausstellungsdatum:

Date of issue:

Seite:

Page:

Auftrags-Nr.:

Order no.:

Lieferschein-Nr.:

Delivery note no.:

Fertigungs-Nr.:

Production no.:

KK-Artikel-Nr.:

KK part no.:

Bescheinigungsaussteller:

Originator of the document:

Ansprechpartner:

Contact person:

Telefon:

Telephone:

Herstellerkennzeichen:

Symbol of the manuf. work:

Werksachverständigen-

kennzeichen:

Inspector's Stamp:

Attest nach EN 10204: 2005 - 2.2 + 3.1

00033839

29.11.2013

1 / 2

AB 00135776 Pos. 80

LS 00153770 Pos. 80

--

131268

Qualitätsstelle

Stefanie Klein

+49 (2195) 671-211



Umfang der Lieferung

Extend of delivery

Bestellnummer: Purchaser's order no.:	630968	Bestelldatum: Date of order:	05.03.2013
Menge: Quantity:	50 ST	Kunden-Nr.:	11182
Gegenstand: Part:	Edelstahl-Flansche (schmal)	Zeichnungsnummer: Drawing no.:	482148
Abmessungen: Dimensions:	202.0 mm / 148.0 mm x 24.0 mm	Kunden-Artikel-Nr.:	4482148
Werkstoffnummer: Material no.:	1.4409	Werkstoff: Material:	GX2CrNiMo19-11-2
Spezifikation: Specification:	DIN EN 10283 : 2010-06	Lieferzustand: Delivery condition:	+AT
Spezifikation 2: Specification 2:		Erzeugnisform: Casting process:	Schleuderguss Centrifugal casting
Spezifikation 3: Specification 3:		Erschmelzungsart: Steel making process:	E

Chemische Zusammensetzung: Schmelzanalyse [Gew.-%]

Chemical composition: Ladle analysis [wt.-%]

Anzahl Qty.	Schmelzennr. Cast number	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N			
	Min						18,00	9,00	2,00					
	Max	0,030	1,50	2,00	0,035	0,025	20,00	12,00	2,50	0,50	0,200			
50	A39866	0,026	0,54	1,01	0,025	0,003	18,56	9,51	2,27	0,25	0,102			

Klaus Kuhn Edelstahlgießerei GmbH

Otto-Hahn-Straße 12-14

42477 Radevormwald

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

Die Werksachverständige

Inspector

Stefanie Klein

This certificate is computer-generated and is valid without a signature.

Kuhn Edelstahl

Schafft Vertrauen. Rundum.



Prüfbescheinigungsart: **Attest nach EN 10204: 2005 - 2.2 + 3.1**
 Inspection document:
 Bescheinigungs-Nr.: **00033839**
 Document number:
 Rev.-Nr.:
 Rev. no.:
 Ausstellungsdatum: **29.11.2013**
 Date of issue:
 Seite: **2 / 2**

Probennummer und Wärmebehandlung

Test no. and heat treatment no.

Anzahl No of pcs.	Schmelzen-Nr. Cast. number	Probennr. Test no.
50	A39866	122576

Zugversuch

Tensile test

Probennr. Test no.	T	E-Modul	Rp 0.2	Rp 1.0	Rm	A	Z	T	K ₂ [J]				Härte Hardness				
									1	2	3	Ø	1	2	3	Ø	
	°C	GPa	MPa	MPa	MPa	%	%	°C									
Min	RT		195	220	440	30		RT					80				
122576	RT		252	263	522	54	64	RT	242	252	240	244					

Die Prüfungen wurden nach den folgenden Normen durchgeführt:

The tests were executed acc. to the following standards:

Zugversuch: Tensile test:	DIN EN 10002-1: 2001-12	Kerbschlagbiegeversuch: Charpy impact test:	DIN EN 10045-1: 1991-04
Probenform: Ø 10 mm Shape of test piece:	Probenrichtung: tangential Direction of test piece:	Probenform: V Shape of test piece:	Probenrichtung: tangential Direction of test piece:

mech.Werte nach 2.2

Die Lieferung wurde geprüft und entspricht den oben genannten Spezifikationen.

The products are tested and are found to be in accordance with the above specification.

Klaus Kuhn Edelstahlgießerei GmbH
 Otto-Hahn-Straße 12-14
 42477 Radevormwald

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.



Die Werksachverständige
 Inspector
 Stefanie Klein

This certificate is computer-generated and is valid without a signature.

Clappenteller 4mm - 1.4404

79822

3492504

 <p>ArcelorMittal Meestechoppelijke zotel: ArcelorMittal - Stainless Belgium NV/SA Kaleidwalen 06, 1000 Brussels, Belgium Correspondanceadres: ArcelorMittal Genk - Stainless Europe Swinnenwalleweg 3, 3000 Genk, Belgium Tel. +32 (0)89 33 21 11</p>		<p>MILL CERTIFICATE BS EN 10204/3.1 CERTIFICAT DE RECEPTION NF EN 10204/3.1 ABNAHMEPRUEFZEUGNIS DIN EN 10204/3.1</p> <p>Approved acc. AD 2000-Mechanik W/TKB 105 by TÜV SÜD Industrie Service GmbH. Certified acc. PED 97/23/EC Annex I § 4.3 by Certification Body 0236 of TÜV SÜD Industrie Service GmbH with certificate No: 314709/MJC. Reiterated of contract diagrams agreed by TÜV SÜD (9/3/2007).</p>		<p>N-Nr-N 2010K0017152</p> <p>E- 6534</p>																																																																			
<p>Manufacture's work order number N° de la commande usine productrice Werksauftragsnummer 07A904002/01-68600/463/01 Packing list: 2010K010407</p>		<p>Surveyor's mark Cachet de l'expert  Stempel des Werkstoffverständigen</p>		<p>Purchaser and/or consignee Client et/ou destinataire Besteller und/oder Firmengruppe</p>																																																																			
<p>Product - Produkt - Erzeugnis COIL, COIL ANNEAL, FINISH 2 B COIL, LAMINE A FINISH 2 B COIL, KALFOLIEBLET, BELEGUNG+GERIEBT, LEICHT BÄCHENBLET</p>		<p>Product delivery condition Etat de livraison du produit Lieferzustand</p>		<p>Purchaser's order number N° de commande client Kundenbestellnummer 201968</p>																																																																			
<p>Steel designation Désignation de l'acier Stahlbezeichnung Nr 10020-7/08 NRX 1.4404/1.4402 ASME SA 240-07 TYPE 316L/316 ASTM A 240 (07)-09 TYPE 316L/316</p>		<p>Finish Présentation Ausführung 2B 2B 2B</p>		<p>Customer article number N° d'article client Artikelnummer des Kunden ART.NR. 16674</p>																																																																			
<p>AD 2000 WZ/2008 -- AD 2000 W10/2007 -- EN 13445-2/2002</p>																																																																							
<p>Identification of the product Identification du produit-Identifizierung des Erzeugnisses</p>		<p>Dimensions Dimensions - Abmessungen</p>		<p>Number of pieces Nombre de pièces - Stückzahl</p>																																																																			
<p>Coil n. N° de bobine - Band Nr 00507734</p>		<p>Thickness Epaisseur - Dicke 4.00 mm</p>		<p>Net weight Poids net - Netto Gewicht 7690 KG</p>																																																																			
<p>CHEMICAL ANALYSIS - ANALYSE CHIMIQUE - CHEMISCHE ZUSAMMENSETZUNG</p> <table border="1"> <thead> <tr> <th></th> <th>C</th> <th>Si</th> <th>Mn</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> <th>Ti</th> <th>N</th> <th>S</th> <th>P</th> </tr> </thead> <tbody> <tr> <td>Required-Exigé</td> <td>% mini</td> <td></td> <td></td> <td>10.00</td> <td>16.50</td> <td>2.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Anforderung</td> <td>% maxi</td> <td>0.030</td> <td>0.75</td> <td>2.00</td> <td>13.00</td> <td>10.00</td> <td>2.50</td> <td>0.100</td> <td>0.025</td> <td>0.045</td> </tr> <tr> <td>Cast Analyse</td> <td></td> <td>0.028</td> <td>0.32</td> <td>1.23</td> <td>10.08</td> <td>10.60</td> <td>2.04</td> <td>0.080</td> <td>0.004</td> <td>0.020</td> </tr> <tr> <td>Analyse coulée</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Analyse schmelze</td> <td>C71</td> <td>C72</td> <td>C73</td> <td>C74</td> <td>C75</td> <td>C76</td> <td>C77</td> <td>C78</td> <td>C79</td> <td>C80</td> </tr> </tbody> </table>							C	Si	Mn	Ni	Cr	Mo	Ti	N	S	P	Required-Exigé	% mini			10.00	16.50	2.00					Anforderung	% maxi	0.030	0.75	2.00	13.00	10.00	2.50	0.100	0.025	0.045	Cast Analyse		0.028	0.32	1.23	10.08	10.60	2.04	0.080	0.004	0.020	Analyse coulée											Analyse schmelze	C71	C72	C73	C74	C75	C76	C77	C78	C79	C80
	C	Si	Mn	Ni	Cr	Mo	Ti	N	S	P																																																													
Required-Exigé	% mini			10.00	16.50	2.00																																																																	
Anforderung	% maxi	0.030	0.75	2.00	13.00	10.00	2.50	0.100	0.025	0.045																																																													
Cast Analyse		0.028	0.32	1.23	10.08	10.60	2.04	0.080	0.004	0.020																																																													
Analyse coulée																																																																							
Analyse schmelze	C71	C72	C73	C74	C75	C76	C77	C78	C79	C80																																																													
<p>Tests to verify hatch and quality have been carried out: OK Tests de vérification de la conformité de la surface fournie: OK Verwechtingsproefing wordt doorgevoerd: OK</p>																																																																							
<p>MECHANICAL PROPERTIES - PROPRIÉTÉS MÉCANIQUES - MECHANISCHE WERTE EN 10002-1</p> <table border="1"> <thead> <tr> <th rowspan="2">Direction (2)</th> <th colspan="2">Yield strength Limite d'élasticité Dehngrenzz</th> <th colspan="2">Tensile strength Résistance à la traction Zugfestigkeit</th> <th colspan="2">Elongation after fracture (A) Allongement après rupture Bruchdehnung</th> <th rowspan="2">Hardness Dureté Härte</th> <th colspan="2">Yield strength Limite d'élasticité Dehngrenzz</th> <th rowspan="2">Tensile str. Résist. MPa Zugfestigkeit</th> <th rowspan="2">Elongation % Allongement Bruchdehnung</th> </tr> <tr> <th>Rp0.2 %</th> <th>Rp1 %</th> <th>Rm</th> <th>A5</th> <th>A50mm</th> <th>HRB C10</th> <th>Rp0.2 %</th> <th>Rp1 %</th> </tr> </thead> <tbody> <tr> <td>1 T</td> <td>240</td> <td>270</td> <td>530</td> <td>40</td> <td>40</td> <td>95</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>321</td> <td>346</td> <td>631</td> <td>49</td> <td>48</td> <td>82</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Direction (2)	Yield strength Limite d'élasticité Dehngrenzz		Tensile strength Résistance à la traction Zugfestigkeit		Elongation after fracture (A) Allongement après rupture Bruchdehnung		Hardness Dureté Härte	Yield strength Limite d'élasticité Dehngrenzz		Tensile str. Résist. MPa Zugfestigkeit	Elongation % Allongement Bruchdehnung	Rp0.2 %	Rp1 %	Rm	A5	A50mm	HRB C10	Rp0.2 %	Rp1 %	1 T	240	270	530	40	40	95						2	321	346	631	49	48	82																											
Direction (2)	Yield strength Limite d'élasticité Dehngrenzz		Tensile strength Résistance à la traction Zugfestigkeit		Elongation after fracture (A) Allongement après rupture Bruchdehnung		Hardness Dureté Härte	Yield strength Limite d'élasticité Dehngrenzz		Tensile str. Résist. MPa Zugfestigkeit	Elongation % Allongement Bruchdehnung																																																												
	Rp0.2 %	Rp1 %	Rm	A5	A50mm	HRB C10		Rp0.2 %	Rp1 %																																																														
1 T	240	270	530	40	40	95																																																																	
2	321	346	631	49	48	82																																																																	
<p>Impact strength test Essai de résilience Kerndurchschlagsenergie</p>		<p>Corrosion test Test de corrosion Korrosionsversuch</p>		<p>RO.2 (7) / R.15 50</p>		<p>Sample thickness Épaisseur 3.89mm</p>																																																																	
<p>EN ISO 3951/2 : C01 C10 C31 C33 C34 C35 C37</p>																																																																							
<p>Location of the sample (1) Emplacement de l'échantillon Lage des Probenabschnitte</p>		<p>The delivery is in accordance with the order La fourniture est conforme aux exigences de la commande Die Lieferung entspricht den Bestellbedingungen</p>		<p>Organisation inspection Organisme et/ou service consulté Überwachungsabteilung</p>																																																																			
<p>Direction of the test pieces (2) Orientation des éprouvettes Probenrichtung</p>		<p>Marking, inspection and measurement: without objection Cachet de marquage, aspect et de dimensions: satisfaisants Prüfung der Stempelung, des Oberflächenaspekts und der Abmessungen: ohne Beanstandung</p>		<p>The inspector Le responsable Der Werkstoffverständige</p>																																																																			

18 Juni 2010

86161

ABNÄHRPRÜFZEUGNIS 3.1 (EN 10204:2004)
(A03) BESCHREIBUNG-NR 2011032889
PAGE 1/3

COGNE ACCIAI SPECIALI S.p.A.
Socio Unico
11100 AOSTA - VIA PARAVERA, 16
TEL. +39 0165 30621 - FAX +39 0165 302296
CAP. SOC. 130.000.000 EUR INT. VERS.
C.F. E ISCRIZIONE REG. IMP. RESE 02187369987
VAT: IT00571320076 - IEN 50474

Unternehmen mit Messungssystemen von IEC
zugelassen und zertifiziert gemäß ISO 9001,
ISO 15189 & ISO 14001.

- (A06) BESTELLER ..
- (A07) KUNDENBESTELLN.R.
- (A01) HERSTELLERWERK :
- (A01) HERSTELLERWERK :
- (A05) AUSSTELLER :
- (A08) WERKSAUFTRAGSNR. : 50319737 /10

COGNE EDELSTAHL GmbH
Oda: DE01 4900025498
AOSTA, VIA PARAVERA 16 - ITALIA

QUALITÄTSTELLE
(A04) ZEICHEN DES HERSTELLERWERKES.: COGNE

- INTERNE VORSCHRIFT :
- (B01) ERZEUGNIS :
- (B03) OBERFLÄCHENENDE ..
- (B04) LIEFERZUSTAND :
- (B11) MASSE (MM) :
- (B02) STAHLSORTE ..
- (B08) SCHMELZE-NR. :
- (B06) KENNZEICHNUNG :

STOCKBARRE
679 PEL Geschaeht RUND TOLERANZ : ISOX11
2B
RS LOESUNGSGEGLUEHT
30,000 (B12) LANGE (MM): 06000 /06200
F51 UNSS31803/S32205 1.4462 MARKENBEZEICHNUNG : 329A 1
172205 (B07) LOS-NR. : 664420
1.4462 KURZZEICH. F. SCHMELZE-NR 442

BEZUGSNORMEN: SEW400, EN 10088-3, EN10272, ASTM A276 (UNSS31803), ASTM A479, ASME SA479, ISO15156-3 NACE MR0103, API 6A-PSL3, NORSKO M-650/M-630 MDS D47 Rev.3, STATOIL D22.
DIE GENANNTEN NORMEN GELTEN NUR FÜR DIE CHEMISCHE ANALYSE: EN 10222-5, ASTM A182, ASME SA182, ASTM A484.
ASTM A484 GILT NICHT FÜR DURCHMESSER-UND LAENGENTOLERANZEN.
ERSCHMELZUNG IM ELEKTRO-OFEN + AOD + STRANGGUS
WAERMEBEHANDLUNG: LOESUNGSGLUEHEN BEI 1020-1080°C UND ABSCHRECKEN IN WASSER UNTER 260°C.MIN.WEICHZEIT 1 Min./mm DICKE.
WARMGEMALZ

UNTERSETZUNG 32,9

(C71) CHEMISCHE ZUSAMMENSETZ. - SCHMELZE ANALYSE NACH ASTM E1019-A751-E1086-E415

Kontrollennummer - Masse : 020000403417 -	84.000 KG				
ELEMENTE	C	Mn	P	S	N
ERREICHT	0,015	0,58	1,08	0,019	0,0006
ELEMENTE	Co	CV_F8	Mo	Cr	Ni
ERREICHT	0,030	36	3,23	22,75	5,30
CV_F8 =	CR+16*N2+3.3*MO				
					Cu
					0,17

HARTEPRÜFUNG IM LIEFERZUSTAND

Kontrollennummer - Masse : 020000403759 - 3.900 KG HARTEPRÜFUNG HB PRUEFBEDINGUNG : 10/3000
VORSCHRIFT ENIS06506
ERREICHT 219

KERBSCHAGAEHIGKEIT IM LIEFERZUSTAND

Kontrollennummer - Masse : 020000403759 - 3.911 KG
VORSCHRIFT EN 10045 (C02) PROBENRICHTUNG: L
(C40) PROBENFORM KV 20
(C03) PRUFTEMPERATUR °C J
MASSEINHEIT 299 297 298 297 298 299 297 298 297 298 297 298 297 298 297
ERREICHT 299 299

Bolzen mit VK 1.4462

40101508 633985



COGNÉ ACCIANI SPECIALI S.p.A.

Sesto Uscio'

11100 ADISTÀ - VIA PARAVERA, 16

TEL. +39 0165 3021 - FAX +39 0165 30296

CAP. SOC. 130.000.000 EUR INT. VERS.

C.F.E. ISCRIZIONE REG. IMPRESSE 02187360067

VAT: IT0087120078 - PEA 30474

Unternehmen mit Management-Systemen von IIG
 zertifiziert und zertifiziert gemäß ISO 9001,
 ISO 14001 & ISO 18001.

ABNAHMEPRÜFZEUGNIS 3.1 (EN 10204:2004)
 (A03) BESCHEINIGUNGS-NR 2011032B89
 PAGE 2/3

ZUGVERSUCH IM LIEFERZUSTAND

Kontrollennummer - Masse : 020000403759 - 3.911 KG
 VORSCHRIFT - EN-ISO6892-1

(C02) PROBENRICHTUNG: L

MASSEINHEIT	RM MPA	RP02 MPA	AS %	Z %
ERREICHT	747	517	5.0 D	83,6
	749	520	42,0	83,3
	725	521	40,7	83,4
	736	522	40,7	83,7
			42,6	

CORROSION

Kontrollennummer - Masse : 020000403759 - 3.911 KG
 VORSCHRIFT - ASTM G48 A
 ERREICHT 0,003

FERRIT

Kontrollennummer - Masse : 020000403759 - 3.911 KG
 VORSCHRIFT - FERR.FISCHER --
 ERREICHT 52,2

IK-BESTAENDIGKEIT GEPRUEFT NACH ASTM A262 PRACTICE.E. EN ISO 3651-2: ENTSPRICHT.

Die wertw prüfung der widerstandsfähigkeit auf -46°C sind nicht schlechter als sie, über die hier berichtet, bei -50°C.

KERBSCHAGZÄHIGKEIT

Kontrollennummer - Masse : 020000403759 - 3.911 KG
 VORSCHRIFT - EN 10045
 (C40) PROBENFORM KV 50-
 (C03) PRUFTEMPERATUR °C J
 MASSEINHEIT 296 297 296
 ERREICHT 296 297 296

(C02) PROBENRICHTUNG: L

ZUGVERSUCH

Kontrollennummer - Masse : 020000403759 - 3.911 KG
 VORSCHRIFT - ASTM A370-E8

(C02) PROBENRICHTUNG: L

MASSEINHEIT	T.S KSI	Y.S02 KSI	RA %	EL %
ERREICHT	107	75	80,0	4,0 D
	107	75	81,6	44,0
	108	75	80,7	43,2
	106	75	80,0	43,6
			80,0	42,8

ASTM G48 TESTBEDINGUNG: VORBEREITEN DER OBERFLAECHE 120 GRIT, 100g FeCl3.6H2O+900ml H2O, T 35°C, 24h, KEINE LOCHFRASS KORROSION AN 20X.

RISSGEPRUEFT UND SICHTKONTROLLE NACH EN 10277-1 Klasse 4: BESTANDEN.



COGNE ACCIARI SPECIALI S.p.a.
Sede Unico
11100 AOSTA - VIA PARAVERA, 18 100296
Tel. +39 011 9530211 - 011 9530212
C.F. 01150010018 - R.I. 01150018
C.F. E.SCHIZIONE REG. IMPRESA 02187350667
VAT: IT00571320076 - REA 50474

Unternehmen mit Management-Systemen von ISO
zugesessen und zertifiziert gemäß ISO 9001,
ISO/TS 16949 e ISO 14001.

ABNAHMEPRUEFZEUGNIS 3.1 (EN 10204:2004)
(A03) BESCHEINIGUNGS-NR 2011032889
PAGE 3/3

MASSKONTROLLE GEMAESS EN 10278: DURCHGEFUEHRT.
DAS MATERIAL WURDE NICHT REPARATURGESCHWEISST.
US-PRUEFUNG GEMAESS EN 10308 Klasse 3, ENTSPRECHEND SEP 1920 GRUPPE 3 KLASSE C (Klasse B Ø>75mm) UND ASTM A388 FBH 5 (NUR FUR Ø>100mm): BESTANDEN.
VERWECHSLUNGSPRUEFUNG nach portable spektroskopischer Prüfmethode: DURCHGEFUEHRT
DAS MATERIAL WURDE NICHT REPARATURGESCHWEISST.
DIESES PRODUKT ERFUELLT DIE ANFORDERUNGEN DER EU-RICHTLINIEN: 2000/53 2002/95 2003/11 - 2005/618 UND PED 97/23/CE.
KENNZEICHNUNG: HERSTELLERZEICHEN, WERKSTOFF-NR, SCHELZEN-NR,
PROBE-/LOS-NR.
DAS QUALITAETS-MANAGEMENT-SYSTEM IST ZERTIFIZIERT DURCH IGO UND ERFUELLT DIE ANFORDERUNGEN NACH EN ISO 9001:2008 UND ISO TS 16949:2009 (LETZTGENANNTES GILT NUR FUER WARMGEWALZTE, GESCHAELTE, GESCHLIFFENE STAEBE UND ATOMISIERTE PULVER).
ALLE NORMEN IN DER LETZTEN REVISION.

{Z01} DATUM 29.04.2011 POLLASTRELLI ANDREA FC (AUSTAELLER) - ATTEST ELEKTRONISCH ERSTELLT)

82647

ABNAHMEPRUEFZEUGNIS 3.1 (EN 10204:2004)
(A03) BESCHNEIDUNGS-NR 2011005630
PAGE 1/2



COGNE ACCIAI SPECIALI S.p.A.
11100 AOSTA - VIA PARAVERA, 15
TEL. +39 0145 31021 - FAX +39 0145 302296
CAP. SOC. 130.000.000 EUR INT. VERS.
C.F. E ISCRIZIONE REG. IMPRESA 02187360087
VAT: IT00571320076 - REA 59474



(A06) BESTELLER . :
(A07) KUNDENBESTELLN.R :
(A01) HERSTELLERWERK :
(A01) HERSTELLERWERK :
(A05) AUSSTELLER :
(A08) WERKSAUFTRAGSNR . : 50322438 /10

COGNE EDELSTAHL GmbH
OGA: DE01 4900028203
AOSTA, VIA PARAVERA 16 - ITALIA
QUALITAETSTELLE
(A04) ZEICHEN DES HERSTELLERWERKES.: COGNE

STOCKBARREWZ
28324 PEL Geschaeht RUND TOLERANZ : ISOH10
2B
RS LOESUNGSGEGELUEHT
(B12) LANGE (MM): 03000 /03100
MARKENBEZEICHNUNG : F316L IMCO
(B07) LOS-NR. : 579520
KURZZEICH. F. SCHMELZE-NR 952

INTERNE VORSCHRIFT : ANFORDERUNGEN : AD2000
(B01) ERZEUGNIS :
(B03) OBERFLAECHEMENDE . :
(B04) LIEFERZUSTAND :
(B11) MASSE (MM) :
(B02) STAHLSORTE . :
(B08) SCHMELZE-NR. :
(B06) KENNZEICHNUNG :

DAS MATERIAL ENTSPRICHT DEN BESTELLVORSCHRIFTEN UND DEN ANFORDERUNGEN NACH AD2000-MERKBLATT W0/WZ, VD TUV 418 (12/2009).
BEZUGSNORMEN: EN 10088-3, EN 10272, ASTM A276, ASTM A479, ASTM A193 B8M KLASSE 1D, ASME SA479, AMS 5653F, AMS 5648K, ISO15156-3 NACE MR0175, NACE MR0103.
DIE GENANNTEN NORMEN GELTEN NUR FUER CHEMISCHE ANALYSE UND MECHANISCHEN EINGESCHAFTEN: ASTM A182, ASME SA182.
DIE GENANNTEN NORMEN GELTEN NUR FUER DIE CHEMISCHE ANALYSE: EN 10222-5, ASTM A484, ASTM A403, ASTM A314, AMS-QQ-S-763.
ASTM A484 GILT NICHT FUER DURCHMESSER-UND LAENGENTOLERANZEN.
ERSCHMELZUNG IM ELEKTRO-OFEN + AOD + STRANGGUS
WARMGEGWALZ
UNTERSEITUNG 32,9

(C71) CHEMISCHE ZUSAMMENSETZUNG - SCHMELZE ANALYSE NACH ASTM E1019-E1086-E415
Kontrollennummer - Masse :020000395958 - 81.000 KG
ELEMENTE C 0,017 0,37 1,85 0,033 0,029 0,081 16,82 2,07 10,15 0,32
ERREICHT Si Mn P S N Cr Mo Ni Cu
ELEMENTE ERREICHT

HARTEPRUEFUNG IM LIEFERZUSTAND
Kontrollennummer - Masse :020000396298 - 7.092 KG
VORSCHRIFT EN ISO6506 HARTEPRUEFUNG HB PRUEFBEDINGUNG : 10/3000
ERREICHT 178

KERBSCHLAGZAEHIGKEIT IM LIEFERZUSTAND
Kontrollennummer - Masse :020000396298 - 7.092 KG
VORSCHRIFT EN 10045 (C02) PROBENRICHTUNG: L
(C40) PROBENFORM KV 20
(C03) PRUEFTEMPERATUR °C J
MASSEINHEIT ERREICHT 285 288 289 281 275 277 279 285 290

Boizen ohne VK 1.4404



COGNE ACCIAI SPECIALI S.p.A.
36066 Lindor,
11100 S. Maria Fara Valsarona, 18
TEL. 0431/231111 FAX 0431/222286
CAP. 36060 000 EUR INT. V. 0000
C.F. E ISCRIZIONE REG. IMPRESSE 02187860967
VAT: IT00571320078 - REA 50474



ABNAHMEPRUEFZEUGNIS 3.1 (EN 10204:2004)
(A03) BESCHREIBUNGS-NR 2011005630
PAGE 2/2

ZUGVERSUCH IM LIEFERZUSTAND
Kontrollennummer - Masse : 020000396298 - EN-ISO6892-1 7.092 KG
VORSCHRIFT 4 6

MASSEINHEIT	RM	RP02	A5	Z	RP1
ERREICHT	MPA	MPA	% D	%	MPA
	603	292	5,0	73,7	355
	615	291	57,0	75,4	358
	586	300	57,1	74,8	358
	588	303	57,2	75,0	364
			55,0		

KORNGROESSE
Kontrollennummer - Masse : 020000396298 - 7.092 KG
VORSCHRIFT 4 6 ASTM E112 --
ERREICHT

ZUGVERSUCH
Kontrollennummer - Masse : 020000396298 - 7.092 KG
VORSCHRIFT 4 6 ASTM A370-E8

MASSEINHEIT	RMB	RP02B	ZB	AL2B
ERREICHT	KSI	KSI	%	%
	85	44	73,2	4,0
	87	42	59,5	59,5
	89	42	74,2	59,1
	88	42	74,7	58,5
			75,5	60,5

IK-BESTAENDIGKEIT GEPRUEFT NACH ASTM A262 PRACTICE.E. EN ISO 3651-2: KONFORM.
 RISSGEPROEFT UND SICHTKONTROLLE NACH EN 10277-1 Klasse 4: BESTANDEN.
 MASSKONTROLLE GEMAES EN 10278: DURCHGEFUHRT.
 DAS MATERIAL WURDE NICHT REPARATURGESCHWEISST.
 US-PRUEFUNG GEMAES EN 10308 Klasse 3, ENTSPRECHEND SEP 1920 GRUPPE 3 KLASSE C (Klasse B Ø > 75mm) UND ASTM A388 FBH 5 (NUR FUR ABMESSUNGEN > 100mm): BESTANDEN.
 VERWECHSLUNGSPRUEFUNG: DURCHGEFUHRT.
 DIESES PRODUKT ERFUELLT DIE ANFORDERUNGEN DER EU-RICHTLINIEN: 2000/53 2002/95 2003/11 - 2005/618 UND PED 97/23/CE.
 KENNZEICHNUNG: HERSTELLERZEICHEN, WERKSTOFF-NR, SCHELZEN-NR, PROBE/LOS-NR, STEMPEL DES WERKSACHVERSTAEENDIGEN.
 DIESES DOKUMENT WIRD AUSGESTELLT MIT GENEHMIGUNG DES TUEV BAYERN (11.1972); AUF EINE GEGENZEICHNUNG KANN VERZICHTET WERDEN (SIEHE SCHREIBEN DES TUEV BAYERN VOM 17.01.80).
 DAS QUALITAETS-MANAGEMENT-SYSTEM IST ZERTIFIZIERT DURCH IGQ UND ERFUELLT DIE ANFORDERUNGEN NACH EN ISO 9001:2008 UND ISO TS 16949:2009 (LETZTGENANNTES GILT NUR FUER WARMGEWALZTE, GESCHAELTTE, GESCHLIFFENE STAEBE UND ATOMISIERTE PULVER).
 ALLE NORMEN IN DER LETZTEN REVISION.
 (Z02) ZEICHEN DES SACHVERSTAEENDIGEN LF

(Z01) DATUM 28.01.2011
REY GRAZIA CF (WERKSACHVERSTAEENDIGE) - ATTEST ELEKTRONISCH ERSTELLT

Müller GmbH
Industrieweg 5
D-79618 Rheinfelden

Systemtechnik in Edelstahl
Behälter / Gehäuse
Handlinggeräte

Managementsysteme ISO 9001
ISO 14001 / OHSAS 18001

Telefon: +49 (0)7623 / 969-0
Telefax: +49 (0)7623 / 969-69

E-Mail: info@mueller-gmbh.com
Internet: www.mueller-gmbh.com



Kunde: Volkmann GmbH
Customer: 59494 Soest

Best.-Nr.: 221707
Order-no.:

Hersteller: Müller GmbH
Manufacturer: D – 79618 Rheinfelden

Auftrags-Nr.: 240242 Pos. 1
Order-no.:

Pos.: 1.4 Art.-Nr.: 40101214

FDA - Bestätigung für Silikon

FDA - Confirmation for silicones

FDA - Confirmation pour des matières en silicone

Wir bestätigen hiermit, dass die Rohstoffe unserer Silikon-Qualitäten den Richtlinien der BfR XV und der Food and Drug Administration FDA 21 CFR §177.2600 und USP Class VI entsprechen.

Die Verarbeitung erfolgt nach den Richtlinien der Rohstoffhersteller. Sie können als physiologisch unbedenklich gem. FDA eingestuft werden.

We confirm, that the silicone qualities are manufactured from materials which correspond with the BfR XV and the directives from the Food and Drug Administration FDA 21 CFR §177.2600 and USP Class VI.

The processing is effected according to the directives of the raw material suppliers. These articles can physiologically be recognized as safe according FDA.

Nous certifions que les matières premières de nos qualités en silicone correspondent aux directives de BfR XV et de Food and Drug Administration FDA 21 CFR §177.2600 et USP Class VI.

Le traitement est effectué selon les directives des fabricants de matières premières. On peut les classifier physiologiquement comme neutre selon FDA.

2x PPC200VS - Entleerklappen NW150 Typ MC

Müller GmbH
Industrieweg 5
D-79618 Rheinfelden

Systemtechnik in Edelstahl
Behälter / Gehäuse
Handlinggeräte

Managementsysteme ISO 9001
ISO 14001 / OHSAS 18001

Telefon: +49 (0)7623 / 969-0
Telefax: +49 (0)7623 / 969-69

E-Mail: info@mueller-gmbh.com
Internet: www.mueller-gmbh.com



Kunde: Volkmann GmbH
Customer: 59494 Soest

Best.-Nr.: 221707
Order-no.:

Hersteller: Müller GmbH
Manufacturer: D – 79618 Rheinfelden

Auftrags-Nr.: 240242 Pos. 1
Order-no.:

Pos.: 1.5 Art.-Nr.: 40101286

FDA - Bestätigung für PPSU natur

FDA - Confirmation for PPSU nature

FDA - Confirmation pour des matières en PPSU naturelle

Wir bestätigen hiermit, dass der Rohstoff den Anforderungen der USP Class VI und der FDA 21 CFR §177.1560 entspricht.

We confirm, that the raw material corresponds with the requirements of the USP Class VI and the FDA 21 CFR §177.1560.

Nous certifions que la matière première correspond aux directives de USP Class VI et de FDA 21 CFR §177.1560.

2x PPC200VS - Reduzierung d200 - d150



ThyssenKrupp Nirosta

ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
nach / according to / suivant
EN 10204-3.1

Bescheinigungsnr. 30.05.2012
Document number
Numéro de document
1000390603 /
Seite / Page / Page:
1 / 1

Oberschlesienstrasse 16, 47807 Krefeld KLOECKNER STAHL- UND METALL- HANDEL GMBH MUELHEIMER STR. 1 D-90451 NUERNBERG	Besteller/Empfänger / Customer/Consignee / Acheteur/Destinaire KLOECKNER STAHL- UND METALL-, WUERZBURG
	Kundenbestellnr. / Customer's order number / Numéro de la commande du client Mai 2012 528
	Werksauftragsnr. / Manufacturer's works order no / N°de la commande de l'usine productrice 900079529 / 008
	Lieferanzeige Nr. / Delivery Note No. / Avis d'expédition N° 87453143 / 010
	Erzeugnis / Product / Produit BLECH/SHEET/TOLE

Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG AD 2000 W10 TRB 100 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11 NACE STANDARD MR0175 (ONLY ANALYSIS)	Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 1.4404 / 1.4401 TYPE 316 L / 316
--	--

Kundenmaterial-Nr. Customer's material number N°de matiere du client	Maße des Erzeugnisses (Dicke / Breite / Länge) Product dimensions (Thickness / Width / Length) Dimensions du produit (Epaisseur / Largeur / longueur)	Hersteller Steelmaking proc. Mode d'elabor.	Ausführung Finish Fini
911000851	3,0 mm x 1500,0 mm x 3000,0 mm	AOD	IIIc /2B

Paket-Nr. Packing-No. N°Palette	Stückzahl No of pieces N°de pièces	Ist-Gewicht Actual weight Masse effective	Ident.-Nr. Erzeugnis Ident.-No of product Ident.-N°du produit	Schmelzennr. Cast number Id. de la coulée	Proben-Id. Sample Id. Empl.du prélèvement	Proben-Id. Sample Id. Empl.du prélèvement
11074706	9	966 KG	251917	526621	1002632187	1002632188
	9	966 KG				

Chemische Zusammensetzung / Chemical composition / Composition chimique											
Schmelznr./ Cast no.	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% Al	% N	% Cu
526621	0,022	0,41	0,88	0,028	0,0020	16,75	2,00	10,03	0,011	0,054	0,40
Schmelznr./ Cast no.	% Sn	% Co	% Nb	% B	% Ti						
526621	0,009	0,170	0,020	0,0036	0,002						

Prüflot/Inspection lot Lot de contrôle Proben-Id./-Lage Sample Id./-Position Ident./empl.du prélèvement	QUER										
	Rp0, 2%	Rp1%	Rm	A5	A2"	HRB					
	MPa	MPa	MPa	%	%	HRB					
1002632187	303	340	594	63,7	63,7	79,0					
1002632188	303	341	599	60,8	60,8	79,0					

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: EN ISO 3651-2 I.O.
 Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: ASTM A 262 PRACTICE E I.O.
 Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: I.O.
 Verwechslungsprüfung (Spektralanalyse)/Test of identity(spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O.

WAERMEBEHANDLUNG : 1050 GRAD C / LUFT
 TRAITEMENT TERMIQUE : 1050 GRAD C / AIR
 HEAT - TREATMENT : 1050 DEGREE / AIR

Aussteller der Bescheinigung/ Originator of the document / Auteur du document ThyssenKrupp Nirosta GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld Abnahme	Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire	
	Datum der Ausstellung und Bestätigung Date of issue and validation date d'emission et validation		30.05.2012

**SATINOX TUBI INOX S.p.A.**

VIA INDUSTRIA 16 20083 VIGANO DI GAGGIANO (MI) IT
www.satinox.it info@satinox.it

Omologazione PED 97/23/EC All.1, Par.4.3
Azienda approvata AD2000 W0 - TRD100
Processo di saldatura omologato AQUAP / EN ISO 15614-1

**AZIENDA CON SISTEMA DI GESTIONE
PER LA QUALITÀ CERTIFICATO DA DNV
= UNI EN ISO 9001:2008 =**

Pag.: 1/1

CERTIFICATO DI COLLAUDO EN10204 / 3.1 N° 17143 / 8100/2011 / 1 -- Carico/Load: 3249
Inspection Certificate / Abnahmeprüfzeugnis per TUBI ELETTRONITTI / for Welded Tubes / Geschweisste Rohre

Cliente STAPPERT SPEZIALSTAHL HANDEL Client/Bestseller WILLSTAETTERSTRASSE 13 40549 D - DUSSELDORF 11 - GERMANIA		
Ordine Cliente / Customer Order / Bestellung 10-138343	Conferma ord. / Order Confirmation V17558/2 06/12/2011	Fattura N°/Invoice/Rechnung

QUALITÀ / Steelgrade / Werkstoff : Ws 1.4404/AISI 316L
 PROCESSO DI SALDATURA / Welding Process / Schweißenprozess : TIG
 NORME COSTRUZIONE / Standard / Anforderungen : EN 10217-7 TC1
 TOLLERANZE / Tolerances / Toleranzen : ISO 1127 D4/T3
 FATTORE DI SALDATURA / Welding Factor / Schweißfaktor : V = 1
 FINITURA / O.D. Finishing / Beschaffenheit : FIN S / BRUSHED
 ESECUZIONE / Execution / Ausführung : CR.LAM./NOT ANNEAL BEAD ROLLED
 TRATTAMENTO TERMICO / Heat Treatment / Wärmebehandlung :
 MARCATURA / marking / markierung : STX 21,3X1,6 1.4404 EN 10217-7 TC1 W0b Heat 0425510 MV

Dimensione / Dimension	Kg	Mtr	Pezzi / N° Pieces	N° Lotti / N° Lots
21.30X1.60 L C	483	612	102 X 6000	2

COMPOSIZIONE CHIMICA / Heat Analysis / Schmelzenanalyse

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	Ti	Co	N	Al
0.024	0.86	0.027	0.001	0.39	16.83	10.21	2	0.37	--	0.21	0.044	--

COLATA / Heat / Schmelze : 0425510

Steelmaking Process : E + AOD

Mechanical Tests according to ASTM A370 + EN 10002-1

Specification ASTM A240-EN 10088/2 - EN 100028/7 Corrosion Test: ASTM A262 Practice E+ ISO 3651-2: OK

N° prova	Dim.provino Specimen size Abmessung Probestat	Snervamento / Yield Strength Streckgrenze N / mm²		Rottura N / mm² Tens.Strength Zugfestigkeit	Allungamento A% Elongation Dehnung L =50 mm	Durezza HRB Hardness Haerte
		0,2 %	1 %			
	L = mm	>190	>225	>490	>40	
1A	50,8X1.60	296	338	596	50.10	--
2A	50,8X1.60	297	339	597	53.10	--

ESAME DIMENSIONALE E VISIVO / Visual and Dimens. Control / Besich. und Ausmessung: OK
 PROVA DI PIEGATURA / Bending / Biegen: OK PROVA DI ALLARGAMENTO / Flaring / Aufweit: OK
 PROVA DI SCHIACCIAMENTO / Flattening / Ringfalt : OK ANTIMISCUGLIO / Anti Mixing / Verwechslungsprüfung: OK
 TEST SALDATURA / Weld testing procedure / Zerstorungsfreie Prüfung : Eddy Current SEP 1914 / EN 10246-3 OK
 TEST TENUTA / Leak Tightness Test / Dichtheitsprüfung: Eddy Current SEP 1925 / EN 10246-2 OK
 TEST EDDY CURRENT / Non destructive electric test / C.N.D. par courants de Foucault OK
 Certificiamo che i prodotti sopra indicati sono conformi alle prescrizioni dell'ordine
 We certify that the above mentioned products comply with order requirements

Vigano di Gaggiano, 12/12/2011

MGQ 80-04-08 rev. 5

data 21/03/07

redatto da GQ

approvato da DG

CERTIFICATO EMESSO AUTOMATICAMENTE

CQ Marco Vendramel

Herstellerwerk / Manufacture's works / Usine productrice 	Art der Prüfbescheinigung / Type of inspection document / Type du document ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION nach / according to / suivant EN 10204-3.1	Bescheinigungsnr. 13.09.2013 Document number Numéro de document 1000485317 / 2 Seite / Page / Page: 1 / 1 431697-99
--	---	--

Oberschlesienstrasse 16, 47807 Krefeld KREUER EDELSTAHL GMBH MARKIRCHER STRASSE 2 D-68229 MANNHEIM	Besteller/Empfänger / Customer/Consignee / Acheteur/Destinataire KREUER EDELSTAHL GMBH, MANNHEIM Kundenbestellnr. / Customer's order number / Numéro de la commande du client B000015177 Werksauftragsnr. / Manufacture's works order no / N° de la commande de l'usine productrice 900089105 / 003 Lieferanzeige Nr. / Delivery Note No. / Avis d'expédition N°. 87609193 / 030 Erzeugnis / Product / Produit BLECH/SHEET/TOLE
---	--

Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG AD 2000 W10 TRB 100 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11	Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 1.4404 / 1.4401 TYPE 316 L / 316
--	--

Kundenmaterial-Nr. Customer's material number N° de matière du client	Maße des Erzeugnisses (Dicke / Breite / Länge) Product dimensions (Thickness / Width / Length) Dimensions du produit (Epaisseur / Largeur / longueur)	Herstellart Steelmaking proc. Mode d'elabor.	Ausführung Finish Fini
	1,5 mm x 1250,0 mm x 2500,0 mm	AOD	IIIc /2B

Paket-Nr. Packing-No. N° Palette	Stückzahl No of pieces N° de pièces	Ist-Gewicht Actual weight Masse effective	Ident.-Nr. Erzeugnis Ident.-No of product Ident.-N° du produit	Schmelzennr. Cast number Id. de la coulée	Proben-Id. Sample Id. Empl. du prélèvement	Proben-Id. Sample Id. Empl. du prélèvement
11103767	27		268896	528919	1002772650	1002772651
11103768	27		268896	528919	1002772650	1002772651
11103769	27		268896	528919	1002772650	1002772651
81						

Schmelznr. / Cast no.	Chemische Zusammensetzung / Chemical composition / Composition chimique										
	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% Al	% N	% Cu
528919	0,015	0,61	0,91	0,022	0,0010	16,64	2,03	10,17	0,032	0,059	0,23
Schmelznr. / Cast no.	% Sn	% Co	% Nb	% B	% Ti						
528919	0,005	0,180	0,030	0,0038	0,002						

Prüflot/Inspection lot Lot de contrôle Proben-Id./Lage Sample Id./Position Ident./empl. du prélèvement	QUER										
	Rp0,2%	Rp1%	Rm	A80	A2"	HV	HRB				
	MPa	MPa	MPa	%	%	HV	HRB				
1002772650	323	349	620	54,4	54,4	162	81,0				
1002772651	326	352	626	54,0	54,0	163	81,0				

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: EN ISO 3651-2 I.O.

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: ASTM A 262 PRACTICE E I.O.

Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: I.O.


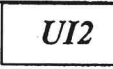
Verwechslungsprüfung (Spektralanalyse)/Test of identity (spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O.

WAERMEBEHANDLUNG : 1050 GRAD C / LUFT



TRAITEMENT TERMIQUE : 1050 GRAD C / AIR

HEAT - TREATMENT : 1050 DEGREE / AIR

Aussteller der Bescheinigung / Originator of the document / Auteur du document Outokumpu Nirosa GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld Abnahmebeauftragter/ Inspector/ Expert Ulrich Wansart Tel.:+ 49 (2151) 83-3142 Fax:+ 49 (2151) 83-4106 Certificates.Nirosa@outokumpu.com	Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire Datum der Ausstellung und Bestätigung Date of issue and validation date d'emission et validation 13.09.2013
--	---

 <p>Aperam - Stainless France Aperam Isbergues 62330 Isbergues FRANCE</p>		MILL CERTIFICATE BS EN 10204/3.1 CERTIFICAT DE RECEPTION NF EN 10204/3.1 ABNAHMEPRUEFZEUGNIS DIN EN 10204/3.1						N-Nr-N 1310260244-01 V01																																																													
A01 ISO 9001 V2008 - ISO TS 16949 V2009 - ISO 14001 V 2004		A02 Ausgestellt im Einvernehmen mit dem TÜV SÜD - Auf Gegenzeichnung wird verzichtet Issued in accordance with TÜV SÜD - Verification is not required Etabli en accord avec le TÜV SÜD - Dispense de contresignature A.D.2000 Merkblatt W0 - W2 - W10 - PED 97/23 EC - EN 13445-2						A03																																																													
A08 Manufacturer's works order number N° de la commande usine productrice Werksauftragsnummer 80159034 /01-82699/1		A08 Surveyor's mark Cachet de l'expert  Stempel des Werkssachverstaendigen		A06 Purchaser and/or consignee Client et/ou destinataire Besteller und/oder Empfänger APERAM STAINLESS SERVICES & SO Hildener Straße 28 40699 Erkrath ALLEMAGNE		A07 Purchaser's order number N° de commande client Kundenbestellnummer 305680792		A09 Customer article number N.article client Artikelnummer des Kunden ART216156																																																													
B02 Steel designation Désignation de l'acier Stahlbezeichnung EN 10028-7 / 08 - 1.4404 - 1.4401 ASTM A 240 / 12 - TYPE 316L - TYPE 316 ASME SA 240 / 11 - TYPE 316L - TYPE 316 EN 10088-2 / 05 - 1.4404 - 1.4401 EN 10088-4 / 09 - 1.4404 - 1.4401		B01 Finish Présentation Ausführung 2B 2B 2B 2B		B03 Steelmaking process Mode d'élaboration de l'acier - Stahlherstellungverfahren Prod.proces: Electric arc furnace - VOD/AOD - Continuous casting Proc.fabric.: Four à arc - VOD/AOD - Coulée continue Fertigungsablauf: Elektro-Ofen - VOD/AOD - Stranggussanlage		C70 Product delivery condition Etat de livraison du produit - Lieferzustand Solution treated Hypertrempe : 1040-1110 C Forced Air Air forcé Gebläse Luft		B04																																																													
Z05 CORROSION INTERGRANULAIRE SELON ISO 3651/2 : OK CORROSION TEST:ASTM A 262-E :OK NACE MR 0175/ISO 15156-1 /ISO 15156-3																																																																					
B07 Identification of the product Identification du produit - Identifizierung des Erzeugnisses MELTED IN BELGIUM, MADE IN FRANCE			B08 Dimensions Dimensions - Abmessungen Thickness Epaisseur - Dicke 3,000 mm			B10 Width Largeur - Breite 1500,00 mm		B11 Length Longueur - Laenge		B13 Net weight Poids net - netto Gewicht 23250 KGS																																																											
CHEMICAL ANALYSIS - ANALYSE CHIMIQUE - CHEMISCHE ZUSAMMENSETZUNG																																																																					
<table border="1"> <thead> <tr> <th></th> <th>C</th> <th>Si</th> <th>Mn</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> <th>Ti</th> <th>N</th> <th>S</th> <th>P</th> <th>Co</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Required -Exigé %mini Anforderung. %maxi</td> <td>0,030</td> <td>0,75</td> <td>2,00</td> <td>10,00</td> <td>16,50</td> <td>2,000</td> <td></td> <td>0,100</td> <td>0,0150</td> <td>0,045</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Analysis Analyse coulée Analyse Schmelze</td> <td>0,027</td> <td>0,28</td> <td>1,26</td> <td>10,05</td> <td>16,61</td> <td>2,020</td> <td></td> <td>0,048</td> <td>0,0031</td> <td>0,028</td> <td>0,189</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											C	Si	Mn	Ni	Cr	Mo	Ti	N	S	P	Co									Required -Exigé %mini Anforderung. %maxi	0,030	0,75	2,00	10,00	16,50	2,000		0,100	0,0150	0,045										Cast Analysis Analyse coulée Analyse Schmelze	0,027	0,28	1,26	10,05	16,61	2,020		0,048	0,0031	0,028	0,189								
	C	Si	Mn	Ni	Cr	Mo	Ti	N	S	P	Co																																																										
Required -Exigé %mini Anforderung. %maxi	0,030	0,75	2,00	10,00	16,50	2,000		0,100	0,0150	0,045																																																											
Cast Analysis Analyse coulée Analyse Schmelze	0,027	0,28	1,26	10,05	16,61	2,020		0,048	0,0031	0,028	0,189																																																										
D52 Tests to verify batch and quality have been carried out : OK Tests de vérification de la conformité de la nuance fournie : OK Verwechslungsprüfung wurde durchgeführt : OK																																																																					
C20 MECHANICAL PROPERTIES - PROPRIETES MECANIKES - MECHANISCHE WERTE																																																																					
C03 Room temperature - Température ambiante - Raumtemperatur																																																																					
C04 Test temperature (°C) :																																																																					
D1 Direction (2) Required Exigé Anforderung mini maxi		C11 Yield or proof strength Limite d'élasticité Dehngrenze MPa Rp0.2% 240 Rp1% 270		C14 Tensile Strength Résistance à la traction Zugfestigkeit MPa Rm 530 680		C12 Elongation after fracture Allongement après rupt. Bruchdehnung % 5,65 50mm 40 40		C15 Hardness Dureté Haerte HRB C30 95 81 82		C16 Yield or proof strength Limite d'élasticité Dehngrenze MPa Rp0.2% Rp1% Rm		C17 Tensile str. Résist. MPa Zugfestigkeit Rm		C18 Elongation % Allongement. Bruchdehnung																																																							
C40 Impact strength test Essai de résilience Kerbschlagzähigkeitstest		C44 Corrosion test Test de corrosion Korrosionstest		D51 EN ISO 3651-2 :OK		C50 Internal cleanliness:		C51 A: B: C: D:		C52 C53 C54 C55		C57																																																									
C01 Location of the sample (1) Emplacement de l'échantillon Lage des Probenabschnittes 1. Front - Début - Anfang 2. Back - Fin - Ende 3. Middle - Milieu - Mitte		Z01 The delivery is in accordance with the order La fourniture est conforme aux exigences de la commande Die lieferung entspricht den Bestellbedingungen		A10 Packing list Avis d'expédition Lieferscheinnummer 130828100878-101057		A05 Organisation inspection Organisme et/ou service contrôle Ueberwachungsabteilung Service Metallurgique		28/08/2013		M. THOMAS		The inspector Le responsable Der Werkssachverstaendige																																																									
C02 Direction of the test pieces (2) Orientation des éprouvettes Probenrichtung T. Transverse - Travers - Quer L. Longitudinal - Long - Laengs		D01 Marking, inspection and measurement : without objection Contrôle de marquage, d'aspect et de dimensions : satisfaisants Prüfung der Stempelung, des Oberflächenaspekts und der Abmessungen : ohne Beanstandung																																																																			

450046622014

 <p>Correspondance address Adresse de correspondance - Adresse für briefwechsel</p> <p>Aperam - Stainless France Aperam Isbergues 62330 Isbergues</p>	<p>Annex to certificate 1310260244-01 V01 Annexe du CCPU Anlage Zum Zeugnis</p>		<p>Certificate CCPU - Zeugnis 1310260244-01 V01</p>	
	<p>Certificatenummer (TÜV) 0036-CPD-42-2011 N° du CCPU (TÜV) Zertifikatnr (TÜV)</p>			
	<p>Year 13 Année Jahr</p>			
<p>Manufacturer's works order number N° de la commande usine productrice Werksauftragsnummer 80159034 /01-82699/1</p>	<p>Purchaser and/or consignee Client et/ou destinataire Besteller und/oder Empfänger APERAM STAINLESS SERVICES & SO Hildener Straße 28 40699 Erkrath ALLEMAGNE</p>		<p>Purchaser's order number N° de commande client Kundenbestellnummer 305680792</p>	
			<p>Customer article number N° d'article client Artikelnummer des Kunden ART216156</p>	
<p>Identification of the product Identifikation du produit - Identifizierung des Erzeugnisses</p>	<p>Dimensions Dimensions - Abmessungen</p>			
<p>Coil n° N° de bobine - Band Nr 78250</p>	<p>Thickness Epaisseur - Dicke 3,000 mm</p>	<p>Width Largeur - Breite 1500,00 mm</p>	<p>Length Longueur - Laenge</p>	
<p>Stainless steel / Acier inoxydable / Rostfreier Stahl</p>				
<p>EN 10088-4 /09</p>				
<p>Intended uses : building constructions or civil engineering Usages prévus : construction immobilière ou génie civil Vorgesehene Verwendungen : Hochbauten und Ingenieurbauwerke</p>				
<p>Tolerances on dimensions and shape: Tolérances sur les dimensions et sur forme: Grenzabmasse und Formtoleranzen</p> <p style="text-align: center;">EN ISO 9445</p>				
<p>Steel Acier 1.4404 Werkstoff</p>				
<p>COLD-ROLLED COIL BOBINE LAMINEE A FROID KALTGEWALZTES BAND</p>				
<p>COIL - BOBINE - BAND</p>				
<p>Elongation / Allongement / Bruchdehnung Tensile strength / Résistance à la traction / Zugfestigkeit Yield Strength / Limite d'élasticité / Dehngrenze Impact strength / Résistance au choc / Kerbschlagzähigkeit Weldability / Aptitude au soudage / Schweisseignung Durability / Durabilité / Dauerhaftigkeit</p>				
<p>Regulated substance : no performance determined Substance réglementée : aucune performance déterminée Regulierter Stoff : keine Leistung festgestellt</p>				

2x PPC200VS - Auslaufrohre d150



COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV
= ISO 9001 =

COMPANY WITH ENVIRONMENTAL SYSTEM CERTIFIED BY DNV
= ISO 14001 =

Ita Inox S.p.A.
Strada Statale 45 bis
26010 Robecco d'Oglio (CR) - Italia
Tel + 39 0372 9801
Fax + 39 0372 921539
e-mail: sales@ita.arvedi.it
quality@ita.arvedi.it
www.arvedi.it



TEST CERTIFICATE ACCORDING TO EN 10204(2004) 3.1 N°0000327355
ABNAHMEPRÜFZEUGNIS - CERTIFICAT D'ESSAIS - CERTIFICATO DI COLLAUDO Pag. 1 di 1
Longitudinally laser welded tubes/Laser längsnahtgeschweisste rohre/Tubes soudés longitudinalement laser/Tubi saldati longitudinalmente laser

Customer: SCHMOLZ + BICKENBACH Besteller/Client/Cliente EUPENER STR. 70	DISTRIBUTIONS GMBH 40549 DUESSELDORF
Customer Order N°: 1049303453 - 2028746 Bestellung/Commande Client/Ordine Cliente	Mill's Ita Innox N°: 0411024813 - 000060 # 042102 8826 - 000010 WerksN°/référence Interne/Conferma ordine
Specifications: EN 10217-7: 2005 / DIN 11850 / TC1 Anforderungen/Specifications/Specifiche // CC	Tolerances: DIN 11850 Toleranzen/Tolérances/Tolleranze
Manufacturer's mark: Herstellerzeichen/Marque du fabricant/Marchio del produttore Inspector's Stamp: M.S. Stempel des Sachverständigen/Poligon de l'inspecteur/Punzone dell'ispettore	Marking: According to EN 10217-7 / DIN 11850 Kennzeichnung/Marquage/Marcatura

Item Pos. N°	DIMENSIONS Abmessungen Dimensioni/Dimensioni	PIECES N° Stückzahl Pièces/Pezzi	METERS Meter Mètres/Metri	WEIGHT(kg) Gewicht/Poids Peso	GRADE Werkstoff/Nuance Materiale	STANDARD CODE Normbezeichnung Designation/Designazione	EXECUTION Ausführung Esecuzione/Esocuzione
60	154.00 X 2.00 X 6000	14	84.00	619.000	TP.316L 1.4404 Z3 CND 17-12-02 UNS S31603	X2 CrNiMo 17-12-2	W2 b

Chemical analysis acc.to: ASTM A240/EN 10088-2/EN 10028-7 Last Edition Schmelzanalyse/Chimique analyse/Analisi chimica
Steel making process :E/AOD Erschmelzungsart/Procédé d'elaboration/Procedimento di elaborazione acciaio

Item N°	Manufacturer Hersteller/Fabricant/Produttore	HEAT N° Schmelze/Coulée/Colata	% C	% Si	% S	% P	% Mn	% Cr	% Ni	% Mo	% Ti	% Co	% Cu	% N
60	951969	0.019	0.460	0.0004	0.036	1.900	16.600	10.000	2.020				0.050

Mechanical test acc. to tab.: 6-7 EN 10217-7 Mechanische Prüfungen/Essais mécaniques/Caratteristiche meccaniche

Item Pos. N°	HEAT N° Schmelze Coulée Colata	HOMOLOG. Zulassung Omologation Omologazione	TEST Probe Eprouvette Provetta n°	SPECIMEN SIZE Abmessung Probestab Dime. Eprouvette Dimensione provetta mm.	YIELD STRENGTH Streck-Dehngrenze Limite d'élasticité Limite di snervamento 0,2% N/mm ² 1%	TENSILE STRENGTH Zugfestigkeit Résistance à traction Limite di rottura N/mm ²	ELONGAT. Bruchdehnung Allongement Allungamento A5%	HARDNESS Haerte Dureté Durezza HB	
60	951969		01 L	20 X 2.00	>=190 358	>=225 399	490 - 690 599	>= 40.0 56.7	

Test Results

Heat treatment: Technological test: ===== / ===== / ===== / EN 10233: OK Residual Corrosion Test acc.to : ===== Intergranular Corrosion Test acc.to: EN ISO 3651-2/A : OK Non Destructive Test acc. to: EN 10249-3/E1H: OK Loak Test/Hydrostatic test to: EN 10246-2: OK Uncorrect Material Test: 100% I.O. Visual and gauging control: I.O.	Ergebnisse der Prüfungen/Résultat des essais/Risultati delle prove Wärmebehandlung/Tratamiento termico/Trattamento termico Technologische Prüfung/Examen technologique/Prove tecnologiche Korrosionsfördernde Rückstände/Essai résiduos corrosivi/Prove residui corrosivi IK Beständigkeit/Essai corr. Intergr./Prove di corrosione intergranulare Zerstörungsfreie Prüfung/Contrôle non destructif/Controllo non distruttivo Dichtheitsprüfung/Essai d'étanchéité/Prove di tenuta Verwechslungsprüfung/Essai P.M.I./Prove antimiscuglio Besichtigung und Ausmessung/Contrôle visuel et dimensionnel/Controllo visivo e dimensionale
---	--

Notes:
Vormaterialrauheit max. 0,8 µm. Schweißnahtrauheit max. 1,6 µm.


We certify that the delivered products comply with the specification of the order / Wir bestaetigen, dass die gelieferte Ware den Bestellvorschriften entspricht / Nous attestons que les produits livrés sont conformes aux références de la commande / Noi attestiamo che il materiale spedito è conforme ai requisiti dell'ordine
Mazzolari p.i Stefano

Robecco d'Oglio, 02/09/2013
Issued by: Cordani A. D

Mill's Inspector / Der Werksachverständige
Inspecteur de l'usine / Firma Ispettore




Arvedi



		Marecaglia 46040 via Breccione 16-Gazoldo degli Ippoliti (Monza-Milano) Tel. +39 - 0376 865 Fax. +39 - 0376 051 600 www.marccegaglia.com Stabilimento di Forlì: Via E. Mattei 171024, Fontanafredda, Forlì-Caserta It: +39 054370111 Fax: +39 054370105		Number/Nummer 10513600433 Ausgegeben am 19/11/2013	
Customer/Kunde STAPPERT DEUTSCHLAND GMBH WILLSTÄTTER STR. 13 40549 DUSSELDORF DE		Consignee/Anlieferadresse STAPPERT SPEZIAL STAHL HANDEL INDUSTRIESTR. 9 36272 NIEDERLAULA DE		Type/Typ Abnahmeprüfzeugnis 3.1 EN 10204 Qualifizierung der Schweißverfahren: alle Laser. Schweißverfahren sind gemäß der Europäischen Richtlinie PED 97/23/EC von der benannten Stelle N.1233 EUROPED durch die Schweißverfahren Qualifikation WPQR N° PM0907A001 Buchung N. 10M203 und WPQR N° PM907A002 Buchung N. 11M017.	
Material 59003185		Prüfungsnorm: EN 10217-7 TC1 DIN 11850 ASTM A270 Werkstoff: TP 316L 1.4404 X2CrNiMo17-12-2 Toleranzen: ISO 1127 D4-T4		Delivery/Lieferung nr 8305315618 19/11/2013 Client Order/Kundenauftrag 10-165075	
Description/Beschreibung TX1003 50.8X1,5X6000 TP316L LAS L		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Quality Control/Qualitätsicherung Q.M.D./Bearb. S. Toscano Plant Of/Werk Forlì	
Item 1 13W4004325		Quantity/Anzahl KG 652 Quantity/Anzahl PZZ 61		Client Order/Kundenauftrag 10-165075 Part Number 4/11/2013	
Batch/Bund Nr 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Batch/Bund Nr 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Chemische Werte C (%) 0.03 Si (%) 1 Mn (%) 2 P (%) 0.045 S (%) 0.015 N (%) 0.11 Cr (%) 18.5 Mo (%) 2.5 Ni (%) 13		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Lieferzustand W2b CC	
RAW MATERIAL 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Ni (%) 13 Mo (%) 2.5 Cr (%) 18.5 S (%) 0.015 N (%) 0.11 P (%) 0.045 Mn (%) 2 Si (%) 1 Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40 Rp 0.2 [MPa] 293 Rp 1.0 [MPa] 323 Rm [MPa] 602 A5 (%) 49.5	
Type of mechanical test TUBE		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		WERK MARCEGAGLIA FORLÌ QUALITÄTSBESCHEINIGUNG QUALITÄTSSYSTEM GEMÄß EN 9001:2008 UND ISO/TS 16949:009 UND SICHERHEITSSYSTEM GEMÄß OHSAS 18001:2007. MARCEGAGLIA FORLÌ PRODUKTBESCHEINIGUNG DWGW GEMÄß GW541 LASER UND TIG EDELSTAHL GESCHWEIßTE ROHRE WERKSTOFF 1.4404 DURCHMESSER VON 15.00 BIS 108.00MM UND WERKSTOFF 1.4521 VON 15.00 BIS 54.00MM. TÜV AD2000 W2W10 UND PED ANNEX I, PARAGRAPHZEICHEN 4.3 LASER UND TIG EDELSTAHL GESCHWEIßTE ROHRE WERKSTOFF 1.4301, 1.4306, 1.4307, 1.4401, 1.4404, 1.4541, 1.4571, 1.4435, 1.4436 WANDSTÄRKE VON 1.00 BIS 4.00MM UND DURCHMESSER VON 8.00 BIS 283.00 MM.	
ZERSTÖRUNGSFREIE PRÜFUNG Zerstörungsfreie Prüfung gemäß EN ISO 10863-1:2011; übereinstimmend Zerstörungsfreie Prüfung zum Nachweis von Unvollkommenheiten gemäß EN ISO 10863-2:2011; übereinstimmend Verwechslungsprüfung; übereinstimmend SICHT- UND ABMESSUNGSKONTROLLE; ÜBEREINSTIMMEND ROUGHNESS Ra VALUES MEASURED FOR RAW MATERIAL MAX 0.8 µm AND INTERNAL WELDING AREA MAX 1.6 µm ACCORDING TO DIN 11850 ; CONFORM		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		ZERSTÖRUNGSFREIE PRÜFUNGEN Ringzuchtversuch gemäß EN ISO 8493:2005; übereinstimmend Ringfließversuch gemäß EN ISO 8492:2004; übereinstimmend Aufweißversuch gemäß EN ISO 8496:2004; übereinstimmend Zugversuch gemäß EN ISO 6892-1:2009 Prüfung auf interkristalline Korrosion gemäß EN ISO 3651-2:1998; übereinstimmend	
Stempelung		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Stempelung	
Remarks/Bemerkungen: CHEMICAL COMPOSITION ACCORDING TO EN 10028-7 TUBE TO EN 10217-7 TC1 DIN 11850 AND DIRECTIVE 97/23/EC (PED) ASME XI, PARAGRAPH 4.3 WELDING FACTOR F1.1		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Stempelung	

1066-0100

2x PPC200VS - Filterplatten

Herstellerwerk / Manufacture's works / Usine productrice 		Art der Prüfbescheinigung / Type of inspection document / Type du document ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION nach / according to / suivant EN 10204-3.1				Bescheinigungsnr. 10.10.2013 Document number Numéro de document 1000490494 / Seite / Page / Page: 1 / 1				
Oberschlesienstrasse 16, 47807 Krefeld KLOECKNER STAHL- UND METALL- HANDEL GMBH MUELHEIMER STR. 1 D-90451 NUERNBERG		Besteller/Empfänger / Customer/Consignee / Acheteur/Destinataire KLOECKNER STAHL- UND METALL-, WUERZBURG Kundenbestellnr. / Customer's order number / Numéro de la commande du client Sept. 2013 978 Werksauftragsnr. / Manufacturer's works order no / N° de la commande de l'usine productrice 900451637 / 001 Lieferanzeige Nr. / Delivery Note No. / Avis d'expédition N°. 87617680 / 010 Erzeugnis / Product / Produit BLECH/SHEET/TOLE								
Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 AD 2000 W10 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG NACE STANDARD MR0175		Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 1.4404 / 1.4401 TYPE 316 L / 316								
Kundenmaterial-Nr. Customer's material number N° de matière du client 911000635		Maße des Erzeugnisses (Dicke / Breite / Länge) Product dimensions (Thickness / Width / Length) Dimensions du produit (Epaisseur / Largeur / longueur) 2,0 mm x 1500,0 mm x 3000,0 mm				Herstellart Steelmaking proc. Mode d'elabor. AOD		Ausführung Finish Fini IIIc /2B		
Paket-Nr. Packing-No. N° Palette 8684446	Stückzahl No of pieces N° de pièces 13	Ist-Gewicht Actual weight Masse effective 924 KG	Ident.-Nr. Erzeugnis Ident.-No of product Ident.-N° du produit 277112	Schmelzennr. Cast number Id. de la coulée 530096	Proben-Id. Sample Id. Empl. du prélèvement 1002856756		Proben-Id. Sample Id. Empl. du prélèvement 1002856757			
Chemische Zusammensetzung / Chemical composition / Composition chimique										
Schmelznr./ Cast no.	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% N	
530096	0,015	0,48	0,85	0,027	0,0010	16,58	2,02	10,02	0,056	
Prüflot/Inspection lot Lot de contrôle Proben-Id./Lage Sample Id./Position Ident./empl. du prélèvement QUER										
1002856756	293	324	601	56,3	56,3	158	79,0			
1002856757	292	323	596	56,7	56,7	157	79,0			
Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Intercrest.: EN ISO 3651-2 O.B. ASTM A 262 PRACTICE E I.O. Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: I.O. Verwachsungsprüfung (Spektralanalyse)/Test of identity(spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O. WAERMEBEHANDLUNG : 1050 GRAD C / LUFT TRAITEMENT TERMIQUE : 1050 GRAD C / AIR HEAT - TREATMENT : 1050 DEGREE / AIR HRC < 21										
Aussteller der Bescheinigung / Originator of the document / Auteur du document Outokumpu Nirosa GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld  Abnahmebeauftragter/ Inspector/ Expert Ulrich Wansart Tel.: + 49-2151-83-3142 Fax: + 49-2151-83-4106 Certificates.Nirosta@outokumpu.com						Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire 		Datum der Ausstellung und Bestätigung Date of issue and validation date d'émission et validation 10.10.2013		

MAHLE

Volkmann GmbH
Schloitweg 17
D-59494 SOEST

Sachbearbeiter	Durchwahl	Datum
Rottmann	23332	07.Okt.2013

Qualitätszeugnis zu Auftrag 32317227 Pos. 60

Kundenbestellnummer 800430/ Abruf
Kundenartikelnummer 104045

Mat.-Nr.	Kurztext	Menge
70319016	KE 2690/2 TI 07/1 V4A FDA	199 ST

inspection certificate "3.1"
according to EN 10204
(formerly DIN 50049-3.1B)

parts of the shipment or of the test
units where of this supply is a part,
have been tested. we therefore confirm
that the a/m items correspond to the
mutually stated agreement.

MAHLE Industriefiltration GmbH
Quality Management

i.A.



27. 09. 13



Wir formen für Sie um

Seiger FB-001

Deckblatt Werkzeuge

Deckblatt

Firma Brüngel Umformtechnik GmbH, Hinter den Gärten 2-4, D-59469 Ense

Firma
Mahle Industriefilter GmbH
Schleifenbachweg 45
74613 Öhringen

Datum: 25. 08. '13

Deckblatt zum Werkzeugnis:

Hersteller / Lieferant: Brüngel Umformtechnik GmbH

Mahle-Ident.-Nr.: 70319035

Bezeichnung: Endsch- 0112 VA

Bestell-Nr.: 4501560304 + 4501569004/G55

Auftrags-Nr.: /

Lieferung vom: 25.08.'13

Stückzahl: 983


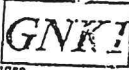
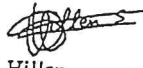
Charge: Schmelz-Nr. 310127

Mit freundlichen Grüßen

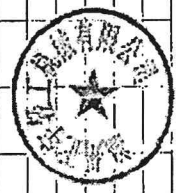
Herr Brüngel

Holzrichter 305670695/17

263325

		MILL CERTIFICATE BS EN 10204/3.1 CERTIFICAT DE RECEPTION N° EN 10204/3.1 ABNAHMEPRUEFZEUGNIS DIN EN 10204/3.1				N-Nr-N I3K0020179-01 V01																							
Correspondence address: Aperam Genk Swinnenwijerweg 5, 3600 Genk, Belgium Tel. +32 (0)89 30 21 11		Certified acc. PED 2023/EC Annex I § 4.3 by Certification Body 0036 of TÜV SÜD Industrie Service GmbH with cert. No. 314/2007/MUC. Renounced of counter signature agreed by TÜV SÜD (SIS/2007). Approved acc. AD 2000-Merkblatt WQ/TRD 100 by TÜV SÜD Industrie Service GmbH. Confirmation letter from TÜV SÜD Industrie Service GmbH of 07/05/2010 for the uniformity of coils acc. AD 2000 W2 §4.1.1				A02																							
Manufacturer's works order number N° de la commande usine productrice Werksauftragsnummer 80139080/01-08457/351/01		Surveyor's mark Cachet de l'expert Stempel des Werkssachverständigen 		Purchaser and/or consignee Client c/ou destinataire Besteller und/oder Empfänger APERAM STAINLESS SERVICES & SOLUTION Hildener Straße 28 40699 Erkath DEUTSCHLAND		Purchaser's order number N° de commande client Kundenbestellnummer 302678417																							
Product - Produit - Erzeugnis COIL, COIL ROLLED, UNTRIMMED, FINISH 2B COILLAMINE A FROID, BORDS NON REFENDUS, FINI 2B CL.KALTGEW., GEGLUESHT-GEBEIZT, LEICHT NACHGEW., UNBESAEUMT		Steelmaking process Mode d'élaboration de l'acier - Stahlherstellungsverfahren Prod. proces: Electric arc furnace - VOD/AOD - Continuous casting Proc. fabric.: Four à arc - VOD/AOD - Coulée continue Fertigungsablauf: Elektro-Ofen - VOD/AOD - Stranggussanlage		Customer article number N. article client Artikelnummer des Kunden ART021000		Product delivery condition Etat de livraison du produit - Lieferzustand Solution treated: Hypertempe: 1050 C Lösungsgegl./abgeschreckt. Forced air-water/air forcé-eau Gebläse Luft-Wasser																							
Steel designation Désignation de l'acier Stahlbezeichnung EN 10028-7-2008 1.4404 / 1.4401 ASTM A 240-2012 TYPE 316L / 316 ASME SA 240-2010 TYPE 316L / 316 EN 10088-2-2005 1.4404 / 1.4401 EN 10088-2-2009 1.4404 / 1.4401		Finish Présentation Ausführung 2B 2B 2B 2B		Dimensions Dimensions - Abmessungen Thickness Epaisseur - Dicke 0.80 mm		Dimensions Dimensions - Abmessungen Width Largeur - Breite 1040.00 mm																							
Identification of the product Identification du produit - Identifizierung des Erzeugnisses MELTED IN BELGIUM, MADE IN BELGIUM Coil n. N. Bobine - Band Nr. 31012736		Heat n. N. Coulee - Schmelz Nr. 310127		Number of pieces No de pièces - Stückzahl 1		Net weight Poids net - netto Gewicht 18950 KG																							
CHEMICAL ANALYSIS - ANALYSE CHIMIQUE - CHEMISCHE ZUSAMMENSETZUNG																													
Required - Exigé %mini Anforderung. %maxi		C	Si	Mn	Ni	Cr	Mo	Ti	N	S	P																		
Cast Analysis Analyse coulée Analyse Schmelze		0.021	0.31	1.25	10.07	16.60	2.02		0.041	0.002	0.033																		
Tests to verify batch and quality have been carried out : OK Tests de vérification de la conformité de la nuance fournie : OK Verwechslungsprüfung wurde durchgeführt : OK		C71		C72	C73	C74	C75	C76	C77	C78	C79	C80	C81	C82	C83	C84	C85	C86											
Location (1)		MECHANICAL PROPERTIES - PROPRIETES MECANIKES - MECHANISCHE WERTE EN ISO 6892-1																											
Direction (2)		Room temperature - Température ambiante - Raumtemperatur																											
Required Exigé Anforderung		Yield or proof strength Limite d'élasticité Dehngrenze Mpa				Tensile Strength Résistance à la traction Zugfestigkeit Mpa				Elongation after fracture Allongement après rupt. Bruchdehnung %				Hardness Dureté Haerte				Yield or proof strength Limite d'élasticité Dehngrenze Mpa				Tensile str. Résist. Mpa Zugfestigkeit				Elongation % Allongement Bruchdehnung			
1 T 2		Rp0.2% 240		Rp1% 270		Rm 530 680		50mm 40		80mm 40		HRB C30		Rp0.2% 292		Rp1% 304		Rm 617		50 47		71 73		71		C16 C17		C18 C19	
Impact strength test Essai de résilience Kerbschlagzähigkeitstest		C40		C44		C42		C11		C14		C12		C13		C15		C31		C16		C17		C18		C19			
Location of the sample (1) Emplacement de l'échantillon Lage des Probenabschnittes 1. Front - Début - Anfang 2. Back - Fin - Ende 3. Middle - Milieu - Mitte		The delivery is in accordance with the order La fourniture est conforme aux exigences de la commande Die Lieferung entspricht den Bestellbedingungen		Packing list Avis d'expédition Lieferscheinnummer 2013034910-100052				Organisation inspection Organisme c/ou service contrôle Überwachungsabteilung Quality Department 15/5/2013  S. Hillen				Internal cleanliness: A: B: C: D:				Sample Thickness 0.79mm													
Direction of the test pieces (2) Orientation des éprouvettes Probenrichtung T. Transverse - Travers - Quer L. Longitudinal - Long - Laengs		Marking, inspection and measurement : without objection Contrôle de marquage, d'aspect et de dimensions : satisfaisants Prüfung der Stempelung, des Oberflächenspekts und der Abmessungen : ohne Beanstandung		The Inspector Le responsable Der Werkssachverständige S. Hillen				EN ISO 3651/2 - A:OK				D01				D02													

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE (according to EN10204 3.1)</p>										<p>Forging Producer : Wenzhou Zhengyu Light Industry Machinery Co.Ltd</p>										
<p>CERTIFICATE NO N11013011</p> <p>CONTRACT NO:</p> <p>日期 Date: 22-02-2011</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正业轻工机械有限公司</p>										<p>熔体分析 CHEMICAL COMPOSITION</p>										
炉号 Heat No.	Product name (Forging for)	规格 Matr.	Qty	CHEMICAL COMPOSITION										力学试验 Mechanical test (Base material)						
				C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Mpa	Elongation %	Hardness HBB	Impact		
LZ118191	Clamp Liner 316L L=21.5mm	DN25	1091pcs																	
	Clamp liner 316L L=21.5mm	1 1/2"	988pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2	303		594	57	86			
	Clamp liner 316L L=28mm	3"	210pcs																	
	Clamp Liner 316L L=18mm	DN20	1200pcs																	
REMARKS				<p>以 L 产品标准向炼钢处理 HEAT TREATMENT: 1040-1150°C 炉热处理 GAUGE LENGTH L1=5 GSSQRT(FQ) 1.2=80MM L3=60MM L4=30MM L5=11 NSQRT(FQ) 品向符合 TEST OF INTERGRANULAR CORROSION OK</p> <p>会验者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																



质量检验保证书		Forging Producer :																			
INSPECTION CERTIFICATE (according to EN10204 3.1)		Wenzhou Zhengyuan Light Industry Machinery Co.Ltd																			
CERTIFICATE NO N11013011																					
CONTRACT NO:																					
日期 Date: 22-02-2011																					
SPECIFICATION: ASTM A479																					
单位: 温州正源轻工机械有限公司																					
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	化学成分分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (Base material)							
				C	SI	Mn	P	S	Cr	N	NI	Mo	Yield Strength Rp0.2 MPa	Yield Strength Rp0.1 MPa	Tensile Strength Rm MPa	Elongation %	Hardness HRC	Impact			
LZ118191	Clamp liner 316L L=21.5mm	2"	1028pcs																		
	Clamp liner 316L L=28mm	3"	827pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2 1/2 "763.5mm	418pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2 1/2 "763.5mm	520pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2 1/2 "763.5mm	620pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2.00	303	594	57	86					
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2"/51mm	533pcs																		
	Clamp liner 316L L=13mm	1 1/2"	972pcs																		
	Clamp liner 316L L=13mm	2"	962pcs																		
REMARKS				以上产品经过热处理 HEAT TREATMENT: 1040±1150 C 酸洗钝化 GAUGE LENGTH L1=5.65SQRT(RQ) L2=5MM L3=10MM L4=20MM L5=11.3SQRT(RQ) 同附送 TEST OF INTERGRANULAR CORROSION OK																	
公啟者 本產品已按上述要求進行製造和試驗, 其結果符合要求, 特此證明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																					



S106211 Clamp-Schlauchanschlüsse 2"-38 - Reduzierungen 2" - 1 1/2"



MARCEGAGLIA S.p.A.

Sede legale ed amministrativa: Via Bresciani, 18 - 46040 Gazzoldo degli Ippoliti - Mantova - Italy
 Tel. +39 0376 685 1 Fax +39 0376 685 600 www.gruppomarccegaglia.com
 Stabilimento di Forlì: via Metal, 20 - 47007 Forlimpopoli - Forlì - Cesena - Italy
 Tel. +39 0543 470 111 Fax +39 0543 470 105

Certificato di Collaudo
 Test certificate
 Abnahmeprüfzeugnis
 Certificat de contrôle

Data 07/03/2013
 Date
 Datum
 Date

3.1 CERTIFICATO DI COLLAUDO EN 10204

Nr.
 10513020134

M C o d e H 0 9 3 7

Cliente Customer Kunde Client	SIERSEMA KOMPONENETEN SERVICE	Ordine Cliente Customer's Order Bestellung Commande du Client	Q1203280	Ordine Marcegaglia MGI Order Unsere Auftragsbestätigung Notre confirmation de commande	1131000291 /000190
---	--------------------------------------	---	-----------------	--	---------------------------

Tipo di Acciaio Steel type Werkstoff Nuance acier	TP 316L 1.4404 X2CrNiMo17-12-2	Norma di collaudo Test specification Prüfungsnormen Specification	AD2000-W2/W10 EN10217-7 TC2	Tolleranze Tolerances Toleranzen Tolérances	DIN 11850	Trattamento Termico Heat treatment Wärmebehandlung Traitement thermique	1070°C Aria
---	---	---	------------------------------------	---	------------------	---	-----------------------

Tubi saldati longitudinalmente Welded tubes/Längsnahtgeschweißte Röhre/Tubes acés							Composizione Chimica Chemical Analysis/Chémische Analyse/Comp Chimiques										
Pos. Nr	Partita Batch Partie nr Nr de partie	Quantità Quantity Menge Quantité	Peso Weight Gewicht Poids	Pezzi Pieces Stückzahl Pièces	Colata Heat Schmelze Coulée	SIT/Fornitura Condition Supply Lieferzustand Etat de commande	C (%) Si (%) Mn (%) P (%) S (%) N (%) Cr (%) Mo (%) Ni (%)										
							0.03	1	2	0.045	0.015	0.11	18.5	2	10	18.5	2.5
1	13ZZ001898	366 MTL	467 KG	61 PZZ	17752		0.021	0.412	1.067	0.020	0.009	0.0531	18.904	2.0766	10.290		
2	13ZZ001899	366 MTL	467 KG	61 PZZ	17578		0.015	0.368	1.103	0.024	0.009	0.0585	17.039	2.0884	10.400		
3	13ZZ001900	366 MTL	467 KG	61 PZZ	17762		0.021	0.412	1.087	0.020	0.009	0.0531	18.904	2.0766	10.290		
4	13ZZ001901	366 MTL	467 KG	61 PZZ	17578 X		0.015	0.368	1.103	0.024	0.009	0.0585	17.039	2.0884	10.400		

Pos. Nr	Carico di Sneramento 0.2% R _{0.2} Yield Strength Grenze Limite elastique	Carico di Sneramento 1.1% R _{1.0} Yield Strength Dehngränze Limite elastique	Carico di Rottura R _m Tensile Strength Zugfestigkeit Resistance rupture	Allungamento a rottura A5 Elongation Dehnung Allongement	Durezza HRE Hardness Härte Dureté	Svasatura Flaring test Ringspanner Evassément	Schweißnaht Filletting test Ringversuch Aachtestament	Pieghe a rovescio Reverse bend test Dachversuch ten Recurvament	Mandratura ad anello Ring Expanding test Aufweitsuch Mandrin, Ann.	Prova idraulica Hydraulic test Wasserdurch prüfung Essai de hydraulique	C.N.D. Edy Current test Zerwürfungstrie prüfung Controlle non destructif	Antimiscuglio Adhesion test Verwachsung prüfung Controlle interdiffusion	Prova di rottura Rupture test Bruchversuch Rabotement de roture
1	280	315	587	50									
2	284	318	590	51									
3	281	314	586	50									
4	280	321	591	52									

Prova di trazione secondo Tensile test according to Zugversuch gemäß Essai de traction en according avec EN 10002-1:2004	Prova di corrosione intercrystallina secondo Intergranular corrosion test according to Prüfung auf Interkristalline Korrosion gemäß Essai de corrosion test according to OK-EN ISO 3651-2:1998	Controllo visivo e dimensionale Visual and dimensional control Sicht- und Abmessungskontrolle Controlle visuel et dimensionnel OK	Omologazione AQUAP De 17294-2-2101 De 1780106 e 801148 De 177443-08-TU e 7443-08-TU De 177456-06-TU e 7453-08-TU
--	--	---	---

Legenda 1 Stile Produttore Manufacturer trade mark Zeichen des Lieferwerks Tampon du producteur 2 Norma di collaudo Test specification Prüfungsnormen Specification 3 Tipo Acciaio 1 Grade 1 Werkstoff 1 Nuance 1 4 Tipo Acciaio 2 Grade 2 Werkstoff 2 Nuance 2 5 Colata Heat Schmelze Coulée 6 Saldato Welded Geschweisst Soudé 7 Stato di fornitura Supply condition Lieferzustand Etat de commande 8 Laminato - Non laminato Nudo bead removed - not remove Innonat geglättet - nicht geglättet Laminé - Pas laminé 9 Tubo Crudo - Ricotto Not annealed - Annealed tube Ungeglättet - Geglättet Rohr Pas recuit - Recuit 10 Tipo di classe Class type Serie 11 Tubo N° Tube N° Rohr N° Tube N° 12 Prova da Il Certificato With test mill Mit Werkabnahmezeugnis Demande le certificat 13 Provato Eddy Current Eddy Current Tested Wirbelstromgeprüft Epruvé courant de Foucault 14 Diametro e spessore in mm Diameter and Thickness mm Aussendurchmesser und Wandstärke mm Diamètre et épaisseur en mm 18 Diametro e spessore schedata Diameter and Thickness Schedule Aussendurchmesser und Wandstärke Schedule Diamètre et épaisseur en schedule
--

osservazioni
 ACCORDING TO TÜV AD2000-MERKBLATT W07RD100; DIRECTIVE 97/23/EC (PED) ANNEX I, PARAGRAPH 4.3; CHEMICAL COMPOSITION TO EN 10088; TUBES TO EN 10217-7 TC2; WELD FACTOR V=1.

Avviso di spedizione Shipping notice Versandanzeige Avis d'expédition	1005003059 8305302751	Noi certifichiamo che il prodotto fornito è conforme ai requisiti dell'ordinazione We Certify that material supplied complies with the requirements agreed on order Es wird bestätigt, dass die Lieferung den Vereinbarungen bei der Bestellannahme entspricht Nous certifions que le produit fourni est conforme à la qualité de la commande Mod.001 Rev.04 09/2002	Marcegaglia S.p.A. Quality Department Resp. Laboratorio S.Toscana
---	--------------------------	--	---

质量检验保证书

INSPECTION CERTIFICATE
(according to EN10204 3.1)

Forging Producer:
Wenzhou Zhengyu Light Industry Machinery Co.Ltd

CERTIFICATE NO N11013011

CONTRACT NO:

日期 Date: 22-02-2011

SPECIFICATION: ASTM A479

单位: 温州正宇轻工机械有限公司

炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	化学成分分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (base material)							
				C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Mpa	Elongation %	Hardness HB	Impact			
LZ118191	Clamp liner 316L L=21.5mm	2"	1049pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 1½ "/38mm	975pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2¼ "/63.5mm	1046pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2	303	594	57	86					
	Clamp liner 316L L=13mm	1"	1223pcs																		
	Clamp liner 316L L=13mm	1½"	796pcs																		
	Clamp liner 316L L=13mm	2½"	592pcs																		

REMARKS: 以上产品经过热处理 HEAT TREATMENT: 1040-1150 C 炉冷材料 GAUGE LENGTH L1=565QRT(FQ) L2=50MM L3=60MM L4=200MM L5=1.35QRT(FU) 品前附送 TEST OF INTERGRANULAR CORROSION: OK

本证书 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。
SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.

质量检验保证书

INSPECTION CERTIFICATE
(according to EN10204 3.1)

Forging Producer :
Wenzhou Zhengyu Light Industry Machinery Co.,Ltd

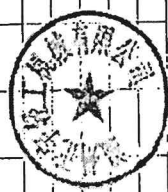
CERTIFICATE NO N11013011


CONTRACT NO:

日期 Date: 22-02-2011

SPECIFICATION, ASTM A479

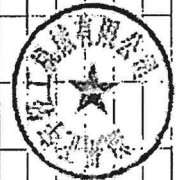
单位: 温州正宇轻工机械有限公司

炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	熔体分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (Base material)				Hardness H1B	Impact
				C	Si	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Rm Mpa	Elongation %			
LZ118191	Clamp Liner 316L L=18mm	DN10	814pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2	303	594	57	86			
	Clamp Liner 316L L=18mm	DN15	1541pcs																
	Clamp Liner 316L L=21.5mm	DN/OD 33.7	548pcs																
																			
REMARKS	热处理: 1040-1150℃ 校拉注杆 GAUGE LENGTH 11.1-5.65 SORT(F0) L2-50MM L3-40MM L4-30MM L5-11.15 SORT(F0) 晶粒细化 TEST OF INTERGRANULAR CORROSION OK 以上产品按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																		

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE (according to EN10204 3.1)</p>												<p>Forging Producer:</p> <p>Wenzhou Zhengyu Light Industry Machinery Co.Ltd Food Machinery Industrial Park,Shacheng,Longwan Wenzhou,Zhejiang,China</p>						
																		
<p>CERTIFICATE NO BGSYX1107110016900</p> <p>CONTRACT NO: X1QP001941</p> <p>日期 Date: 2012-7-11</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正宇轻工机械有限公司</p>																		
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	化学成分分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (base material)				
				C	Si	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp 0.2 Mpa	Yield Strength Rp 0.1 Mpa	Tensile Strength Rm	Elongation %	Hardness HB	Impact
261857	Clamp_Liner 316L L=28mm	DN65	716Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2.00	285	570	57	82	
	Clamp_liner 316L L=13mm	2 1/2"	409Pcs															
	Clamp_Liner 316L L=28mm	DN80	515Pcs															
<p>REMARKS: 以上产品经过硬度处理 HEAT TREATMENT: 1040-1150°C 快淬快冷 GAUGE LENGTH L1=5.6(SORTIFQ) L2=50MM L3=60MM L4=200MM L5=11.3(SORTIFP) 当向附送 TEST OF INTERGRANULAR CORROSION: OK</p> <p>会检者 本产品已按上述要求进行制造和试验,其结果符合要求,特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																		

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE</p> <p>(according to EN10204 3.1)</p>																		
<p>Forging Producer:</p> <p>Wenzhou Zhengyue Light Industry Machinery Co.Ltd</p>																		
<p>CERTIFICATE NO N11013011</p> <p>CONTRACT NO:</p> <p>日期 Date: 22-02-2011</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正宇轻工机械有限公司</p>																		
			熔炼分析						力学试验									
			CHEMICAL COMPOSITION						Mechanical test (base material)									
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp 0.2 Mpa	Yield Strength Rp 0.1 Mpa	Tenile Strength Mpa	Elongation %	Hardness H1B	Impact
LZ118191	Clamp Liner L=21,5mm 316L	DN50	1103pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2	303		594	57	86	
	Clamp Liner 316L L=28mm	DN100	659pcs															
<p>REMARKS</p> <p>以上产品经出厂深处理 HEAT TREATMENT: 1040-1150°C 校种注群 GAUGE LENGTH L1=5.65SQRT(F0) L2=50MM L3=80MM L4=200MM L5=1.35SQRT(F0) 品种附注 TEST OF INTERGRANULAR CORROSION : OK</p> <p>会验者 本产品已按上述要求制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																		



质量检验保证书		Forging Producer:																	
INSPECTION CERTIFICATE (according to EN10204 3.1)		Wenzhou Zhengyu Light Industry Machinery Co.Ltd																	
CERTIFICATE NO N11013011																			
CONTRACT NO:																			
日期 Date: 22-02-2011																			
SPECIFICATION ASTM A479																			
单位: 温州正宇轻工机械有限公司																			
炉号 Heat No.	Products name (Forging For)	规格 Matr.	Qty	熔体分析 CHEMICAL COMPOSITION							力学试验 Mechanical test (Base material)								
				C	Si	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp 0.2 Mpa	Yield Strength Rp 0.1 Mpa	Tensile Strength Mpa	Elongation %	Hardness HB	Impact	
LZ118191	Clamp Liner 316L L=21.5mm	DN25	1091pcs																
	Clamp liner 316L L=21.5mm	1 1/2"	988pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09		303		594	57	86		
	Clamp liner 316L L=28mm	3"	210pcs																
	Clamp Liner 316L L=18mm	DN20	1200pcs																
REMARKS				以上产品经过热处理 HEAT TREATMENT: 1040-1150℃ 炉冷至500℃ GAUGE LENGTH L1=5.65SQRT(PQ) L2=50MM L3=80MM L4=70MM L5=11 SQRT(PD) 晶向符合 TEST OF INTERGRANULAR CORROSION OK															
会验者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																			

质量检验保证书

INSPECTION CERTIFICATE
(according to EN10204 3.1)

Forging Producer :
Wenzhou Zhengyu Light Industry Machinery Co.,Ltd

CERTIFICATE NO N11013011


CONTRACT NO:

日期 Date: 22-02-2011

SPECIFICATION: ASTM A479

单位: 温州正裕轻工机械有限公司

炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	化学成分分析 CHEMICAL COMPOSITION										力学性能 Mechanical test (base material)							
				C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Mpa	Elongation %	Hardness HB	Impact			
LZ118191	Clamp liner 316L L=21.5mm	2"	1038pcs																		
	Clamp liner 316L L=28mm	3"	827pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2 1/2 * /63.5mm	418pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 2 1/2 * /63.5mm	520pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2.00	303	594	57	86					
	Clamp liner 316L L=21.5mm	ISO 2852 DN * /63.5mm	620pcs																		
	Clamp liner 316L L=21.5mm	ISO 2852 DN 27/51mm	533pcs																		
	Clamp liner 316L L=13mm	1 1/2"	972pcs																		
	Clamp liner 316L L=13mm	2"	962pcs																		
REMARKS	以上产品经国家检测 热处理 1040-1150 C 检验合格 GAUGE LENGTH L1=5 65SQKTRQ1 L2=50MM L3=60MM L4=70MM L5=11 SQKTRP0 检验合格 TEST OF INTERGRANULAR CORROSION OK																				
公检者	本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																				

质量检验保证书		INSPECTION CERTIFICATE (according to EN10204 3.1)		Forging Producer:														
				Wenzhou Zhengyu Light Industry Machinery Co.,Ltd Food Machinery Industrial Park,Shacheng,Longwan Wenzhou,Zhejiang,China														
CERTIFICATE NO BGSYX1107110016900																		
CONTRACT NO: X1QP001941																		
日期 Date: 2012-7-11																		
SPECIFICATION: ASTM A479																		
单位: 温州正宇轻工机械有限公司																		
炉号 Heat No.	Product name (Forging for)	规格 Matr.	Qty	化学成分 CHEMICAL COMPOSITION										力学试验 Mechanical test (base material)				
				C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Mpa	Elongation %	Headline HB	Impact
261857	Clamp Liner 316L L=21.5mm	DN40	1012Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2.00	285	570	57	82	
	Clamp Liner 316L L=21.5mm	DN25	797Pcs															
	Clamp Liner 316L L=21.5mm	DN50	1039Pcs															
REMARKS		以上产品经回火处理 HEAT TREATMENT: 1040-1150℃ 快冲快剪 GAUGE LENGTH L1=5.65SORT(FE) L2=50MM L3=80MM L4=20MM L5=11.3SORT(FE) 晶间腐蚀 TEST OF INTERGRANULAR CORROSION: OK																
检验者		本产品已按上述要求制造和试验,其结果符合要求,特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																

M Code HZ031

Clamp-Schlauchanschluss für Verguss 2"-50

1 / 3



No/Nr/N° (A03)

250517-032399

SMST Deutschland GmbH (A01)

Postfach 16 01 20 - D-42830 Remscheid - DEUTSCHLAND

www.smst-tubes.com

INSPECTION CERTIFICATE
Abnahmeprüfzeugnis
Certificat de réception

Page/Seite

1/3

EN 10204: 2004 TYPE 3.1 (A02)

Customer order no./Kunde Auftragsnr./N° Commande client (A07)

10-156475

SMST-Tubes order no./Auftragsnr./N° Commande (A08)

0000250517

SMST-Tubes item Part number/Teilenummer/N° d'article (A09)

0000250517-000004

Purchaser/Besteller/Acheteur

Product Description/Produkt Beschreibung/Description du produit (B01) (B02) (B04)

Seamless Stainless Steel Hot Finished Tubes Free From Scale Plain Ends Square Cut Deburred
 Warmgefertigte, nahtlose Edelstahlrohre Entzündert Enden Glatt Abgeschnitten
 Tubes en Acier Inox Sans Soudure Finis à Chaud Sans oxydation Coupés d'équerre, lisses, ébavuré

Specifications/Spezifikationen/Spécifications A312M CHEMISTRY MECH TEST 12 / EN 10216-5 09.2004 AC:2008 TC1

Grade/Werkstoff/Nuance 1.4401 VALIMA / 1.4404 VALIMA / TP 316 VALIMA / TP 316L VALIMA

Tolerances/Toleranzen/Tolérances STD OD+0+2%_ID+0-2%_MIN 1MM

Supplementary requirements/Zusatzanforderungen/Éxigences supplémentaires (B03)

MARKING:

DMV-D - DMV 316LMC - 1.4401 - 1.4404 - TP 316 - TP 316L - VALIMA - HEAT - 80/40 - EN 10216-5-TC1 - HFD - ASTM A 312/M - SML - 250517/4 - WA

Quantity/Menge/Quantité						Dimensions		Abmessungen	
Heat no Schmelze Nr. N° de Coulée	Quality lot Qualitätslos Lot qualité	SMST item	Pieces Stück Pièces (B08)	Total weight Gesamtgewicht Masse totale (B13)	Total length Gesamtlänge Longueur totale	OD (B09)	ID (B10)	Tube length Rohrlänge Longueur tube	
								min	max
QP708	QL20022447	000004	5	858.00 Kg 1892 Lbs	28.160 m 92.39 Ft	80.00 mm 3.150 "	40.00 mm 1.575 "	3000 mm 9.84 Ft	6400 mm 21.00 Ft

Chemical Analysis / Chemische Zusammensetzung / Analyse chimique (C71 - C92)

Heat no/Schmelzen Nr./N° de coulée QP708

Melting Process/Erschmelzungsart/Élaboration (C70) E + VOD

Heat Origin/Urspr. der Schmelze/Origine de la Coulée France

Heat Analysis / Analyse de coulée

	C	Si	Mn	P	S	Cr	Ni	Mo	N
Min	0.00	0.00	0.00	0.00	0.0150	16.5	11.0	2.0	0.00
Max	0.030	1.0	2.0	0.040	0.0300	18.0	13.0	2.5	0.11
	0.022	0.36	1.91	0.020	0.024	16.67	11.03	2.10	0.063

This certificate is issued by a computerized system and is valid without signature. In case the owner of the original would release a copy of it he must attest its conformity and will be responsible for any unlawful or not allowed use. Any alterations or falsification will be subject to law.

Dieses Zeugnis bzw. Diese Bescheinigung wurde mit Hilfe der EDV erstellt und ist ohne Unterschrift gültig. Veränderungen sowie Verwendung für andere Erzeugnisse werden als Urkundenfälschung und Betrug strafrechtlich verfolgt.

Ce certificat est rédigé à l'aide d'un traitement électronique de donné et est applicable sans signature. Tout changement ou application pour d'autres produits seront considérés comme falsification de documents et fraude et seront sujet à la juridiction pénale.

Clamp-Schlauchanschluss für Verguss 2"-50

2 / 3



No/Nr/N° (A03)

250517-032399

SMST Deutschland GmbH

(A01)

Postfach 16 01 20 - D-42830 Remscheid - DEUTSCHLAND

www.smst-tubes.comINSPECTION CERTIFICATE
Abnahmeprüfzeugnis
Certificat de réception

Page/Seite

2/3

EN 10204: 2004 TYPE 3.1

(A02)

Mechanical testing

Quality Lot : QL20022447

Tensile test at room temperature/Zugversuch bei Raumtemperatur/Essai de traction à température ambiante (C10)

EN 10002-1 ASTM A 370

Test no Proben Nr. N° d'échantillon (C00)	Direction Probenricht- ung Direction (C02)	Yield strength/Dehngrenze/Limite d'élasticité (C11)			Tensile strength / Zugfestigkeit / Résistance à la traction (C12)	Elongation/Bruchdehnung/Allongement (C13)					Reduction of area Z%
		0.2 %	0.5 %	1 %		2 "	50 mm	5D	5,65 √So	4D	
		MPa	/	MPa	MPa	/	%	/	%	/	/
	Min	205	/	240	515	/	35	/	40	/	/
	Max	/	/	/	690	/	/	/	/	/	/
20022551	LONGITUDINAL	316	/	368	608	/	45	/	45	/	/

Flattening test/Faltversuch/Essai d'aplatissement (C50)

EN 10233

Test Number	Result
20022551	OK

Other testing

Quality Lot : QL20022447

Intergranular corrosion test/Prüfung interkristallinen Korrosion/Essai de corrosion intergranulaire

ASTM A 262 PRACTICE E EN ISO 3651-2 METHOD A

Test Number	Result
20022551	Satisfactory

This certificate is issued by a computerized system and is valid without signature. In case the owner of the original would release a copy of it he must attest its conformity and will be responsible for any unlawful or not allowed use. Any alterations or falsification will be subject to law.

Dieses Zeugnis bzw. diese Bescheinigung wurde mit Hilfe der EDV erstellt und ist ohne Unterschrift gültig. Veränderungen sowie Verwendung für andere Erzeugnisse werden als Urkundenfälschung und Betrug strafrechtlich verfolgt.

Ce certificat est rédigé à l'aide d'un traitement électronique de données et est applicable sans signature. Tout changement ou application pour d'autres produits seront considérés comme falsification de documents et fraude et seront sujet à la juridiction pénale.

Clamp-Schlauchanschluss für Verguss 2"-50

3 / 3



No/Nr/N° (A03)

250517-032399

SMST Deutschland GmbH (A01)

Postfach 16 01 20 - D-42830 Remscheid - DEUTSCHLAND

www.smst-tubes.com
**INSPECTION CERTIFICATE
Abnahmeprüfzeugnis
Certificat de réception**

EN 10204: 2004 TYPE 3.1

(A02)

Page/Seite

3/3

Other Tests and Declarations / Andere Prüfungen und Prüffeststellungen / Autres tests et déclarations

QL20022447

Visual and dimensional inspection(VT) / Besichtigung und Masskontrolle / Examen visuel et dimensionnel : Satisfactory/Bestanden/Satisfaisant

Antimixing check (PMI) of all tubes by spectrographic analysis / Verwechslungsprüfung an allen Rohren mittels Spektralprüfung / Contrôle anti-mélange par PMI : Satisfactory/Bestanden/Satisfaisant

**HYDROSTATIC TEST, 170 BAR (1BAR=100KPA), HOLDING TIME 5 SEC.: SATISFACTORY
INNENDRUCKVERSUCH MIT WASSER 170 BAR (1BAR=100KPA), HALTEZEIT 5 SEC.: BESTANDEN
HEAT TREATMENT: HOT EXTRUDED (1200° C / AIR) / WAERMEBEHANDLUNG: WARM GEPRESST (1200° C / LUFT)**

No Weld repair / Keine Reparaturschweissung / Aucune réparation par soudure

The material is conforming to directive 2000/53/EC, 2002/95/EC and CD 2005/618/EC. / Das Material entspricht den Anforderungen der Richtlinien 2000/53/EC, 2002/95/EC und CD 2005/618/EC. / Le matériau est conforme aux directives 2000/53/EC, 2002/95/EC et CD 2005/618/EC.

Tubes are free from mercury contamination and from radioactive contamination / Die Rohre sind frei von Quecksilberverunreinigungen und frei vom radioaktiver Verunreinigung / Les tubes sont exempts de contamination par le mercure et de contamination radioactive

Confirmation with reference to Pressure Equipment Directive 97/23/EC:

The works operates a quality management system that has undergone a specific assessment for materials for pressure equipment and is certified by a competent body (TÜV-Cert.No:01202811/Q-020025)

Bestätigung in Bezug auf Druckgeräterichtlinie 97/23/EC:

Das Werk wendet ein Qualitätsmanagementsystem an, das in Bezug auf Werkstoffe für Druckgeräte einer spezifischen Bewertung unterzogen wurde und von einer zuständigen Stelle (TÜV-Cert.No:01202811/Q-020025) zertifiziert ist.

Confirmation concernant la Directive Equipements sous Pression 97/23/EC : L'usine applique un système de management de la qualité qui a fait l'objet d'une évaluation spécifique pour les matériaux pour équipements sous pression et qui est certifié par un organisme compétent (TÜV-Cert.No:01202811/Q-020025)

SMST certify that the delivered products comply with the requirements stipulated in the order. / Die Erzeugnisse wurden bestellungsgemäß geprüft und für in Ordnung befunden. / SMST-Tubes atteste que les produits livrés sont conformes aux stipulations de la commande.

Validation by manufacturer's representative / Validierung durch Vertreter des Herstellers

 Mill's Inspector
 Werksachverständiger D. Brozulat
 contrôleur usine

 Date of edition
 Ausgabedatum 06/06/2013
 Date d'édition

This certificate is issued by a computerized system and is valid without signature. In case the owner of the original would release a copy of it he must attest its conformity and will be responsible for any unlawful or not allowed use. Any alterations or falsification will be subject to law.

Dieses Zeugnis bzw. diese Bescheinigung wurde mit Hilfe der EDV erstellt und ist ohne Unterschrift gültig. Veränderungen sowie Verwendung für andere Erzeugnisse werden als Urkundenfälschung und Betrug strafrechtlich verfolgt.

Ce certificat est rédigé à l'aide d'un traitement électronique de données et est applicable sans signature. Tout changement ou application pour d'autres produits seront considérés comme falsification de documents et fraude et seront sujet à la juridiction pénale.

Clamp-Schlauchanschluss Verguss 1 1/2"-38



INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCION
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 570702 Page: 1 / 4	Rev: 01
Created on: Date: 12.02.2013	Modified on: 02.08.2013

SCHOELLER-BLECKMANN Edelstahlrohr GmbH
2630 Ternitz, Rohrstrasse 1
Austria

TL: 2630316/601
FAX: 2630316/894
E-MAIL: nicole.riegler@sber.co.at

CUSTOMER DESCRIPTION/DESCRIPCIÓN DEL CLIENTE/KUNDENBEZEICHNUNG/COMMETTANT

CLIENT SOLD TO/SOLICITANTE/AUFTRAGGEBER/COMMETTANT	CLIENT SHIP TO/DESTINAT.
--	--------------------------

CLIENT ORDER/PRDIDO CLIENTE/KUNDEN AUFTRAGSNUMMER/NO.DE COMMANDE: 501187
SALES ORDER/PEDIDO VENTAS/AUFTRAGSNUMMER/NO.DE COMMANDE D'USINE: 130629

MATERIAL:HOLLOW BAR/BARRA MECÁNICA/BBAUCHES CREUSES/HOHLSTAHL
HEAT-TREATED, PICKLED / TRATADO, DECAPADO / HYPERTREMPÉ, DECAPE / WÄRMEBEHANDELT, GEBEIZT, PICKLED-PASSIVATED / PASIVADO / PASIVÉ / PASSIVIERT
GRADE / ACERO / GRADE / WERKSTOFF: MT316,MT316L,1.4401_M,1.4404_M,
STANDARD / NORMA / STANDARD / LIEFERUNG NACH: CHEMICAL AND MECHANICAL PROPERTIES ACC. TO ASTM A312/A312M-12 (ONLY FOR TP304/TP304L AND TP316/TP316L)
ASTM A511/A511M-12 (ONLY FOR MT304/MT304L AND MT316/MT316L)
EN 10216-5:2004 TC1
EN 10297-2:2005
NACE MR0175/ISO 15156-3:2009
CORROSION TESTED ACC. TO EN ISO 3651-2 PRACTICE A
CORROSION TESTED ACC. TO ASTM A262 PRACTICE E
TOLERANCES / TOLERANCIAS / TOLERANCES / TOLERANZEN NACH: HOLLOW BAR STANDARD / ISO 2938 05.1974
RANDOM LENGTHS / LARGOS VARIABLES / LONGUEUR COURANTE / EINGEBENGE LÄNGE 2.000/3.648 MM
PLAIN ENDS / LISOS / EXTRÉMITÉ D'EQUERRE / GLATTE ENDEN,
DIMENSIONS/DIMENSIONES/DIMENSIONS/DIMENSIONS: 63,0 / 32,0 MM
HOT FINISHED/ACABADOS EN CALIENTE/WARMGEFORMT/FINIS A CHAUD

Sales Item Pos Ped.	Client Item Pos Clint	Delivery No N° Entrega	Lot No. N° lote	Heat No Coinda	Pieces Piezas	Weight Peso	Tot Lgth Long. Tot	Un Lgth Long. Un
Auftrg Pos	Kunde Pos	Lieferung	Los Nr.	Schmelze	Stück	Gewicht	Gesamtlänge	Längentyp
Usine Pos	Com. Pos	Avis. d'exp	Lot d'inspection	Contoc	Pcs	Poids	Tolength	Long. Un
40		8170027406	223745	46436	70	4,524 KG	232,10	2000-3648 MM

RAW MATERIAL/DATOS MATERIAL/VORMATERIAL/MATIERE PREMIERE

Heat Nr: 46436	Supplier ACERALAVA (SPAIN)	Method Electric furnace-AOD
-------------------	-------------------------------	--------------------------------

CHEMICAL COMPOSITION (%)/COMPOSICIÓN QUÍMICA (%)/CHEMISCHE ZUSAMMENSETZUNG (%)/COMPOSITION CHIMIQUE(%)

* L: Ladie C:Products	Heat	Seq	C	Mn	Si	P	S	Ni	Cr	Mo	N
L	46436	1	0,016	1,54	0,290	0,027	0,0280	11,30	16,95	2,15	0,0615
C	46436	1	0,017	1,61	0,320	0,027	0,0300	11,05	16,94	2,16	0,0790



Certified Management System acc. to ISO 9001, ISO 14001 and OHSAS 18001 by LRQA

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

Riegler
FR. N. RIEGLER
(WORKS INSPECTOR)

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the issued, assuming the responsibility for any untruthful or TUBAGEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.



INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCION
CERTIFICAT DE RECEPTION
ABNAHMEPRUFZEUGNIS
EN 10204:2004 / 3.1

Number: 570702 Rev: 01
Page: 2 / 4

Created on: Modified on:
Date: 12.02.2013 02.08.2013

HEAT TREATMENT/TRATAMIENTO TERMICO/WÄRMEBEHANDLUNG/TRAITEMENT THERMIQUE

HIPERTEMLADOS A 1060 °C , 10 min , Agua
SOLUTION ANNEALED AT 1060 °C , 10 min , WATER
HYPERTEMPRES 1060 °C , 10 min , L' EAU
LOESUNGSGEGLUEHT 1060 °C , 10 min , Wasser

TENSILE TEST/TEST DE TENSION/ESSAI TRACTION/ZUGVERSUCH

Lot No	Sample	T °C	Rp0.2 MPa	Rp1.0 MPa	Rm MPa	A2" %	A5 %	Z %
Min		20	210	240	517	35	45	
Max		20			690			
223745	1	20	302	359	592	57	53	78

HARDNESS TEST/TEST DE DUREZA/DUREE/HÄRTEPRÜFUNG

Lot No	Sample	HRB
Min		
Max		90
223745	1	83
	2	85

METALURGICAL TESTS/ENSAYOS METALÚRGICOS/METALLURGISCHE PRÜFUNGEN/ESSAIS
METALLURGIQUES

INTERGRANULAR CORROSION TEST ACC. TO ASTM A262 PRACT."E": SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A ASTM A262 PRACT.E:
SATISFACTORIO
BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND ASTM A262
PRACT.E: IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM A262 PRACT.E: SATISFAISANT

INTERGRANULAR CORROSION TEST ACC. TO DIN 50914/DIN EN ISO 3651-2 MET.A:
SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A DIN 50914/ DIN EN ISO
3651-2 MET.A: SATISFACTORIO
BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND DIN 50914/
DIN EN ISO 3651-2 VERF.A: IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM DIN 50914/DIN EN ISO 3651-2 MET.A:
SATISFAISANT

NON-DESTRUCTIVE TESTS/ENSAYOS NO DESTRUCTIVOS/ZERSTÖRUNGSFREIE
PRÜFUNGEN/ESSAIS NON DESTRUCTIFS

POSITIVE MATERIAL IDENTIFICATION TEST ON EACH TUBE/PIPE BY
"X-RAY-FLUORESCENCE-ANALYZER": SATISFACTORY
VERIFICACION DEL GRADO DE ACERO EN CADA TUBO MEDIANTE "ANALIZADOR DE
FLUORESCENCIA DE RAYOS X": SATISFACTORIO
VERWECHSLUNGSPRÜFUNG AN JEDEM ROHR MIT



Certified Management
System acc. to
ISO 9001, ISO 14001 and
OHSAS 18001 by LRQA

SCHOELLER-BLECKMANN
EDELSTAHLROHR GMBH

Riegler
FR. N. RIEGLER

(WORKS INSPECTOR)

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and is valid without original signature. In case the owner of the certificate would release a copy of it, he must attest to conformity to the issued, assuming the responsibility for any unlawful or TUBACON, not allowed use. Any forgery or falsification of this certificate shall be legally prosecuted.



INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCION
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 570702 Rev: 01
Page: 3 / 4

Created on: Modified on:
Date: 12.02.2013 02.08.2013

"RÖNTGEN-FLUORESCENZ-ANALYSATOR": IN ORDNUNG
VERIFICATION DE LA NUANCE SUR CHAQUE TUBE PAR
"X-RAY-FLUORESCENCE-ANALYZER": SATISFAISANT

HYDROSTATIC PRESSURE TESTED AT 70 bar, DURING 5 SEC ON EACH TUBE/PIPE:
SATISFACTORY
ENSAYO HIDROSTÁTICO A 70 bar, DURANTE 5 SEC EN CADA TUBO; SATISFACTORIO
WASSERDRUCKPRÜFUNG BEI 70 bar, HALTBZEIT 5 SEC JE ROHR; IN ORDNUNG
ESSAI DE PRESSION HYDROSTATIQUE A 70 bar, PENDANT 5 SEC SUR CHAQUE TUBE:
SATISFAISANT

TECHNOLOGICAL TESTS/ENSAYOS TECNOLÓGICOS/TECHNOLOGISCHE
PRÜFUNGEN/TECHNOLOGICAL TESTS

RING EXPANDING TEST: SATISFACTORY
ABOCARDADO DE ANILLO SATISFACTORIO
RINGAUFDORNVERSUCH: IN ORDNUNG
ESSAI DE DILATATION SUR ANNEAU: SATISFAISANT

BESICHTIGUNG UND NACHMESSUNG: IN ORDNUNG
INSPECTION AND CHECKING OF DIMENSIONS: SATISFACTORY
INSPECTION ET CONTROL DES DIMENSIONS: SATISFAISANT

ERSCHMELZUNGSART/STEELMAKING PROC./PROC.D'ACIERIATION: EF+AOD

MARKING/ETIQUETADO/KENNZEICHNUNG/MARKSTEXT

Schoeller Bleckmann SBS 63,0 / 32,0 MM EN 10216-5 TC1 EN 10297-2 MT316 MT316L 1.4401 1.4404 HFD HF SMLS
HEAT/ FMI-AV LOTNO/ AUSTRIA T/A

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES

NO WELD REPAIR HAS BEEN PERFORMED ON THE MATERIAL.

SIN REPARACION POR SOLDADURA

AM MATERIAL WURDE NICHT GESCHWEISST.

SANS RÉPARATION AVEC SOUDURE

MATERIAL MANUFACTURER APPROVED WITH CERTIFICATE NR. 245/2004/MUC BY TÜV SÜDDEUTSCHLAND (NOTIFIED BODY 0036) TO
ISSUE CERTIFICATES OF SPECIFIC PRODUCT CONTROL IN ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 97/23/EC ANNEX I
POINT 4.3.

FABRICANTE DE MATERIALES APROBADO CON CERTIFICADO Nº 245/2004/MUC EMITIDO POR TUV SUDDEUTSCHLAND (ORGANISMO
NOTIFICADO 0036) PARA LA EMISION DE CERTIFICADOS ESPECIFICOS DE CONTROL DE PRODUCTO DE ACUERDO AL ANEXO I,
PUNTO 4.3 DE LA DIRECTIVA DE EQUIPOS A PRESION 97/23/EC.



Certified Management
System acc. to
ISO 9001, ISO 14001 and
OHSAS 18001 by LRQA

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and is valid without original signature. In case the owner of this certificate would release as a copy of it, he must attend its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall be legally prosecuted.

SCHOELLER-BLECKMANN
EDELSTAHLROHR GMBH

Riegler

FR. N. RIEGLER

(WORKS INSPECTOR)



SCHOELLER
BLECKMANN
EDELSTAHLROHR
SEAMLESS STAINLESS
NAHTLOS ZUM ERFOLG

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCION
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 570702 Rev: 01
Page: 4 / 4

Created on: Modified on:
Date: 12.02.2013 02.08.2013

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES

WERKSTOFFHERSTELLER MIT BERECHTIGUNG ZUR AUSSTELLUNG VON BESCHEINIGUNGEN ÜBER SPEZIFISCHE PRÜFUNGEN AN DEN WERKSTOFFEN IM GELTUNGSBEREICH DER ZERTIFIZIERUNG UND IN ÜBEREINSTIMMUNG MIT DER DRUCKGERÄTERICHTLINIE 97/23/EC UND DEN ZUGRUNDE LIEGENDEN SPEZIFIKATIONEN ENTSPR. ZERTIFIKAT NR. 245/2004/MUC DER BENANNTE STELLE NR.0036, TÜV SÜDDEUTSCHLAND

PRODUCTEUR DU MATERIEL APPROUVE SOUS CERTIFICATION N° 245/2004/MUC PAR TÜV SÜDDEUTSCHLAND (N.B. 0036) POUR EMISSION DES CERTIFICATS SPECIFIQUE DE CONTROLE DE PRODUIT SELON LA DIRECTIVE DES EQUIPES A PRESSION 97/23/EC ANNEXE 1 POINT 4.3.

MATERIAL IS FREE OF RADIOACTIVE CONTAMINATION
EL MATERIAL ESTA LIBRE DE CONTAMINACION POR RADIACIONES
MATERIAL IST FREI VON RADIOAKTIVITÄT
MATÉRIEL LIBRE DE POLLUTION RADIOACTIVE




Certified Management
System acc. to
ISO 9001, ISO 14001 and
OHSAS 18001 by LRQA


We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and fulfills orders requirements. This certificate is issued by a computerized system and is valid without original signature. In case the owner of the certificate would release a copy of it, he must attest by conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall be legally prosecuted.

SCHOELLER-BLECKMANN
EDELSTAHLROHR GMBH

Riegler

FR. N. RIEGLER
(WORKS INSPECTOR)

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE</p> <p>(according to EN10204 3.1)</p>		<p>Forging Producer:</p> <p>Wenzhou Zhengyu Light Industry Machinery Co.Ltd Food Machinery Industrial Park,Shacheng,Longwan Wenzhou,Zhejiang,China</p>																	
																			
<p>CERTIFICATE NO BGSYX1107110016900</p> <p>CONTRACT NO: X1QP001941</p> <p>日期 Date: 2012-7-11</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正宇轻工机械有限公司</p>																			
炉号 Heat No.		产品名称 (Forging for)	规格	数量	化学成分 CHEMICAL COMPOSITION										力学性能 Mechanical test (base material)				
		Products name	规格	Qty	C	Si	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp0.2 Mpa	Tensile Strength Rm	Elongation %	Hardness HB	Impact
261857		Clamp Liner: 316L L=21.5mm	1 1/2"	845Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2	285	570	57	82	
REMARKS		<p>以上产品在锻造后 热处理: 1040-1150°C 快冷并回火 快冷并回火 GAUGE LENGTH L1=5.65(SORTIFQ) L2=50MM L3=80MM L4=200MM L5=11.35(SORTIFQ) 品检附卷 TEST OF INTERGRANULAR CORROSION: OK</p> <p>本产品在上述要求下进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																	

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE (according to EN10204 3.1)</p>		<p>Forging Producer :</p> <p>Wenzhou Zhengyu Light Industry Machinery Co.Ltd Food Machinery Industrial Park,Shacheng,Longwan Wenzhou,Zhejiang,China</p>																																																																																							
																																																																																									
<p>CERTIFICATE NO BGSYX1107110016900</p> <p>CONTRACT NO: X1QP001941</p> <p>日期 Date: 2012-7-11</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正业轻工机械有限公司</p>		<p>化学成分 CHEMICAL COMPOSITION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>炉号 Heat No.</th> <th>Products name (Forging for)</th> <th>规格 Matr.</th> <th>Qty</th> <th>C</th> <th>SI</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>N</th> <th>Ni</th> <th>Cu</th> <th>Mo</th> <th>力学试验 Mechanical test (base material)</th> <th>Hardness HB</th> <th>Impact</th> </tr> </thead> <tbody> <tr> <td rowspan="2">261857</td> <td>Clamp Filter 316L L=13mm</td> <td>2"</td> <td>496Pcs</td> <td>0.026</td> <td>0.54</td> <td>1.39</td> <td>0.028</td> <td>0.003</td> <td>16.08</td> <td>0.028</td> <td>10.13</td> <td>0</td> <td>2</td> <td>Yield Strength Rp0.2 Mpa 285</td> <td>570</td> <td>82</td> <td></td> </tr> <tr> <td>Clamp Filter 316L L=13mm</td> <td>4"</td> <td>208Pcs</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="17"> <p>REMARKS 以上产品经过固溶处理 HEAT TREATMENT: 1040-1150℃ 按分样 GAUGE LENGTH L1=5.65(SORTFO) L2=50MM L3=80MM L4=200MM L5=11.3(SORTFO) 品向附包 TEST OF INTERGRANULAR CORROSION: OK</p> </td> </tr> <tr> <td colspan="17"> <p>会检者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p> </td> </tr> </tbody></table>		炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	力学试验 Mechanical test (base material)	Hardness HB	Impact	261857	Clamp Filter 316L L=13mm	2"	496Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2	Yield Strength Rp0.2 Mpa 285	570	82		Clamp Filter 316L L=13mm	4"	208Pcs															<p>REMARKS 以上产品经过固溶处理 HEAT TREATMENT: 1040-1150℃ 按分样 GAUGE LENGTH L1=5.65(SORTFO) L2=50MM L3=80MM L4=200MM L5=11.3(SORTFO) 品向附包 TEST OF INTERGRANULAR CORROSION: OK</p>																	<p>会检者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																
炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	力学试验 Mechanical test (base material)	Hardness HB	Impact																																																																									
261857	Clamp Filter 316L L=13mm	2"	496Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2	Yield Strength Rp0.2 Mpa 285	570	82																																																																									
	Clamp Filter 316L L=13mm	4"	208Pcs																																																																																						
<p>REMARKS 以上产品经过固溶处理 HEAT TREATMENT: 1040-1150℃ 按分样 GAUGE LENGTH L1=5.65(SORTFO) L2=50MM L3=80MM L4=200MM L5=11.3(SORTFO) 品向附包 TEST OF INTERGRANULAR CORROSION: OK</p>																																																																																									
<p>会检者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																																																																																									

质量检验保证书

INSPECTION CERTIFICATE

(according to EN10204 3.1)

Forging Producer : **Wenzhou Zhengyu Light Industry Machinery Co.Ltd**
 Food Machinery Industrial Park, Shacheng, Longwan Wenzhou, Zhejiang, China

CERTIFICATE NO BGSYX1107110016900

CONTRACT NO: X1QP001941

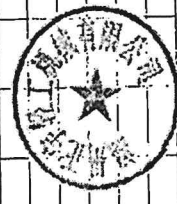
日期 Date: 2012-7-11

SPECIFICATION: ASTM A479

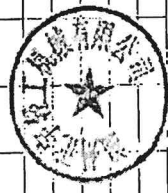
单位: 温州正业轻工机械有限公司

炉号 Heat No.	Products name (Forging for)	规格 Matr.	Qty	熔体分析 CHEMICAL COMPOSITION											力学试验 Mechanical test (Same material)			
				C	SI	Mn	P	S	Cr	N	Ni	Cu	Mo	Yield Strength Rp 0.2 Mpa	Tensile Strength Rp 0.1 Mpa	Elongation %	Hardness HBB	Impact
261857	Clamp Liner 316L L=21.5mm	DN40	1012Pcs	0.026	0.54	1.39	0.028	0.003	16.08	0.028	10.13	0	2.00	285	570	57	82	
	Clamp Liner 316L L=21.5mm	DN25	797Pcs															
	Clamp Liner 316L L=21.5mm	DN50	1099Pcs															
REMARKS	以上产品经过固溶处理 HEAT TREATMENT: 1040-1150℃ 快冷快淬 GAUGE LENGTH L1=5.65SQRT(F0) L2=50MM L3=60MM L4=20MM L5=11.3SQRT(F0) 屈服强度 TEST OF INTERGRANULAR CORROSION : OK																	
检验者	本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.																	

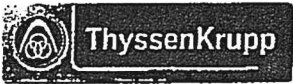

<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE (according to EN10204 3.1)</p>		<p>Forging Producer : Wenzhou Zhengyuan Light Industry Machinery Co.,Ltd</p>																	
<p>CERTIFICATE NO N11013011</p> <p>CONTRACT NO:</p> <p>日期 Date: 22-02-2011</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正源轻工机械有限公司</p>																			
炉号 Heat No.	Products name (Forging for)	规格 Metr.	Qty	化学成分分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (base material)					
				C	SI	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp0.2 Mpa	Yield Strength Rp0.1 Mpa	Tensile Strength Rm Mpa	Elongation %	Hardness HB	Impact	
LZ118191	Clamp liner 316L L=21,5mm	2"	1049pcs																
	Clamp liner 316L L=21,5mm	ISO 2852 DN 1½ "38mm	975pcs																
	Clamp liner 316L L=21,5mm	ISO 2852 DN 2½ "63,5mm	1046pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09				303		594	57	86
	Clamp liner 316L L=13mm	1"	1223pcs																
	Clamp liner 316L L=13mm	1½"	796pcs																
	Clamp liner 316L L=13mm	2½"	592pcs																
REMARKS:				<p>以上产品经过热处理 HEAT TREATMENT: 1040-1150°C 炉外注锌 GALVE LENGTH L1=5.65SQRT(FQ) L2=50MM L3=80MM L4=200MM L5=11.3SQRT(FW) 品项研性 TEST OF INTERGRANULAR CORROSION: OK</p> <p>公炼者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>															




<p>质量检验保证书</p> <p>INSPECTION CERTIFICATE</p> <p>(according to EN10204 3.1)</p>		<p>Forging Producer:</p> <p>Wenzhou Zhengyu Light Industry Machinery Co.Ltd</p>																
<p>CERTIFICATE NO N11013011</p> <p>CONTRACT NO:</p> <p>日期 Date: 22-02-2011</p> <p>SPECIFICATION: ASTM A479</p> <p>单位: 温州正宇轻工机械有限公司</p>																		
炉号 Heat No.	Products name (Forging for)	规格 Metr.	Qty	熔体分析 CHEMICAL COMPOSITION										力学试验 Mechanical test (Base material)				
				C	Si	Mn	P	S	Cr	N	Ni	Mo	Yield Strength Rp 0.2 Mpa	Yield Strength Rp 0.1 Mpa	Tensile Strength Mpa	Elongation %	Hardness H1B	Impact
LZ118191	Clamp Liner 316L L=18mm	DN10	814pcs	0.02	0.49	1.07	0.037	0.002	17.17	0.028	10.09	2						
	Clamp Liner 316L L=18mm	DN15	1541pcs															
	Clamp Liner 316L L=21.5mm	DN/OD 33.7	548pcs															
<p>REMARKS:</p> <p>以上产品经过固溶处理 HEAT TREATMENT: 1010-1150°C 板状试样 GAUGE LENGTH L1=5.65SQRT(D) L2=50MM L3=60MM L4=200MM L5=11.3SQRT(D) 晶间腐蚀 TEST OF INTERGRANULAR CORROSION OK</p> <p>会签者 本产品已按上述要求进行制造和试验, 其结果符合要求, 特此证明。 SURVEYOR: We hereby certify that material described herein was manufactured and tested with satisfactory results according to the requirements of the above material specification.</p>																		



2x Polzeifilterereinheit VS250 Eco - Deckel und Böden

Herstellerwerk / Manufacture's works / Usine productrice  ThyssenKrupp ThyssenKrupp Nirosta		Art der Prüfbescheinigung / Type of inspection document / Type du document ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION nach / according to / suivant EN 10204-3.1				Bescheinigungs-Nr. / Document number / Numéro de document 13.09.2012 1000413471 / Seite / Page / Page: 1 / 1																									
		Besteller/Empfänger / Customer/Consignee / Acheteur/Destinataire Kundenbestellnr. / Customer's order number / Numéro de la commande du client EURI CZ 1345B/12 Werkzauftragsnr. / Manufacturer's works order no / N° de la commande de l'usine productrice 900434673 / 001 Lieferscheine Nr. / Delivery Note No. / Avis d'expédition N°. 87491201 / 010 Erzeugnis / Product / Produit. BAND/COIL/ROULEAU																													
Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG AD 2000 W10 ASTM A 480/A 480M ASME SA 480/SA 480M Sec.II Part A Ed.2010 Add.11		Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 4404 / 1.4404 TYPE 316 L																													
Kundenmaterial-Nr. / Customer's material number / N° de matière du client Maße des Erzeugnisses (Dicke / Breite / Länge) / Product dimensions (Thickness / Width / Length) / Dimensions du produit (Epaisseur / Largeur / longueur) 2,5 mm x 1500,0 mm		Hersteller / Steelmaking proc. / Made d'elabor. AOD		Ausführung / Finish / Fini IIIc / 2B																											
Paket-Nr. / Packing-No. / N° Palette 8523507 8523508	Stückzahl / No of pieces / N° de pièces 	Ist-Gewicht / Actual weight / Masse effective 	Ident.-Nr. Erzeugnis / Ident.-No of product / Ident.-N° du produit 259690 259690	Schmelznr. / Cast number / Id. de la coulée 527872 527872	Proben-Id. / Sample id. / Empl. du prélèvement 1002690969 1002690969	Proben-Id. / Sample id. / Empl. du prélèvement 1002690970 1002690970																									
Chemische Zusammensetzung / Chemical composition / Composition chimique <table border="1"> <thead> <tr> <th>Schmelznr. / Cast no.</th> <th>% C</th> <th>% Si</th> <th>% Mn</th> <th>% P</th> <th>% S</th> <th>% Cr</th> <th>% Mo</th> <th>% Ni</th> <th>% N</th> </tr> </thead> <tbody> <tr> <td>527872</td> <td>0,018</td> <td>0,42</td> <td>1,56</td> <td>0,034</td> <td>0,0010</td> <td>16,65</td> <td>2,01</td> <td>10,01</td> <td>0,049</td> </tr> </tbody> </table>								Schmelznr. / Cast no.	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% N	527872	0,018	0,42	1,56	0,034	0,0010	16,65	2,01	10,01	0,049				
Schmelznr. / Cast no.	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% N																						
527872	0,018	0,42	1,56	0,034	0,0010	16,65	2,01	10,01	0,049																						
Prüfling/Inspection lot / Lot de contrôle Proben-Id./Lage / Sample id./Position Ident./Empl. du prélèvement QUER <table border="1"> <thead> <tr> <th>Proben-Id. / Sample id.</th> <th>Rp0, 2% / MPa</th> <th>Rp1% / MPa</th> <th>Rm / MPa</th> <th>A80 / %</th> <th>A2^m / %</th> <th>HV / HV</th> <th>HRB / HRB</th> </tr> </thead> <tbody> <tr> <td>1002690969</td> <td>330</td> <td>366</td> <td>627</td> <td>51,9</td> <td>51,9</td> <td>177</td> <td>85,0</td> </tr> <tr> <td>1002690970</td> <td>333</td> <td>370</td> <td>623</td> <td>52,8</td> <td>52,8</td> <td>173</td> <td>84,0</td> </tr> </tbody> </table>		Proben-Id. / Sample id.	Rp0, 2% / MPa	Rp1% / MPa	Rm / MPa	A80 / %	A2 ^m / %	HV / HV	HRB / HRB	1002690969	330	366	627	51,9	51,9	177	85,0	1002690970	333	370	623	52,8	52,8	173	84,0						
Proben-Id. / Sample id.	Rp0, 2% / MPa	Rp1% / MPa	Rm / MPa	A80 / %	A2 ^m / %	HV / HV	HRB / HRB																								
1002690969	330	366	627	51,9	51,9	177	85,0																								
1002690970	333	370	623	52,8	52,8	173	84,0																								
Beständig gegen Interkrist. Korros. / Resistant to intercryst. corros. / Résistant à la corros. intercrist.: EN ISO 3651-2 I.O. ASTM A 262 PRACTICE E I.O. Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: Verwechslungsprüfung (Spektralanalyse)/Test of Identity(spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O. I.O. WAERMEBEHANDLUNG : 1050 GRAD C / LUFT TRAIEMENT THERMIQUE : 1050 GRAD C / AIR HEAT - TREATMENT : 1050 DEGREE / AIR																															
Aussteller der Bescheinigung / Originator of the document / Auteur du document ThyssenKrupp Nirosta GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld Abnahme				Wansart Abnahmebeauftragter Inspector / Expert		Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire 																									
				Datum der Ausstellung und Bestätigung Date of issue and validation date d'émission et validation 13.09.2012																											

Herstellerwerk / Manufacture's works / Usine productrice 	Art der Prüfbescheinigung / Type of inspection document / Type du document ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION nach / according to / suivant EN 10204-3.1	Bescheinigungsnr. 20.06.2013 Document number Numéro de document 1000469821 / Seite / Page / Page: 1 / 1
---	---	--

Oberschlesienstrasse 16, 47807 Krefeld KLOECKNER STAHL- UND METALL- HANDEL GMBH MUELHEIMER STR. 1 D-90451 NUERNBERG	Besteller/Empfänger / Customer/Consignee / Acheteur/Destinataire KLOECKNER STAHL- UND METALL-, WUERZBURG Kundenbestellnr. / Customer's order number / Numéro de la commande du client Feb. 2013 746 Werksauftragsnr. / Manufacturer's works order no / N° de la commande de l'usine productrice 900441073 / 006 Lieferanzeige Nr. / Delivery Note No. / Avis d'expédition N°. 87583562 / 020 Erzeugnis / Product / Produit BLECH/SHEET/TOLE
---	---

Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 AD 2000 W10 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG NACE STANDARD MR0175	Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 1.4404 / 1.4401 TYPE 316 L / 316
---	--

Kundenmaterial-Nr. Customer's material number N° de matière du client 911000635	Maße des Erzeugnisses (Dicke / Breite / Länge) Product dimensions (Thickness / Width / Length) Dimensions du produit (Epaisseur / Largeur / longueur) 2,0 mm x 1500,0 mm x 3000,0 mm	Herstellt Steelmaking proc. Mode d'élabor. AOD	Ausführung Finish Fini IIIc /2B
---	--	--	---

Paket-Nr. Packing-No. N° Palette	Stückzahl No of pièces N° de pièces	Ist-Gewicht Actual weight Masse effective	Ident.-Nr. Erzeugnis Ident.-No of product Ident.-N° du produit	Schmelzennr. Cast number Id. de la coulée	Proben-Id. Sample Id. Empl. du prélèvement	Proben-Id. Sample Id. Empl. du prélèvement
8590304	11	786 KG	266417	528683	1002755488	1002755489
	11	786 KG				

Schmelznr. / Cast no.	Chemische Zusammensetzung / Chemical composition / Composition chimique									
	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% N	
528683	0,027	0,39	0,83	0,026	0,0010	16,60	2,02	10,05	0,051	

Prüflot/Inspection lot Lot de contrôle Proben-Id./-Lage Sample Id./-Position Ident./empl. du prélèvement	QUER									
	Rp0, 2%	Rp1%	Rm	A80	A2 "	HV	HRB			
	MPa	MPa	MPa	%	%	HV	HRB			
1002755488	296	329	611	55,4	55,4	160	80,0			
1002755489	299	331	614	55,4	55,4	160	80,0			

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Interkrist.: EN ISO 3651-2 I.O.

ASTM A 262 PRACTICE E I.O.

Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: I.O.

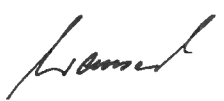

Verwechslungsprüfung (Spektralanalyse)/Test of identity(spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O.

WAERMEBEHANDLUNG : 1050 GRAD C / LUFT

TRAITEMENT TERMIQUE : 1050 GRAD C / AIR

HEAT - TREATMENT : 1050 DEGREE / AIR

HRC< 21

Aussteller der Bescheinigung / Originator of the document / Auteur du document Outokumpu Nirosta GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld  Abnahmebeauftragter/ Inspector/ Expert Ulrich Wansart Tel.:+ 49-2151-83-3142 Fax:+ 49-2151-83-4106 Certificates.Nirosta@outokumpu.com	Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire  Datum der Ausstellung und Bestätigung Date of issue and validation date d'emission et validation 20.06.2013
---	---

Herstellerwerk / Manufacture's works / Usine productrice 	Art der Prüfbescheinigung / Type of inspection document / Type du document ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION nach / according to / suivant EN 10204-3.1	Bescheinigungsnr. 13.09.2013 Document number Numéro de document 1000485317 / 2 Seite / Page / Page: 1 / 1 431697-99
--	---	--

Oberschlesienstrasse 16, 47807 Krefeld KREUER EDELSTAHL GMBH MARKIRCHER STRASSE 2 D-68229 MANNHEIM	Besteller/Empfänger / Customer/Consignee / Acheteur/Destinataire KREUER EDELSTAHL GMBH, MANNHEIM Kundenbestellnr. / Customer's order number / Numéro de la commande du client B000015177 Werksauftragsnr. / Manufacture's works order no / N° de la commande de l'usine productrice 900089105 / 003 Lieferanzeige Nr. / Delivery Note No. / Avis d'expédition N°. 87609193 / 030 Erzeugnis / Product / Produit BLECH / SHEET / TOLE
---	---

Lieferbedingungen / Terms of delivery / Conditions de livraison EN 10088-2 EN 10028-7 AD 2000 W2 Richtlinie 97/23/EG AD 2000 W10 TRB 100 ASTM A 240/A 240M ASME SA 240/SA 240M Sec.II Part A Ed.2010 Add.11	Stahlsorte und Gütegruppe / Steel grade and quality / Nuance de l'acier NIROSTA 1.4404 / 1.4401 TYPE 316 L / 316
--	--

Kundenmaterial-Nr. Customer's material number N° de matière du client	Maße des Erzeugnisses (Dicke / Breite / Länge) Product dimensions (Thickness / Width / Length) Dimensions du produit (Epaisseur / Largeur / longueur)	Herstellart Steelmaking proc. Mode d'elabor.	Ausführung Finish Fini
	1,5 mm x 1250,0 mm x 2500,0 mm	AOD	IIIc /2B

Paket-Nr. Packing-No. N° Palette	Stückzahl No of pieces N° de pièces	Ist-Gewicht Actual weight Masse effective	Ident.-Nr. Erzeugnis Ident.-No of product Ident.-N° du produit	Schmelzennr. Cast number Id. de la coulée	Proben-Id. Sample Id. Empl. du prélèvement	Proben-Id. Sample Id. Empl. du prélèvement
11103767	27		268896	528919	1002772650	1002772651
11103768	27		268896	528919	1002772650	1002772651
11103769	27		268896	528919	1002772650	1002772651
81						

Schmelznr. / Cast no.	Chemische Zusammensetzung / Chemical composition / Composition chimique										
	% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni	% Al	% N	% Cu
528919	0,015	0,61	0,91	0,022	0,0010	16,64	2,03	10,17	0,032	0,059	0,23
Schmelznr. / Cast no.	% Sn	% Co	% Nb	% B	% Ti						
528919	0,005	0,180	0,030	0,0038	0,002						

Prüflos/Inspection lot Lot de contrôle Proben-Id./-Lage Sample Id./-Position Ident./empl. du prélèvement	QUER										
	Rp0,2%	Rp1%	Rm	A80	A2"	HV	HRB				
	MPa	MPa	MPa	%	%	HV	HRB				
1002772650	323	349	620	54,4	54,4	162	81,0				
1002772651	326	352	626	54,0	54,0	163	81,0				

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: EN ISO 3651-2 I.O.

Beständig gegen interkrist. Korros./Resistant to intercryst. corros./Resistant à la corros. Inter crist.: ASTM A 262 PRACTICE E I.O.

Maße-Oberfläche/Dimensions-Surface/Dimensions-Surface: I.O.


Verwechslungsprüfung (Spektralanalyse)/Test of identity (spectrum analysis)/Contrôle d'identification (analyse spectrale): I.O.

WAERMEBEHANDLUNG : 1050 GRAD C / LUFT

TRAITEMENT TERMIQUE : 1050 GRAD C / AIR

HEAT - TREATMENT : 1050 DEGREE / AIR

Aussteller der Bescheinigung / Originator of the document / Auteur du document Outokumpu Nirosa GmbH Dieses Zeugnis wurde maschinell erstellt Werk Krefeld Abnahmebeauftragter/ Inspector/ Expert Ulrich Wansart Tel.:+ 49 (2151) 83-3142 Fax:+ 49 (2151) 83-4106 Certificates.Nirosa@outokumpu.com	Stempel des (der) Abnahmebeauftragten Receiving agent's stamp Poinçon de l'agent réceptionnaire Datum der Ausstellung und Bestätigung Date of issue and validation date d'émission et validation 13.09.2013
--	---

		Marcegaglia 46040 via Breccione 16-Gazoldo degli Ippoliti (Monza)-Italy Tel. +39 - 0376 865 Fax. +39 - 0376 051 600 www.marcegaglia.com Stabilimento di Forlì: Via E. Mattei 171004, Fontanafredda, Forlì-Caserta It: +39 054370111 fax: +39 054370105		Number/Nummer 10513600433 Ausgegeben am 19/11/2013	
Customer/Kunde STAPPERT DEUTSCHLAND GMBH WILLSTÄTTER STR. 13 40549 DUSSELDORF DE		Consignee/Anlieferadresse STAPPERT SPEZIAL STAHL HANDEL INDUSTRIESTR. 9 36272 NIEDERLAULA DE		Type/Typ Abnahmeprüfzeugnis 3.1 EN 10204 Qualifizierung der Schweißverfahren: alle Laser. Schweißverfahren sind gemäß der Europäischen Richtlinie PED 97/23/EC von der benannten Stelle N.1233 EUROPED durch die Schweißverfahren Qualifikation WPQR N° PM0907A001 Buchung N. 10M203 und WPQR N° PM907A002 Buchung N. 11M017.	
Material 59003185		Prüfungsnorm: EN 10217-7 TC1 DIN 11850 ASTM A270 Werkstoff: TP 316L 1.4404 X2CrNiMo17-12-2 Toleranzen: ISO 1127 D4-T4		Delivery/Lieferung nr 8305315618 O/Vom 19/11/2013 Delivery note nr/Lieferschein nr 1005015579	
Description/Beschreibung TX1003 50.8X1,5X6000 TP316L LAS L		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Quality Control/Qualitätsicherung Q.M.D./Bearb. S. Toscano Plant O/Werk Forlì	
Item 1 13W4004325		Quantity/Anzahl KG 652 Quantity/Anzahl PZZ 61		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Batch/Bund Nr 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Batch/Bund Nr 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Chemische Werte C (%) 0.03 Si (%) 1 Mn (%) 2 P (%) 0.045 S (%) 0.015 N (%) 0.11 Cr (%) 16.5 Mo (%) 2 Ni (%) 10 Ni (%) 13		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
RAW MATERIAL 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
RAW MATERIAL 13W4004325		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Type of mechanical test TUBE		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Weitere Bearbeitungen	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Client Order/Kundenantrag 10-165075 Part Number 4/11/2013	
Rp 0.2 [MPa] 190 Rp 1.0 [MPa] 225 Rm [MPa] 490 A5 (%) 40		Quantity/Anzahl MTL 366 Heat/Schmelze 0438130		Schweißverfahren LASER WELDING	

Clampdichtung 1½", Silikon



Armaturen GmbH

Armaturen, Rohre, Sonderteile aus Edelstahl
fittings, pipes, special parts made of stainless steel

Bescheinigung zur Verordnung (EG) Nr. 1935/2004 des Europäischen Parlaments und des Rates
Confirmation to the Regulation (EC) No 1935/2004 of the European Parliament and of the Council

M&S Armaturen GmbH • Postfach 1125 • 26442 Friedeburg • Germany

Volkman GmbH
Vakuumtechnik

Schloitweg 17
59494 SOEST

11478 **Kunden-Bestell-Nr.** 219413
Customer Order No.

Kommission: --
Commission

M&S-Auftrags-Nr. 281166
M&S Order No.

Zert-Nr. / QC-Nr. 30882 / 18532
Cert no. / QC No.

Clamp-Dichtringe nach DIN 32676

Clamp Gaskets according to DIN 32676

	Material	Artikelnummer <i>Item number</i>	Normen / Vorschriften <i>Standards/ requirements</i>	Interne Rückverfolgung <i>Internal traceability</i>
1	VMQ	189.....100	FDA § 177.2600; BfR XV	G1761
2	NBR	189.....200	FDA § 177.2600; BfR XXI	G1761
3	EPDM	189.....300	FDA § 177.2600; BfR XXI	G1761
4	FKM	189.....400	FDA § 177.2600; BfR XXI	G1761
5	PTFE	189.....500	Verordnung / Regulation (EU) 10/2011 FDA § 177.1550	G1761

Wir bestätigen, dass die gelieferten Dichtungen den o.g. Normen/Vorschriften entsprechen.

Gemäß Artikel 16 der Verordnung (EG) Nr. 1935/2004 soll eine Konformitätserklärung ausgestellt werden, wenn Einzelmaßnahmen erlassen wurden. Diese Konformitätserklärung soll sich auf die Einzelmaßnahme beziehen, nicht auf die Verordnung selber. Für Elastomere wurden keine Einzelmaßnahmen gemäß Artikel 5 der Verordnung erlassen. Das bedeutet, dass hierzu keine europäischen Richtlinien existieren. Damit kann keine Konformitätserklärung gemäß Artikel 16 der Verordnung ausgestellt werden. Für die Übereinstimmung mit den allgemeinen Anforderungen gemäß Artikel 3 ziehen wir daher die Konformität mit den o.g. Normen/Vorschriften heran.

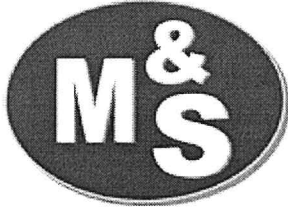
We confirm that the delivered gaskets correspond to the above mentioned standards/requirements.

According to Article 16 of the Regulation (EC) No 1935/2004, a Declaration of Conformity shall be issued, in case specific measures according to Article 5 were adopted. This declaration shall refer to these specific measures, but not to the Regulation itself. No specific measures according to Article 5 and Annex 1 of this Regulation are adopted for elastomers such as used for the supplied products. That means that no European regulation is issued. Therefore, in accordance to Article 16, no declaration will be made out with this Regulation. For the compliance with the general requirements according to Article 3 the above standards/requirements will be used.

Friedeburg, 07.12.2012

i.A. Jann-Henning Backer
(Versand)
(Shipping department)

Clampdichtung 2", Silikon



Armaturen GmbH

Armaturen, Rohre, Sonderteile aus Edelstahl
 fittings, pipes, special parts made of stainless steel

Bescheinigung zur Verordnung (EG) Nr. 1935/2004 des Europäischen Parlaments und des Rates
Confirmation to the Regulation (EC) No 1935/2004 of the European Parliament and of the Council

M&S Armaturen GmbH • Postfach 1125 • 26442 Friedeburg • Germany

Volkman GmbH
 Vakuumtechnik

11478

Kunden-Bestell-Nr. 222997

Customer Order No.

Kommission: --

Commission

Schloitweg 17
 59494 SOEST

M&S-Auftrags-Nr. 438439

M&S Order No.

Zert-Nr. / QC-Nr. 38776 / 23894

Cert no. / QC No.

Clamp-Dichtringe nach DIN 32676

Clamp Gaskets according to DIN 32676

	Material	Artikelnummer <i>Item number</i>	Normen / Vorschriften <i>Standards/ requirements</i>	Interne Rückverfolgung <i>Internal traceability</i>
1	VMQ	189.....100	FDA § 177.2600; BfR XV	G1761
2	NBR	189.....200	FDA § 177.2600; BfR XXI	G1761
3	EPDM	189.....300	FDA § 177.2600; BfR XXI	G1761
4	FKM	189.....400	FDA § 177.2600; BfR XXI	G1761
5	PTFE	189.....500	Verordnung / <i>Regulation</i> (EU) 10/2011 FDA § 177.1550	G1761

Wir bestätigen, dass die gelieferten Dichtungen den o.g. Normen/Vorschriften entsprechen.

Gemäß Artikel 16 der Verordnung (EG) Nr. 1935/2004 soll eine Konformitätserklärung ausgestellt werden, wenn Einzelmaßnahmen erlassen wurden. Diese Konformitätserklärung soll sich auf die Einzelmaßnahme beziehen, nicht auf die Verordnung selber. Für Elastomere wurden keine Einzelmaßnahmen gemäß Artikel 5 der Verordnung erlassen. Das bedeutet, dass hierzu keine europäischen Richtlinien existieren. Damit kann keine Konformitätserklärung gemäß Artikel 16 der Verordnung ausgestellt werden. Für die Übereinstimmung mit den allgemeinen Anforderungen gemäß Artikel 3 ziehen wir daher die Konformität mit den o.g. Normen/Vorschriften heran.

We confirm that the delivered gaskets correspond to the above mentioned standards/requirements.

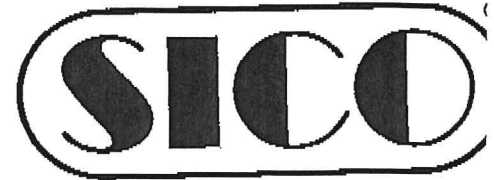
According to Article 16 of the Regulation (EC) No 1935/2004, a Declaration of Conformity shall be issued, in case specific measures according to Article 5 were adopted. This declaration shall refer to these specific measures, but not to the Regulation itself. No specific measures according to Article 5 and Annex 1 of this Regulation are adopted for elastomers such as used for the supplied products. That means that no European regulation is issued. Therefore, in accordance to Article 16, no declaration will be made out with this Regulation. For the compliance with the general requirements according to Article 3 the above standards/requirements will be used.

Friedeburg, 19.02.2014

i.A. Jann-Henning Backer
 (Versand)
 (Shipping department)

Moduldichtung VS200, Silikon

S
 I
 C
 O
 G
 R
 Präzision
 in Kautschuk U
 und Kunststoff P

**GUMMI- UND KUNSTSTOFFWER**

SICO D. & E. Simon GmbH • Postfach 1229 • D-36393 Steinau a.d.Str.

- Techn. Gummi- und Kunststoff-Formteile
- Präzisions-Dichtungen & O-Ringe
- Nutringe - Manschetten - Membranen
- Gummi-Metallverbindungen
- Profile Schläuche - Schlauchringe
- Stanz- und Schneideteile
- Werkzeugbau - CAD Konstruktion
- Zertifiziert gem. ISO/TS 16949 & ISO 9001

Volkman GmbH
Zu Hd. Frau Ringe
Schloitweg 17

DE-59494 Soest

Ihr Zeichen

Ihre Nachricht

 Unser Zeichen
 Stefanie Wolf

 Tel.-DW. -114 Steinau, den
 Fax-DW. -190 06.02.2014

Segmentdichtung VS200 (Form 7919) - 526 Stück
Filterprofilichtung (Form 8163) - 2170 Stück
Segmentdichtung VS350 (Form 8073) - 525 Stück
Unsere Lieferung vom 05.02.2014 mit LS-Nr. 77088

Sehr geehrte Frau Ringe,

wie von Ihnen gewünscht, bestätigen wir hiermit, daß die o.g. Artikel lebensmittelbeständig sind. Das eingesetzte Material entspricht der FDA CFR 21 § 177-2600. Wir bestätigen ebenfalls, daß die o.g. Teile der EU-Richtlinie 2002/95/EG (RoHS) entsprechen.

Wir hoffen, Ihnen weitergeholfen zu haben und verbleiben inzwischen

mit freundlichen Grüßen

SICO GmbH

 i.A. Stefanie Wolf

e-mail: stefaniewolf@sico.de

Moduldichtung VS250, Silikon

S
I
C
O
G
R
Präzision
in Kautschuk
und Kunststoff U
P



SICO D. & E. Simon GmbH
GUMMI- UND KUNSTSTOFFWERK

SICO D.+E. Simon GmbH · Postfach 1229 · D-36393 Steinau a.d. Str.

- Techn. Gummi- und Kunststoff-Formteile
- Präzisions-Dichtungen – O-Ringe
- Nutringe – Manschetten – Membranen
- Gummi-Metalverbindungen
- Profile – Schläuche – Schlauchringe
- Stanz- und Schneideteile
- Werkzeugbau – CAD Konstruktion
- Zertifiziert gem. DIN EN ISO/TS 16949:2002



Volkman GmbH
Zu Hd. Frau Reinecke
Schloitweg 17

DE-59494 Soest

Ihr Zeichen

Ihre Nachricht

Unser Zeichen
HG

Tel.-DW. -74
Fax-DW. -

Steinau, den
02.04.2013

Segmentdichtung VS 250
nach Zg.-Nr. EI-06-VS 250-12001-C (Form 8072/1) aus Silikon-Material
Unsere Lieferung LS Nr.274669/01 vom 27.03.2013

Sehr geehrte Frau Reinecke,

wie von Ihnen gewünscht, bestätigen wir hiermit, daß die o.g. Artikel lebensmittelbeständig sind. Das eingesetzte Material entspricht der FDA CFR 21 § 177-2600. Wir bestätigen ebenfalls, daß die o.g. Teile der EU-Richtlinie 2002/95/EG (RoHS) entsprechen.

Wir hoffen, Ihnen weitergeholfen zu haben und verbleiben inzwischen

mit freundlichen Grüßen

SICO GmbH

i.A. Heidrun Greulich

i. A. H. Greulich

Dichtung MC-Klappe NW150, Silikon

Müller GmbH
Industrieweg 5
D-79618 Rheinfelden

Systemtechnik und Handling-
geräte aus Edelstahl

Managementsysteme ISO 9001
ISO 14001 / OHSAS 18001

Telefon: +49 (0)7623 / 969-0
Telefax: +49 (0)7623 / 969-69

E-Mail: info@mueller-gmbh.com
Internet: www.mueller-gmbh.com



Kunde: Volkmann GmbH
Customer: 59494 Soest

Best.-Nr.: 222702
Order-no.:

Hersteller: Müller GmbH
Manufacturer: D – 79618 Rheinfelden

Auftrags-Nr.: 240293
Order-no.:

Pos.: 1 Art.-Nr.: 40101214
Pos.: 2 Art.-Nr.: 40101215-1

FDA - Bestätigung für Silikon*FDA - Confirmation for silicones**FDA - Confirmation pour des matières en silicone*

Wir bestätigen hiermit, dass die Rohstoffe unserer Silikon-Qualitäten den Richtlinien der BfR XV und der Food and Drug Administration FDA 21 CFR §177.2600 und USP Class VI entsprechen.

Die Verarbeitung erfolgt nach den Richtlinien der Rohstoffhersteller. Sie können als physiologisch unbedenklich gem. FDA eingestuft werden.

We confirm, that the silicone qualities are manufactured from materials which correspond with the BfR XV and the directives from the Food and Drug Administration FDA 21 CFR §177.2600 and USP Class VI.

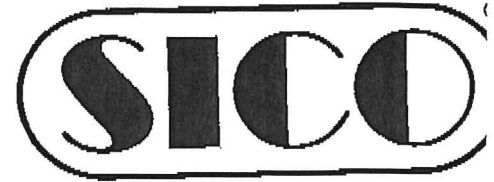
The processing is effected according to the directives of the raw material suppliers. These articles can physiologically be recognized as safe according FDA.

Nous certifions que les matières premières de nos qualités en silicone correspondent aux directives de BfR XV et de Food and Drug Administration FDA 21 CFR §177.2600 et USP Class VI.

Le traitement est effectué selon les directives des fabricants de matières premières. On peut les classifier physiologiquement comme neutre selon FDA.

Dichtung QX, Silikon

S
 I
 C
 O
 G
 R
 Präzision
 in „Kautschuk“ U
 und Kunststoff P

**GUMMI- UND KUNSTSTOFFWER**

SICO D. & E. Simon GmbH • Postfach 1229 • D-36393 Steinau a.d.Str.

- Techn. Gummi- und Kunststoff-Formteile
- Präzisions-Dichtungen & O-Ringe
- Nutringe - Manschetten - Membranen
- Gummi-Metallverbindungen
- Profile Schläuche - Schlauchringe
- Stanz- und Schneideteile
- Werkzeugbau - CAD Konstruktion
- Zertifiziert gem. ISO/TS 16949 & ISO 9001

Volkman GmbH
Zu Hd. Frau Ringe
Schloitweg 17

DE-59494 Soest

Ihr Zeichen

Ihre Nachricht

 Unser Zeichen
 Stefanie Wolf

 Tel.-DW. -114 Steinau, den
 Fax-DW. -190 06.02.2014

Segmentdichtung VS200 (Form 7919) - 526 Stück
Filterprofilabdichtung (Form 8163) - 2170 Stück
Segmentdichtung VS350 (Form 8073) - 525 Stück
Unsere Lieferung vom 05.02.2014 mit LS-Nr. 77088

Sehr geehrte Frau Ringe,

wie von Ihnen gewünscht, bestätigen wir hiermit, daß die o.g. Artikel lebensmittelbeständig sind. Das eingesetzte Material entspricht der FDA CFR 21 § 177-2600. Wir bestätigen ebenfalls, daß die o.g. Teile der EU-Richtlinie 2002/95/EG (RoHS) entsprechen.

Wir hoffen, Ihnen weitergeholfen zu haben und verbleiben inzwischen

mit freundlichen Grüßen

SICO GmbH

 i.A. Stefanie Wolf

e-mail: stefaniewolf@sico.de



Zum Schreiben an: _____

Seite 2

(Hinweis: In Übereinstimmung mit den Richtlinien, sollen möglichst Messungen bspw. Restgehalt einzelner Komponenten, Globalmigrationen usw. vom Anwender am Endprodukt durchgeführt werden, wobei diese mit dem entsprechenden Lebensmittel oder lebensmittelsimulierenden Stoffen in Kontakt stehen, auch wenn, wie in diesem Fall, eine offizielle Bestätigung seitens des Herstellers vorliegt. Kontaktzeiten und Temperaturen sollen derart gewählt werden, dass sie den tatsächlichen Verhältnissen im normalen Gebrauch der Artikel, gemäß den Richtlinien entsprechen. Es liegt in der Verantwortung des Anwenders sicherzustellen, dass der Artikel für den angestrebten Verwendungszweck geeignet ist.)

Mit freundlichen Grüßen

NORRES Schlauchtechnik GmbH

Mathias Mankiewicz
Leiter Forschung & Entwicklung

Unser Qualitätsmanagement ist nach DIN/ISO 9001 zertifiziert.



Schläuche mit vergossenen Clampstutzen - Vergussmasse



NORRES, Am Stadthafen 12-18, 45881 Gelsenkirchen, Germany

Volkmann GmbH
Vakuum-Technik
Schloitweg 17
59494 Soest

13. März 2014

Ansprechpartner: Stephan Stappenbeck
Bereich: Technische Schläuche

Telefonnummer: 0209/ 80000-325, Fax -9999
E-Mail: stephan.stappenbeck@norres.de

Bescheinigung Spaltfreiheit / Vergussmasse zu Ihrer Bestellung 223016 vom 03.03.14

Sehr geehrte Damen und Herren,

zu der oben genannten Bestellung können wir Ihnen bestätigen, dass die Verbindung des Schlauches „AIRDUC® PUR-INOX 355 MHF-AS Sondertyp FDA“ (beigestellt) mit den von Ihnen beigestellten Tri-Clamp-Stutzen durch Maßüberdeckung spaltfrei gefertigt wurde.

Vergussmasse:

Kunststoffe für den bestimmungsgemäßen Lebensmittelkontakt müssen die EU Bedingungen erfüllen, die in der Direktive 2002/72/EC (ergänzt durch 2008/39/EC und EG-Verordnung 975/2009/EC) und Direktive 10/2011, sowie den nationalen Umsetzungen niedergelegt sind. So dürfen nur gelistete Monomere verwendet werden. Hinsichtlich der Additive existiert eine unvollständige Liste, womit nicht-gelistete Additive jedoch nicht automatisch ausgeschlossen sind. Für die verwendeten Gießsysteme (hart und weich) sind ausschließlich Monomere und Zusatzstoffe verwendet worden, die entweder in den Richtlinien 2002/72/EC und 2008/39/EC sowie EG-Verordnung 975/2009/EC und Richtlinie 10/2011 gelistet sind oder Stoffe, die keiner eigenen Listung bedürfen.

Bei dem hier ausgewählten System mit eingegossenem Edelstahlstutzen existiert keine Kontaktfläche zwischen Gießmaterial und Fördermedium, da das Gießmaterial lediglich zur Herstellung eines tottraumfreien Überganges dient. Die mechanische Verbindung zwischen Schlauch und Stutzen erfolgt an den Außenflächen.

Mit freundlichen Grüßen
NORRES Schlauchtechnik GmbH


i.A. Stephan Stappenbeck
(Vertriebsinstandhaltung)



NORRES Schlauchtechnik GmbH
Am Stadthafen 12 -18
45831 Gelsenkirchen, Germany
Phone +49 (0)2 09/8 00 00 -0
Fax +49 (0)2 09/8 00 00 -9999
e-Mail info@norres.de, www.norres.com

Bankverbindung: GENO Bank, Essen
SWIFT-Code GENO DE M1 GBE, Konto 406 629 300
IBAN DE39 3606 0488 0406 6293 00, BLZ 360 604 88
Bank connection: Deutsche Bank, Gelsenkirchen
SWIFT-Code DEUT DE DE 420, Konto 110 10 21
IBAN DE35 4207 0062 0110 1021 00, BLZ 420 700 62

Geschäftsführer: Dipl.-Ing. Burkhard Mollen
Handelsregister: Gelsenkirchen HR B 9476
St.-Nr. 31959671446
UST-Id-Nr./ VAT-No. DE280262723

ABNAHMEPRÜFZEUGNIS

(EN 10204 - 3.1., DIN 50049 - 3.1)

Artikelbezeichnung: 35500381118 bds. angeg. 45899

Auftragsnummer: 2307297

Prüfbedingungen

Norm: In Anlehnung an DIN/ EN 28031 (April 1993), Widerstandsmessung der konfektionierten Schlauchleitung.
„ Gummi- und Kunststoffschläuche und –Schlauchleitungen
Bestimmung des elektrischen Widerstandes“

Prüfkörper: Schlauchleitung mit metallischen Armaturen

Elektrodenabstand: siehe Gesamtlänge

Prüfspannung: $\leq 40V$ bei Widerständen kleiner $10^6 \Omega$,
500 V bei größeren Widerständen

Prüfdurchführung

Prüfmittel: **QM 0556**

Widerstandsmessung der konfektionierten Schlauchleitung zwischen den metallischen Armaturen.

Artikelnummer	Gesamtlänge [mm]	Chargen				Widerstand [Ω]
		Schlauch	Stutzen Einlauf	Stutzen Auslauf	Press- einb.	
45899	1800	0594				8,3
45899	1800	0594				8,4
45899	1800	0594				8,8
45899	1800	0594				8,4
45899	1800	0594				8,4

Gelsenkirchen, den 21.03.2014

NORRES Schlauchtechnik GmbH
Gelsenkirchen

Abteilung Qualitätsmanagement

ABNAHMEPRÜFZEUGNIS

(EN 10204 - 3.1., DIN 50049 - 3.1)

Artikelbezeichnung: 35500381118 bds. angeg. 45899

Auftragsnummer: 2307297

Prüfbedingungen

Norm: In Anlehnung an DIN/ EN 28031 (April 1993), Widerstandsmessung der konfektionierten Schlauchleitung.
„ Gummi- und Kunststoffschläuche und –Schlauchleitungen
Bestimmung des elektrischen Widerstandes“

Prüfkörper: Schlauchleitung mit metallischen Armaturen

Elektrodenabstand: siehe Gesamtlänge

Prüfspannung: $\leq 40V$ bei Widerständen kleiner $10^6 \Omega$,
500 V bei größeren Widerständen

Prüfdurchführung

Prüfmittel: QM 0556

Widerstandsmessung der konfektionierten Schlauchleitung zwischen den metallischen Armaturen.

Artikelnummer	Gesamtlänge [mm]	Chargen				Widerstand [Ω]
		Schlauch	Stutzen Einlauf	Stutzen Auslauf	Press- einb.	
45899	1800	0594				8,1
45899	1800	0594				8,4
45899	1800	0594				8,8
45899	1800	0594				8,3
45899	1800	0594				9,7

Gelsenkirchen, den 21.03.2014

NORRES Schlauchtechnik GmbH
Gelsenkirchen

Abteilung Qualitätsmanagement

ABNAHMEPRÜFZEUGNIS

(EN 10204 - 3.1., DIN 50049 - 3.1)

Artikelbezeichnung: 35500381118 bds. angeg. 45899

Auftragsnummer: 2307297

Prüfbedingungen

Norm:	In Anlehnung an DIN/ EN 28031 (April 1993), Widerstandsmessung der konfektionierten Schlauchleitung. „ Gummi- und Kunststoffschläuche und –Schlauchleitungen Bestimmung des elektrischen Widerstandes“
Prüfkörper:	Schlauchleitung mit metallischen Armaturen
Elektrodenabstand:	siehe Gesamtlänge
Prüfspannung:	≤ 40V bei Widerständen kleiner $10^6 \Omega$, 500 V bei größeren Widerständen

Prüfdurchführung

Prüfmittel: **QM 0556**

Widerstandsmessung der konfektionierten Schlauchleitung zwischen den metallischen Armaturen.

Artikelnummer	Gesamtlänge [mm]	Chargen				Widerstand [Ω]
		Schlauch	Stutzen Einlauf	Stutzen Auslauf	Press- einb.	
45899	1800	0594				8,3
45899	1800	0594				8,5
45899	1800	0594				8,3
45899	1800	0594				8,3

Gelsenkirchen, den 21.03.2014

NORRES Schlauchtechnik GmbH
Gelsenkirchen

Abteilung Qualitätsmanagement

DR. RALPH DERRA

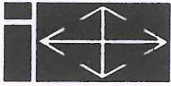
Öffentlich bestellter und vereidigter
Sachverständiger für Verpackungsmaterialien, Boden- und Luftanalysen

Akkreditiert gemäß
DIN EN ISO / IEC 17025
DIN EN 45011

DACH

DAC-PL-0035-97-20
DAC-ZE-002-08

**ISEGA – Forschungs-
und Untersuchungs-
Gesellschaft mbH
Aschaffenburg**



63704 Aschaffenburg, Postfach 100565
63741 Aschaffenburg, Zeppelinstr. 3-5
Germany
Telefon +49 (0) 60 21 / 49 89-0
Telefax +49 (0) 60 21 / 49 89-30
Email info@isega.de
http://www.isega.de

11.12.2012
Dr. Dr/hs-bru/ba

**UNBEDENKLICHKEITSERKLÄRUNG
CERTIFICATE OF COMPLIANCE
CERTIFICAT DE CONFORMITE**

eingetragen
registered no.
registré

34722 U 12

für Firma
for Messrs
pour MM

MAHLE Industriefiltration GmbH
Schleifbachweg 45
74613 Öhringen

Produkt
Product
Produit

Filtermaterial Ti 07/1

Das von der oben genannten Firma hergestellte Produkt ist ein Filtermaterial, welches zur Staubfiltration in der Lebensmittelindustrie und im pharmazeutischen Bereich verwendet wird.

Das Produkt wurde von uns nach den US-amerikanischen Vorgaben des

Code of Federal Regulations, Food and Drugs (FDA), 21 CFR Ch. I (Ausgabe 1. April 2012), § 177.1550,

auf sein Extraktionsverhalten sowie auf die Abwesenheit gesundheitlich bedenklicher Anteile geprüft.

Das Filtermaterial erfüllt bezüglich der mit den Stäuben in Berührung kommenden Schicht die Bestimmungen des

Code of Federal Regulations, Food and Drugs (FDA), 21 CFR Ch. I (Ausgabe 1. April 2012), § 177.1550.

Der Filtermaterial Ti 07/1 gemäß dem vorgelegten Probenmaterial kann daher unbedenklich zur Staubfiltration in der Lebensmittelindustrie und im pharmazeutischen Bereich verwendet werden.

Diese Unbedenklichkeitserklärung stellt den neuesten technischen Stand dar und basiert auf der Unbedenklichkeitserklärung Nr. 27327 U 08 vom 16.12.2008 in Zusammenhang mit einer erneuten Teilprüfung des Produktes.

Sie hat eine Laufzeit von 2 Jahren und umfasst 3 Seiten.

staatlich anerkannter Sachverständiger
zur Untersuchung der Gegenproben von
verpackungsmitteln aus Papier, Pappe,
Kunststoffen, Glas, Metallblech und
sonstigen Metallverpackungen auf ihre
lebensmittelrechtliche Unbedenklichkeit



(Hill)

Staatlich geprüfte und
zugelassene Lebensmittel-
chemikerin



The translation of the above stamps is given on page 3.
La traduction des estampilles est donnée en page 3.



Staatlich anerkannter Sachverständiger zur Untersuchung der Gegenproben von Verpackungsmitteln aus Papier, Pappe, Kunststoffen, Glas, Weißblech und sonstigen Metallverpackungen auf ihre lebensmittelrechtliche Unbedenklichkeit

Dr. Ralph Derra

Authorized expert for the analyses of packaging materials, attested by the Aschaffenburg Chamber of Industry and Commerce.

Expert autorisé pour l'analyse des matériaux d'emballage, assermenté par la Chambre d'Industrie et de Commerce d'Aschaffenburg.

State registered expert for the analysis of contrasting samples of packaging materials of paper, board, plastics, glass, tin plate and other metallic packaging materials as to their suitability for use with foodstuffs.

Expert public pour l'étude du control des contre-échantillons d'emballages de papier, cartons, plastiques, verre, fer-blanc et d'autres emballages métalliques concernant leur conformité alimentaire.



Dr. Ralph Derra

Authorized expert for the analyses of soil and air, attested by the Aschaffenburg Chamber of Industry and Commerce.

Expert autorisé pour l'analyse du sol et de l'air, assermenté par la Chambre d'Industrie et de Commerce d'Aschaffenburg.

Die Rücklagen des untersuchten Materials werden bei der Gutachterstelle verwahrt.
A file sample of the tested material is kept at the expert's office.
Réserve du matériel analysé est gardée au bureau de l'expert.

Filter Ti07

EG – Konformitätserklärung
 EC declaration of conformity
 Déclaration de conformité EC

MAHLE

Industrial Filtration

Der Hersteller
 The manufacturer
 Le producteur

MAHLE Filtersysteme GmbH
 Industriefiltration
 Schleifbachweg 45
 D-74613 Öhringen
 Phone +49 (0) 7941/67-0
 Fax +49 (0) 7941/67-23429

erklärt hiermit, dass die folgenden Produkte
 hereby declares that the following products
 déclare par la présente que le produits suivants

Produktbezeichnung:	852 902 TI 07/1-0.25 V4A FDA FRV	70324025
Product designation:		
Désignation du produit :	852 902 TI 07/1-0.5 V4A	76353619

der Verordnung EG 1935/2004 mit beinhalteten Richtlinien 2002/72/EG, 2007/19/EG und 2008/39/EG über Materialien und Gegenstände, die dazu bestimmt sind mit Lebensmitteln in Berührung zu kommen, entsprechen.

Für alle verwendeten Kunststoffe liegen entsprechende Untersuchungsergebnisse von akkreditieren Instituten vor. Alle weiteren verwendeten Materialien sind nach den Bestimmungen des Code of Federal Regulations, Food and Drug Administration (FDA), 21 CFR Ch. I (Ausgabe 1. April 2000), freigegeben. Alternativ ist ein Nachweis möglich, der in der Europäischen Union als gleichwertig anerkannt ist.

Hiernach dürfen alle pulverförmigen, trockenen Lebensmittel mit den oben genannten Produkten in Kontakt kommen.

Da es sich nicht um Lagerung (Verpackung) handelt, sondern um einen Filtrationsprozess, ist eine zeitliche Begrenzung der Kontaktzeit nicht relevant. Das Verhältnis des Lebensmittelvolumens mit der Kontaktfläche der Kunststoffe der Produkte ist nicht relevant, da es sich um einen dynamischen Filtrationsprozess handelt.

Die Rückverfolgbarkeit des Produktes nach der Verordnung EG 1935/2004 ist durch die eindeutige Beschriftung eines jeden Produktes und dem entsprechenden Verfahrensablauf der Firma gewährleistet.

Bei Anwendungen und Eignungen der oben genannten Produkte, die durch diese Verordnung nicht abgedeckt ist, hat sich der Verwender selbst von der Übereinstimmung mit den relevanten Verordnungen zu überzeugen.

satisfy the conditions set down in the EU Directive EC 1935/2004, which includes the Directives 2002/72/EC, 2007/19/EC and 2008/39/EC, concerning materials and articles intended to come into contact with foodstuffs.

Appropriate study results from accredited institutions are available for all plastics used. All other materials used are approved according to the requirements of the Code of Federal Regulations, Food and Drug Administration (FDA), 21 CFR Ch. I (issued April 1, 2000). Alternative proof recognised as equivalent within the European Union may also be furnished.

All dry, powdery foodstuffs are allowed to come into contact with the above-mentioned products.

Since this declaration does not relate to storage (packaging) but to a filtration process, a time limit for contact is not relevant. The ratio of the food volume to the contact surface of the plastics contained in the products is likewise not relevant because the declaration refers to a dynamic filtration process.

The traceability of the product, as described in the EU Directive EC 1935/2004, is ensured by the clear labelling on each individual product as well as by the manufacturer's corresponding process.

The user is responsible for establishing the conformity of the above-mentioned products with the relevant directives in the case of applications or suitability not covered by this Directive.

répondent au règlement européen CE 1935/2004, avec les directives impliquées 2002/72/CE, 2007/19/CE et 2008/39/CE, concernant les matériaux et objets destinés à entrer en contact avec des denrées alimentaires.

Nous disposons pour toutes les matières plastiques utilisées des résultats d'analyses correspondants venant d'instituts accrédités. Tous les autres matériaux utilisés sont validés selon les dispositions du Code of Federal Regulations, Food and Drug Administration (FDA), 21 CFR Ch. I (édition du 1er avril 2000). En alternative, nous pouvons produire un justificatif reconnu comme équivalent dans l'Union Européenne.

En conséquence, toutes les denrées alimentaires pulvérulentes, sèches peuvent entrer en contact avec les produits susmentionnés.

Etant donné qu'il ne s'agit pas d'un stockage (emballage), mais d'un processus de filtration, une limitation dans le temps de la durée de contact n'est pas importante. Le rapport entre le volume de denrées alimentaires et la surface de contact des matières plastiques des produits n'est pas important, étant donné qu'il s'agit d'un processus de filtration dynamique.

La traçabilité du produit selon le règlement européen CE 1935/2004 est assurée par le repérage univoque de chaque produit et par la procédure correspondante de la société.

Lors d'applications et de qualifications des produits susmentionnés, non couvertes par ce décret, l'utilisateur devra s'assurer lui-même de la conformité avec les règlements pertinents.

Unterzeichner:

Signatory:

Signataire :

ppa Dipl.-Ing. Wolfgang Grüner, Director Division Fluid Filters

Öhringen,

Datum/Date/Date

Unterschrift/Signature/Signataire

2. Juli 2010

ppa. W. Grüner

DR. RALPH DERRA

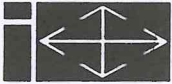
Öffentlich bestellter und vereidigter
Sachverständiger für Verpackungsmaterialien, Boden- und Luftanalysen

Akkreditiert gemäß
DIN EN ISO / IEC 17025
DIN EN 45011

DACH

DAC-PL-0035-97-20
DAC-ZE-002-08

**ISEGA – Forschungs-
und Untersuchungs-
Gesellschaft mbH
Aschaffenburg**



ISEGA

63704 Aschaffenburg, Postfach 100565
63741 Aschaffenburg, Zeppelinstr. 3-5
Germany
Telefon +49 (0) 60 21 / 49 89-0
Telefax +49 (0) 60 21 / 49 89-30
Email info@isega.de
http://www.isega.de

15.07.2011
Dr. Dr/hs-ba

**UNBEDENKLICHKEITSERKLÄRUNG
CERTIFICATE OF COMPLIANCE
CERTIFICAT DE CONFORMITE**

eingetragen
registered no.
registré

31894 U 11

für Firma
for Messrs
pour MM

Mahle Filtersysteme GmbH
Schleifbachweg 45
74613 Öhringen

Produkt
Product
Produit

Ti 26

Das von der oben genannten Firma hergestellte Produkt ist ein Filtermaterial, welches zur Staubfiltration im pharmazeutischen Bereich und in der Lebensmittelindustrie verwendet wird.

Das Produkt wurde von uns nach US-amerikanischen Vorgaben des

Code of Federal Regulations, Food and Drugs (FDA), 21 CFR Ch. I (Ausgabe 1. April 2011), § 177.1630,

auf sein Extraktionsverhalten sowie außerdem auf die Abgabe gesundheitlich bedenklicher Anteile geprüft.

Das Filtermaterial erfüllt bezüglich der mit den Stäuben in Berührung kommenden Schicht die Vorgaben des

Code of Federal Regulations, Food and Drugs (FDA), 21 CFR Ch. I (Ausgabe 1. April 2011), § 177.1630.

Das Filtermaterial Ti 26 gemäß dem vorgelegten Probenmaterial kann daher unbedenklich zur Staubfiltration im pharmazeutischen Bereich und in der Lebensmittelindustrie verwendet werden.

Diese Unbedenklichkeitserklärung stellt den neuesten technischen Stand dar und basiert auf der Unbedenklichkeitserklärung Nr. 18144 U 03 vom 31.01.2003 in Zusammenhang mit einer vollständigen Neuprüfung des Produktes.

Sie hat eine Laufzeit von 2 Jahren und umfasst 3 Seiten.

staatlich anerkannter Sachverständiger
zur Untersuchung der Gegenproben von
Verpackungsmitteln aus Papier, Pappe,
Kunststoffen, Glas, Weißblech und
sonstigen Metallverpackungen auf ihre
Lebensmittelrechtliche Unbedenklichkeit

(Burkardt)

Staatlich geprüfter und
zugelassener Lebensmittel-
chemiker



The translation of the above stamps is given on page 3.
La traduction des estampilles est donnée en page 3.



Staatlich anerkannter Sachverständiger zur Untersuchung der Gegenproben von Verpackungsmitteln aus Papier, Pappe, Kunststoffen, Glas, Weißblech und sonstigen Metallverpackungen auf ihre lebensmittelrechtliche Unbedenklichkeit

Dr. Ralph Derra

Authorized expert for the analyses of packaging materials, attested by the Aschaffenburg Chamber of Industry and Commerce.

Expert autorisé pour l'analyse des matériaux d'emballage, assermenté par la Chambre d'Industrie et de Commerce d'Aschaffenburg.

State registered expert for the analysis of contrasting samples of packaging materials of paper, board, plastics, glass, tin plate and other metallic packaging materials as to their suitability for use with food-stuffs.

Expert public pour l'étude du control des contre-échantillons d'emballages de papier, cartons, plastiques, verre, fer-blanc et d'autres emballages métalliques concernant leur conformité alimentaire.



Dr. Ralph Derra

Authorized expert for the analyses of soil and air, attested by the Aschaffenburg Chamber of Industry and Commerce.

Expert autorisé pour l'analyse du sol et de l'air, assermenté par la Chambre d'Industrie et de Commerce d'Aschaffenburg.

Die Rücklagen des untersuchten Materials werden bei der Gutachterstelle verwahrt.
A file sample of the tested material is kept at the expert's office.
Réserve du matériel analysé est gardée au bureau de l'expert.

TESTS PROTOCOLS

Qualité

Selon le système de management de la qualité ISO 9001:2008 et 14001:2004 établi dans l'entreprise Frewitt, nous attestons que l'installation à été construite, testée et contrôlée selon les règles de l'art pour assurer la qualité de l'installation et la conformité à la commande.

Qualität

Gemäss des Qualitätsmanagement-System ISO 9001:2008 und 14001:2004, welches für die Firma Frewitt erstellt wurde, bestätigen wir, dass die Anlage regelrecht konstruiert, getestet und kontrolliert wurde, um die Qualität der Anlage und die Übereinstimmung mit dem Auftrag zu gewährleisten.

Qualité

According to the system of management of quality ISO 9001:2008 and 14001:2004 established in the company Frewitt, we confirm that the installation has been built, tested and controlled according to the rules of practice to ensure the quality of the installation and its conformity to the order.



N° d'enregistrements

Registrier Nr:

Record Numbers

ISO 9001 : 02-103-118

ISO 14001 : 02-103-523

Résponsable Qualité

Fabienne Reynaud

Frewitt atteste que la vérification des connexions directes de la mise à terre a été réalisée selon les normes :

Frewitt bescheinigt, dass die Überprüfung der Erdung nach durchgeführt wurde:

Frewitt certify that the verification of direct connections to the grounding was performed according to:

EN 60204-1 / DIN VDE 0133 / IEC 204-1

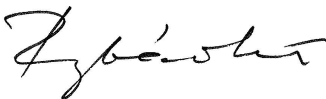
Cette vérification a été réalisée avec l'appareil :

Diese Prüfung erfolgte mit dem Gerät:

This test was conducted with the device:

PROFITEST 204

Frewitt Fabrique de Machines SA




R. Rybarikova

*Documentalis
Dokumentalist
Documentalist*

	MANAGEMENT MANUAL	Document: 167604-1-en			
		Version: 01	Established: 27 Jan 14	by: edgu	Page: 2 de 5
Formular Factory Acceptance Test		Process: P4 – Réalisation 20 – Offre – Commande – Location I			



Position	Number	Designation	Released		
			Yes	No	
1	1	PTS System Execution ATEX execution Part in contact with the product other part Construction	Inside: ATEX II 1 D Outside: ATEX II 3D HMI no-ATEX Stainless steel AISI-316, Ra ≤ 0,4 µm, Seals made of silicone, EPDM and PTFE AISI-304, Ra ≤ 1.4 µm (grain 220) According to GMP guidelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	2	Basic equipment	Multijector vakuüm pump. Special filter unit. Discharge through pneumatic discharge valve, with external drive, pneumatic opening and spring closing, sealing ring made of silicone. Filter cleaning device.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	2	Safety filter for vacuum pump	Filter area about 4m2 Diameter 200mm.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	2	Control box (pneumatimer) For Vacuum Conveyors	to control the drives. Adjustable from 1-30 seconds.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	2	Support for PTS	To attach the vacuum conveyor. Material: stainless steel 304 /304L	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	2	Docking system Manually	for connecting the vacuum conveyor with the IBC. Compensator DN200.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	2	Mobil frame	<i>not in scope of supply Y&R 21.05.14</i> Mobile frame with 4 swivel antistatic castors. Centring frame for holding the vacuum conveyor.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	1	2-Way diverter valve DN40	Fully equipped with pneumatic rotary cylinder. Solenoid valve and proximity switches for control of the position.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	MANAGEMENT MANUAL	Document: 167604-1-en			
		Version: 01	Established: 27 Jan 14	by: edgu	Page: 3 de 5
Formular Factory Acceptance Test		Process: P4 – Réalisation 20 – Offre – Commande – Location I			

- | | | | | | |
|----|---|-------------------------|--|-------------------------------------|--------------------------|
| 9 | 2 | Scale | Weigh scale from Mettler with display | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10 | 1 | Electric control | For the above system, to control, solenoid valves, limit switches, etc. control is performed in the PLC (Siemens S7-300) with all the necessary switching and control devices. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Documentation for PTS:

- | | | | | | |
|----|---|--|--|-------------------------------------|--------------------------|
| 11 | 1 | Manuel in English
(2x paper / 1x on CD) | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 12 | 1 | Surface quality with certificate | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 13 | 1 | FAT IQ/OQ Support protocol for PTS
• FAT IQ / OQ – Protocol on CD-Rom | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 14 | 1 | Sets of material certificates (3.1) for PTS
For the part in contact with the product | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 15 | 1 | <i>Datasheet</i>
Certificate of Conformance for magnetic strength performance | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Name	Signature Reason	Department / Function	Date	Signature
Grossrieder Yves	Executed By Frewitt	Project manager	21.05.14	
CHRISTINA CHEN	Reviewed By NSPM	PROCESS ENGINEER	22 MAY 14	



**MANAGEMENT
MANUAL**

Document: 167604-1-en

Version:
01

Established:
27 Jan 14

by:
edgu

Page:
4 de 5

Formular


Factory Acceptance Test

Process:

P4 – Réalisation
20 – Offre – Commande – Location I

Deficiencies to be remedied:

YGR 22.05.2014

	MANAGEMENT MANUAL	Document: 167604-1-en			
		Version: 01	Established: 27 Jan 14	by: edgu	Page: 5 de 5
Formular Factory Acceptance Test		Process: P4 – Réalisation 20 – Offre – Commande – Location I			

Date of delivery:

Machines: week 24

Accessories: 4

Documentation: 11

Issued by:

FREWITT Fabrique de machines SA
 Rte du Coteau 7
 CH-1763 Granges-Paccot

Final Approval

The Signers confirm the FAT, for the rightness of the included data with their signature. All ascertained critical deviations are adequate documented.

Name	Signature Reason	Function/ Department	Signature	Date
Edouard Gummy	Reviewer	Frewitt Project Manager		22.05.2014
Ho Sook Hwa	Reviewer	NSPM Qualification Coordinator		
Christina Chen	Approver	NSPM Process Engineer		22 MAY 14
Shivabalan Kanesan	Approver	NSPM Automation Engineer		
Panicker Shreekumar	Approver	NSPM Project Manager		
Yap Yee Boon	Approver	NSPM Project QA		

QUALIFICATION AND VALIDATION IQ / OQ



FAT IQ Test Protocol

SG.TBP.202.M.5235/C005, C006

Powder Transfer System

Professional Milling and Handling of Powders

167610-1-en

- Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland
- Postal address:
Box 615
CH-1701 Fribourg
Switzerland
- info@frewitt.com
www.frewitt.com
P +41(0)26 460 74 00
F +41(0)26 460 74 59
- No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R

15
**QUALIFICATION IQ
POWDER TRANSFER SYSTEM
2 / 15**


Project Name :	Novartis Singapore, PTS
Client :	NOVARTIS SINGAPORE PHARMACEUTICAL
Location :	SG-Singapore
Customer Order # :	3000949997
Supplier :	Frewitt Fabrique de Machines S.A.
Object :	Powder Transfer System
Serial # :	14001335180

Document Name :	Qualification IQ Powder Transfer System 1401335180 - Installation
Document Reference :	167610-1-en.doc
Document Version # :	01

Pre-Approval:

This FAT-IQ test Protocol of the equipment was created, reviewed and accepted by:

Name	Signature Reason	Function/ Department	Signature	Date
Karsten Kutnar	Author	Frewitt Project Manager		9.05.2014
Edouard Gummy	Reviewer	Frewitt Technical Project Manager		9.05.2014
Ho Sook Hwa	Reviewer	NSPM Qualification Coordinator		12 MAY 14
^{P. LOKE MAY LAM} Christina Chen	Approver	NSPM Process Engineer		13 MAY 14
Shivabalan Kanesan	Approver	NSPM Automation Engineer		12 May 14
Panicker Shreekumar	Approver	NSPM Project Manager		12 May 14
Yap Yee Boon	Approver	NSPM Project QA		14 May 14



1. Contents List

1. Contents List 3

2. General tests 4

3. PTS Components 6

4. Inlet and outlet accessories 7

5. Energies connections 8

6. Documentation 9

7. Miscellaneous 10

8. Attachments 12

9. IQ – Conclusion 13

10. Deviation Sheet 14

11. Post-Approval 15

TABLE OF NAME AND ABBREVIATED SIGNATURES OF ALL PERSONNEL EXECUTING THE FAT QUALIFICATION IQ

NAME	DEPARTMENT	SIGNATURE	INITIAL
CHRISTINA CHEN	NOVARTIS	<i>Chen</i>	CF
Shivabalan Karesan	NSPM	<i>[Signature]</i>	SH
	NA	<i>Chen</i>	22 MAY 14

15**QUALIFICATION IQ
POWDER TRANSFER SYSTEM
4 / 15****2. General tests**

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by : (Initial, Date)
2.1	Visible transport-related damage	No visible signs of damage	NO VISIBLE SIGNS OF DAMAGE	Y	NA	CYF 20 MAY 14
2.2	User access to machine There must be enough space around the machine to allow access to the control panel, accessories and tooling systems for normal operation of the machine. For units installed as permanent fixtures, there must also be enough room around the machine to allow maintenance work to be carried out.	Enough space is available around the machine for normal operation and to allow maintenance work	ENOUGH SPACE IS AVAILABLE AROUND THE MACHINE FOR NORMAL OPERATION AND TO ALLOW FOR MAINTENANCE WORK	Y	NA	CYF 20 MAY 14
2.3	Equipment Installation Verification Item # : 473515-LAY	Machine installation and dimensions are as per approved GA/drawing (attach highlighted drawing).	AS BUILT DIMENSION NOT AS PER DRAWING 473515-LAY Verified GA drawing Attachment # <u>2</u>	N	01	CYF 20 MAY 14
2.4	Component Installation Verification Item # : 473515-LAY	All components are properly installed and tagged. Attach highlighted drawing.	COMPONENT SUPPLIER NOT AS PER PART LIST Verified GA drawing Attachment # <u>2</u>	N	01	CYF 20 MAY 14
2.5	Instrument Installation Verification Item # : 473515-LAY 473527	All instruments are properly installed and tagged as per approved P&ID. (Attach highlighted drawing)	TROLLEYS FOR SG.TBP. 202.M.5285/0005 AND SG.TBP. 202.M.5285/0006 NOT PURCHASED Verified P&ID Attachment# : <u>3</u>	N	02	CYF 20 MAY 14

Professional Milling and Handling of Powders

167610-1-en

Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland

Postal address:
Box 615
CH-1701 Fribourg
Switzerland

info@frewitt.com
www.frewitt.com
P + 41(0)26 460 74 00
F + 41(0)26 460 74 59

No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R



2.6	Verify the Equipment Tags and Markings as per Novartis Tags.	Main Equipment Tags and Markings as per Novartis Tags are correct.	MAIN EQUIPMENT TAGS AND MARKINGS AS PER NOVARTIS TAGS	Y	NA	CYF 20 MAY 14
2.7	Metallic product contact parts Item #: 473515-CMA Verify against the parts/components list *	Stainless steel AISI-316 / AISI-316L material certificate/ test report as per EN 10204-2.2 included in manual. Surface finish meets requirement Ra ≤ 0.8 μm	Stainless steel AISI-316 / AISI-316L Material Certificate/test report as per EN 10204-2.2; (Yes / No) Manual Reference: OPERATING INSTRUCTIONS PTS CHAPTER 11, 13	Y	NA	CYF 20 MAY 14
			Surface finish meets requirement Ra ≤ 0.8 μm (Yes / No) Manual Reference: OPERATING INSTRUCTIONS PTS CHAPTER 11, 13	Y	NA	CYF 20 MAY 14
2.8	Non-metallic product contact parts Item #: 473515-CMA	Meets FDA requirements. Test report as per EN 10204-2.2 included in manual. FDA certificates included in manual.	FDA Certificate as per EN 10204-2.2; (Yes / No) Manual Reference: OPERATING INSTRUCTIONS PTS CHAPTER 11, 13	Y	NA	CYF 20 MAY 14
2.9	Lubricant Certification	All lubricants used are documented and certified to meet the appropriate standards (for Instance per USDA Class H1) Recommendation Lubricant certificates included in manual	LUBRICANT CERTIFICATE IS PRESENT AND COMPLYS TO H1 Lubricant Certificate Manual Reference: OPERATING INSTRUCTIONS PTS CHAPTER 11	Y	NA	CYF 20 MAY 14

* (FOR 1) REFER TO ATTACHMENT 1 FOR MATERIAL CERTIFICATE CHECKS
Chuff
20 MAY 14

15

**QUALIFICATION IQ
POWDER TRANSFER SYSTEM
6 / 15**



3. PTS Components

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by : (Initial, Date)
3.1	Vacuum Conveying System Item #: 473506	Material of construction is stainless steel AISI-316/316L. Certificates to be attached. System contains: 2x pneumatics transporters, 2x safety filters for vacuum pump, and 2x control panels for pneumatic transporters Filter certificates for safety filters are included in manual.	Material Certificate Manual Reference: <u>OPERATING INSTRUCTIONS</u> <u>PTS CHAPTER 11, 13</u> SYSTEM INCLUDES 2X PNEUMATICS TRANSPORTER 2X SAFETY FILTERS FOR VACUUM PUMP 2X CONTROL PANELS FOR PNEUMATIC TRANSPORTERS Filter Certificate Manual Reference: <u>OPERATING INSTRUCTIONS</u> <u>PTS CHAPTER 5.13</u>	Y	NA	CYF 20 MAY 14 CYF 20 MAY 14
3.2	Diverting Valve 2 Positions DN 38 Item #: 473516	Material of construction is stainless steel AISI-316/316L. Certificates to be attached.	Material Certificate Manual Reference: <u>OPERATING INSTRUCTIONS</u> <u>PTS CHAPTER 11</u>	Y	NA	CYF 20 MAY 14
3.3	2x Holding frame for pneumatic transporters Item #: 473526	Material of construction is stainless steel AISI-304/304L. Certificates 2.2 to be attached.	Material Certificate Manual Reference: <u>OPERATING INSTRUCTIONS</u> <u>PTS CHAPTER 11</u>	Y	NA	CYF 20 MAY 14
3.4	2x Wall supports for mounting the holding frame Item #: 459845	Material of construction is stainless steel AISI-304/304L. Certificates 2.2 to be attached.	Material Certificate Manual Reference: <u>OPERATING INSTRUCTIONS</u> <u>PTS CHAPTER 11</u>	Y	NA	CYF 20 MAY 14
3.5	2*Weigh Scale Item #: 473518 Check weighing range	Document the scale make and model. Weighing range: 0- 1500 kg	Make: <u>METTLER TOLEDO</u> Model: <u>PTA 459-F1500</u> Measuring Range: <u>0 - 1200KG *</u>	Y	NA	CYF 20 MAY 14

* (FOR 1) SCALES CAN MEASURE TO 1500KG BUT ONLY TO 1200KG FOR ACCURACY. *Chemyf 20 MAY 14*

Δ (FOR 1) REFER TO CHECKED MATERIAL CERTIFICATE IN POS 102 OF TEST 2.7 *Chemyf 20 MAY 14*

Professional Milling and Handling of Powders

Professional Milling and Handling of Powders

167610-1-en

Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland

Postal address:
Box 615
CH-1701 Fribourg
Switzerland

info@frewitt.com
www.frewitt.com
P + 41(0)26 460 74 00
F + 41(0)26 460 74 59

No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R



4. Inlet and outlet accessories

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by : (Initial, Date)
4.1	Outlet Funnel Item #: 473525 *	Material of construction is stainless steel AISI-316 /316L. System includes 2x Manual Docking Modules for IBC Containers	Material Certificate Manual Reference: <i>OPERATING INSTRUCTIONS PTS CHAPTER 11</i> <i>SYSTEM INCLUDES 2 X MANUAL DOCKING MODULES FOR IBC CONTAINERS</i>	<i>Y</i>	<i>NA</i>	<i>CYF 20 MAY 14</i>

** (FOR I) REFER TO CHECKED MATERIAL CERTIFICATE IN TEST 2.7 POS 100, 101 (check) 20 MAY 14*

15

QUALIFICATION IQ
POWDER TRANSFER SYSTEM
8 / 15



5. Energies connections

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Ful-filled (Y/N)	Deviation No.	Executed by : (Initial, Date)
5.1	<p>Electrical connections Item#: 473827</p> <p>Compare electrical connections as built with the electrical wiring diagram (EWD).</p> <p>Confirm each element as built with the corresponding element in the drawing. Mark a copy of the drawing and attach to this document.</p> <p>Reference drawings used.</p>	<p>All elements are correct as built based on the reference drawing.</p> <p>Drawing referenced in actual results column.</p>	<p>EE SH1 20May14 element All attachments are correct as built based on reference drawing.</p> <p>Electrical Wiring Diagram reference: <u>473827 Rev A</u></p> <p>Attachment #: <u>4</u></p>	Y	NA	SH1 20May14
5.2	<p>Pneumatic connections Item#: 473528</p> <p>Compare pneumatic connections as built with the pneumatic drawing.</p> <p>Confirm each element as built with the corresponding element in the drawing. Mark a copy of the drawing and attach to this document.</p> <p>Reference drawings used.</p>	<p>All elements are correct as built based on the reference drawing.</p> <p>Drawing referenced in actual results column.</p>	<p>ALL ELEMENTS ARE CORRECT AS BUILT AS PER 473528-SCH</p> <p>Pneumatic connections Diagram reference: <u>473528-SCH, REV A</u></p> <p>Attachment #: <u>5</u></p>	Y	NA	CYF 21 MAY 14

Professional Milling and Handling of Powders

Professional Milling and Handling of Powders

167610-1-en

Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland

Postal address:
Box 615
CH-1701 Fribourg
Switzerland

info@frewitt.com
www.frewitt.com
P + 41(0)26 460 74 00
F + 41(0)26 460 74 59

No. TVA 489 197
IBAN EUR: CH90 0123 5036 3518 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R


6. Documentation

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by : (Initial, Date)
6.1	Manual Contents	Check that the following documents are present:				
6.1.1	Index	Document present	DOCUMENT PRESENT	Y	NA	CYF 21 MAY 14
6.1.2	Overview	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.3	R&I (PID)	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.4	Powder Transfer System PPC200	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.5	Filter Unit VS250	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.6	MULTIJECTOR®-Vacuum pump	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.7	Pneutimer PT3E-S	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.8	Spare parts	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.9	Electrical / Drive / Pneumatic systems	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.10	Certificates	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.11	ATEX certificates	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.12	Volkman Inspection Certificates	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.13	Tests protocols	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.14	Qualification & Validation IQ/OQ	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.15	Butterfly valves Documentation	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.2	Lubrication *	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.3	Product Conveying tube *	The product contact tubes must be antistatic (ATEX) abrasion resistant and FDA compliant	PRESENT	Y	NA	CYF 21 MAY 14
6.4	Diverter valve Δ Documentation	Document present	PRESENT	Y	NA	CYF 21 MAY 14
6.1.16	METTLER TOLEDO BALANCE	DOCUMENT PRESENT	PRESENT	Y	NA	CYF 21 MAY 14

* (FOR 2) REFER TO OPERATING INSTRUCTIONS PTS CHAPTER 11 CYF 21 MAY 14
 Δ (FOR 1) REFER TO OPERATING INSTRUCTIONS PTS CHAPTER 16 CYF 21 MAY 14
 Professional Milling and Handling of Powders 167610-1-en

■ Frewitt SA
 Route du Coteau 7
 CH-1763 Granges-Paccot
 Switzerland

■ Postal address:
 Box 6 15
 CH-1701 Fribourg
 Switzerland

■ info@frewitt.com
 www.frewitt.com
 P +41(0)26 460 74 00
 F +41(0)26 460 74 59

■ No. TVA 489 197
 IBAN EUR: CH90 0483 5036 3818 0200 0
 IBAN CHF: CH27 0483 5036 3818 0100 0
 Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R

15

**QUALIFICATION IQ
POWDER TRANSFER SYSTEM
10 / 15**

7. Miscellaneous

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by : (Initial, Date)
7.1	Connections required for cleaning	All connections required for cleaning are present and correct with safe-guard/polishing filter.	ALL CONNECTIONS REQUIRED FOR CLEANING ARE PRESENT AND CORRECT WITH SAFE GUARD/POLISHING FILTER	Y	NA	CYF 21 MAY 14
7.2	Software Installation/Version Verification	Check Software is installed and record version number	Development Software: HMI: <u>WinCC Flex ADV 2008 SP3</u> PLC: <u>5KP 7 VS. 5 SP3</u> Application Software: HMI: <u>14-0013 V1.0</u> Refer-Att 6 PLC: <u>14-0013 V1.0</u>	Y	NA	SHI 21 May 14
7.3	Control System Hardware installation & verification	Verify that control system hardware installation in accordance with Novartis requirements	Control system hardware installation is in accordance with Novartis requirements.	Y	NA	SHI 21 May 14
7.4	Ethernet IP Configuration for interface to Melt Extruder	Verify Ethernet IP Configuration for interface to Melt Extruder	IP Configuration : 192.168.172.62 ATT 7	Y	NA	SHI 21 May 14

Professional Milling and Handling of Powders
Professional Milling and Handling of Powders

167610-1-en

■ Frewitt SA
 Route du Coteau 7
 CH-1763 Granges-Paccot
 Switzerland

■ Postal address:
 Box 615
 CH-1701 Fribourg
 Switzerland

■ info@frewitt.com
 www.frewitt.com
 P + 41(0)26 460 74 00
 F + 41(0)26 460 74 59

■ No. TVA 489 197
 IBAN EUR: CH90 0483 5036 3818 0200 0
 IBAN CHF: CH27 0483 5036 3818 0100 0
 Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R



FATTQ
POWDER TRANSFER SYSTEM
11 / 15

15

7.5	I/O loop checks: Perform I/O loop checks.	I/O loop checks performed.	I/O loop checks ok, as performed as per Wiring Diagram. Attachment #: <u>4</u>	Y	NA	SH1 21 May 14
7.6	Magnetic separator *	Material Construction, Certificate of conformance for magnetic strength performance	Material Certificate Manual Reference: <u>OPERATING INSTRUCTIONS PTS CHAPTER 11</u> Certificate of Conformance <u>OPERATING INSTRUCTIONS PTS CHAPTER 10</u>	Y	NA	CYF 20 MAY 14

* (FOR 1) REFER TO CHECKED MATERIAL CERTIFICATE IN POS 101-100/2 AND POS 100-100/2. DATASHEET AVAILABLE FOR MAGNETIC STRENGTH ACTUAL STRENGTH WILL BE TESTED ON SITE. *Cheriff* 20 MAY 14

Professional Milling and Handling of Powders

167610-1-en

- Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland
- Postal address:
Box 615
CH-1701 Fribourg
Switzerland
- info@frewitt.com
www.frewitt.com
P +41(0)26 460 74 00
F +41(0)26 460 74 59
- No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R

Professional Milling and Handling of Powders



CERTIFICAT MATIERES EN 10204-3.1
MATERIALZERTIFIKAT / MATERIALS CERTIFICATE
 Freumetals Transport Systems
2xPPC-200VS PRO-14-0013

11

Pos. 500-501 Dessin / Zeichnung / Drawing : 473525-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.:
500	EPDM	437890	169108
501	Silicone	405881	26019

Pos 102 473516 Dessin / Zeichnung / Drawing : 473516-CMA

Pos. 1 464937 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.58	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	12.70	0.22	64.56	1.98	17.78	0.02	0.00

Pos. 2 464936 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.18	12.43	0.00	64.80	1.67	18.29	0.04	0.00

Pos. 100 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.60	0.00	0.00	0.01	0.01	0.00	0.05	0.02	0.13	12.88	0.12	65.10	1.42	17.57	0.07	0.00
2	316/316L	0.00	0.00	0.03	0.00	0.00	0.00	2.44	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.56	10.77	0.24	68.04	1.58	16.15	0.12	0.00

Pos. 101 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.70	0.03	0.00	0.01	0.02	0.00	0.03	0.02	0.20	13.18	0.10	64.94	1.55	17.15	0.05	0.00
2	316/316L	0.00	0.00	0.00	0.01	0.00	0.01	2.30	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.10	10.69	0.35	68.97	1.03	16.36	0.13	0.00

Pos. 102 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.75	0.02	0.01	0.01	0.02	0.00	0.05	0.00	0.23	13.04	0.21	66.08	1.11	16.36	0.07	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.28	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.05	11.08	0.34	70.04	1.07	16.99	0.10	0.00

Pos. 103 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.01	0.00	0.00	2.17	0.01	0.00	0.00	0.03	0.00	0.00	0.08	9.98	0.46	68.89	1.34	16.99	0.02	0.01	
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.23	0.01	0.00	0.01	0.01	0.00	0.06	0.01	0.08	10.03	0.50	68.72	1.25	17.05	0.02	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	1.98	0.00	0.01	0.00	0.03	0.00	0.00	0.01	0.30	10.28	0.02	69.37	1.08	16.83	0.08	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.:
500	EPDM	469947	151784

Pos. 104 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.01	2.21	0.01	0.00	0.01	0.02	0.00	0.04	0.01	0.04	10.49	0.47	68.81	1.21	16.65	0.04	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.01	0.01	2.15	0.00	0.00	0.00	0.03	0.00	0.07	0.00	0.07	10.41	0.30	69.51	0.77	16.65	0.01	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.05	0.02	0.00	0.00	0.02	0.00	0.01	0.01	0.28	10.50	0.22	69.26	1.11	16.43	0.07	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.:
500	EPDM	469947	151784

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 3 OF 21

Cheriff 20 MAY 14



CERTIFICAT MATIERES EN 10204-3.1
MATERIALZERTIFIKAT / MATERIALS CERTIFICATE
 Freudenberg Transport Systems
2xPPC-200VS PRO-14-0013

11

Pos. 500-501 Dessin / Zeichnung / Drawing : 473525-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.
500	EPDM	437890	169108
	Silicone	405881	

Pos. 102 473516 Dessin / Zeichnung / Drawing : 473516-CMA

Pos. 1 464937 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.58	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	12.70	0.22	64.56	1.98	17.78	0.02	0.00

Pos. 2 464936 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.18	12.43	0.00	64.80	1.67	18.29	0.04	0.00

Pos. 100 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.60	0.00	0.00	0.01	0.01	0.00	0.05	0.02	0.13	12.88	0.12	65.10	1.42	17.57	0.07	0.00
2	316/316L	0.00	0.00	0.03	0.00	0.00	0.00	2.44	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.56	10.77	0.24	68.04	1.58	16.15	0.12	0.00

Pos. 101 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.70	0.03	0.00	0.01	0.02	0.00	0.03	0.02	0.20	13.18	0.10	64.94	1.55	17.15	0.05	0.00
2	316/316L	0.00	0.00	0.00	0.01	0.00	0.01	2.30	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.10	10.69	0.35	68.97	1.03	16.36	0.13	0.00

Pos. 102 464965 Dessin / Zeichnung / Drawing : 464965-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.75	0.02	0.01	0.01	0.02	0.00	0.05	0.00	0.23	13.04	0.21	66.08	1.11	16.36	0.07	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.28	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.05	11.08	0.34	70.04	1.07	16.99	0.10	0.00

Pos. 103 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.01	0.00	0.00	2.17	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.08	9.98	0.46	68.89	1.34	16.99	0.02	0.01
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.23	0.01	0.00	0.01	0.01	0.00	0.06	0.01	0.08	10.03	0.50	68.72	1.25	17.05	0.02	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	1.98	0.00	0.01	0.00	0.03	0.00	0.00	0.01	0.30	10.28	0.02	69.37	1.08	16.83	0.08	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.
500	EPDM	469947	151784

Pos. 104 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.01	2.21	0.01	0.00	0.01	0.02	0.00	0.04	0.01	0.04	10.49	0.47	68.81	1.21	16.65	0.04	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.01	0.01	2.15	0.00	0.00	0.00	0.03	0.00	0.07	0.00	0.07	10.41	0.30	69.51	0.77	16.65	0.01	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.05	0.02	0.00	0.00	0.02	0.00	0.01	0.01	0.28	10.50	0.22	69.26	1.11	16.43	0.07	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.
500	EPDM	469947	151784

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 3 OF 21

Cherry 20 MAY 14



CERTIFICAT MATIERES EN 10204-3.1
 MATERIALZERTIFIKAT / MATERIALS CERTIFICATE
 Freiwitt Transport Systems
 2xPPC-200VS PRO-14-0013

11

Pos. 105 469947 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.20	0.00	0.00	0.01	0.02	0.01	0.00	0.02	0.09	10.17	0.57	68.47	1.88	16.51	0.04	0.01
2	316/316L	0.00	0.00	0.03	0.00	0.01	0.00	2.23	0.02	0.02	0.00	0.02	0.00	0.04	0.01	0.14	10.58	0.74	68.66	1.63	16.84	0.04	0.00
3	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.10	0.01	0.00	0.00	0.01	0.00	0.08	0.00	0.26	10.38	0.20	69.31	1.25	16.76	0.10	0.01

Pos. 500 Dessin / Zeichnung / Drawing : 469947-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.
500	EPDM	469947	151784

Pos. 106 464968 Dessin / Zeichnung / Drawing : 464968-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.01	0.00	0.01	2.26	0.02	0.01	0.01	0.02	0.00	0.04	0.00	0.41	10.63	0.42	68.70	1.09	16.25	0.10	0.00
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.14	0.02	0.01	0.01	0.02	0.00	0.05	0.02	0.25	10.50	0.00	69.28	0.64	16.99	0.07	0.00
3	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.88	0.00	0.01	0.01	0.00	0.00	0.05	0.01	0.40	13.74	0.46	65.59	1.46	16.71	0.09	0.01
4	316/316L	0.00	0.00	0.00	0.01	0.00	0.00	2.17	0.00	0.00	0.01	0.01	0.00	0.03	0.00	0.04	10.92	0.23	69.80	0.76	16.95	0.06	0.00
5	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.04	0.00	0.00	0.01	0.00	0.05	0.00	0.27	10.68	0.04	69.31	0.70	16.86	0.07	0.00
6	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.84	0.03	0.01	0.01	0.02	0.01	0.06	0.00	0.23	13.93	0.29	65.54	1.49	16.82	0.08	0.00
7	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.04	0.00	0.00	0.01	0.01	0.00	0.04	0.00	0.35	11.10	0.43	68.60	1.07	16.22	0.11	0.01
8	316/316L	0.00	0.00	0.02	0.01	0.00	0.01	2.09	0.01	0.01	0.00	0.00	0.01	0.04	0.00	0.30	10.74	0.11	69.40	0.84	16.93	0.08	0.00

Pos. 107 460022 Dessin / Zeichnung / Drawing : 460022-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.03	0.00	0.00	0.00	0.02	0.00	0.05	0.02	0.30	10.08	0.11	69.31	0.80	17.19	0.08	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.01	2.10	0.03	0.00	0.01	0.01	0.00	0.14	0.00	0.42	9.84	0.44	68.15	1.57	17.21	0.07	0.00

Pos. 108 463739 Dessin / Zeichnung / Drawing : 463739-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.00	0.01	0.00	0.00	3.50	0.00	0.01	0.01	0.02	0.00	0.23	0.00	0.28	14.52	0.17	63.32	1.65	16.12	0.15	0.01
2	316/316L	0.00	0.00	0.01	0.00	0.01	0.02	2.06	0.01	0.00	0.00	0.02	0.00	0.01	0.02	0.40	11.25	0.11	68.34	1.41	16.30	0.05	0.00
3	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.36	0.04	0.01	0.00	0.02	0.00	0.09	0.00	0.27	11.60	0.24	68.59	1.14	16.54	0.07	0.00

Pos. 500 Dessin / Zeichnung / Drawing : 473516-CMA

Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Zertifikat Nr. FDA certificate No.
500	PTFE	455217	56867

Pos 103 474798 Dessin / Zeichnung / Drawing : 474798-CMA

Pos. 100 471025 Dessin / Zeichnung / Drawing : 474798-CMA

471025-1 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.00	0.00	0.00	0.01	2.42	0.00	0.02	0.00	0.01	0.00	0.02	0.00	0.16	10.55	0.16	69.32	0.80	16.73	0.05	0.03
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.19	0.05	0.01	0.00	0.02	0.00	0.09	0.01	0.41	10.68	0.39	68.18	1.77	16.60	0.09	0.00
3	316/316L	0.00	0.02	0.00	0.00	0.00	0.01	2.35	0.04	0.01	0.01	0.02	0.01	0.00	0.00	0.12	10.99	0.16	69.44	1.64	16.83	0.08	0.03

471025-2 471025 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	%																					
		Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.01	2.22	0.00	0.01	0.01	0.03	0.00	0.00	0.01	0.19	10.59	0.09	68.61	1.68	16.41	0.12	0.03
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.11	0.04	0.01	0.00	0.02	0.00	0.11	0.00	0.45	10.41	0.36	68.05	1.78	16.56	0.08	0.01
3	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.04	0.01	0.01	0.01	0.01	0.00	0.04	0.02	0.03	10.24	0.19	69.97	1.26	16.18	0.06	0.00

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 4 OF 21

Cherry/20MAY14



CERTIFICAT MATIERES EN 10204-3.1
MATERIALZERTIFIKAT / MATERIALS CERTIFICATE
Pneumatic Transport Systems
2xPPC-200VS PRO-14-0013

11

471025-3 471025 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.70	0.02	0.01	0.00	0.01	0.00	0.05	0.01	0.13	11.77	0.33	69.75	1.78	16.83	0.08	0.03
2	316/316L	0.00	0.02	0.02	0.01	0.00	0.00	2.38	0.02	0.00	0.00	0.02	0.00	0.04	0.00	0.37	10.96	0.30	67.91	2.00	16.93	0.10	0.02
3	316/316L	0.00	0.00	0.00	0.01	0.00	0.00	2.45	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.19	10.09	0.48	69.26	1.18	16.92	0.06	0.01

471025-4 471025 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.02	0.00	0.00	0.00	0.00	2.36	0.01	0.02	0.01	0.03	0.00	0.08	0.02	0.05	10.88	0.34	68.60	2.02	16.81	0.11	0.04
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.15	0.04	0.01	0.01	0.02	0.00	0.08	0.00	0.32	10.45	0.34	67.97	1.68	16.83	0.09	0.00
3	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.25	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.16	10.26	0.50	68.74	1.34	16.62	0.04	0.00

Pos. 101 472378 Dessin / Zeichnung / Drawing : 474798-CMA

472378-1 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.14	0.00	0.00	0.02	0.02	0.00	0.00	0.03	0.08	10.76	0.15	67.14	1.83	17.77	0.05	0.00
2	316/316L	0.00	0.01	0.00	0.00	0.00	0.01	2.18	0.02	0.00	0.01	0.01	0.00	0.16	0.00	0.12	10.50	0.00	67.49	2.01	17.41	0.07	0.00

472378-2 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.34	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.44	11.22	0.13	66.79	1.37	17.56	0.08	0.00
2	316/316L	0.00	0.01	0.01	0.01	0.00	0.00	2.26	0.02	0.00	0.01	0.01	0.00	0.04	0.02	0.33	11.52	0.14	65.91	2.04	17.60	0.06	0.00

472378-3 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.02	0.00	0.00	0.01	2.13	0.05	0.02	0.00	0.04	0.00	0.00	0.01	0.29	11.56	0.27	66.20	1.31	18.02	0.07	0.00
2	316/316L	0.00	0.02	0.02	0.00	0.00	0.01	2.14	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.10	11.25	0.03	67.39	1.58	17.34	0.08	0.00

472378-4 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.08	0.01	0.00	0.00	0.02	0.00	0.04	0.01	0.33	11.15	0.21	65.64	1.35	19.04	0.10	0.01
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.01	2.17	0.01	0.01	0.01	0.03	0.00	0.00	0.00	0.15	10.74	0.01	67.50	1.89	17.40	0.06	0.00

472378-5 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.28	0.01	0.00	0.02	0.00	0.00	0.09	0.00	0.34	11.07	0.23	65.42	1.41	18.05	0.07	0.01
2	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.14	0.03	0.01	0.01	0.00	0.00	0.06	0.02	0.13	10.79	0.00	67.76	1.76	17.24	0.05	0.00

472378-6 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.14	0.01	0.00	0.00	0.02	0.00	0.03	0.01	0.10	10.67	0.25	66.84	1.76	18.11	0.04	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.15	0.00	0.01	0.01	0.03	0.00	0.07	0.01	0.33	11.64	0.12	66.19	1.82	17.57	0.06	0.01

472378-7 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.00	0.00	0.01	2.01	0.03	0.00	0.01	0.02	0.00	0.07	0.03	0.34	11.16	0.22	65.78	1.07	19.14	0.08	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.02	0.00	0.05	0.01	0.41	10.85	0.05	67.02	1.62	17.69	0.08	0.01

472378-8 472378 Dessin / Zeichnung / Drawing : 474798-CMA

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.15	0.02	0.01	0.01	0.03	0.00	0.00	0.05	0.32	11.07	0.10	66.59	1.76	17.84	0.05	0.00
2	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.19	0.03	0.00	0.01	0.01	0.00	0.09	0.00	0.23	11.44	0.13	66.35	1.74	17.70	0.07	0.00

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 5 OF 21
 Cheryl 20 MAY 14



CERTIFICAT MATIERES EN 10204-3.1
MATERIALZERTIFIKAT / MATERIALS CERTIFICATE
Pneumatic Transport Systems
2xPPC-200VS PRO-14-0013

11

472378-9 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.20	0.03	0.00	0.00	0.02	0.00	0.00	0.02	0.34	10.97	0.10	66.45	1.33	18.45	0.07	0.00
2	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.18	0.00	0.01	0.00	0.03	0.00	0.02	0.02	0.42	11.38	0.30	66.22	1.76	17.56	0.05	0.00

472378-10 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.01	0.01	0.00	0.01	0.00	2.21	0.03	0.00	0.01	0.03	0.00	0.00	0.01	0.38	11.00	0.32	65.86	1.67	18.39	0.08	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.23	0.01	0.00	0.00	0.00	0.01	0.00	0.03	0.17	11.01	0.25	66.10	1.90	18.25	0.03	0.00

472378-11 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.09	0.03	0.00	0.01	0.01	0.00	0.07	0.00	0.19	10.66	0.00	67.02	1.70	18.12	0.07	0.02
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.85	0.00	0.00	0.00	0.02	0.01	0.06	0.00	0.31	13.13	0.43	64.78	1.59	16.74	0.08	0.00

472378-12 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.07	0.01	0.00	0.01	0.01	0.00	0.03	0.03	0.13	10.83	0.14	67.02	1.78	17.87	0.05	0.01
2	316/316L	0.00	0.00	0.03	0.00	0.00	0.00	2.35	0.17	0.02	0.00	0.00	0.00	0.00	0.04	0.25	10.51	0.41	66.56	1.93	17.68	0.05	0.01

472378-13 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.09	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.22	11.02	0.53	66.81	1.60	17.61	0.05	0.00
2	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.26	10.98	0.40	67.03	2.16	16.97	0.09	0.00

472378-14 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.01	2.23	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.24	10.48	0.17	66.68	1.62	18.42	0.10	0.00
2	316/316L	0.00	0.00	0.01	0.01	0.00	0.00	2.06	0.02	0.01	0.00	0.01	0.00	0.10	0.00	0.15	11.11	0.17	66.92	2.19	17.20	0.04	0.00

Pos. 102 Dessin / Zeichnung / Drawing : **474798-CMA**

Pos. 472377-1 Dessin / Zeichnung / Drawing : **474798-CMA**

Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.31	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	10.17	0.00	69.88	0.80	16.76	0.05	0.00
2	316/316L	0.00	0.00	0.02	0.00	0.00	0.00	2.16	0.05	0.01	0.01	0.01	0.00	0.12	0.02	0.33	10.42	0.00	70.02	0.80	16.96	0.07	0.00
3	316/316L	0.00	0.01	0.01	0.00	0.00	0.01	2.20	0.02	0.00	0.00	0.01	0.00	0.06	0.04	0.07	10.28	0.51	67.98	1.31	17.78	0.11	0.01
4	316/316L	0.00	0.01	0.01	0.00	0.00	0.00	2.21	0.01	0.01	0.01	0.01	0.00	0.09	0.00	0.34	10.93	0.26	66.99	1.00	18.05	0.07	0.00
5	316/316L	0.00	0.01	0.02	0.00	0.00	0.00	2.07	0.00	0.00	0.01	0.01	0.00	0.00	0.03	0.36	10.15	0.16	67.24	0.79	19.07	0.06	0.00

Pos. 472377-2 Dessin / Zeichnung / Drawing : **474798-CMA**

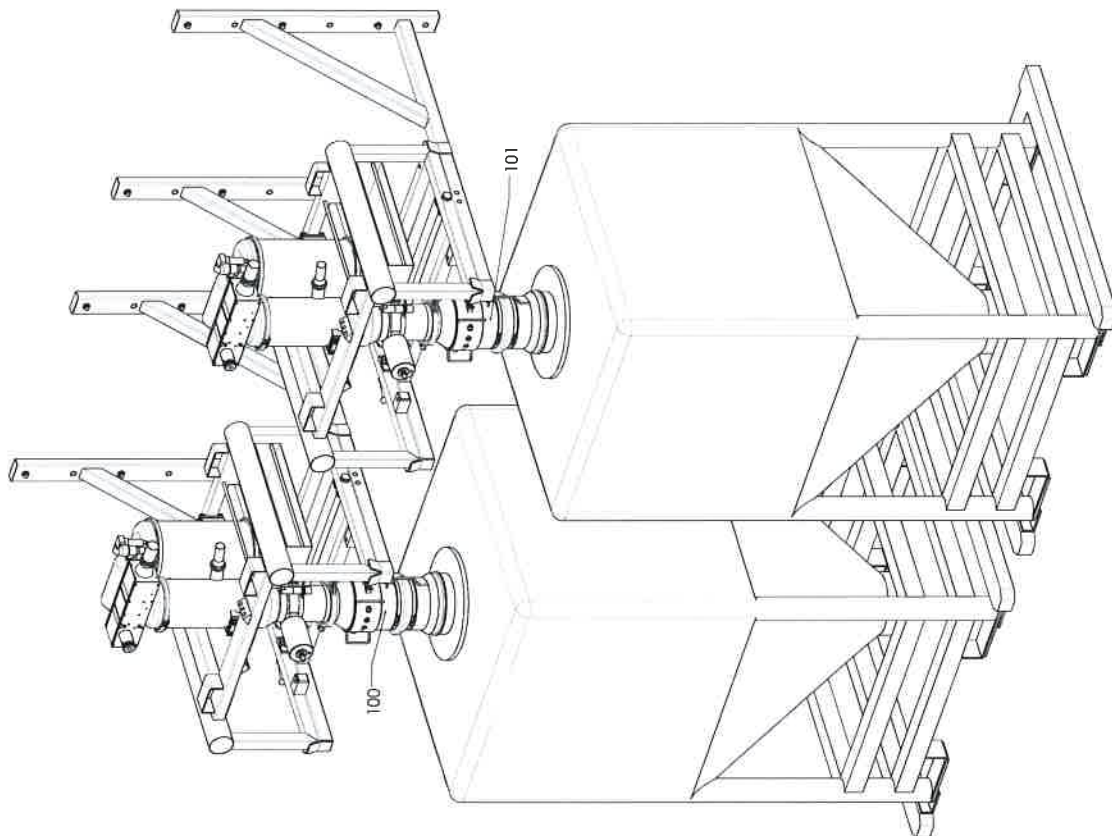
Mesure N° Mass Nr. Measure Nr.	Matière Material Material	Al	Sb	Sn	Cd	Pd	Ag	Mo	Nb	Zr	Bi	Pb	Se	W	Zn	Cu	Ni	Co	Fe	Mn	Cr	V	Ti
1	316/316L	0.00	0.02	0.02	0.00	0.00	0.00	2.21	0.01	0.00	0.01	0.01	0.00	0.00	0.03	0.09	10.37	0.00	68.95	1.11	17.03	0.13	0.02
2	316/316L	0.00	0.00	0.02	0.01	0.00	0.00	2.04	0.04	0.01	0.01	0.02	0.00	0.08	0.01	0.28	9.78	0.52	68.83	1.06	17.22	0.07	0.00
3	316/316L	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.08	9.78	0.04	68.82	0.85	17.97	0.17	0.00
4	316/316L	0.00	0.01	0.02	0.01	0.00	0.01	2.13	0.00	0.01	0.02	0.01	0.00	0.10	0.00	0.30	10.95	0.22	66.79	1.43	17.93	0.06	0.00
5	316/316L	0.00	0.00	0.01	0.00	0.00	0.00	2.07	0.00	0.01	0.00	0.01	0.00	0.19	0.00	0.19	11.38	0.22	66.67	1.12	18.07	0.06	0.01

Pos. 500-502 Dessin / Zeichnung / Drawing : **474798-CMA**

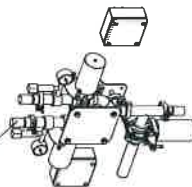
Mesure/Pos. N° Mass/Pos. Nr. Measure/Pos. Nr.	Matière Material Material	Article Artikel Article	Certificat FDA N° FDA Certificat Nr. FDA certificate No.
500	PUR-MHF	472378	165583
501	PUR-MHF	472377	165583
502	PUR-MHF	472377	165583

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 6 OF 21
 Cheryl DOMAYIY

Protocole établi par (visa)	H.Rey	le	15-20.05.2014
Report established by (visa)		am	
Protokoll erstellt von (visa)		on	



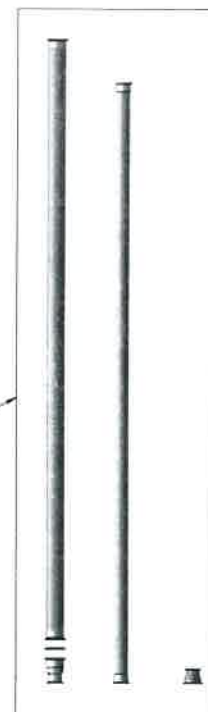
ATTACHMENT 1 TO
FAT IQ PTS
PAGE 1 OF 21
Chemoff 20 MAY 14



Pos.	Item number	Control drawing	Metallic certificates EN-12043-1B FDA	Surface quality certificates
100	473525	473525-CMA	X	X
101	473525	473525-CMA	X	X
102	473516	473516-CMA	X	X
103	474788	474788-CMA	X	X

X = achieved
0 = unachieved

103



Dimensions without tolerance (mm)		4	5	6	8	10	12	16	20	25	32	40	50	63	80	100	125	160	200	
Machining	EN 12043-1B	±0.10	±0.08	±0.06	±0.05	±0.04	±0.03	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02
Machining	ISO 2768-Ms	±0.10	±0.08	±0.06	±0.05	±0.04	±0.03	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02

MATERIAL:

Scale	1:1	1:2	1:5	1:10	1:20	1:50	1:100	1:200	1:500	1:1000
Drawn	469852	15/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014
Checked	469852	15/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014	10/03/2014
Weight	kg	g	mg	μg	mm³	cm³	dm³	m³	l	cl
Material	A2	3037	A2	3037	A2	3037	A2	3037	A2	3037

PRO-14-0013 / PPC-200VS

473515-CMA

Page 1/1



CERTIFICAT D'ETAT DE SURFACES /
ZERTIFIKAT FÜR OBERFLÄCHENQUALITÄT /
SURFACE QUALITY CERTIFICATE

11

Pneumatic Transport Systems

2xPPC-200VS PRO-14-0013

N° Série:	473515-CMA	Serien-Nr.	14001335180	Serial Nr.	
Appareil de mesure / Messapparat / Measuring unit :		Mitutoyo Sufitest SJ-301			
N° série / Serien-Nr. / Serial Nr. :		400197			
N° Etalon / Massstab-Nr. / Standard Nr. :		522			
Position de mesure:		Intérieur		Extérieur	
Massnahmenposition:		I = innen		E = Aussen	
Measure position:		inside		Outside	

ATTACHMENT 1 TO
FAT IQ PTS
PAGE 7 OF 21
Cherry SOMAYIY

Ref	Position mesure Massnahmenposition Measure position	Measures N° Mass Nr. Measure Nr.	Norme Norm Stand	Profil Profil Profile	Filtre Filter Filter	Eva.-L Ausw.-L Eva.-L	AC	N	Vitesse Gesch. Speed	Drive Vorschub Drive	Ra
Pos 100 - C005											
Pos.100											
469865	I	1	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.16um
469865	I	2	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.101											
464847	I	1	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
464847	I	2	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.08um
Pos 101 - C006											
Pos.100											
469865	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
469865	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.101											
464847	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
464847	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
Pos 102											
Pos.1											
464937	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um
464937	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
Pos.2											
464936	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.20um
464936	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.09um
Pos.100											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
Pos.101											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.15um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.15um
Pos.102											
464965	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
464965	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
Pos.103											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.10um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.13um
Pos.104											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.11um
Pos.105											
469947	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.12um
469947	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.17um
Pos.106											
464968	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
464968	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.26um
Pos.107											
460022	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.14um
460022	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.19um
Pos 103											
100											
Pos.100-1											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
Pos.100-2											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.33um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.32um

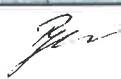


CERTIFICAT D'ETAT DE SURFACES /
ZERTIFIKAT FÜR OBERFLÄCHENQUALITÄT /
SURFACE QUALITY CERTIFICATE

11

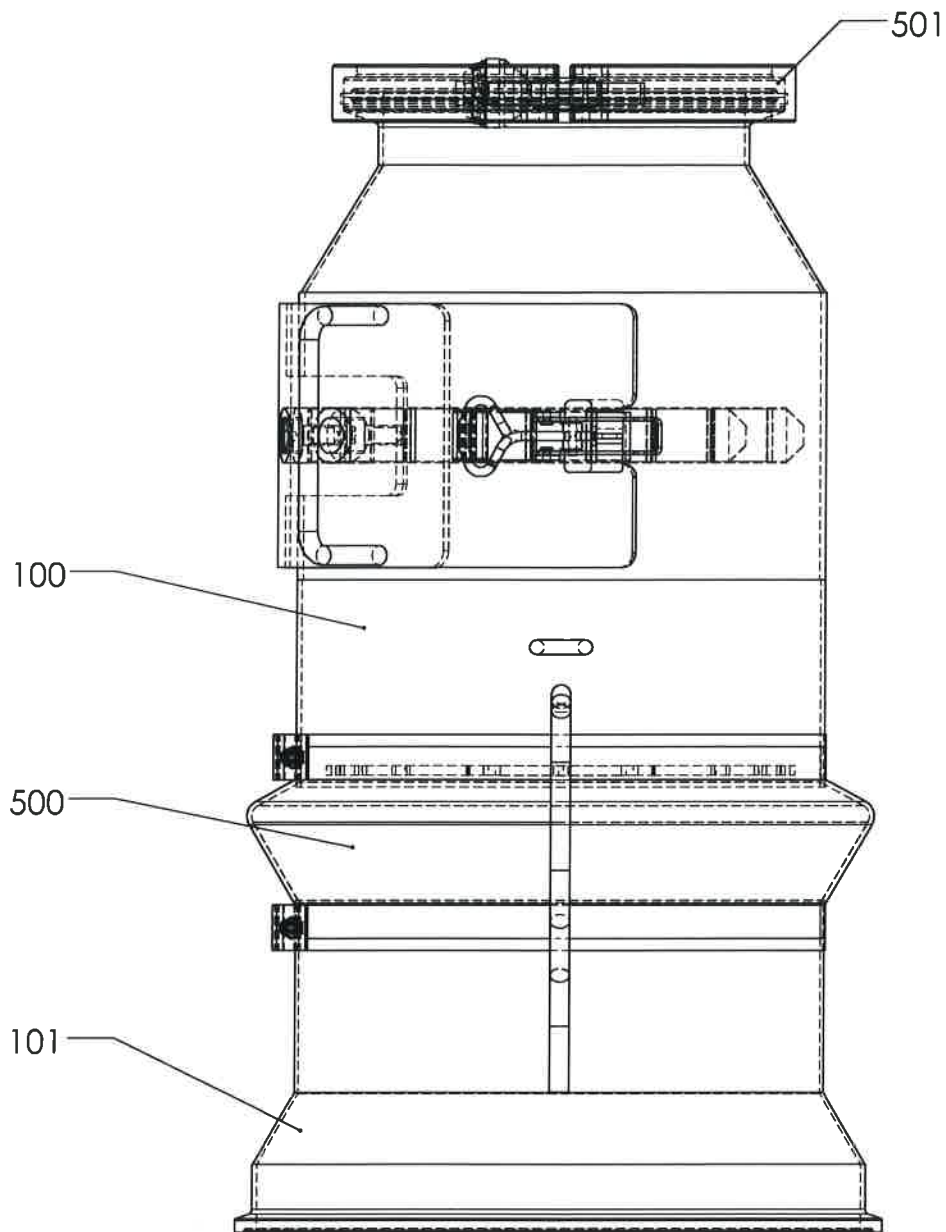
Pneumatic Transport Systems

2xPPC-200VS PRO-14-0013

Pos. 100-3											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.38um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 100-4											
471025	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
471025	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um
Pos. 101-1											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.34um
Pos. 101-2											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 101-3											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.25um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.22um
Pos. 101-4											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.26um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 101-5											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.32um
Pos. 101-6											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.18um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 101-7											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 101-8											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.33um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.35um
Pos. 101-9											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.28um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.24um
Pos. 101-10											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
Pos. 101-11											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.30um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
Pos. 101-12											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.20um
Pos. 101-13											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.27um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.34um
Pos. 101-14											
472378	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
472378	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um
Pos. 102-1											
472377	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.36um
472377	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.29um
Pos. 102-2											
472377	I	1.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.31um
472377	I	2.00	JIS2001	R	GAUSS	4.0mm	0.8mm	5.00	0.5mm/s	STAND	0.21um
Protocole établi par (visa) Protokoll erstellt von (Visa) Report established by (Visa)				H.REY				le	am	16-20.05.2014	on

ATTACHMENT 1 TO
FAT IQ PTS
PAGE 8 OF 21

Chouff 20 may 14



Position	Item number
100	469865-CMA
101	464847-CMA
500	437890
501	405881

ATTACHMENT 1 TO
FAT IQ PTS
PAGE 9 OF 21

Cherif 20 MAY 14

pos 101 (C006)
pos 100 (C005)

Dimensions without tolerance [mm]	above	6	30	120	400	1000	
	up to	6	30	120	400	1000	
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00

MATERIAL :

Scale	Similar	Designed	23/01/2014	thle
%	469864	Controlled	23/01/2014	thle
Weight [kg]		Revised	23/01/2014	thle
A4	5.54	Atex		

Entonnoir de sortie

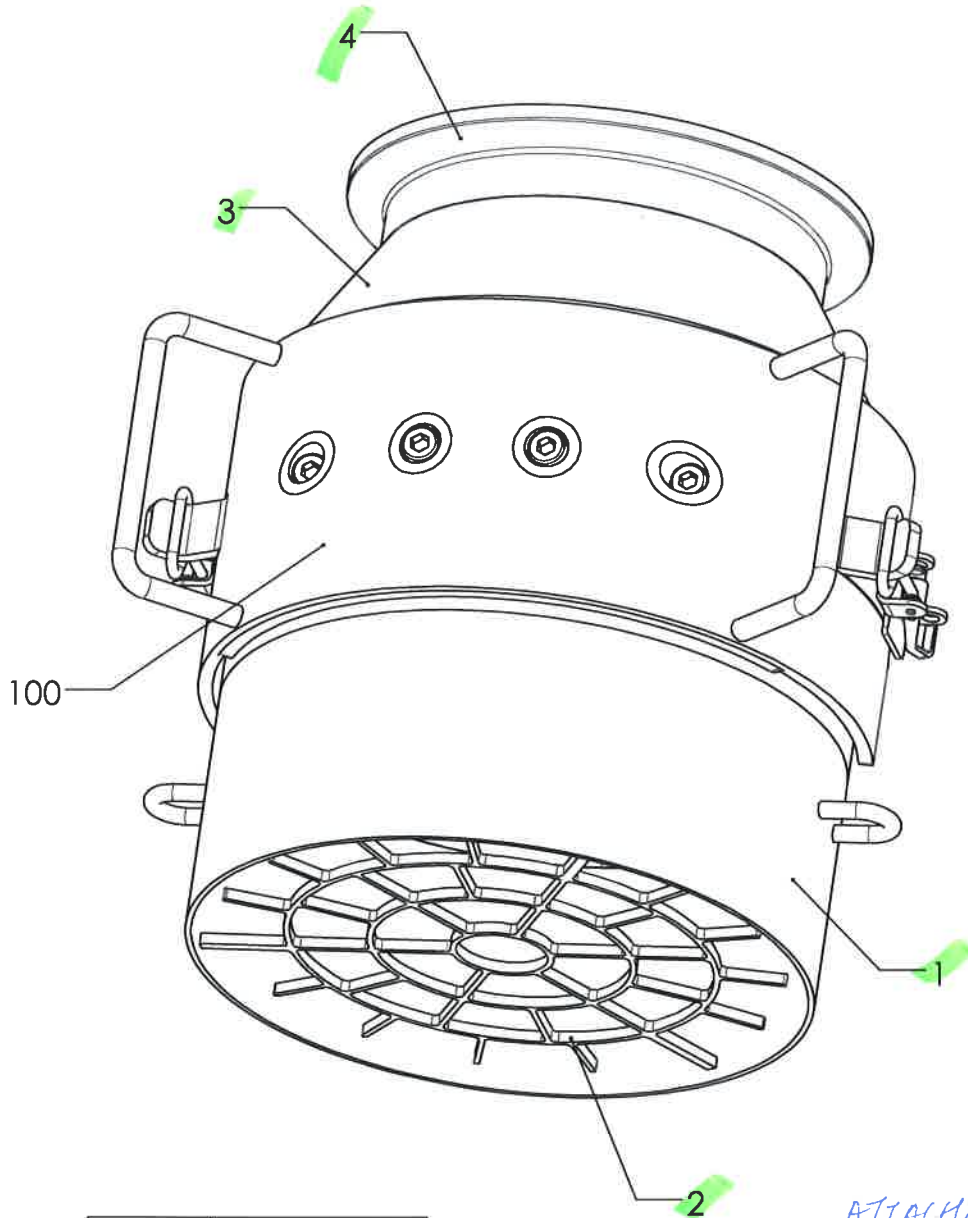
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWILL SA.



Frewill SA: Milling and Handling of Powders
P.O.B. 615, CH-1701 Fribourg, SWITZERLAND
tel: +41 26 460 74 00 / fax: +41 26 460 74 01
info@frewill.com / www.frewill.com

473525-CMA

Page	Ver.
1/1	A

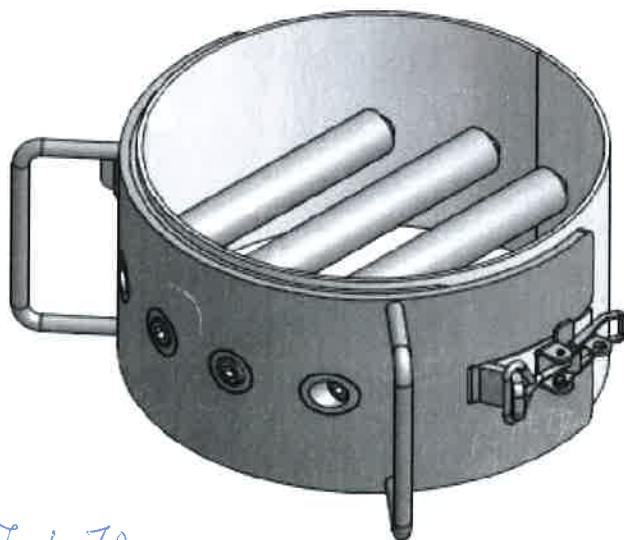
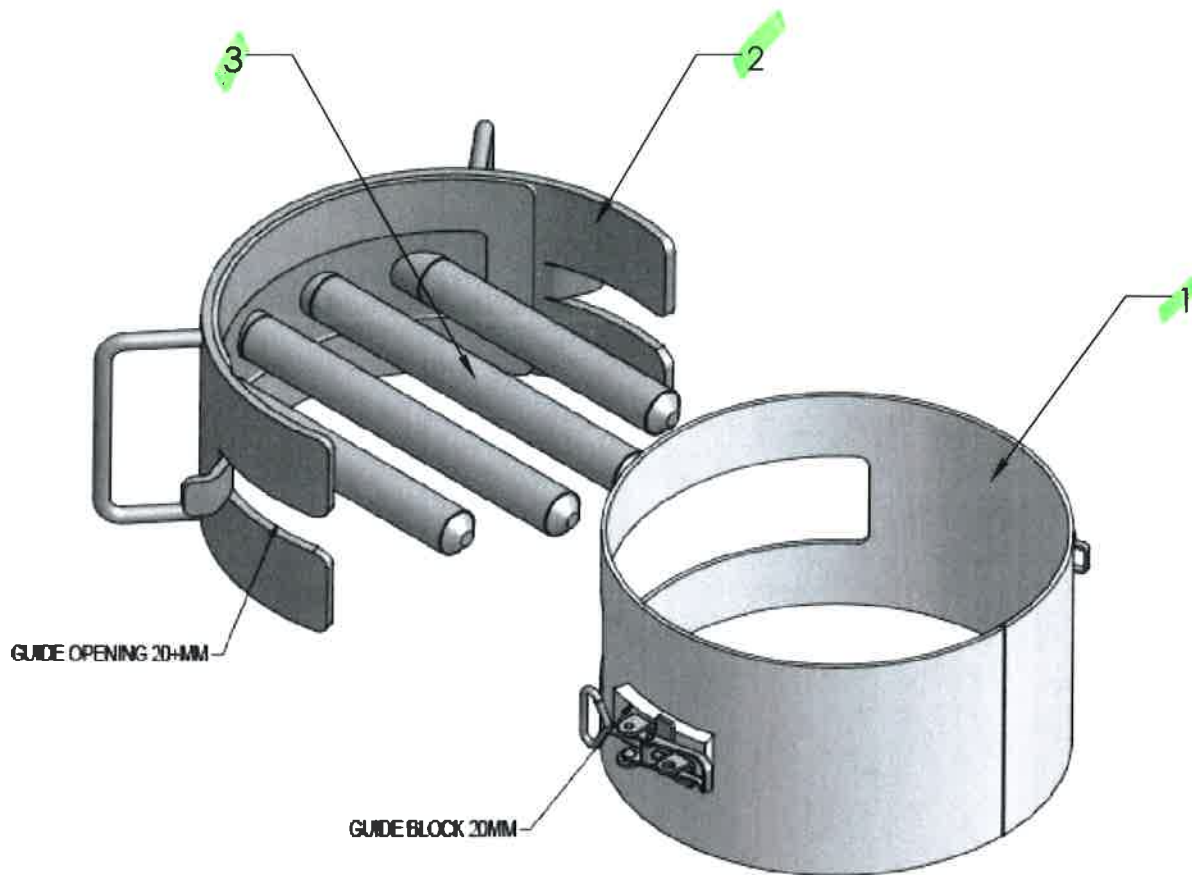


Position	Item number
1	---
2	---
3	---
4	---
100	470252-CMA

ATTACHMENT 1 TO
FAT IQ PTS
PAGE 10 OF 21
Cherry 20 MAY 14

POS 101-100/1 (C006)
POS 100-100/1 (C005)

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316/316L								
	up to	6	30	120	400	1000					2000				
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale %	Similar	Designed	11/12/2012	thle			
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	Weight [kg]	2.22	Controlled	11/02/2014	edgu			
Entonnoir de sortie DN200										Revised	11/02/2014	edgu			
										Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.										Atex		Page	Ver.
Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com																				A4		469865-CMA		1/1	A



ATTACHMENT 1 TO

FIAT IQ PTS

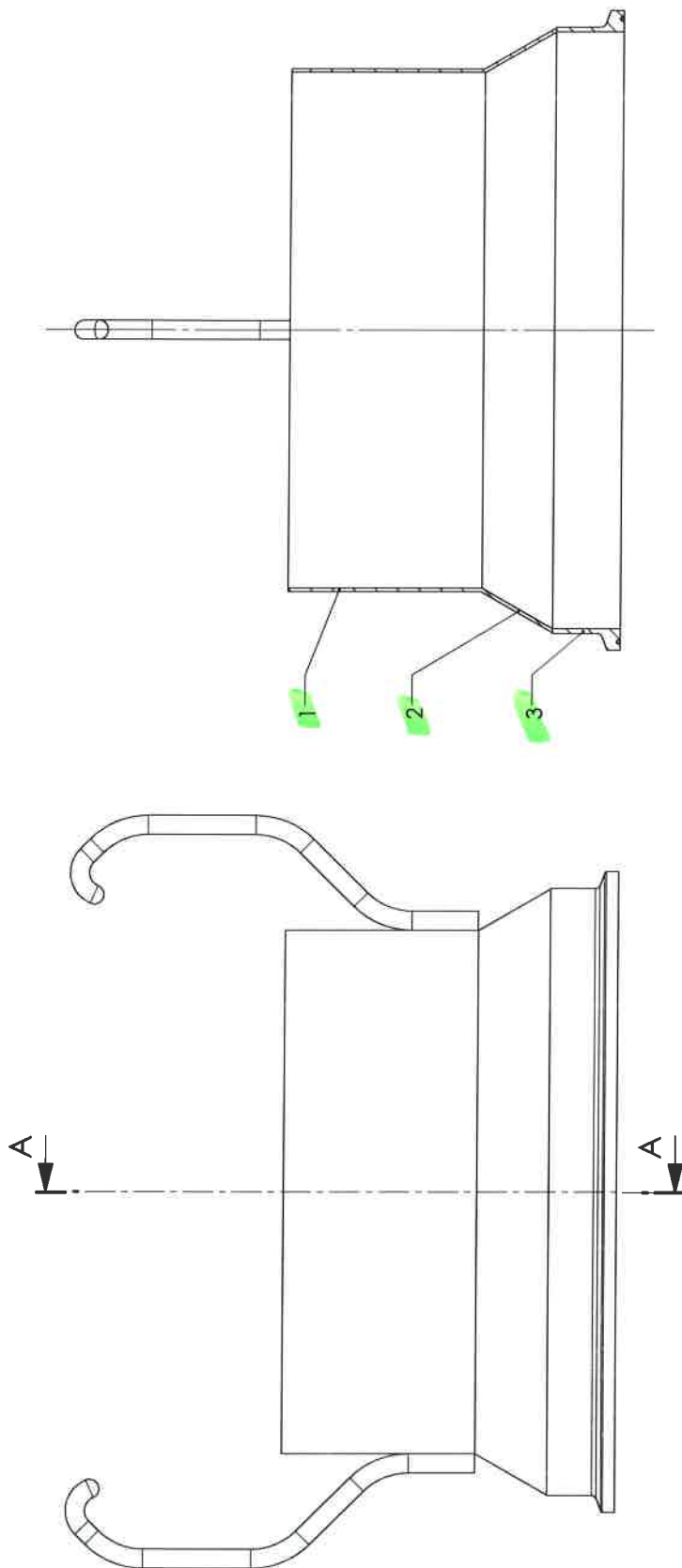
PAGE 11 OF 21

Chemif/20MAY14

POS 101-100/2 (C006)

POS 100-100/2 (C005)

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL : 316/316L					
	up to	6	30	120	400	1000					2000	
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale %	Similar	Designed	04/02/2013	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	Weight [kg]		Controlled	04/02/2013	thle
Barreau magnétique									A4	Atex	Revised	04/02/2013	thle
								Page			Ver.	
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA				Frewitt SA: Milling and Handling of Powders P.O.B 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com				470252-CMA		1/1		A



A-A

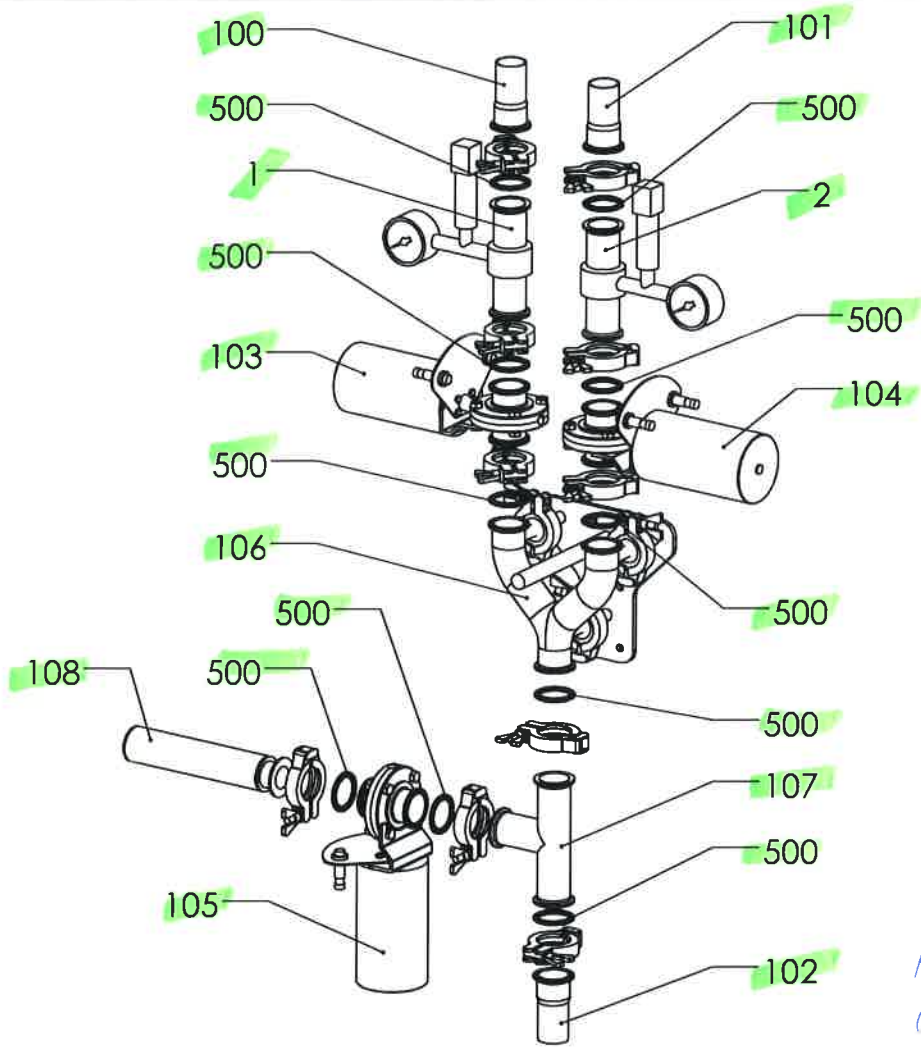
POS 101-101 (C006)
 POS 100-101 (C005)

ATTACHMENT 1 TO
 FAT IQ PTS
~~PAGE~~ ee Cheryl SOMAY 14
 PAGE 12 OF 21
 Cheryl SOMAY 14

Dimensions without tolerance (mm)	above 6	30	120	400	1000
	up to	30	120	400	1000
Machine: ISO 2768-m		±0.10	±0.20	±0.30	±0.50
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20
		±2.00	±3.00	±5.00	±10.00
MATERIAL: 316/316L					
Scale	%	456214			
Similar	Weight (kg)	A3			
Designed	11/05/2011				
Controlled	20/12/2012				
Revised	20/12/2012				
Page	1/1				
Version	A				

Tube de liaison container

FREWITT SA, Milling and turning of precision parts, P.O. Box 111, CH-1300 Fribourg, SWITZERLAND
 Tel: +41 26 460 1100, Fax: +41 26 460 1451
 info@frewitt.com / www.frewitt.com



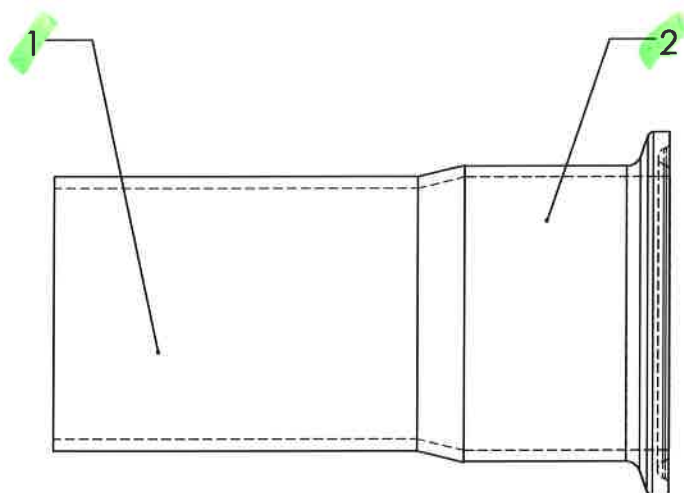
ATTACHMENT 1 TO
FAT LR PTS
PAGE 13 OF 21
Cheriff 20 MAY 14

Pos.	Item number	Control drawing	Materials certificates EN-10204-3.1B FDA	Surface quality certificates	
1	464937	473516-CMA	X	X	
2	464936		X	X	
100	464965	464965-CMA	X	X	
101	464965		X	X	
102	464965		X	X	
103	469947		X	X	
104	469947		X	X	
105	469947		X	X	
106	464968		464968-CMA	X	X
107	460022		460022-CMA	X	X
108	463739	463739-CMA	X	0	
500	455217	---	X	0	

X = delivered
0 = undelivered

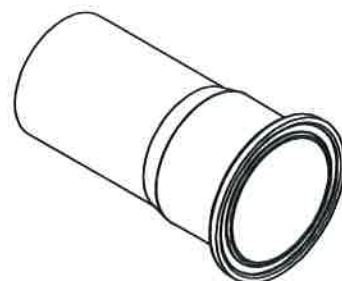
Pos 102

Dimensions without tolerance [mm]	above	6	30	120	400	1000	MATERIAL :	Scale %	Similar 464951	Designed	22/01/2014	thle
	up to	6	30	120	400	1000				2000	Controlled	14/05/2014	thle
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Weight [kg]	Revised	14/05/2014	thle	
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00						A4	Atex
Séparateur DN40								473516-CMA	Page 1/1	Ver. A		
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.		FREWITT		Frewitt SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Fribourg, SWITZERLAND tel: +41 26 460 74 00 / fax: +41 26 460 74 01 info@frewitt.com / www.frewitt.com								



ATTACHMENT 1 TO
FAT IQ PTS
PAGE 14 OF 21

Cherry 20 MAY 14

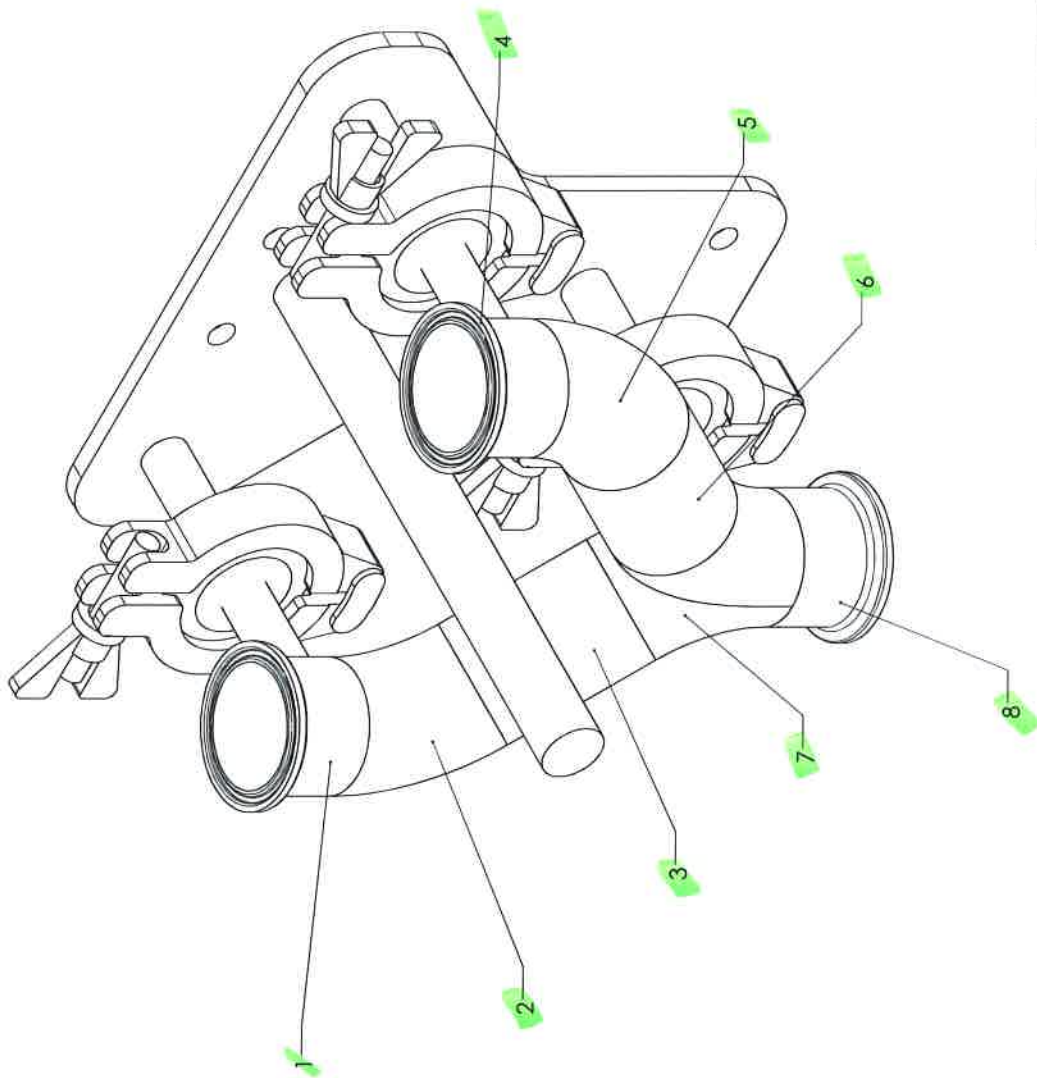



POS 102 - 100
POS 102 - 101
POS 102 - 102

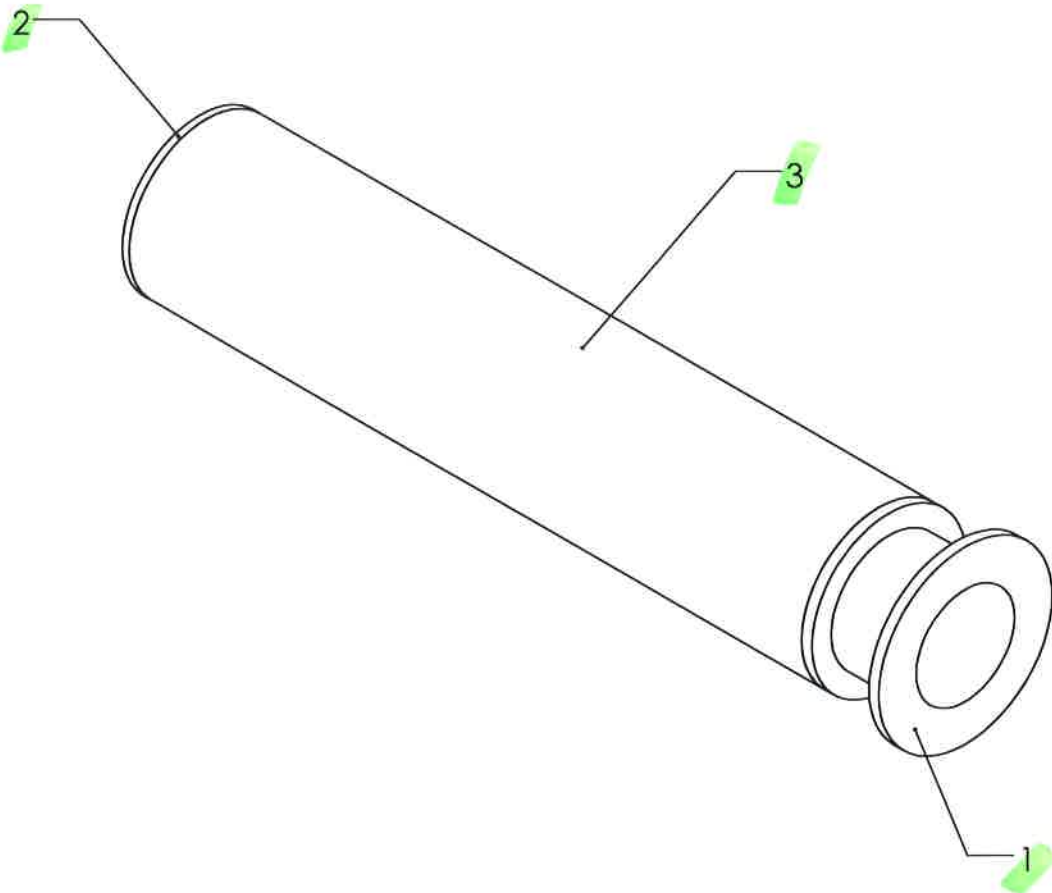
Dimensions without tolerance [mm]	above		6	30	120	400	1000	MATERIAL :316 / 316L				
	up to	6	30	120	400	1000	2000					
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale	Similar	Designed	18/05/2011	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00	%	460024	Controlled	11/02/2014	thle
Embout Volkmann Ø38								Weight [kg]	Revised	11/02/2014	thle	
								⊕	0.14	Atex		
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.								A4		Page	Ver.	
								Frewill SA: Milling and Handling of Powders P.O. B. 615, CH-1701 Fribourg, SWITZERLAND Tel: +41 26 460 74 00 / Fax: +41 26 460 74 01 Info@frewill.com / www.frewill.com								464965-CMA		1/1	A

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 16 OF 21
 Cherry
 20 MAY 14

POS 102-106




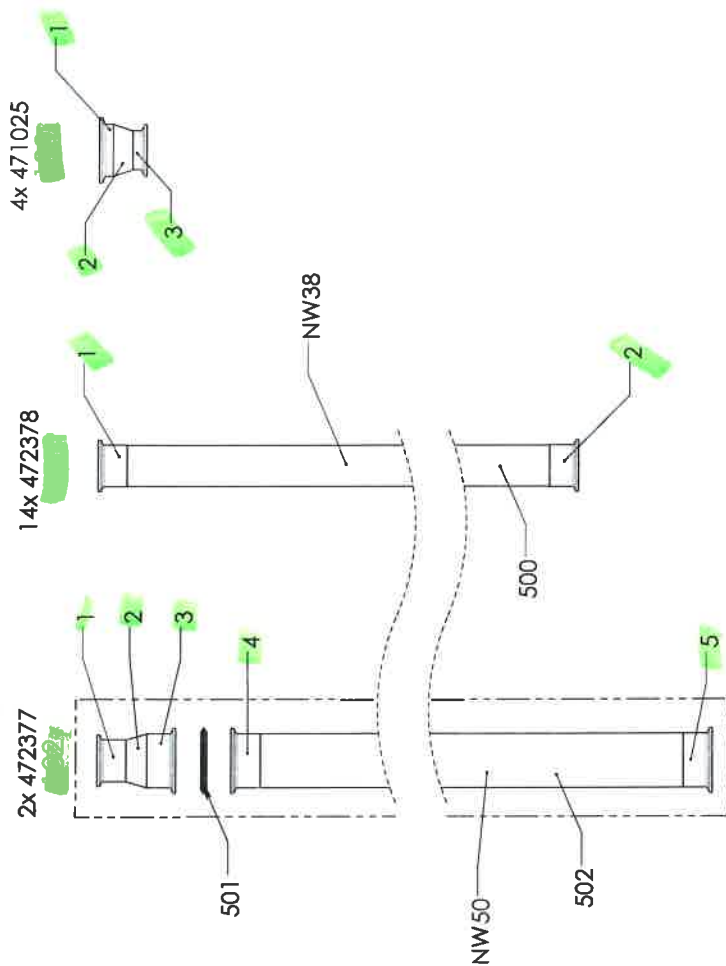
Dimensions without tolerance (mm)	above	6	30	120	400	1000
	up to	6	30	120	400	1000
Machining: ISO 2768-m			±0.20	±0.30	±0.50	±1.20
Welding Assembly: ISO 2768-es			±0.30	±0.50	±1.20	±3.00
Tube Y DIN						
Material	MATERIAL: 316 / 316L					
Scale	%	460010				
Similar	Weight (kg)	5.48				
Designed	Controlled	18/03/2011				
Revised	File	19/12/2012				
File	File	19/12/2012				
Page	Page	464968-CMA				
Ver.	Ver.	1/1				
 FRWITT S.A. Manufacturing and Trading of Precision P.O. Box 1515 | Rue de la Vallée 1515 | CH-1515 Yverdon-les-Bains Tel: +41 26 480 74 00 | Fax: +41 26 480 74 01 Email: info@frwitt.com | www.frwitt.com						



ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 18 OF 21
 Cheryl
 20 MAY 14

POS 102-108

Dimensions without tolerance [mm]	above		6	30	120	400	1000	MATERIAL : 316/316L				
	up to	6	30	120	400	1000	2000					
Machining: ISO 2768-m		±0.10	±0.20	±0.30	±0.50	±0.80	±1.20	Scale %	Similar	Designed	20/05/2011	thle
Welding Assembly: ISO 2768-c		±0.30	±0.50	±0.80	±1.20	±2.00	±3.00			Controlled	18/11/2013	tgr
Filtre inox								⊕	Weight [kg]	Revised	18/11/2013	tgr
								A4	N/A	Atex		
Any and all information received by you from us shall be held and kept confidential and shall not be disclosed by you to any third party except with prior written consent of FREWITT SA.				Frewill SA: Milling and Handling of Powders P.O.B. 615, CH-1701 Filbourg, SWITZERLAND Tel: +41 26 460 74 00 / Fax: +41 26 460 74 01 info@frewill.com / www.frewill.com				463739-CMA		Page	Ver.	
										1/1	A	



Pos.	Item number	Control drawing	Materials certificates EN-10204-3.1B FDA	Surface quality certificates
	471025	474798-CMA		
	472378	474798-CMA	X	
	472377	474798-CMA		
		474798-CMA		0
	472377	474798-CMA		0
502		474798-CMA		0

X = delivered
0 = undelivered

DOS 103

ATTACHMENT 1 TO
FAT IQ PTS
PAGE 19 OF 21
Cherry
20 MAY 14

Dimensions without tolerance (mm)	above	6	30	120	400	1000
up to	6	30	120	400	1000	2000
Machining: ISO 2768-m						
Welding Assembly: ISO 2768-c						
	±0.30	±0.50	±0.80	±1.20	±2.00	±3.00

MATERIAL : N/A

Scale	Similar	Designed	14/05/2014	Ygr
%		Controlled	15/05/2014	Ygr
		Revised	15/05/2014	Ygr
		Alex		
Weight (kg)	1.17			
A3				
Page	1/1			
Ver.	A			

474798-CMA

RESINTIF
Frewitt SA: Milling and handling of powder
P.O. Box 10011, 1300 Schaerbeek, Belgium
Tel: +32 (0) 27 23 77 00 Fax: +32 (0) 27 23 77 01
Email: info@resintif.com www.resintif.com

Tube supplémentaires PRO-14-0013 pour PTS

C005

①

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:23:43
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.31μm

C005

②

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:24:42
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.32μm

C005

③

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:22:24
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.12μm

ATTACHMENT 1 TO
 FAT IQ PTS
 PAGE 20 OF 21
 Cheryl
 20 MAY 14

C006

①

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:15:14
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.22μm

C006

②

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:17:57
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.16μm

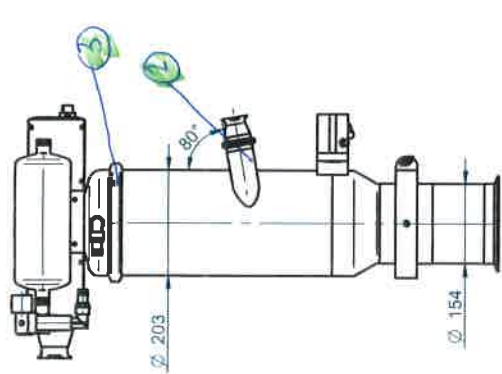
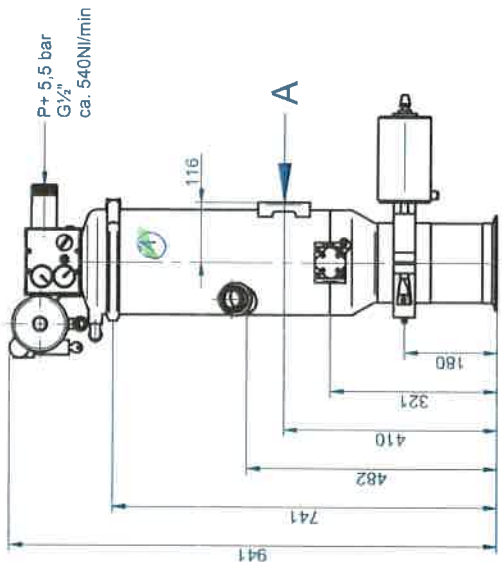
C006

③

Mitutoyo ~~Suritest SJ-301~~
 DATE 20-05-2014
 HEURE 15:19:17
 NORME JIS2001
 PROFIL R
 FILTRE GAUSS
 EVA-L 4.0mm
 N 5
 λc 0.8mm
 λs 2.5μm
 C. INCLIN. TOUS
 VITESSE-M 0.5mm/s
 PLAGE AUTO
 PRE/POST ON
 DRIVE STAND
R-PROFIL
 EVA-L 4.0mm
 λc 0.8mmX5
 Ra 0.18μm

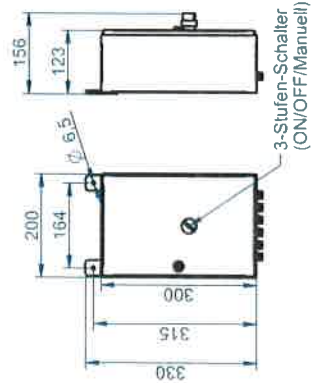
Doc No.: 170015-1

Polzfiltereinheit VS200 (2x) Sonderausführung

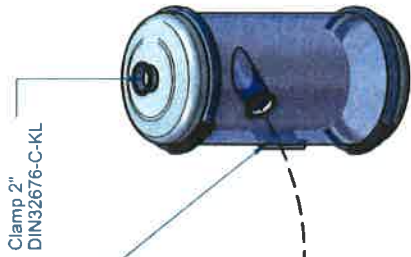
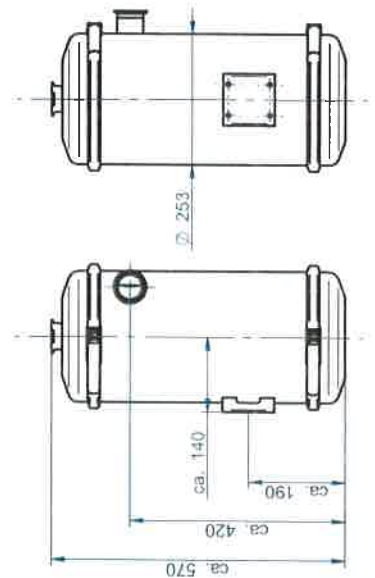


EINZELHEIT A

Pneumatischer PT3SE (1x) Sonderausführung



Polzfiltereinheit VS200 (2x) Sonderausführung

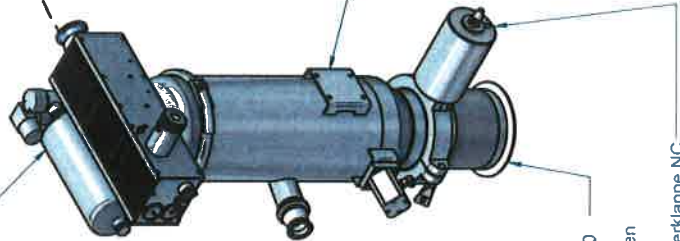


Clamp 2" DIN32676-C-KL

Haltekonsole einseitig

Abluftschlauch PUR50-AS-FDA vergossen mit Clamp 2" DIN32676-C-KK Länge: 1,8m

GLA 2L VA p+max 3bar einstellbar über Druckregler abschließbar



Haltekonsole einseitig

Clamp DN150 DIN32676-A zur bauseitigen Befestigung Antrieb Entleerklappe NC

ATTACHMENT 170
TAT 1&2 PTS
PAGE 1 of 1
Change
20 MAY 14

Genehmigung der Zeichnung	
<input type="checkbox"/> Zeichnung ist ohne Änderungen genehmigt.	<input type="checkbox"/> neue Genehmigungszeichnung erforderlich
<input type="checkbox"/> Änderungen siehe Zeichnung	Name:
	Datum:
	Firma:
	Unterschrift:

Werkstoff / Material:	1.4404 / diverse	Scale:	1:10
Benennung / Dimensionen:	PPC200VS mit Polzfilter	Kom.:	Original
	Via / Frewitt / Novartis	Best-Nr.:	31-9356/14
	Volkumtechnik	Zeichnungs-Nr. / Drawing No.:	140522-01-001-A
	Schloßweg 17		1 / 1
	59494 Soest	Ersatz für / Replacement for:	
		Date	11.02.14 AH
		Name	MP
		Drawn	
		Checked	
		Created	



VOLKMANN GmbH
Vakuumtechnik
Schloßweg 17
59494 Soest

Änderungsprotokoll
Standard: Bearbeitung DIN ISO 2768 T1 - mittel
Verformende Bearbeitung DIN ISO 2768 T1 - sehr grob
Schutzvermerk nach DIN / ISO 10016 / 2007 beachten



R & I Part list
PPC-200VS PRO-14-0013 SG.TBP.202.M.5235/C005/6

3

Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. B

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
G01	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G02	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G03	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G04	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G05	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G06	(469947)	Initiator Namur ex 10...36DC PNP 3-L / St Schliesskontakt M12	CROMATECH PEPPERL FUCHS	1
G07	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
G08	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
KS01	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS02	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS03	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KP01	437890	Compensator	JOHANNSEN	1
KP01	437890	Compensator	JOHANNSEN	1
PC01	(432154)	Regulator R.01 G1/4 0.2-6 bar RE 01 9170100600208	UNIVER	1
PIG01	(432154)	Manometer 41309579292 G 1/8 0-10 bar	UNIVER (Tecsis)	1
P01	464936	Pressure Switches IS-20-S absolut 0..1 bar 4... 20mA	WIKAI	1
P02	464937	Pressure Switches IS-20-S absolut 0..1 bar 4... 20mA	WIKAI	1
P03	437866	Pressure Switches 1-10 bar G1/4" 0196 458 03 006	SUCO	1
SV05	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkman)	1
SV06	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkman)	1
SV07	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV08	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV09	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
X01	(-)	Tri-Clamp DN50 DIN32676 Ø53/50		1
X02	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X03	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X04	(-)	Tri-Clamp DN 10" BS4825		1
X05	(-)	Tri-Clamp DN 150 DIN32676		1
X06	(-)	Tri-Clamp DN2" Ø47.5/50.8		1
X07	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X10	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X11	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X12	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X13	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X14	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X15	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / frewitt	1
X16	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / frewitt	1
F1	463739	Filter SS L=225.5 Ø45 Porostar 5µm	FreWitt	1
F2	470896	Filter QX 200 Ti07 0.14 OF	Mahle Filtersysteme GmbH	1
F3	462129	Secondary filter Ti26 VS250	Mahle Filtersysteme GmbH	1
N01	470067	int. Ø38mm	(Volkman)	1
N02	470067	int. Ø38mm	(Volkman)	1
N03	470067	int. Ø38mm	(Volkman)	1
XH01	459957	Trolley for SG.TBP.202.M5235/C005	Frewitt	1
XH02	459957	Trolley for SG.TBP.202.M5235/C006	Frewitt	1
SK01	470951	MC-150 Valve	(Volkman)	2
RV01	470904	Regulator R0018-6-K	Landefeld	2
HV01	461592	Valve for maunal vibrator MV 48 06 06 3	Trigress	2
Y01	470945	KV 101481	(Volkman)	2

ATTACHMENT 2 TO
FAT IQ PTS

PAGE 2 OF 3

Cherry 20 MAY 14



R & I Part list 3
 PPC-200VS PRO-14-0013 SG.TBP.202.M.5235/C005/6

Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. B

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
SV01	470947	Discharging valve G1/2" 111522	(Volkmann)	2
A1	470948	G540 S110254A	(Volkmann)	2
A2	470949	(Volkmann GLA2LVA 211634) CRVZS-2 160036	FESTO SA	2
A3	(Volkmann)	Assembly of F2/Y01 / SK01 MC150NO 104117	(Volkmann)	2
A4	(Volkmann)	Assembly Security filter VS250 Ti26	(Volkmann)	2
W002	473518	Weighing scales (IND690 Typ PTA459-F1500)	Mettler Toledo	1
W003	473518	Weighing scales (IND690Typ PTA459-F1500)	Mettler Toledo	1

*Cherryff
EE 20MAY14*

W002

W001

W002

W003

Cherryff 20MAY14

*EE Cherryff 20MAY14
2
ATTACHMENT B TO
FAT IQ PTS
PAGE 3 OF 3
Cherryff 20 MAY 14*

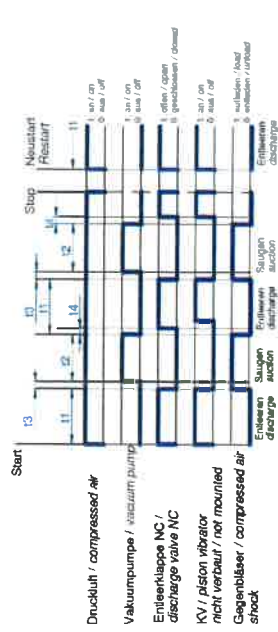
Gewerk Novartis

Maximal operating pressure
for the Volkmann is 6 bar
compressed air 130 bar/2bar

Part No.	Part Name	Part No.	Part Name
11	Druckluft / compressed air	11	Neustart / Restart
12	Vakumpumpe / vacuum pump	12	Stop
13	Entleerklappe NC / discharge valve NC	13	Start
14	KV / piston vibrator nicht verbaut / not mounted	14	11
15	Gegenbläser / compressed air shock	15	12
16		16	13
17		17	14
18		18	15
19		19	16
20		20	17
21		21	18
22		22	19
23		23	20
24		24	21
25		25	22
26		26	23
27		27	24
28		28	25
29		29	26
30		30	27
31		31	28
32		32	29
33		33	30
34		34	31
35		35	32
36		36	33
37		37	34
38		38	35
39		39	36
40		40	37
41		41	38
42		42	39
43		43	40
44		44	41
45		45	42
46		46	43
47		47	44
48		48	45
49		49	46
50		50	47
51		51	48
52		52	49
53		53	50
54		54	51
55		55	52
56		56	53
57		57	54
58		58	55
59		59	56
60		60	57
61		61	58
62		62	59
63		63	60
64		64	61
65		65	62
66		66	63
67		67	64
68		68	65
69		69	66
70		70	67
71		71	68
72		72	69
73		73	70
74		74	71
75		75	72
76		76	73
77		77	74
78		78	75
79		79	76
80		80	77
81		81	78
82		82	79
83		83	80
84		84	81
85		85	82
86		86	83
87		87	84
88		88	85
89		89	86
90		90	87
91		91	88
92		92	89
93		93	90
94		94	91
95		95	92
96		96	93
97		97	94
98		98	95
99		99	96
100		100	97

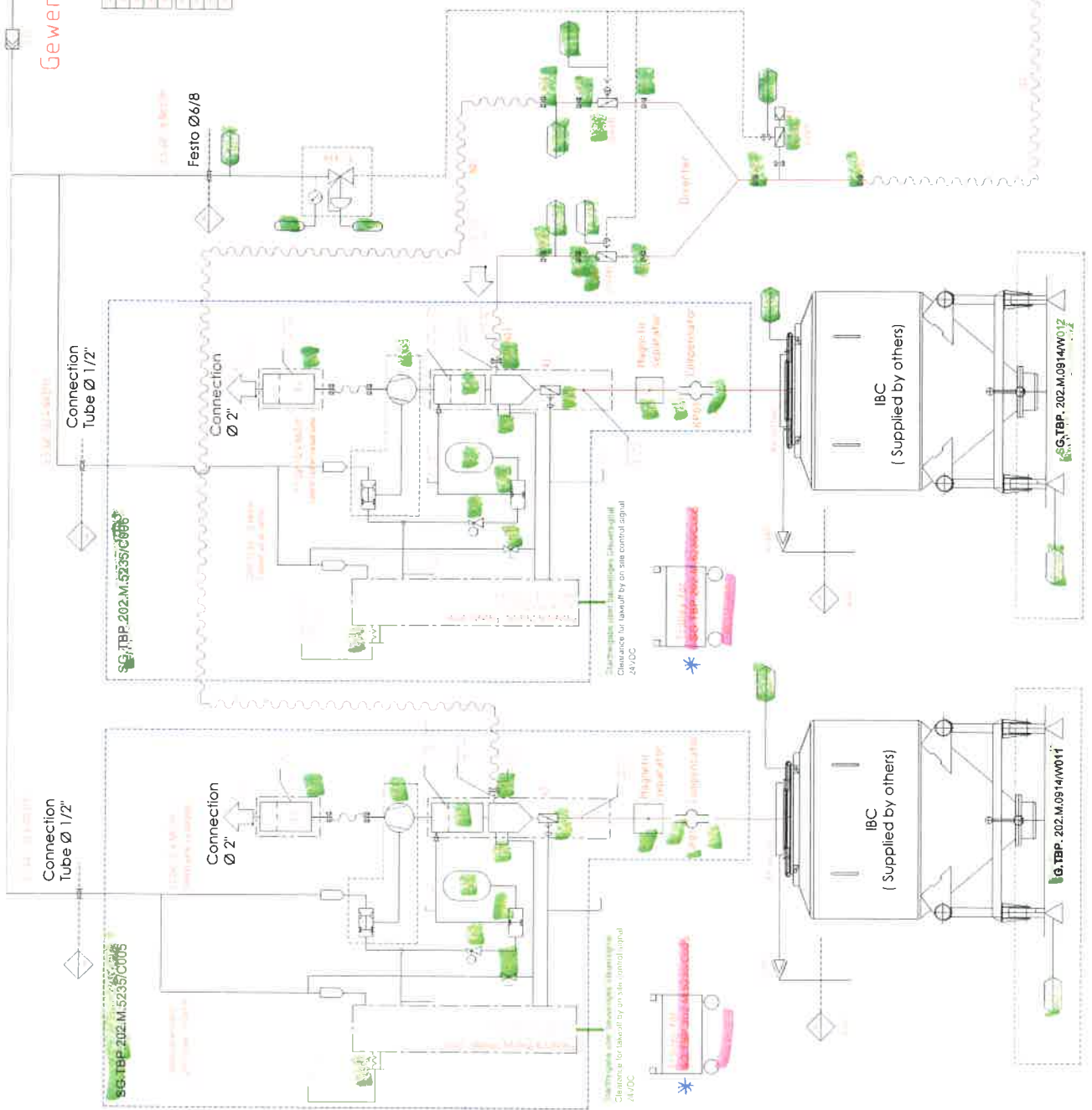
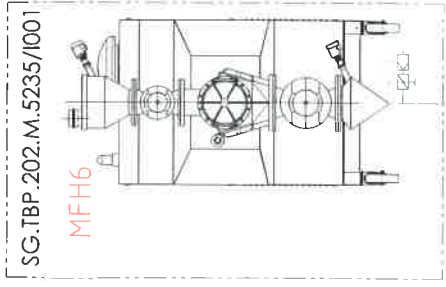
General notes:

- For legend refer the legend sheet 153395
- For general arrangement details refer to GA DWG 473515-LAY



* (FOR 2) NOT PURCHASED - Chemyf 21 MAY 14.

ATTACHMENT 3 TO
FAT IQ PTS
PAGE 1 OF 1
Chemyf 20 MAY 14.



Network (V)	230-400
Frequency (Hz)	50
Serial Nr.	14001335180
ATEX category (int.)	1D
ATEX category (ext.)	3D
IP	IP65
Created	24/02/2014
Released	24/02/2014
Drawn	13/02/2014
Checked	13/02/2014
Scale	1:1
Sheet	1/1
Block	B

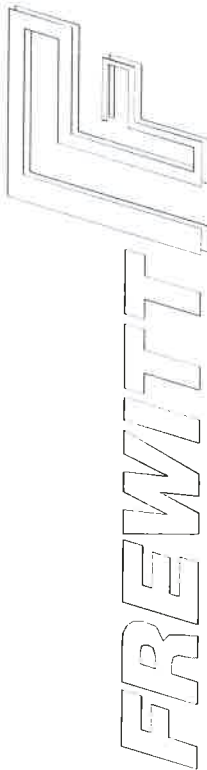
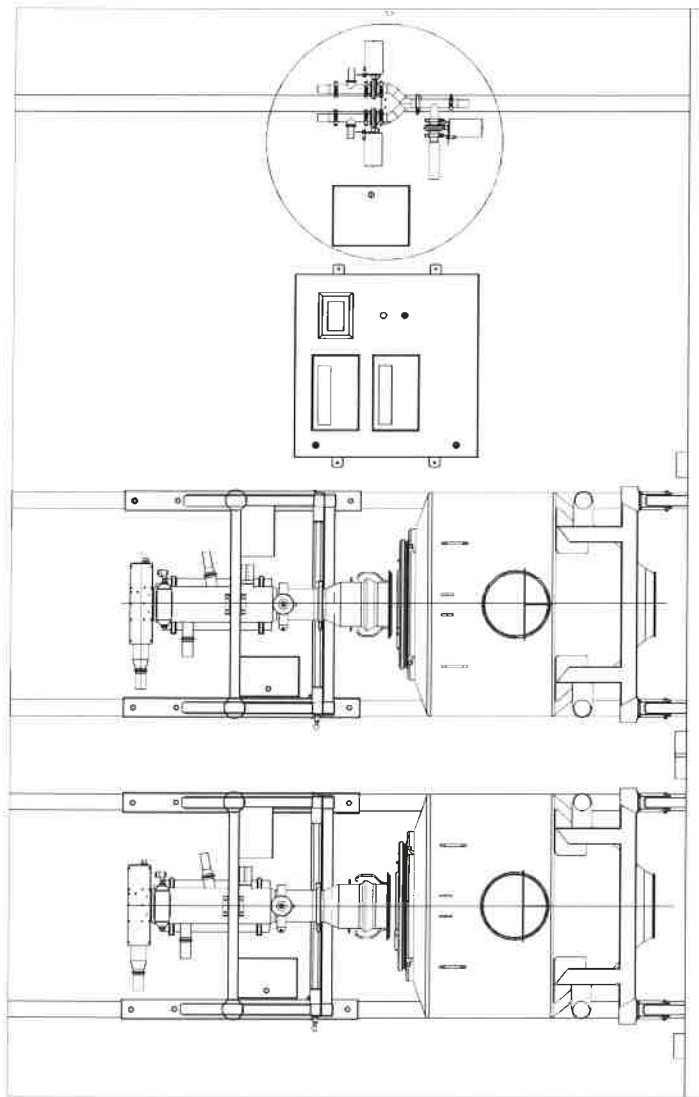
P und I PID-PRO-14-0013 / PFC-00WS	
PREVITIF	
473527	

Project : PRO-14-0013

SG.TBP 202.M.52355/C005 SG.TBP 202.M.52355/C006

Attachment 4 to FAT IQ PTS M52355/6
Test S.1/7.5
pg 1 of 17
A. Zomgill

Type : PF - Installation
Carrying out: 400V,50Hz,3P+N+PE
Feeded by Frewitt DelumpWitt

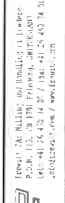


Wire colors :

Power	400VAC - L1	Brown	4mm ²
Power	400VAC - L2	Black	4mm ²
Power	400VAC - L3	Gray	4mm ²
Power	N	Light blue	4mm ²
Power	PE	Green/Yellow	4mm ²
Control voltage	24VDC	Violet	0.5 to 0.75mm ²
Control voltage	0VDC	Violet-White	0.5 to 0.75mm ²
Control voltage	Ex-i	Blue	0.75mm ²
External voltage	...	Orange	0.75mm ²

White	WH	Blue	BU
Brown	BN	Red	RD
Green	GN	Black	BK
Yellow	YE	Violet	VT
Gray	GY	Orange	OG
Pink	PK		

We reserve all rights in this document and the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt



Novatis Singapore, SG-Singapore

19.02.2014

Date	19.02.2014
User	phha
Provid	phha
Standard	

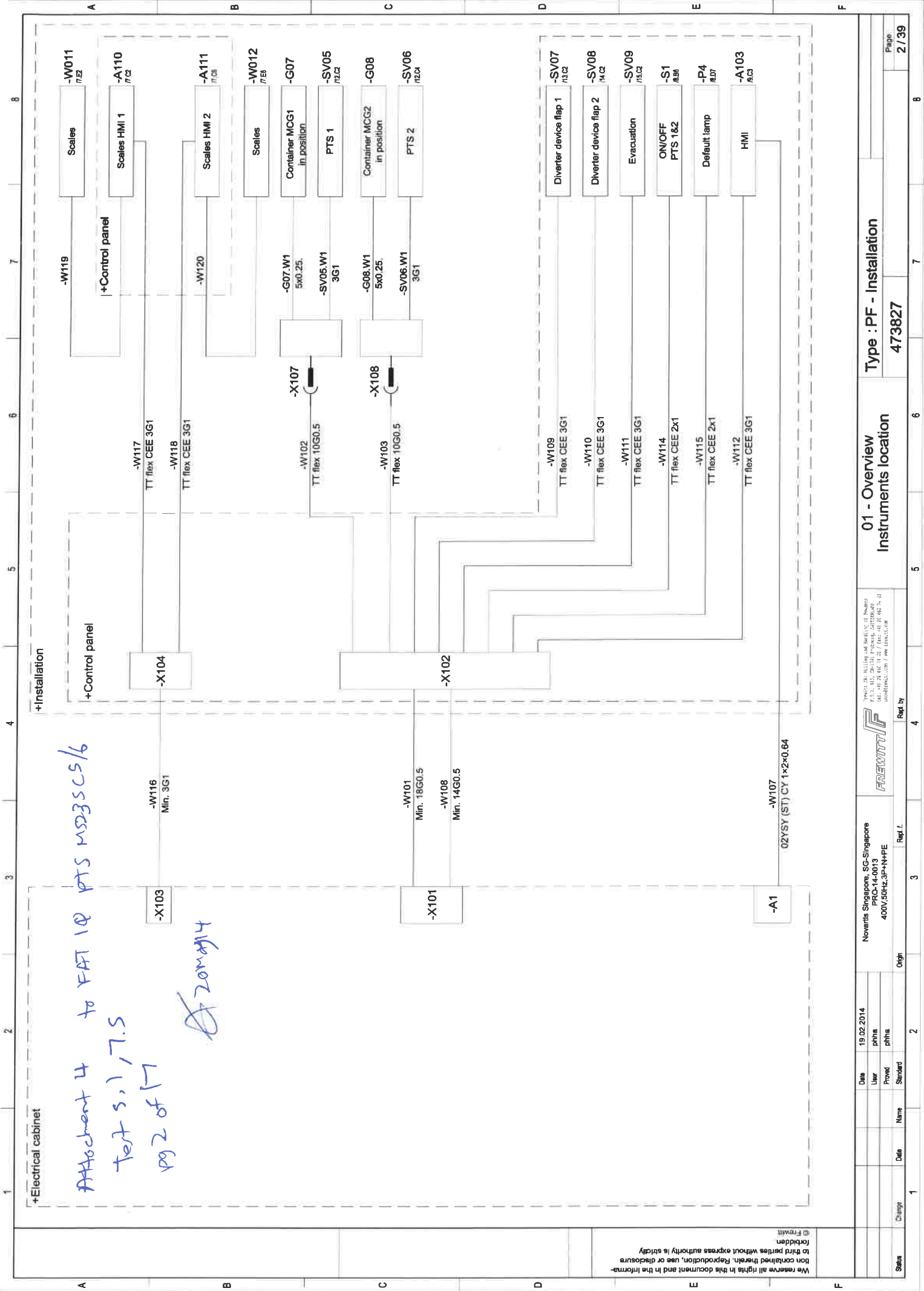
Change	
Date	
Name	
Origin	
Repl. I	
Repl. by	

00 - Cover sheet

PTS

473827

Page 1 / 39



Attachment 4 to FAT IQ PTS MSD355/6
 Test s.1, 7.5
 pg 2 of 17
 20/04/14

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

01 - Overview
 Instruments location



Novartis Singapore, SG-Singapore
 PRO-14-0013
 400V,50Hz,3P+N+PE

Date: 19.02.2014
 User: phha
 Proof: phha

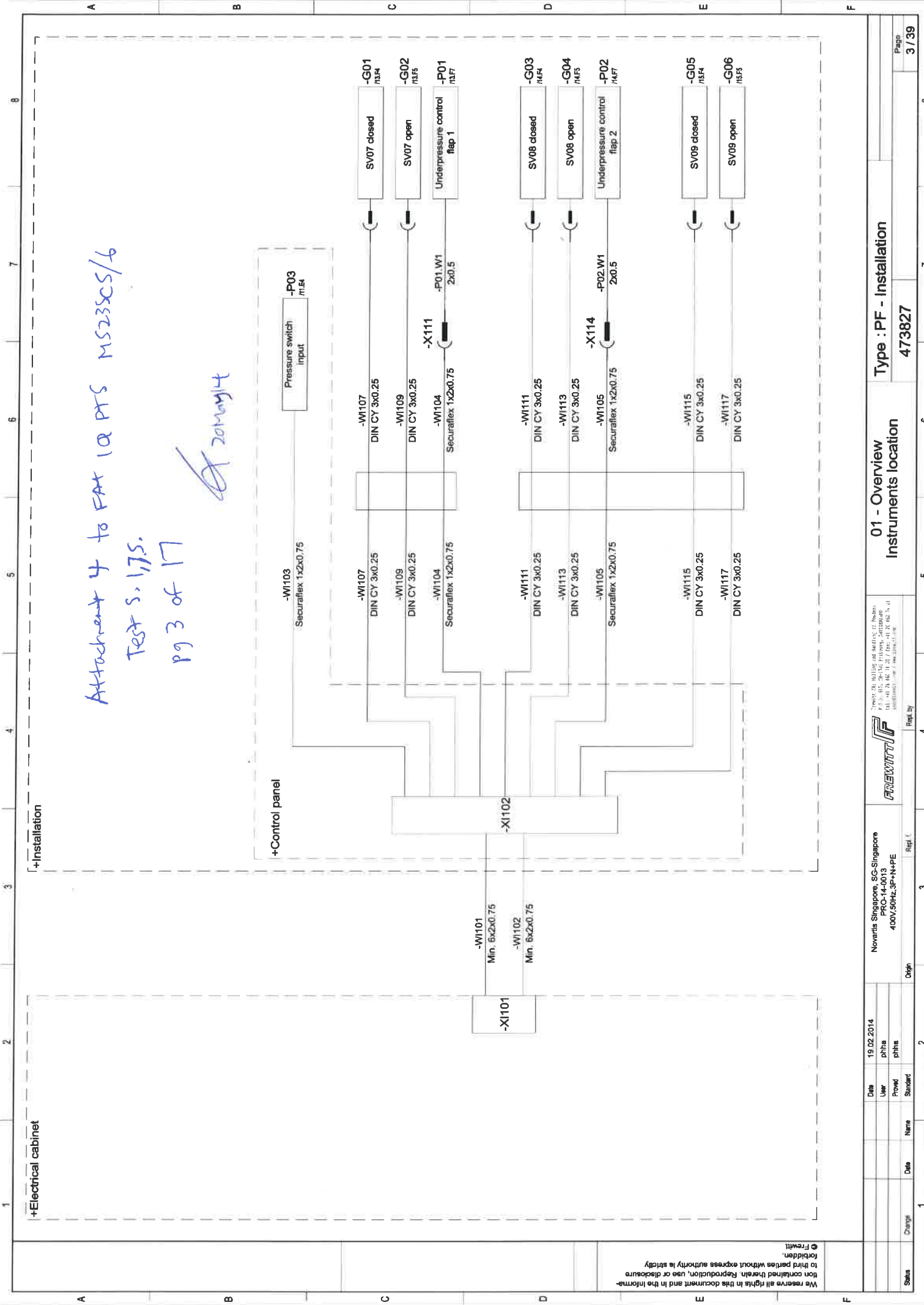
Name: Standard
 Date: 2

Change: 1
 Status: 1

Type: PF - Installation
 473827

Instruments location

Page: 2 / 39



Attachment 4 to FAT IQ PTS MS23SCS/6
 Test s. 175.
 pg 3 of 17
 A 2014/14

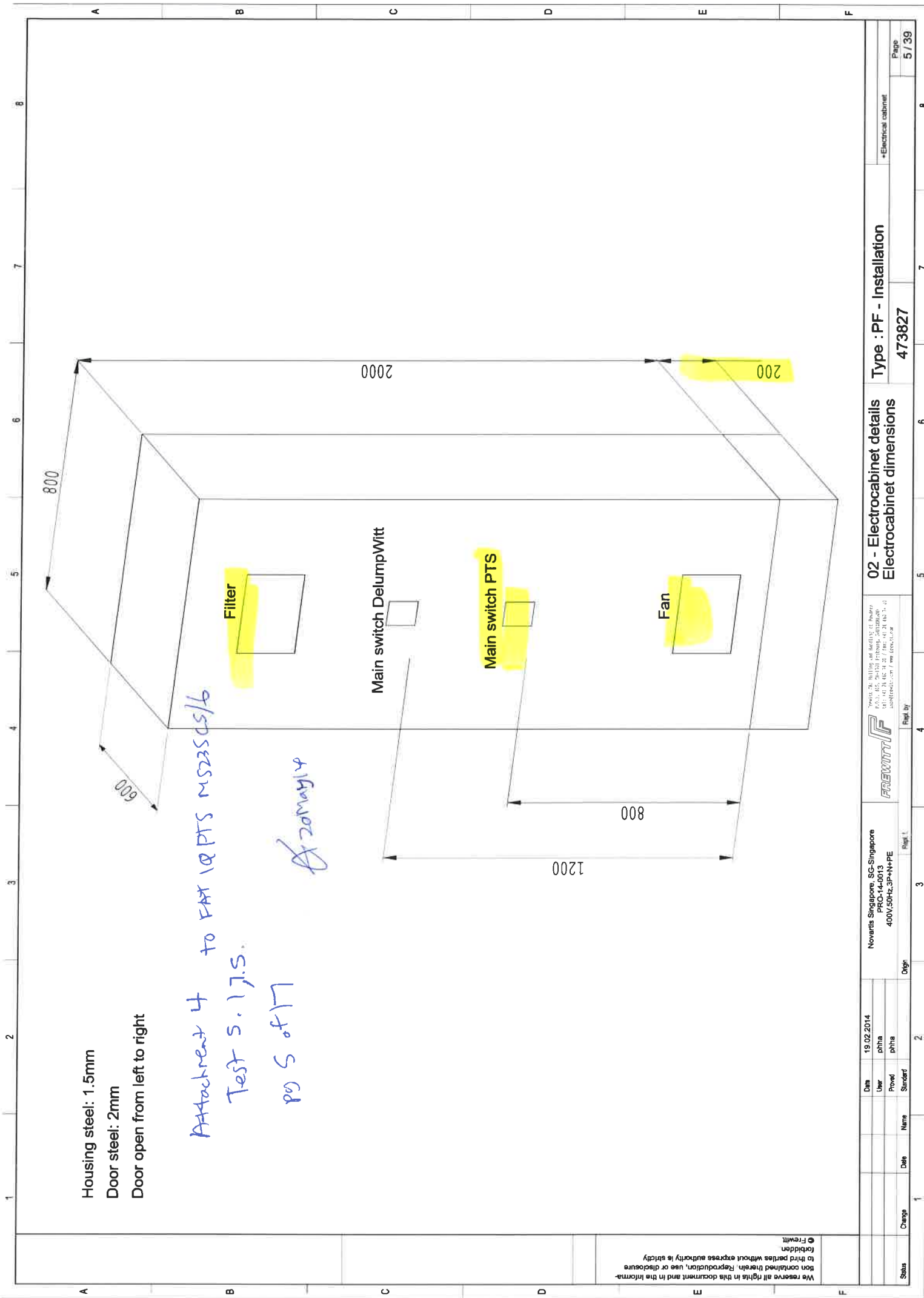
+Installation

+Electrical cabinet

+Control panel

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

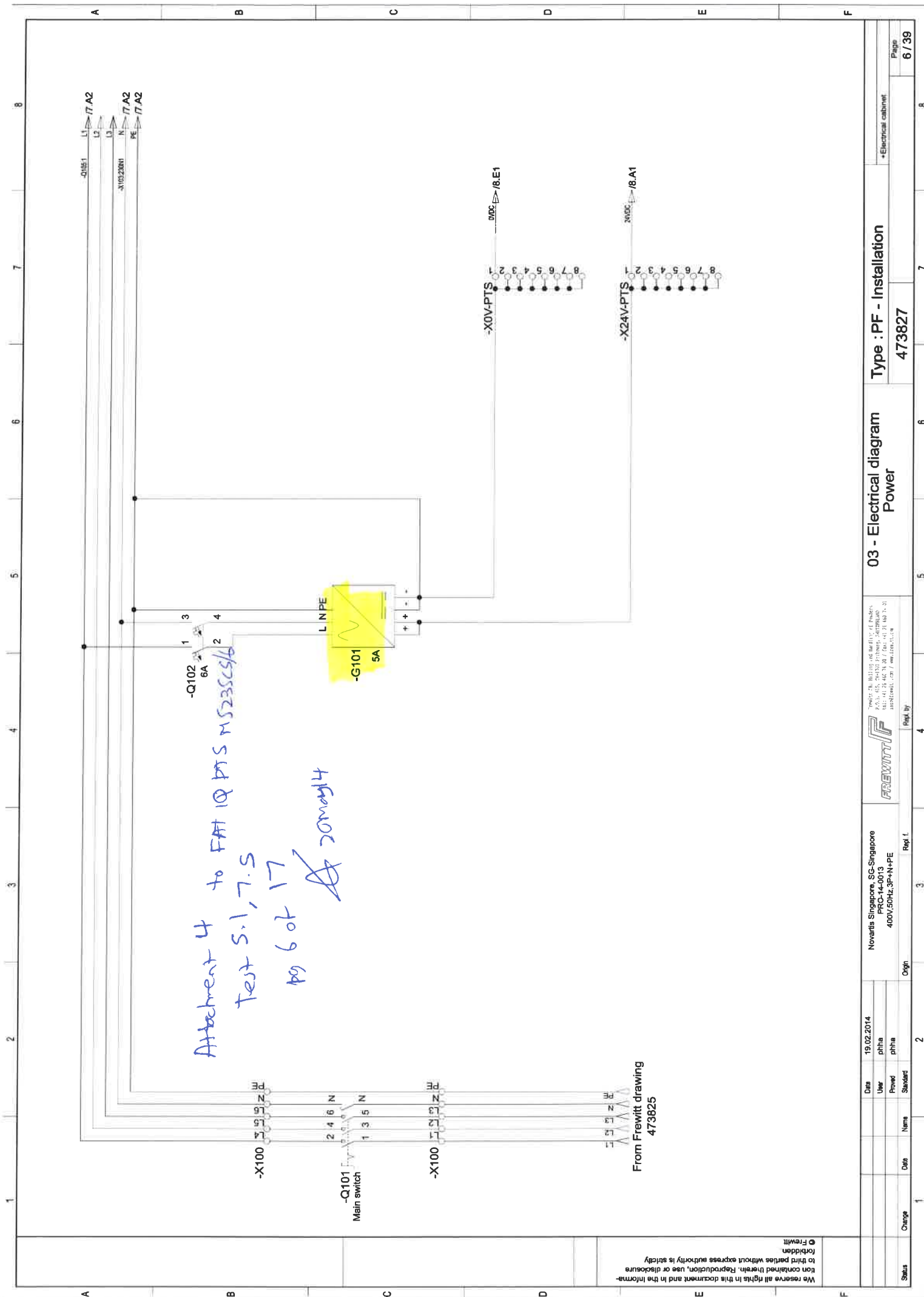
Status	Change	Date	Name	Standard	Origin	Repl. I	Repl. II
		19.02.2014	phha		Novartis Singapore, SG-Singapore		
			phha		PRO-14-0013		
			phha		400V, 50Hz, 3P+N+PE		
Type : PF - Installation Instruments location 473827						Page 3 / 39	



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

Change	Date	Name	Standard	Origin	Project	Project L	Project U
	19.02.2014	phha	phha				
		phha	phha				

Novartis Singapore, SG-Singapore		Type : PF - Installation	
PRO-14-0013		473827	
400V,50Hz,3P+N+PE		Electro cabinet details	
Electro cabinet dimensions		Page 57/39	



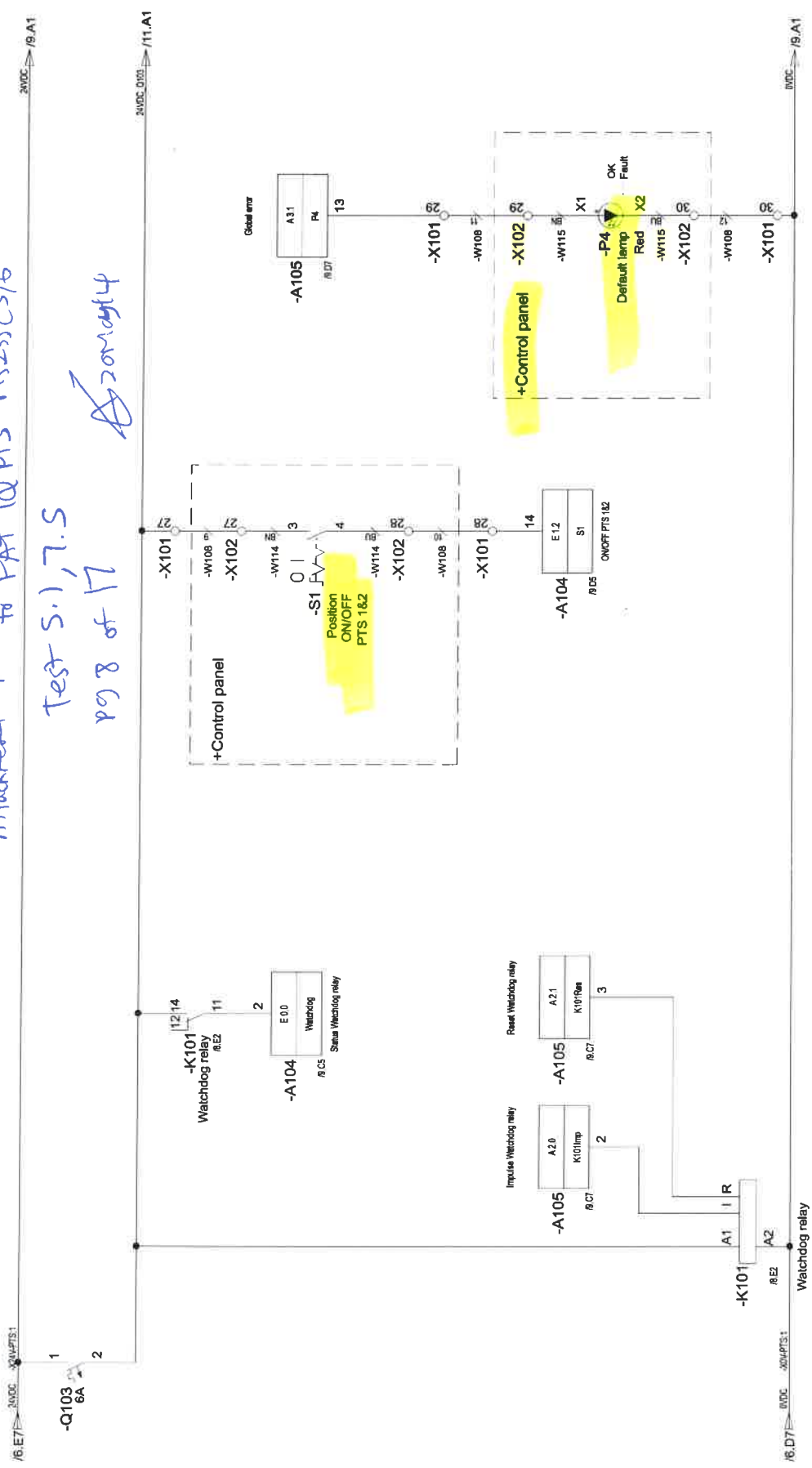
Attachment 4 to FAT IQ PTS MS23555/6
 Test 5.1, 7.5
 pg 6 of 17
 A 20 May 14

From Frewitt drawing
 473825

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden
 © Frewitt

Status	Change	Date	Name	Standard	Origin	Repl. f.	Repl. by	Frewitt AG, Billingstr. 10, 40549 Düsseldorf, Germany Tel.: +49 21 24 46 28 28 / Fax: +49 21 24 46 28 31 info@frewitt.com / www.frewitt.com	03 - Electrical diagram Power	Type : PF - Installation 473827	Page
											6 / 39

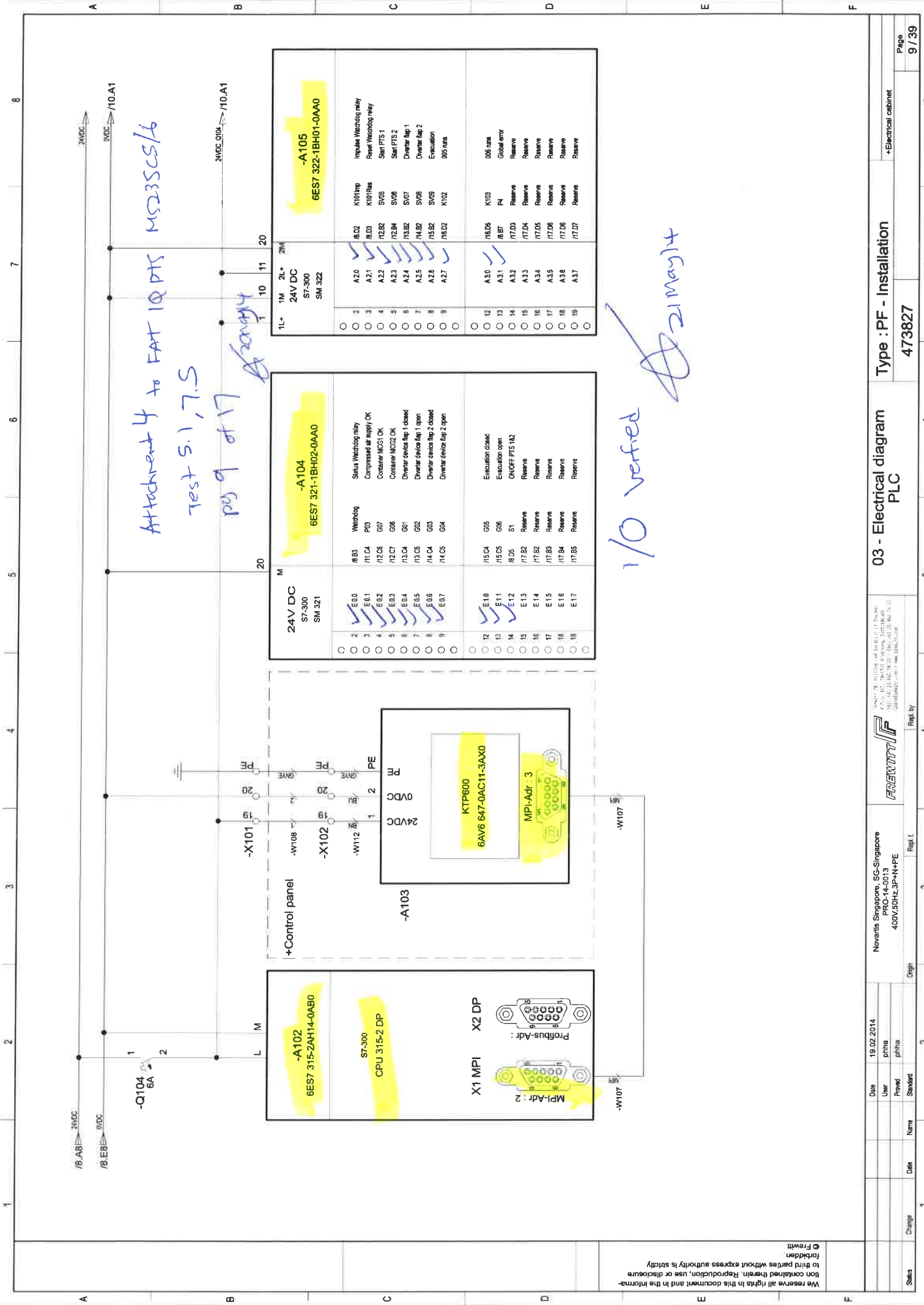
Attachment 4 to FAT IQ PTS MS235CS/6
 Test S.1, 7.5
 pg 8 of 17
 20140814



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Freemitt

Change	Date	Name	Standard	Origin	Repl. I.	Repl. by
	19.02.2014	phiba	phiba			
		phiba	phiba			

Novartis Singapore, SG-Singapore		Type : PF - Installation	
PRO-14-0013		473827	
400V, 50Hz, 3P+N+PE		+Electrical cabinet	
Page		8 / 39	



Novartis Singapore, SG-Singapore
 PRO-14-0013
 400V,50Hz,3P+N+PE

Date: 19.02.2014
 User: phiba
 Pwrd: phiba

Change	Date	Name	Standard
1			

Status

Type : PF - Installation
 473827

03 - Electrical diagram
 PLC

+Electrical cabinet

Page
 97/39

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Fremitt

Attachment to FAT IQ PTS
 Test 5.1, 7.5 MS23505/6
 pg 10 of 17
 Aromatik



L+ M		24V DC		-A106 6ES7 334-OCE01-0AA0	
Channel	U / I	Adresse			
<input type="checkbox"/>	MV0+				
<input type="checkbox"/>	MD-	PEW 128	/13.D8 P01	✓	Underpressure control flap 1
<input type="checkbox"/>	MID+				
<input type="checkbox"/>	MV1+				
<input type="checkbox"/>	M1-	PEW 130	/14.D8 P02	✓	Underpressure control flap 2
<input type="checkbox"/>	M1+				
<input type="checkbox"/>	MV2+				
<input type="checkbox"/>	M2-	PEW 132	/18.B2 Reserve		Reserve
<input type="checkbox"/>	M2+				
<input type="checkbox"/>	MV3+	PEW 134	/18.B3 Reserve		Reserve
<input type="checkbox"/>	M3-				
<input type="checkbox"/>	M3+				
<input type="checkbox"/>	QV0	PMW 138	/18.D2 Reserve		Reserve
<input type="checkbox"/>	QMANNA				
<input type="checkbox"/>	QI0				
<input type="checkbox"/>	QV1				
<input type="checkbox"/>	QMANNA	PMW 140	/18.D3 Reserve		Reserve
<input type="checkbox"/>	QI1				

1/0 verified
 Aromatik

mett exuder PLC

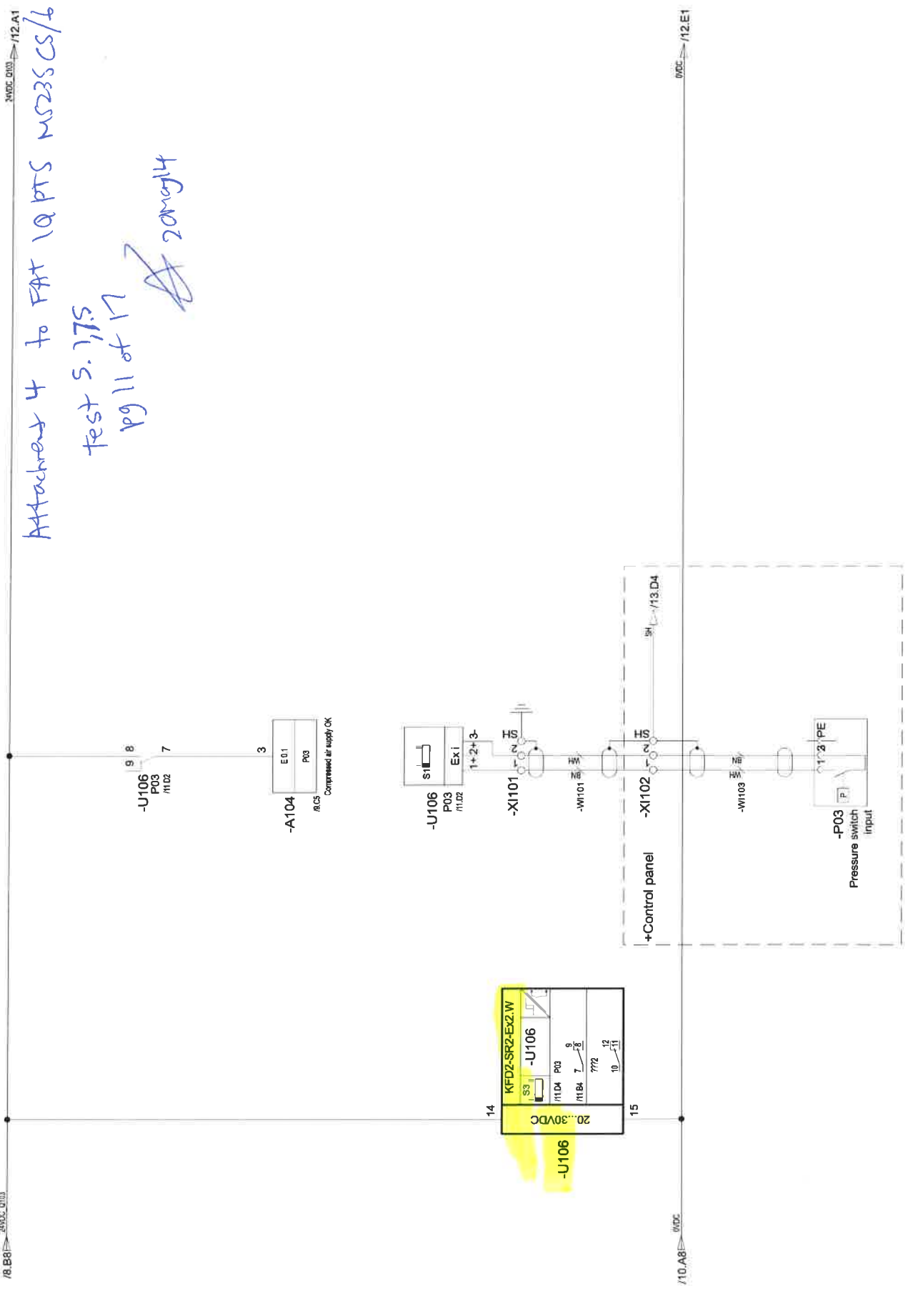
Status	Change	Date	Name	Standard	Type : PF - Installation 473827	03 - Electrical diagram PLC	Type : PF - Installation 473827	Page	10 / 39
	User	phiba	phiba					Electrical cabinet	

Novartis Singapore, SG-Singapore
 PRG-14-0013
 400V, 50Hz, 3P+N+PE

19.02.2014
 User: phiba
 Prowel: phiba

Reg. by: [Signature]
 Date: 12 May 14

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Freemitt



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

Status	Change	Date	Name	Origin	Proj. f.	Proj. by	03 - Electrical diagram Pressure switch	Type : PF - Installation 473827	Electrical cabinet	Page 11/39
		19.02.2014	phiba	Neventis Singapore, SG-Singapore PRO-14-0013						
			phiba							
			phiba							

Bill of material

Attachment 4 to FAT IQ PTS MSB35CS/6

Article Number	Description	Manufacturer	Reference	Device	Quantity
418213	CPU	SIEMENS	6ES7 315-2AH14-0AB0	-A102	1
428608	Memory card	SIEMENS	6ES7 953-8LG20-0AA0	-A102	1
456668	Operator panel	SIEMENS	6AV6 647-0AC11-3AX0	-A103	1
418216	Digital input module	SIEMENS	6ES7 321-1BH02-0AA0	-A104	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A104	1
418217	Digital input module	SIEMENS	6ES7 322-1BH01-0AA0	-A105	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A105	1
418220	Front connector	SIEMENS	6ES7 392-1AJ00-0AA0	-A106	1
418221	Analog I/O module	SIEMENS	6ES7 334-0CE01-0AA0	-A106	1
460068	Communication processor	SIEMENS	6AG1343-1EX30-4XE0	-A107	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G01	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G01	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G01.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G01.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G02	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G02	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G02.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G02.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G03	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G03	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G03.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G03.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G04	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G04	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G04.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G04.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G05	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G05	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G05.X1	1

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
© Frewitt

Status	Change	Date	Name	Version	Drawn	Revised	Revised
		19.02.2014	phiba	1			
			phiba				
			phiba				
Novartis Singapore, SG-Singapore PRO-14-0013 400V,50Hz,3P+N+PE							
05 - Bill of material				Type : PF - Installation			
473827				Page 35 / 39			

Attachment 4 to FAT IQ PTS MS23CS/6
 Test S-1, 7-5
 pg 16 of 17 20mg14

Bill of material

Article Number	Description	Manufacturer	Reference	Device	Quantity
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G05.X1	1
456638	Proximity Switch	PEPPERL+FUCHS	NCB2-12GM35-ND-V1	-G06	1
466009	Protection cap	PHOENIX CONTACT	PROT-M12 FS-PA-CHAIN	-G06	1
432303	Female connector	PEPPERL+FUCHS	V1-G	-G06.X1	1
466007	Protection cap	PHOENIX CONTACT	PROT-M12 MS-PA-CHAIN	-G06.X1	1
473759	Détecteur de proximité à ultrasons	WAYCON	P43-T4Y-2D-001-200EEX	-G07	1
473759	Détecteur de proximité à ultrasons	WAYCON	P43-T4Y-2D-001-200EEX	-G08	1
456667	Power supply	SIEMENS	6EP1 333-3BA00	-G101	1
452578	Watchdog relay	ABB	CM-WDS	-K101	1
456536	Relay	SIEMENS	LZSRT4AAL24	-K102	1
456536	Relay	SIEMENS	LZSRT4AAL24	-K103	1
418219	Rail	SIEMENS	6ES7390-1AE80-0AA0	-MR102	1
427997	Indicating lamp	SCHNEIDER ELECTRIC	XB4-BVB4	-P4	1
464937	Pressure transmitter	WIKA	IS-20-S	-P01	1
464936	Pressure transmitter	WIKA	IS-20-S	-P02	1
458154	Pressure switch	UNIVER	405 002 112 11	-P03	1
456655	Main switch	SIEMENS	3LD2203-1TL53	-Q101	1
457098	Protection switch	SIEMENS	5SY6 206-7	-Q102	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q103	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q104	1
456538	Protection switch	SIEMENS	5SY6 106-7	-Q105	1
407798	Selector switch	SCHNEIDER ELECTRIC	XB4-BD21	-S1	1
409597	Auxiliary contact	SCHNEIDER ELECTRIC	ZBE-102	-S1	1
-	Solenoid valve	NASS MAGNET	1215 30.1-00/6896	-SV05	1
-	Solenoid valve	NASS MAGNET	1215 30.1-00/6896	-SV06	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U101	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U102	1
411946	Ex-i Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U103	1
465586	Transmitter supply isolator	PEPPERL+FUCHS	KFD2-STC4-EX1	-U104	1

We reserve all rights in this document and in the information contained herein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
 © Frewitt

Date: 19.02.2014		Novanta Singapore, SG-Singapore		Type : PF - Installation	
User: pihha	Page: 1	PRO-14-0013		473827	
Printed: pihha	Page: 1	400V,50Hz,3P+N+PE		7	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		6	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		5	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		4	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		3	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		2	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		1	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Released: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Drawn: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Checked: pihha	Page: 1	400V,50Hz,3P+N+PE		0	
Approved: pihha	Page: 1	400V,50Hz,3P+N+PE		0	

Attachment 4 to FAT IQ PTS MS23534
Test 5.1, 7.5

Article Number	Description	Manufacturer	Reference	Device	Quantity
465586	Transmitter supply isolator	PEPPERL+FUCHS	KFD2-STC4-EX1	-U105	1
411946	Ex-1 Switch Amplifier	PEPPERL+FUCHS	KFD2-SR2-Ex2.W	-U106	1
435710	Cable	HEINIGER	888 830 103 / TT flex 10G0.5	-W102	1
435710	Cable	HEINIGER	888 830 103 / TT flex 10G0.5	-W103	1
432309	Connector	SIEMENS	6ES7 972-0BB52-OXA0	-W107	2
437759	Cable	SIEMENS	6XV1830-OEN50	-W107	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W109	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W110	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W111	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W112	1
411612	Cable	HEINIGER	888 802 023 / TT flex CEE 2x1	-W114	1
411612	Cable	HEINIGER	888 802 023 / TT flex CEE 2x1	-W115	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W117	1
403954	Cable	HEINIGER	888 802 033 / TT flex CEE 3G1	-W118	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-W103	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-W104	1
451300	Cable	HEINIGER	777 925 002 / Securaflex 1x2x0.75	-W105	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W107	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W109	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W111	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W113	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W115	1
412701	Cable	HEINIGER	999 891 033 / DIN CY 3x0.25	-W117	1
456539	Terminal	PHOENIX CONTACT	3001501	-X0V-PTS	8
456541	Terminal	PHOENIX CONTACT	0441083	-X0V-PTS	2
456539	Terminal	PHOENIX CONTACT	3001501	-X24V-PTS	8
456541	Terminal	PHOENIX CONTACT	0441083	-X24V-PTS	1
456540	Terminal	PHOENIX CONTACT	3004524	-X100	6
456542	Terminal	PHOENIX CONTACT	0442079	-X100	3

Change	Date	Name	Statu	Obj	Repl.	Type	Page
						473827	37/39

© Frewit!
 We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.

19.02.2014
 User: phia
 Proved: phia
 Status: Standard


Novartis Singapore, SG-Singapore
 PRO-14-0013
 400V/50Hz-3P-N+PE

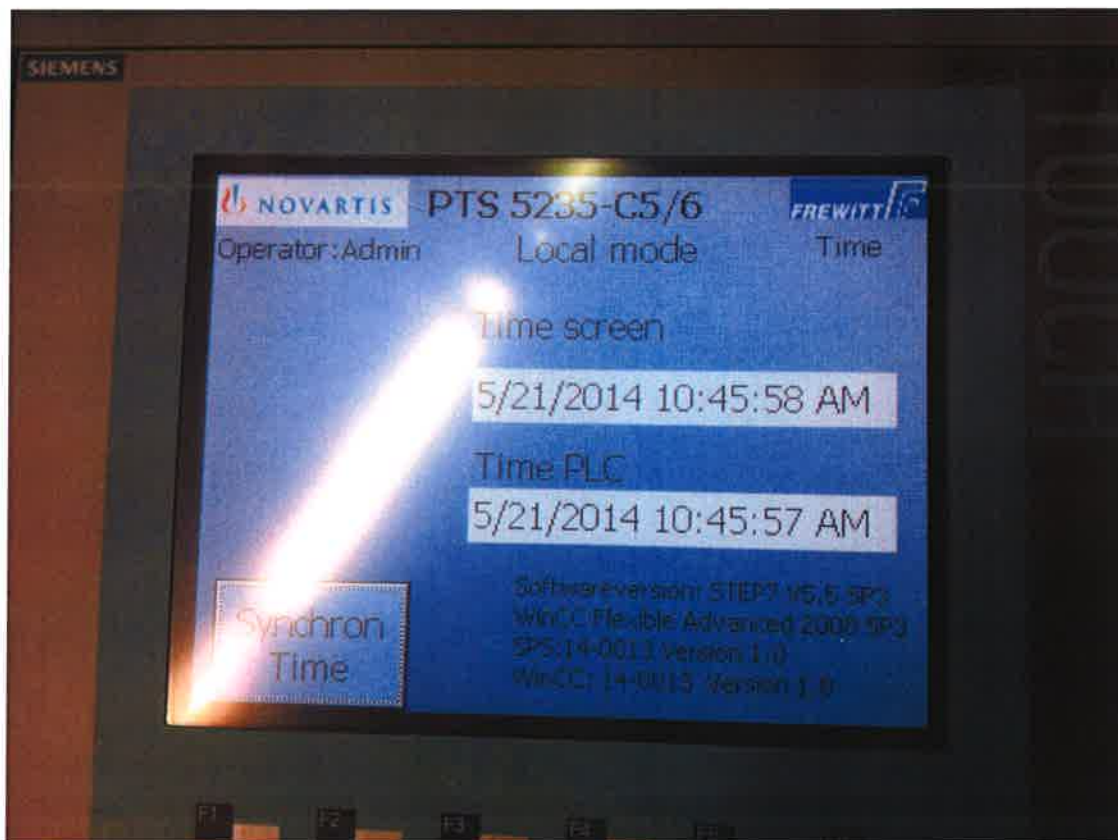
PHOENIX CONTACT
 181-41-23-46-74-22 / 181-41-23-46-74-22
 info@phoenixcontact.com / www.phoenixcontact.com

05 - Bill of material
 Type : PF - Installation
 473827

Test 7.2

Attachment 6 to FAT IQ PTS M5235C5/6


21 May 14



HW Config - SIMATIC 3001 (Configuration) -- 14-0013PTS

Station Edition Insertion Système cible Affichage Outils Fenêtre ?

0) UR

Emplacement	Module	Référence	Firmware	Adresse MPI	Adresse d'entrée	Adresse de sortie
1	CPU 315-2 DP	6ES7 315-2BH14-0A80	V3.0	2		
2	DP				270.0	
3						
4	D116xDC2AV	6ES7 321-1BH02-0AA0		0..1		
5	D016xDC2AV/0.5A	6ES7 322-1BH01-0AA0		128..135		2..3
6	A4/A0268/88A	6ES7 334-0CE01-0AA0		256..271		138..141
7	CP 343-1	6ES7 343-1EX30-0XE0	V2.0	6		256..271
8						
9						
10						
11						

Propriétés - CP 343-1 - (R01S7)

Protection d'accès IP | Configuration IP | PROFINET | Diagnostic

Général | Adresses | Paramètres de port | Options | Synchronisation d'horloge

Désignation abrégée : CP 343-1

CP 343-1 pour l'interface Ethernet TCP/IP avec interface SEND-RECEIVE et FETCH-WRITE, PROFINET IO-Device, switch 8 à ports, données en langues, SNMP, UDP, TCP, communication S7 (serveur), routage et échange de modules sans PG, 10/100 Mbits, Initialisation via réseau

Référence/ Firmware : 6ES7 343-1EX30-0XE0 / V2.0

Nom : CP-343-1

Interface : Ethernet

Type : Ethernet

Adresse : 192.168.172.52

Connecteur : Oui

Commission fond de panier : Adresse MPI : 6

Commentaire

OK | Annuler | Aide

Attachment 7 to FAT IQ PTS MS23SC5/6

Test 7.4

pg 1 of 1

[Signature]
21 May 14


R & I Part list
PPC-200VS PRO-14-0013 SG.TBP.202.M.5235/C005/6
3
Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. C

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
G01	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G02	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G03	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G04	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G05	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G06	(469947)	Initiator Namur NCB2-12GM35-NO-V1 Schliesskontakt M12	Pepperl Fuchs	1
G07	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
G08	473759	Proximity Switches P43-T4Y-2D-001-200EEX	Waycon	1
KS01	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS02	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KS03	(469947)	Valve K4p-644oH E-040 K2P-678 K12-040	CROMATECH	1
KP01	437890	Compensator	JOHANNSEN	1
KP01	437890	Compensator	JOHANNSEN	1
PC01	(432154)	Regulator R.01 G1/4 0.2-6 bar RE 01 9170100600208	UNIVER	1
PIG01	(432154)	Manometer 41309579292 G 1/8 0-10 bar	UNIVER (Tecsis)	1
P01	464936	Pressure Switches IS-20-S absolut 0..1 bar 4...20mA	WIKAI	1
P02	464937	Pressure Switches IS-20-S absolut 0..1 bar 4...20mA	WIKAI	1
P03	437866	Pressure Switches 1-10 bar G1/4* 0196 458 03 006	SUCO	1
SV05	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkmann)	1
SV06	467644	Solenoid valve 3 positions (Pneumax 104.53.32.6.30.1.P)	(Volkmann)	1
SV07	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV08	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
SV09	416988	Solenoid valve EL-PN 3/2 G1/4, assisté, 7959, MFH-3-1/4-S	FESTO SA	1
X01	(-)	Tri-Clamp DN50 DIN32676 Ø53/50		1
X02	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X03	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X04	(-)	Tri-Clamp DN 10" BS4825		1
X05	(-)	Tri-Clamp DN 150 DIN32676		1
X06	(-)	Tri-Clamp DN2" Ø47.5/50.8		1
X07	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X10	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X11	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X12	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X13	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X14	(-)	Tri-Clamp DN40 DIN32676 Ø41/38		1
X15	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / Irewitt	1
X16	470252	Magnetic separator Type Neoflux Cleanflow magnet SECF38333F	Goudsmit / Irewitt	1
F1	463739	Filter SS L=225.5 Ø45 Porostar 5µm	FreWitt	1
F2	470896	Filter QX 200 Ti07 0.14 OF	Mahle Filtersysteme GmbH	1
F3	462129	Secondary filter Ti26 VS250	Mahle Filtersysteme GmbH	1
N01	470067	int. Ø38mm	(Volkmann)	1
N02	470067	int. Ø38mm	(Volkmann)	1
N03	470067	int. Ø38mm	(Volkmann)	1
SK01	470951	MC-150 Valve	(Volkmann)	2
RV01	470904	Regulator R0018-6-K	Landefeld	2
HV01	461592	Valve for maunal vibrator MV 48 06 06 3	Trigress	2
Y01	470945	KV 101481	(Volkmann)	2
SV01	470947	Discharging valve G½" 111522	(Volkmann)	2
A1	470948	G540 S110254A	(Volkmann)	2


R & I Part list
PPC-200VS PRO-14-0013 SG.TBP.202.M.5235/C005/6
3
Customer NOVARTIS SINGAPORE PHARMACEUTICAL; SG-Singapore

R & I diagram 473527 Rev. C

R&I Article R&I Artikel R&I Article	Article N° Artikel Nr. Article ID.	Description Beschreibung Description	Fournisseur Hersteller Supplier	Quantité Menge Quantity
A2	470949	(Volkmann GLA2LVA 211634) CRVZS-2 160036	FESTO SA	2
A3	(Volkmann)	Assembly of F2/Y01 / SK01 MC150NO 104117	(Volkmann)	2
A4	(Volkmann)	Assembly Security filter VS250 Ti26	(Volkmann)	2
W002	473518	Weighing scales (IND690 Typ PTA459-F1500)	Mettler Toledo	1
W003	473518	Weighing scales (IND690Typ PTA459-F1500)	Mettler Toledo	1

ATTACHMENT 8 TO
 FAT IQ PTS
 PAGE 3 OF 4
 Cheryl 21 MAY 14

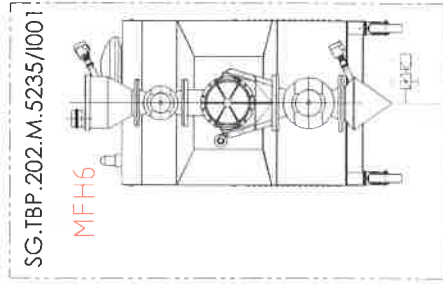
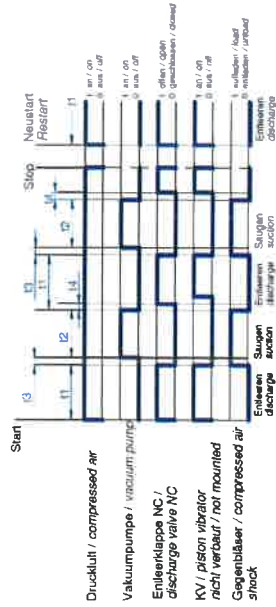
Gewerk Novartis

Maximal operating pressure
for the Volkmann 5 bar
(compressed air 15 bar / 7 bar)

Rev.	By	Date	Description
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

General notes:

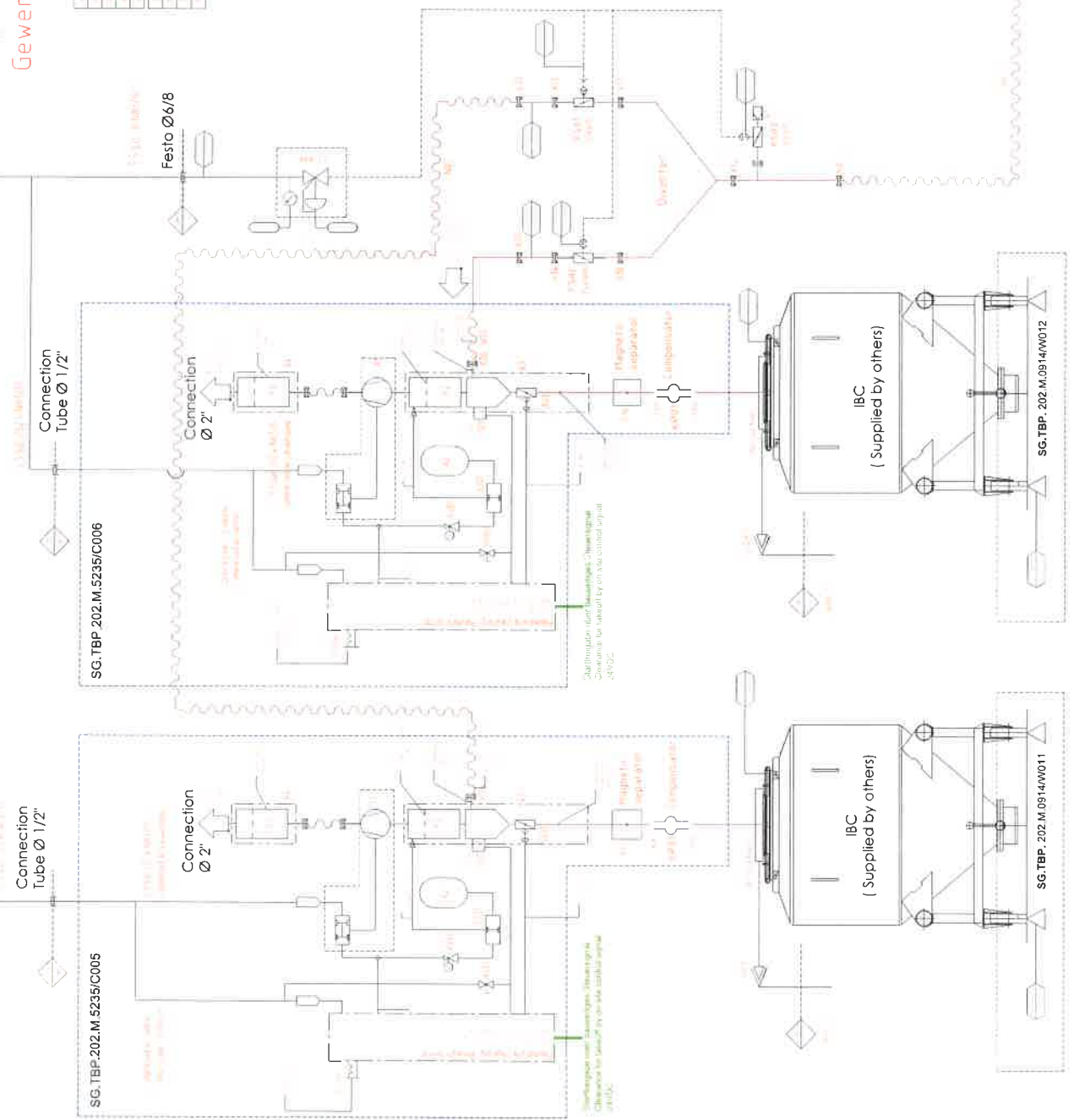
- 1: For legend refer the legend sheet 1.53395
- 2: For general arrangement details refer to GA DWG 473515-LA-Y



ATTACHMENT 8 TO
FAT IQ PTS
PAGE 4 OF 4

Network (V)	230-400
Frequency (Hz)	50
Serial Nr.	14001335100
ATEX category (int.)	1D
ATEX category (ext.)	3D
Design	2010/03/16
Checked	14/03/2014
Released	14/03/2014
Scale	3:1
Sheet	1/1

R und I PID PRO-14-0013 / PPC-200VS



SG.TBP.202.M.5235/C006

SG.TBP.202.M.5235/C005

9. IQ – Conclusion

FAT IQ FOR POWDER TRANSFER SYSTEM (PTS) WAS EXECUTED
WITH 2 DEVIATIONS RAISED BOTH DEVIATIONS WERE
SUCCESSFULLY CLOSED. *Cherryf* 22 MAY 14

NA

Cherryf 22 MAY 14

Professional Milling and Handling of Powders

167610-1-en

- Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland
- Postal address:
Box 615
CH-1701 Fribourg
Switzerland
- info@frewitt.com
www.frewitt.com
P +41(0)26 460 74 00
F +41(0)26 460 74 59
- No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R

15

**QUALIFICATION IQ
POWDER TRANSFER SYSTEM
14 / 15**



10. Deviation Sheet

DEVIATION: 01

Deviation To Test No:	2-3
Description of Deviation AS BUILT DIMENSION ARE NOT AS PER 473515-LAY. COMPONENTS INSTALLED ARE NOT AS PER PART LIST	
Evaluation and Proposed Corrective Action DRAWING 473515-LAY AND PART LIST TO BE UPDATED AS PER ATTACHMENT 2 IN FAT IQ PTS.	
Resolution DOCUMENTS UPDATED REFER TO ATTACHMENT 8 IN FAT IQ PTS	

Deviation Prepared By				
Name	Signature Reason	Department / Function	Date	Signature
CHRISTINA CHEN	Author	NSPM PROCESS ENGINEER	21 MAY 14	

Deviation Accepted By				
Name	Signature Reason	Department / Function	Date	Signature
Edouard Gury	Approver	Project Manager Frewitt	22.5.14	

15 QUALIFICATION IQ
POWDER TRANSFER SYSTEM
14 / 15



10. Deviation Sheet

DEVIATION: 01

Deviation To Test No:	2.5
Description of Deviation TROLLEYS FOR SG.TBP.202.M.5235/005 AND SG.TBP.202.M.5235/006 NOT PURCHASED. REFER TO ATTACHMENT 3 OF FAT IQ PTS.	
Evaluation and Proposed Corrective Action DRAWING 473527 TO BE REVISED.	
Resolution DRAWING 473527 IS REVISED TO REVISION C REFER TO ATTACHMENT 8 IN FAT IQ PTS.	

Deviation Prepared By				
Name	Signature Reason	Department / Function	Date	Signature
CHRISTINA CHEN	Author	NSPM PROCESS ENGINEER	20 MAY 14	

Deviation Accepted By				
Name	Signature Reason	Department / Function	Date	Signature
Eduard Gurny	Approver	Project Manager Frewitt	22.5.14	

Professional Milling and Handling of Powders

Professional Milling and Handling of Powders

167610-1-en

Frewitt SA
Route du Coteau 7
CH-1763 Granges-Paccot
Switzerland

Postal address:
Box 615
CH-1701 Fribourg
Switzerland


info@frewitt.com
www.frewitt.com
P + 41(0)26 460 74 00
F + 41(0)26 460 74 59

No. TVA 489 197
IBAN EUR: CH90 0483 5036 3818 0200 0
IBAN CHF: CH27 0483 5036 3818 0100 0
Credit Suisse CH-3001 Bern/Swift CRESCH ZZ30 R



11. Post-Approval

This FAT-IQ test Protocol of the equipment has been executed and accepted by:

Name	Signature Reason	Function/ Department	Signature	Date
Edouard Gumy	Reviewer	Frewitt Technical Project Manager		22.05.2014
Ho Sook Hwa	Reviewer	NSPM Qualification Coordinator		
Christina Chen	Approver	NSPM Process Engineer		
Shivabalan Kanesan	Approver	NSPM Automation Engineer		
Panicker Shreekumar	Approver	NSPM Project Manager		
Yap Yee Boon	Approver	NSPM Project QA		



FAT OQ Test Protocol

SG.TBP.202.M.5235/C005, C006

Powder Transfer System

12



Project Name :	Novartis Singapore PTS
Client :	NOVARTIS SINGAPORE PHARMACEUTICAL
Location :	SG-Singapore
Customer Order # :	3000949997
Supplier :	Frewitt Fabrique de Machines S.A.
Object :	Powder Transfer System
Serial # :	14001335180

Document Name :	FAT OQ Test Protocol - Powder Transfer System 14001335180
Document Reference :	167601-1-en.doc
Document Version # :	01

Pre-Approval:

This FAT-OQ test Protocol of the equipment was created, reviewed and accepted by:

Name	Signature Reason	Function/ Department	Signature	Date
Karsten Kutnar	Author	Frewitt Electrical Project Manager		9.05.2014
Edouard Gummy	Reviewer	Frewitt Technical Project Manager		9.05.2014
Ho Sook Hwa	Reviewer	NSPM Qualification Coordinator		12 MAY 14
f. LUKE MAY LAM Christina Chen	Approver	NSPM Process Engineer		12 MAY 14
Shivabalan Kanesan	Approver	NSPM Automation Engineer		12 May 14
Panicker Shreekumar	Approver	NSPM Project Manager		12 May 14
Yap Yee Boon	Approver	NSPM Project QA		14 May 14



Contains

1 INTRODUCTION 4

1.1 Purpose 4

1.2 Operation qualification (OQ) 4

1.3 General 4

1.4 Basis 4

2 FUNCTION TESTS 5

2.1 Test of each element 5

3 ATTACHMENTS 7

4 OQ – CONCLUSION..... 8

5 DEVIATION SHEET 9

6 POST-APPROVAL..... 10

Name of Participants Executing the Tests

19 May 14

Name of Participant	Department	Signature	Initial
Shivabalan Karesan	NSPM		SH1
NA SH1 19 May 14			



1 Introduction

1.1 Purpose

The purpose of this document is to verify the control function of the machine and the properties of the machine as per documented evidence.

1.2 Operation qualification (OQ)

With this operation qualification the functions according to the functional specification are controlled and documented.

1.3 General

The protocol "Operation qualification (OQ)" defines the procedure for implementation of the qualification.

1.4 Basis

The following references are the basis of these documents

- General standards of GMP
- General standards of safety



FAT_OQ – PTS Novartis

Project: PRO-14-0013

2 Function tests

2.1 Test of each element

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by (Initial, Date)
1	Check the switching function	The divider can be switched from C005 to C006 and from C006 to C005.	Divider can be switched between C5 to C6 and C6 to C5	Y	SH1 EE SH NA 21May14	SH1 21May14
2	Check the position of the switch	The position of the divider is detected and indicated on the HMI.	Position of divider is detected and indicated on HMI	Y	NA	SH1 21May14
3	Check that the PTS is working	During the running of the vacuum transport system an under pressure is measured	During the running of vacuum transport system, an under pressure is measured. (during suction)	Y	NA	SH1 21May14
4	Graphic Verification against the IBC PTS Discharge FDS	Graphics (including tag names) is verified to be correct against the IBC PTS Discharge FDS	Graphics (including tags) is verified to be correct against FDS. Refer ATT 1	Y	NA	SH1 20May14
5	Alarms Test	Alarms (including the description) are simulated according to alarm list defined in the FDS.	Alarms are simulated and verified against FDS. Attachment#: <u>3,4</u>	Y	NA	SH1 21May14



FAT_OQ – PTS Novartis

Project: PRO-14-0013

Test No.	Test Description	Expected Result / Acceptance Criteria	Actual Results	Fulfilled (Y/N)	Deviation No.	Executed by (Initial, Date)
6	Access level: Record the privileges check for each level.	Login with different access levels to check the accesses	Access Levels verified Attachment#: <u>2</u>	Y	NA	SH1 20May14
7	Verify the user is locked out when he enters the wrong password 3 times. Verify the user is logged off after 15 min of idle time	The user is locked out when he enters the wrong password 3 times. The user is logged off after 15 min of idle time	The user is locked out when he enters the wrong password 3 times. The user is logged off after 15 min of idle time	Y	NA	SH1 20May14
8	Magnetic Separator Test	Magnetic separator can function correctly.	Magnetic separator can function correctly. Note: only functional check	Y	NA	SH1 20May14
9	Suction- and discharging times on the Pneutimer for stations C005 and C006	Suction- and discharging times on the Pneutimer	C005 T1:5 T2:10 ⁻³ T3:5 C006 T1:5 T2:10 ⁻³ T3:5	Y	NA	SH1 20May14



3 Attachments

Attachment No.	Description	No. of Pages
1	Graphs Verification (test 4)	5
2	Access Level Verification (test 6)	1
3	Alarm Verification against FDS ^{FDS} (Test 4) (Test 5)	1
4	Alarm Screenshots (Test 4) ⁺ (Test 5)	7
+EE SHI		
21May14		
NA SHI		
21May14		



4 OQ – Conclusion

All tests passed without deviations.

Note: Actuators for PTS Discharge Flaps is NC.

~~A~~ 21May14

NA SHI
21May14



FAT_OQ – PTS Novartis

Project: PRO-14-0013

5 Deviation Sheet

Deviation To Test No:				
Description of Deviation				
Evaluation and Proposed Corrective Action				
Resolution				
<p>NA SHI 21 May 14</p>				
Deviation Prepared By				
Name	Signature Reason	Department / Function	Date	Signature
	Author			
Deviation Accepted By				
Name	Signature Reason	Department / Function	Date	Signature
	Approver			



FAT_OQ – PTS Novartis

Project: PRO-14-0013

6 Post-Approval

This FAT-OQ test Protocol of the equipment has been executed and accepted by:

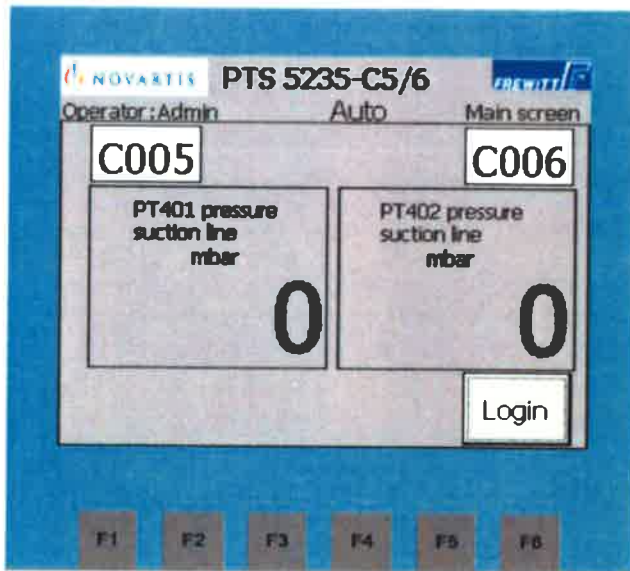
Name	Signature Reason	Function/ Department	Signature	Date
Edouard Gurny	Author	Frewitt Project Manager		22.05.2014
Ho Sook Hwa	Reviewer	NSPM Qualification Coordinator		
Christina Chen	Approver	NSPM Process Engineer		
Shivabalan Kanesan	Approver	NSPM Automation Engineer		
Panicker Shreekumar	Approver	NSPM Project Manager		
Yap Yee Boon	Approver	NSPM Project QA		



Description of application

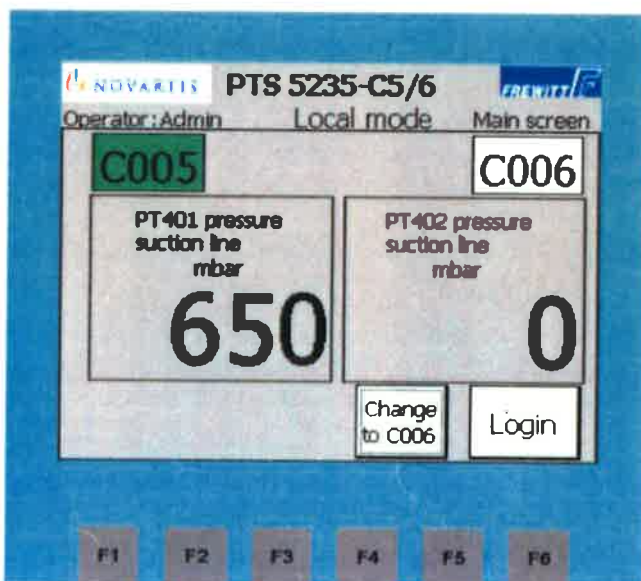
2.4.1 Main screen

Attachment 1 to FAT OQ PTS
 pg 1 of 5
 test 4



✓ Verified
 20 May 14

On this process screen the position of the switch is indicated. In local mode a change from C005 to C006 or from C006 to C005 is possible. The switching on and off of the unit is realized with a hardware switch (two positions).

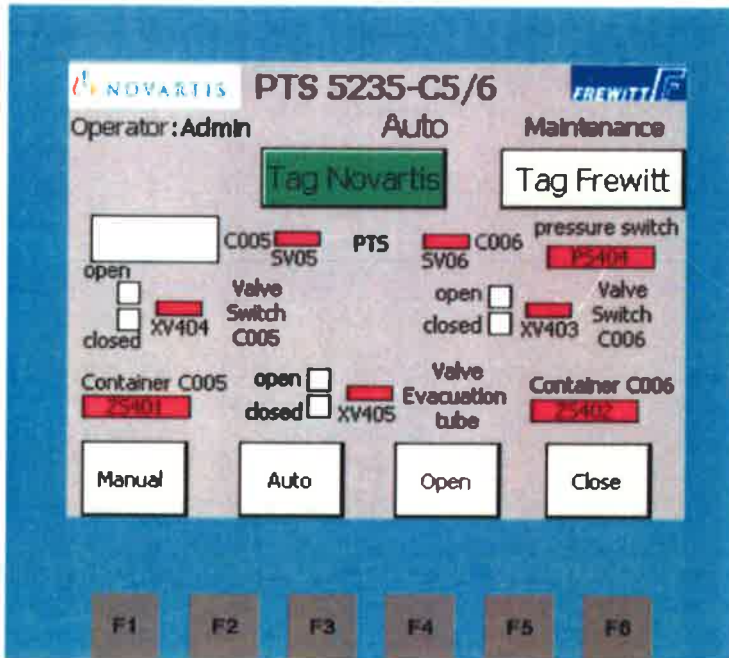


✓ Verified
 20 May 14



2.4.2 Maintenance mode

On this screen only service, supervisor and administrator has access. Here each single element (actuator) can be selected and switched on/off in manual mode. For the sensors the status is indicated.



Attachment 1 to FAT OQ PTS

pg 2 of 5

Test 4

[Handwritten signature]

20 May 14

Verified

[Handwritten signature]

20 May 14

This screen gives an overview of the machine and permits:

- All valves and motors to control manually
- To show the status of all valves and motors in automatic and manual mode
- To show the status of all pressure switches
- Choosing whether the Frewitt tag names or Novartis tag names are indicated

Elements	Man. Mode	Deactivated	Activated	fault
valve	M	Magenta	Green	Red

Element	Deactivated (-)	Deactivated (+)	Activated (-)	Activated (+)
Limit switch	White	White	Green	Green
Pressure switch	Magenta	Magenta	Green	Green

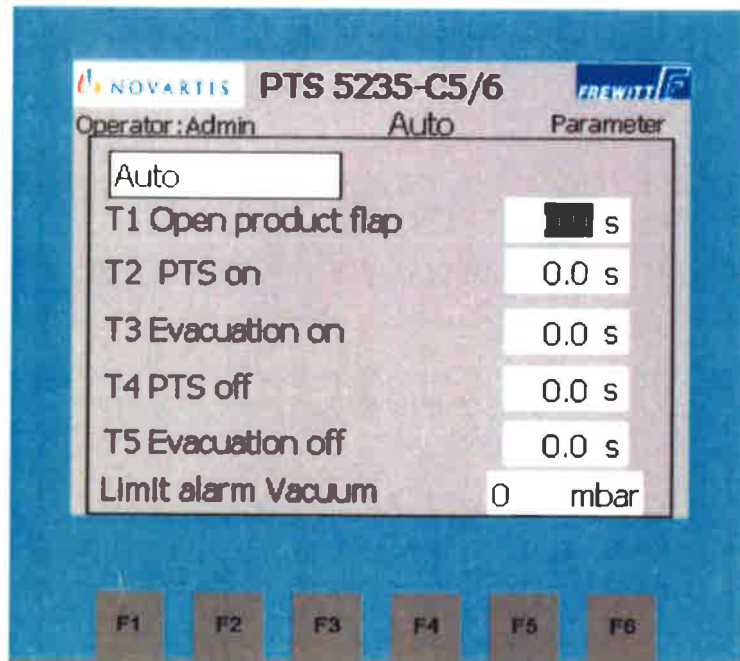
In order to control an element in manual or automatic mode, the operator must select the item and then press the "Manual" button or "Auto". If the item is in the "M" (manual) it can be switched on/off with the buttons OPEN and CLOSE.

Only the selected and displayed element (a M flashes next to the item) can be controlled in manual mode.



2.4.3 Parameters

The access to this screen is limited to the service, supervisor and the administrator.



Attachment 1 to
 FAT OQ PTS
 Test 4
 pg 3 of 5
 20 May/14

Here the delays according to the sequencer are stored. On this screen also the selection between Local mode and auto (Melt Extruder PLC) is situated.

✓
 Verified
 20 May/14



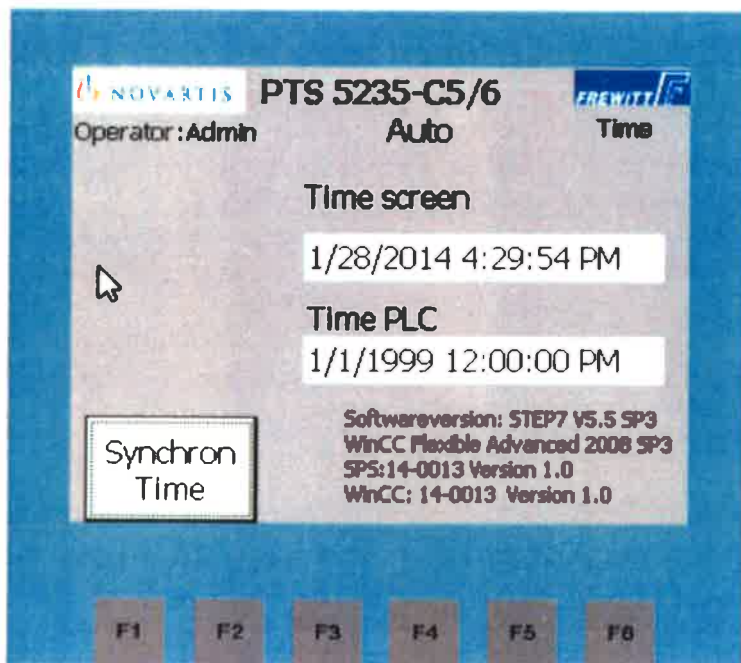
For the following functions the user must have at least the following rights:

Button	Rights
Maintenance, Active Alarm, Logout, Login, Quit,	Service all
Functions	Rights
System: Synchronies PLC, back to WinCE Change from A/B,B/A in local mode	Administrator all
Input of parameters (setpoints)	Rights
Parameters, change Auto/local mode	Service

2.4.5 Time setting

- Setting the time synchronization with the display of the controller in the PLC

To set the time, the user must enter the "Time screen" and synchronize the time of the controller by pressing the "Synchron. Time" button. When starting the PLC takes over the time of the screen.

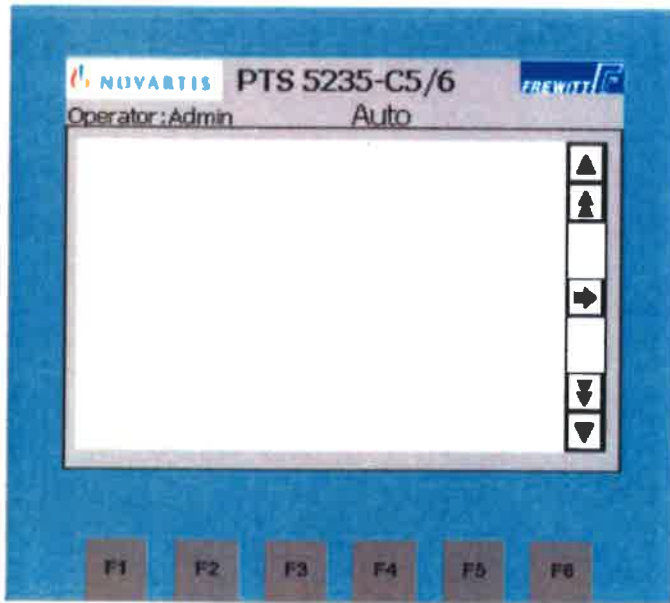


Attachment 1 to FAT OQ PTS
pg 4 of 5
Test 4
20 May 14

Verified
20 May 14 EG
SHI
20 May 14



2.4.6 Active Alarm



This screen shows the active alarms

✓ Verified
20 May 14

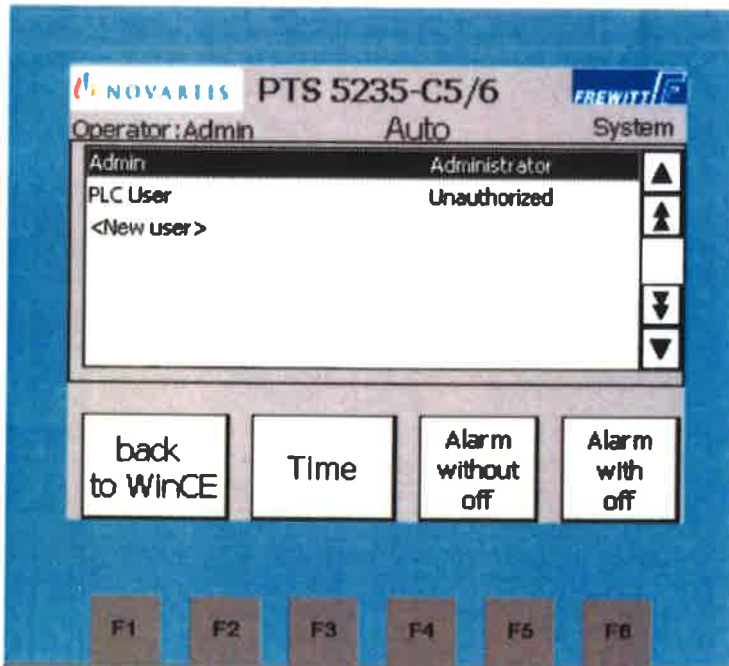
Attachment 1 to FAT OQ PTS
Test 4

pg 5 of 5

20 May 14



2.4.4 System



✓ Verified
[Signature]
 20 May 14

Attachment 2 to FAT OQ PTS
 pg 1 of 1

[Signature]
 20 May 14

This view allows:

- Creating and changing user password
- To return to the operating system WinCE
- Access to the time synchronization
- To select whether a limit switch alarm of a valve positions stops the installation

On this screen which is only accessible to the administrator.

Name	description
user	User name (Login)
Password	User's password. It has to have 8 characters
Group	Authorization of the user-level
Logoff time	Validation time (0 to 60 min, at 0 no automatic logoff) – configurable on HMI

In addition, the wrong password attempts for users' account lockout is 3 times.

These user's groups are used:

Rights (G▶K)	Name	Description
✓ 9	Administrator	All access rights on the HMI (Administrator)
✓ 8	Supervisor	Access to all screens except system
✓ 7	Service	Access to all screens except system
✓ 1	Operator	Login necessary, access to limited screens and functions
✓ 0	unauthorized	no Login, no access, only display

Attachment 3 to FAT OQ PTS

pg 1 of 1

Test 5

Maj 14

2.3 Operation

2.3.1 Local mode / auto

If the PTS is switched to "Auto", the operation is carried out by the Melt Extruder PLC. The local operation is only in "local mode" possible. Pending alarms are transmitted to the Melt Extruder PLC, an acknowledgment is local or from the Melt Extruder PLC.

If the PTS is switched to "local", the control is carried out at the PTS HMI

2.3.2 Entry from the operator

After switching on the main switch the PLC and HMI boot up and the alarms have to be quit. On the main screen it is shown in which position the PTS is right now.

In local mode the operator changes the position of the PTS from the PTS HMI.

In Auto mode the position of the PTS can be changed from the Melt Extruder HMI. In a continuous operation, switchover of PTS units will be activated upon an external signal from the Melt Extruder PLC.

2.3.3 Error display

The following fault indications are displayed on the screen of active alarms.

No.	Alarm messages PTS	reaction	Alarmtext comes up
1	-	-	-
2	Error Watchdog	stop of unit	always (PTS PLC was stopped)
3	Error PSIA+ P03 Pressure switch	stop of unit	always
4	GO+G07 Container C005 not detected	stop of unit C005	when switching to C005
5	GO+G08 Container C006 not detected	stop of unit C006	when switching to C006
6	GO 01 Error close position SV07 not reached	only stop if F5 button is put to "with off"	If SV07 is closed
7	GO 02 Error open position SV07 not reached	only stop if F5 button is put to "with off"	If SV07 is opened
8	GO 03 Error close position SV08 not reached	only stop if F5 button is put to "with off"	If SV08 is closed
9	GO 04 Error open position SV08 not reached	only stop if F5 button is put to "with off"	If SV08 is opened
10	GO 05 Error close position SV09 not reached	only stop if F5 button is put to "with off"	If SV09 is closed
11	GO 06 Error open position SV09 not reached	only stop if F5 button is put to "with off"	If SV09 is opened
12	Element in manual mode	stop of unit	always
13	no connection to Melt extruder PLC	stop only if put to auto	always
14	PTS Switch C005 Vacuum	no stop	if C005 is activ
15	PTS Switch C006 Vacuum	no stop	if C006 is activ

2.4 Process screens

The control of the PTS is realized with a KTP600 touchpanel.

Switching between the various process screens via the buttons at the bottom of the screen. With the function buttons the following process screens can be reached.

F1 Main screen see 2.4.1

F2 parameters, see 2.4.3

F3 maintenance, see 2.4.2

F4 active alarms, see 2.4.5

F5 system, see 2.4.4

F6 acknowledgment for upcoming alarms and error messages

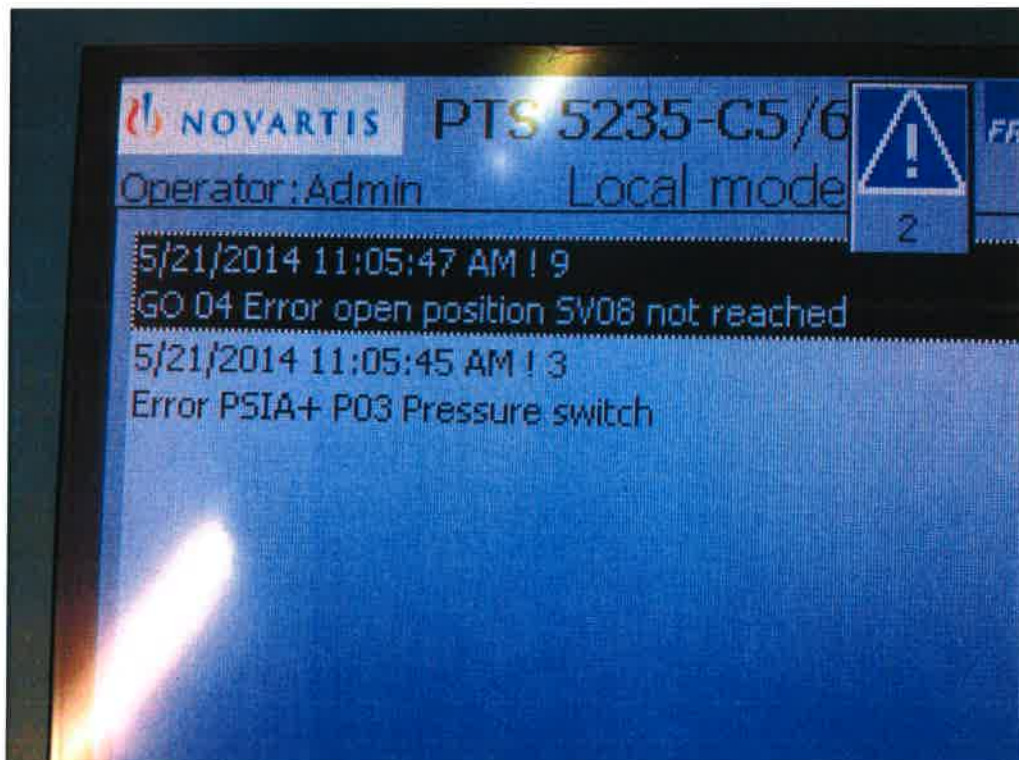
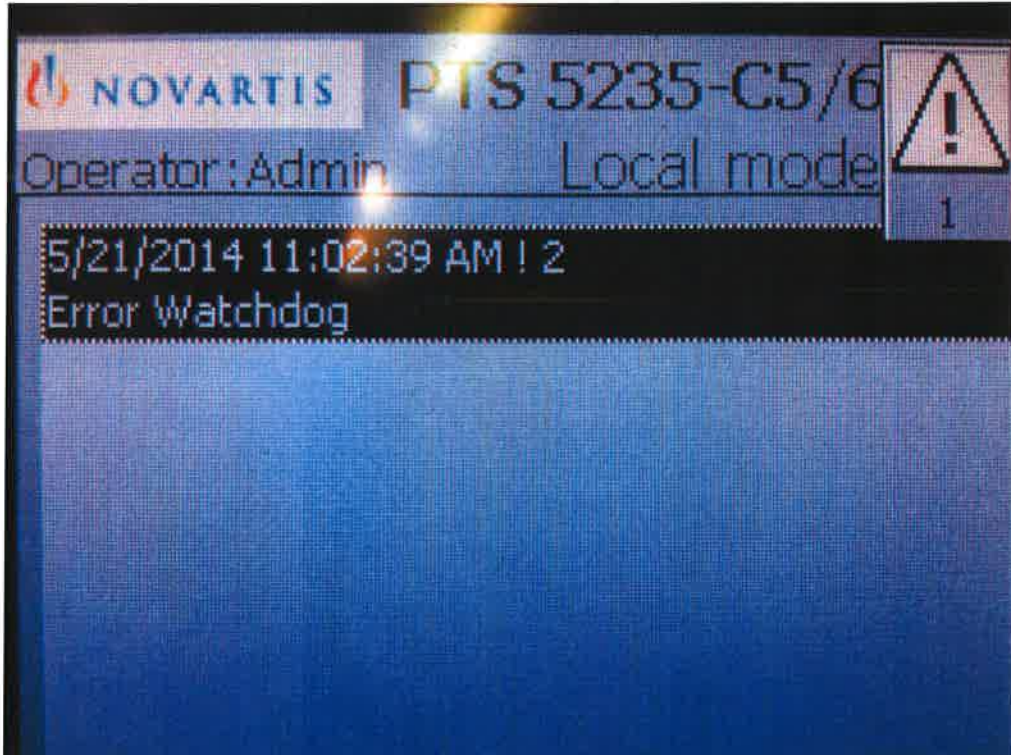
Verified 21 May 14

Attachment 4 to FAT OQ PTS M5235C5/6

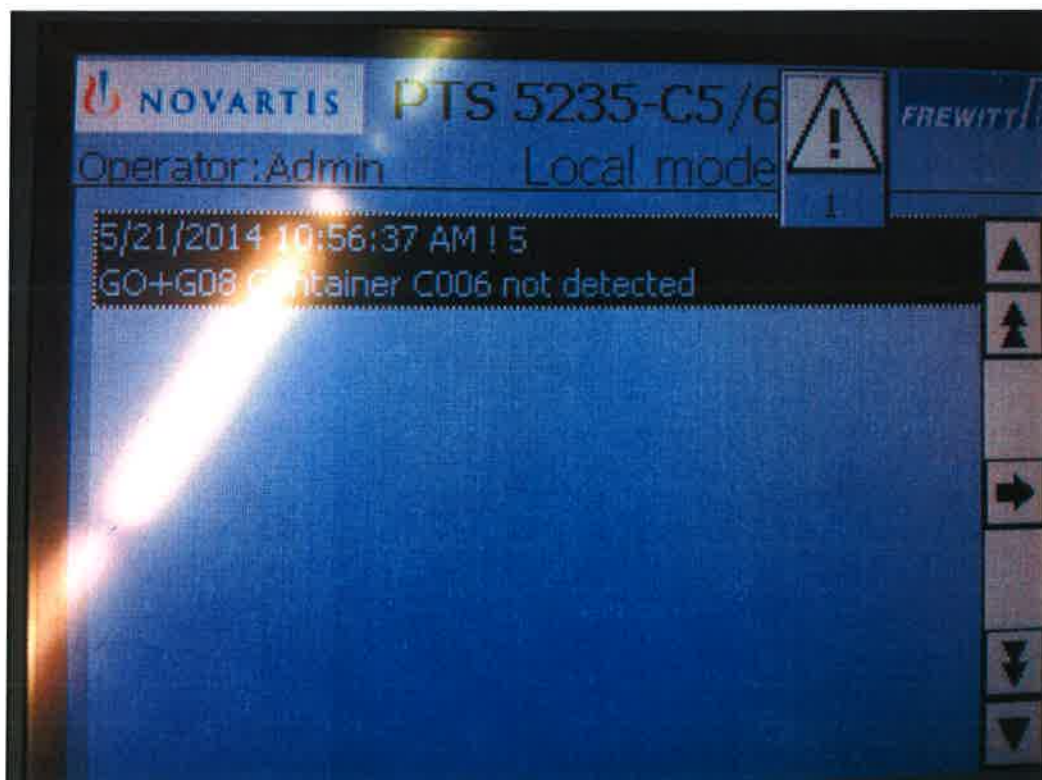
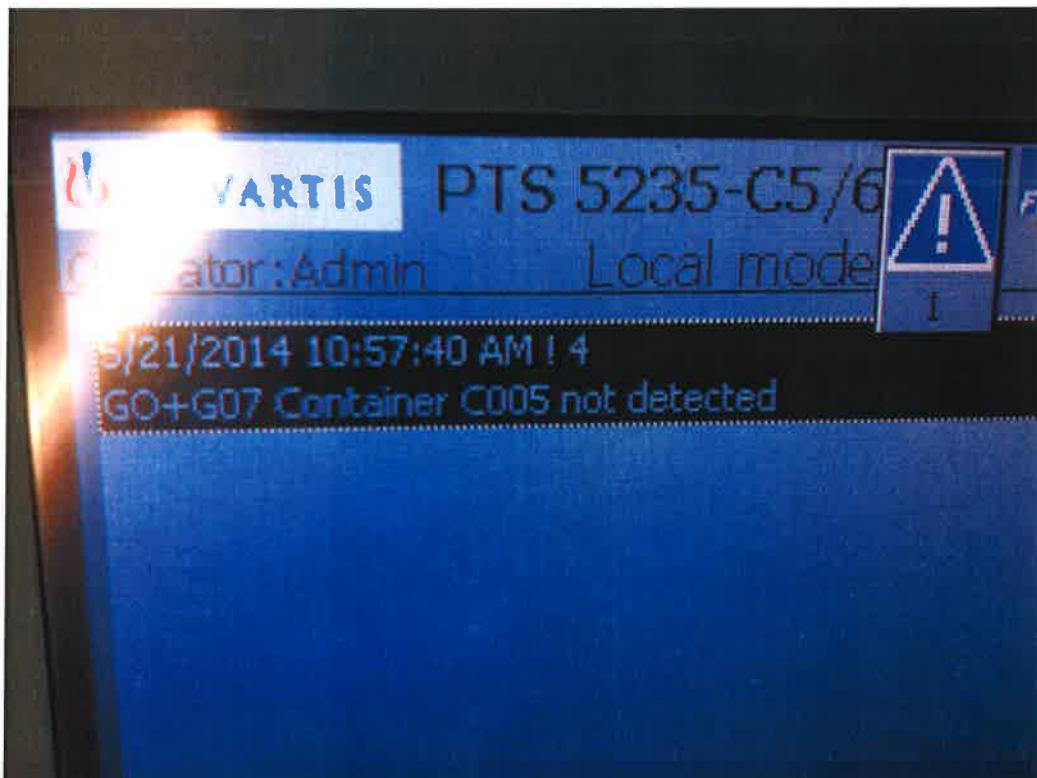
Test 5



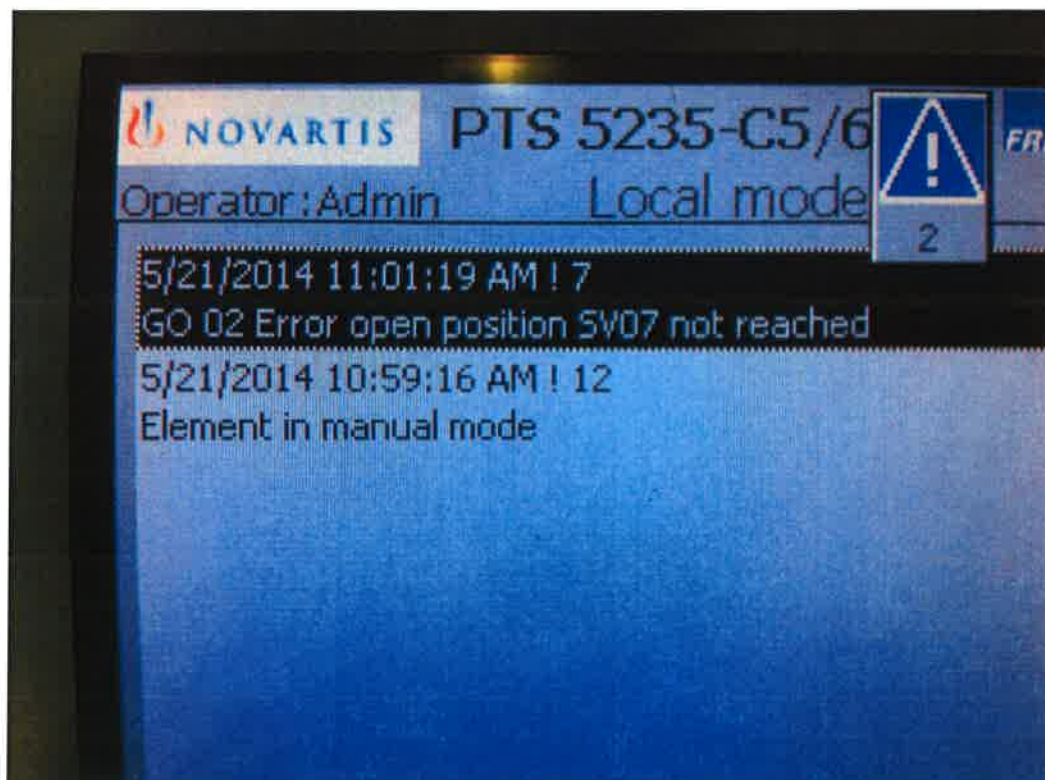
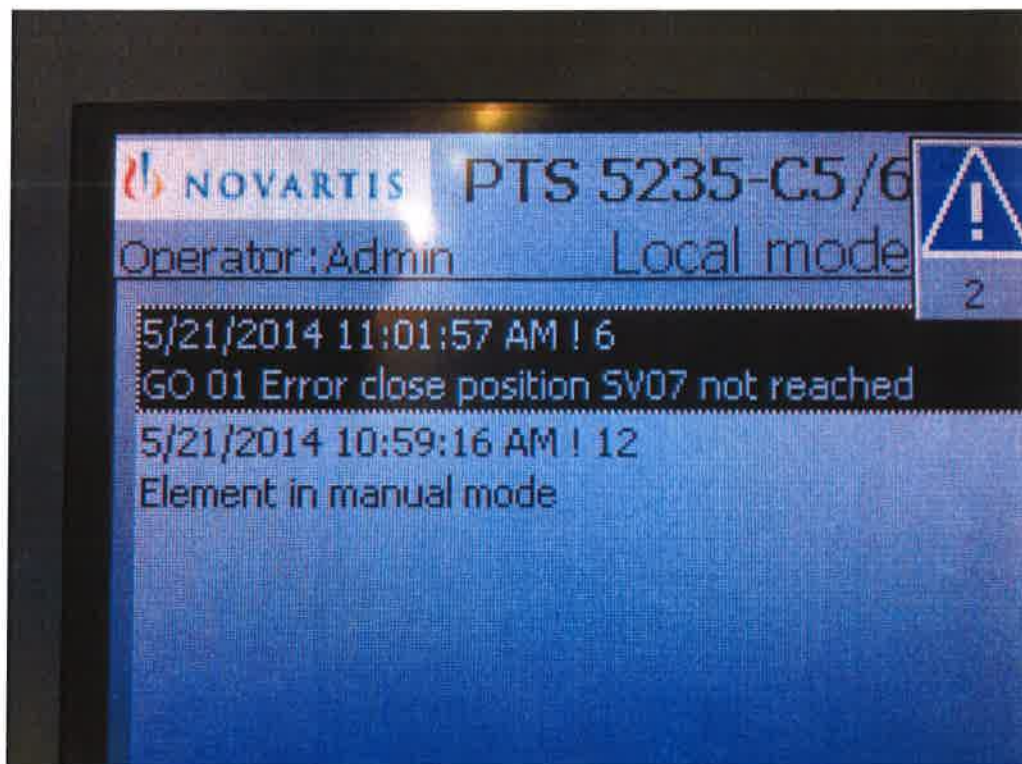
21 May 14



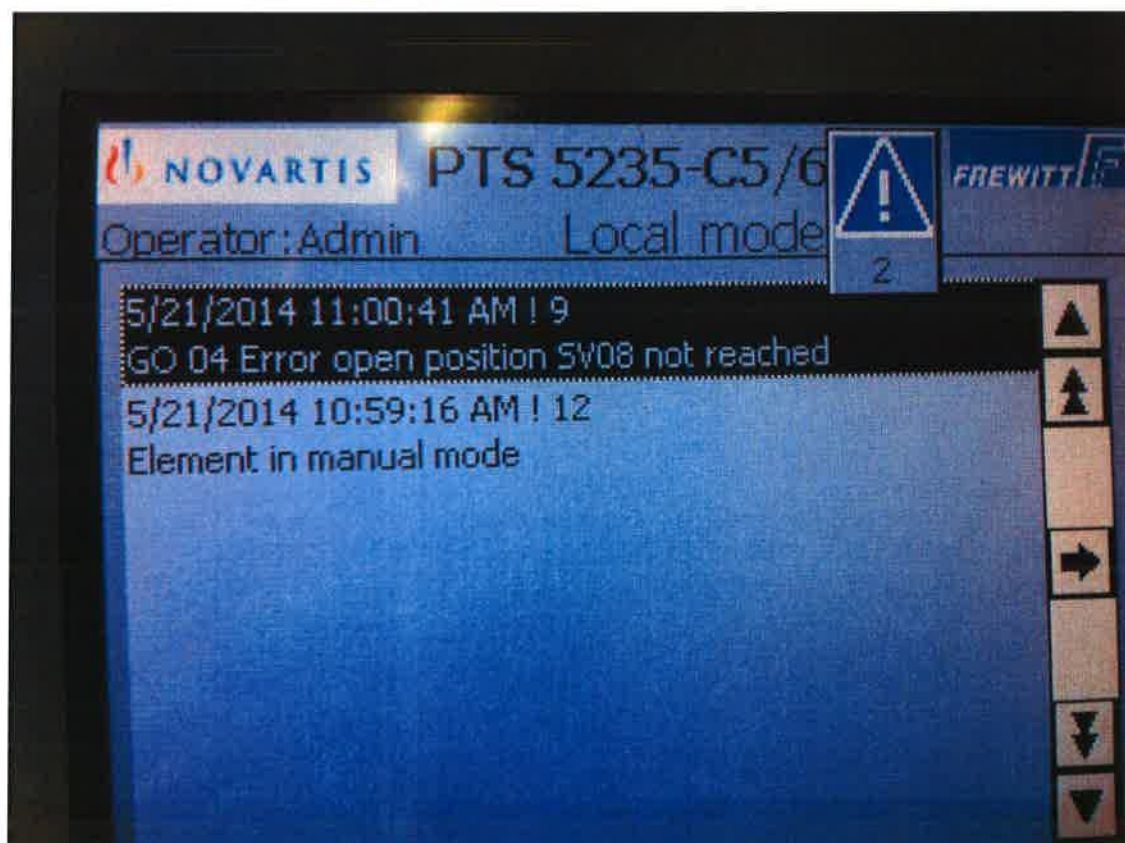
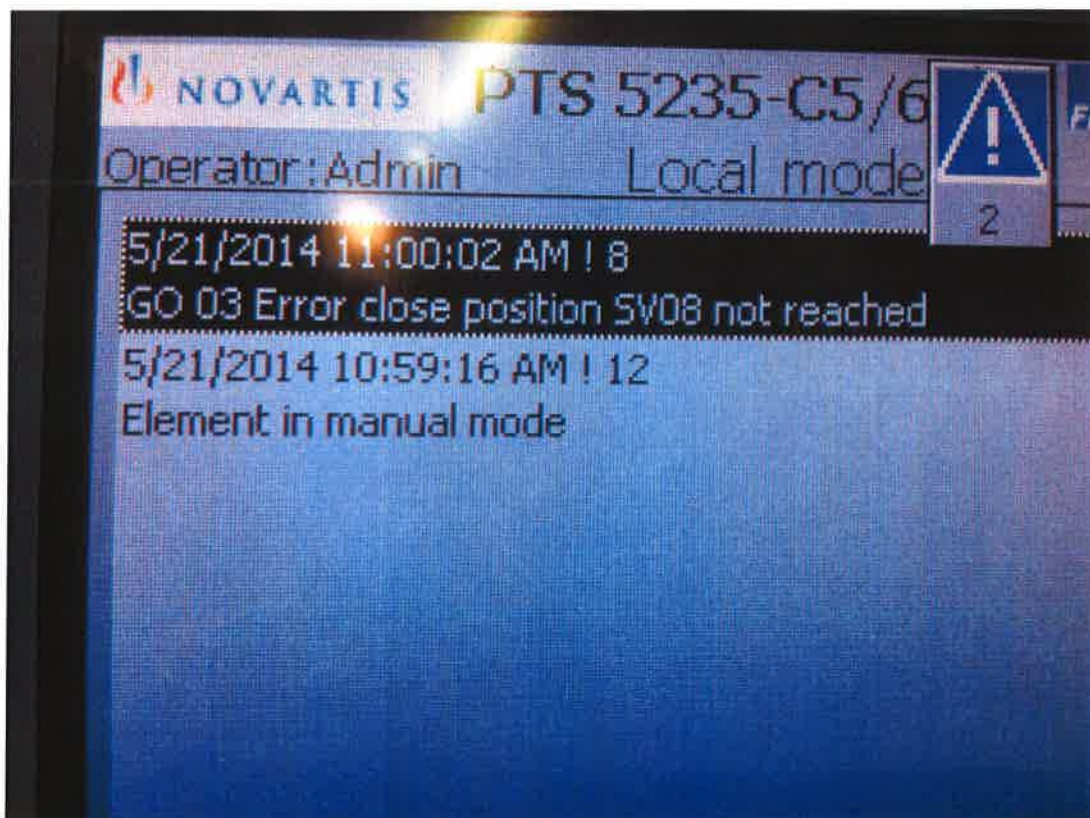
Attachment 4 to FAT OQ PTS M5235C5/6
Test 5



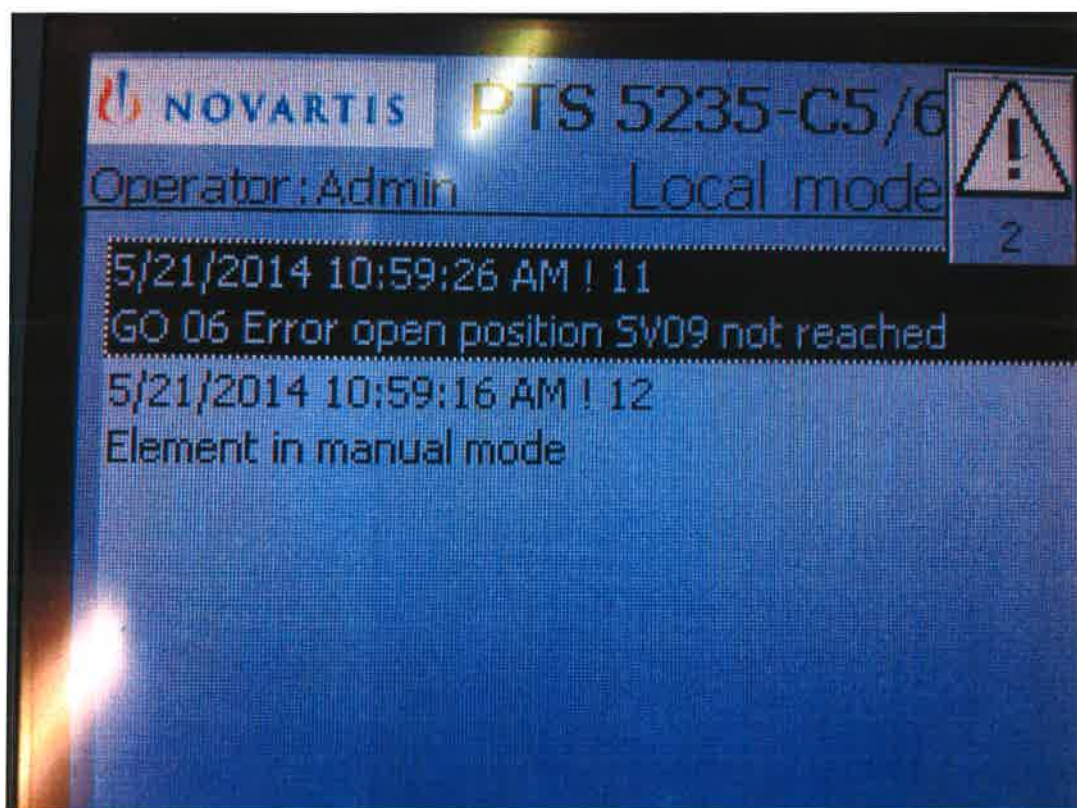
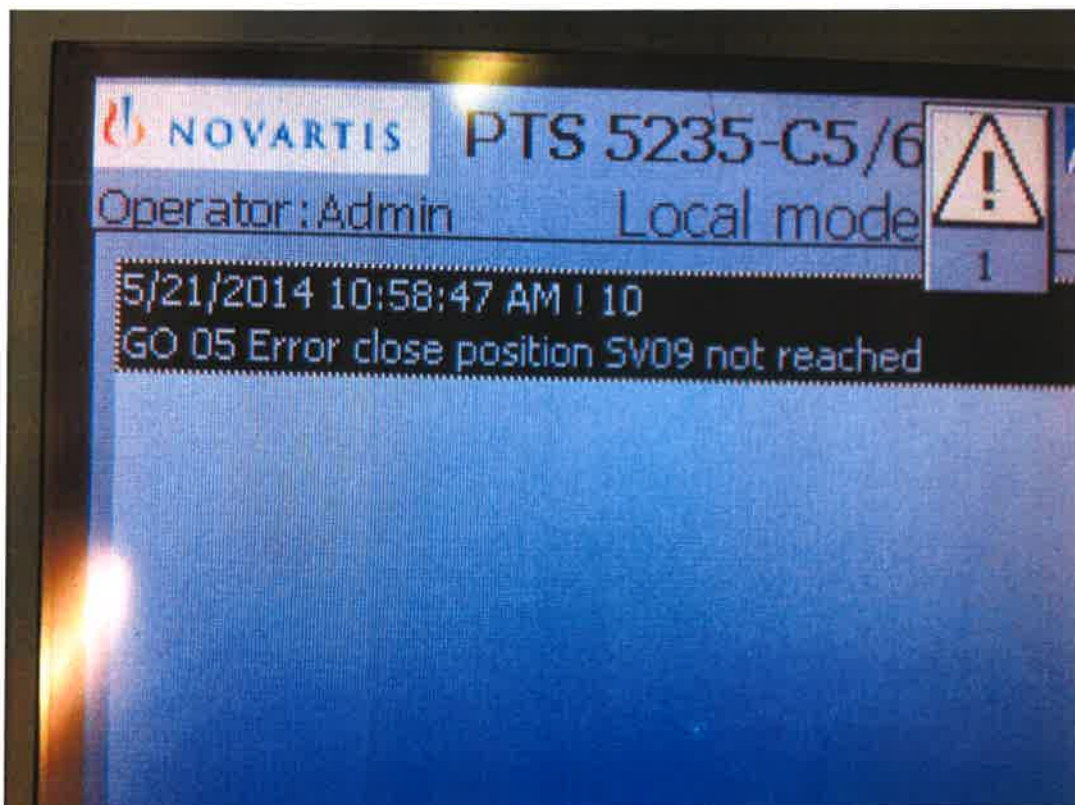
Attachment 4 to FAT OQ PTS M5235C5/6
Test 5



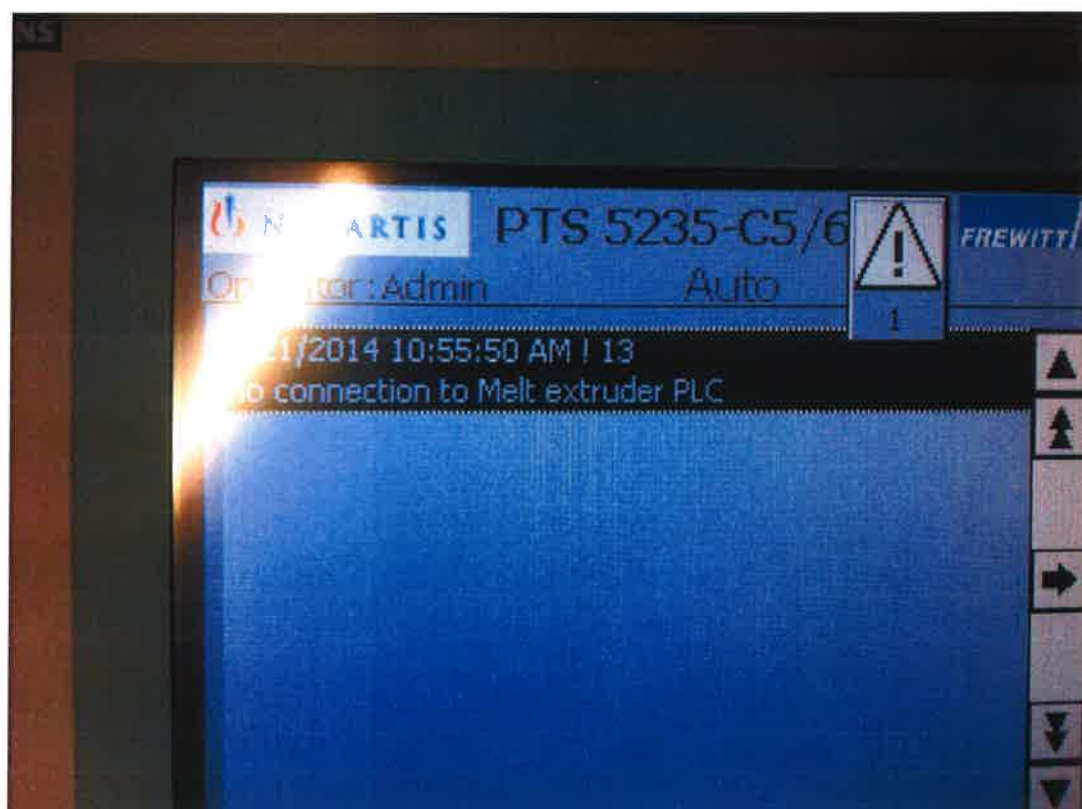
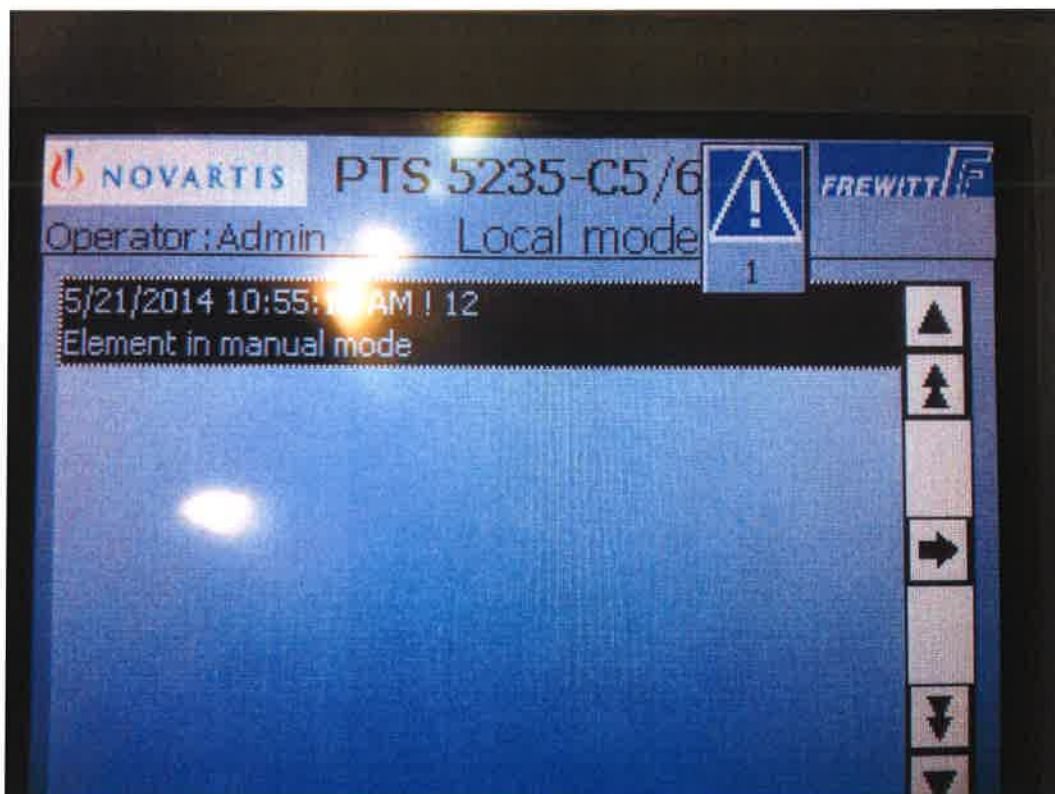
Attachment 4 to FAT OQ PTS M5235C5/6
Test 5



Attachment 4 to FAT OQ PTS M5235C5/6
Test 5



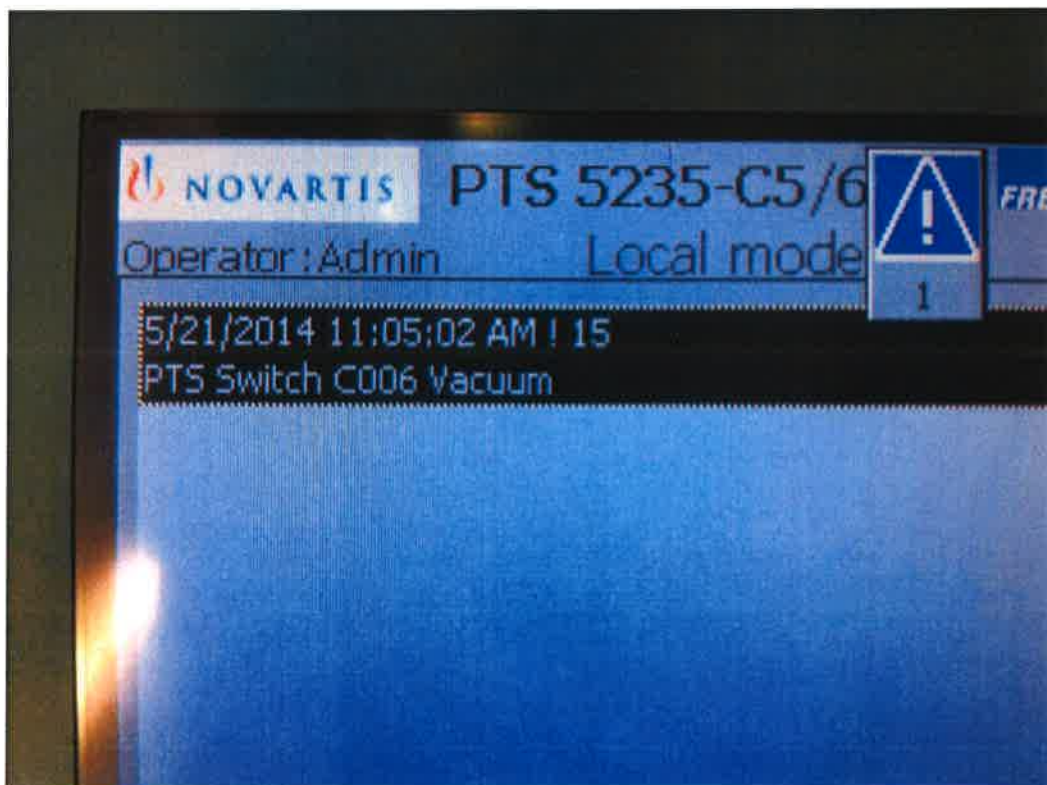
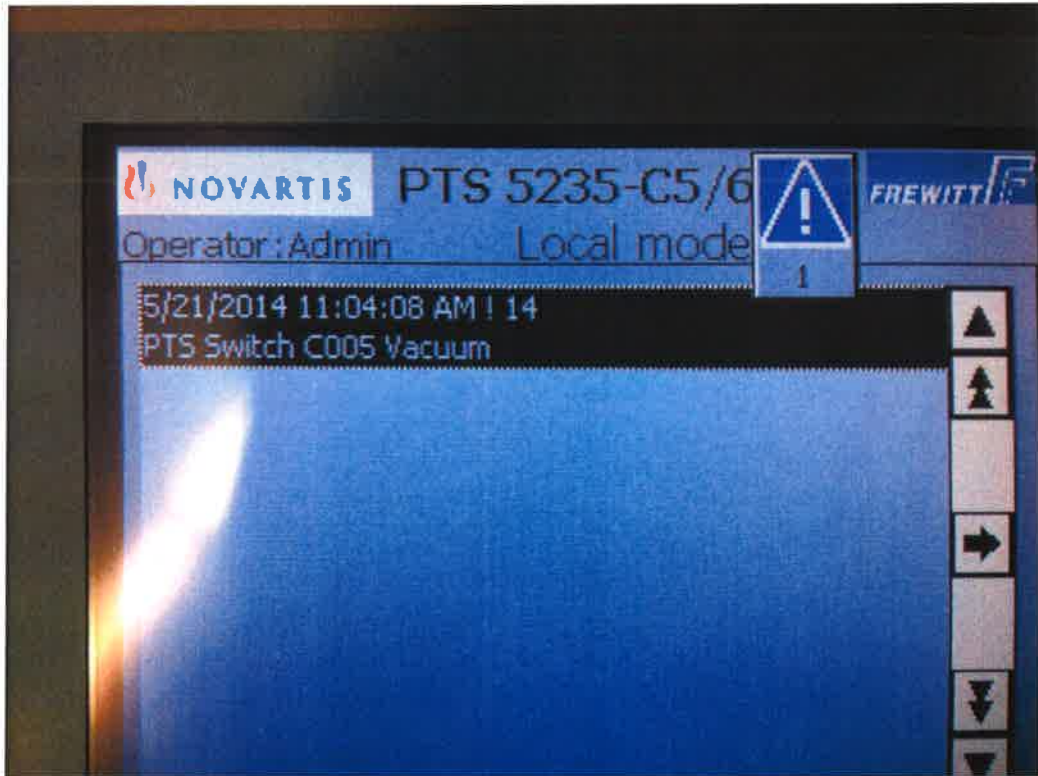
Attachment 4 to FAT OQ PTS M5235C5/6
Test 5



Attachment 4 to FAT OQ PTS M5235C5/6

Test 5

[Handwritten signature]
21 May 14



VANNES PAPILLON

DROSSELKLAPPEN

BUTTERFLY VALVES

Operating instructions



**Nocado butterfly valve
acc. to ATEX with manual
and pneumatic actuator**



Declaration of Conformity

according to

EC - Directive 98/37/EC, annex II A relating to machinery
EC - Directive Equipment and protective systems intended for use in Potentially Explosive Atmospheres 94/9/EC, ATEX 95

The manufacturer

Nocado GmbH & Co. KG
Kirchweg 3
26629 Großefehn

herewith declares that the following products

Nocado butterfly valves DN 15 – 150 TÜV08ATEX554362

with the marking  0044  II1/2 G/D c II B

in the delivered version correspond to the above mentioned directives and the following DIN EN standards.

Directive/Standard	Title	Issue	Remarks
DIN EN 1127-1	Explosion prevention and protection	1997	Harmonised standard
DIN EN 13463-1	Non-electrical equipment for use in potentially explosive atmospheres	2002	Harmonised standard
DIN EN 13463-5	Non-electrical equipment for use in potentially explosive atmospheres	2003	Harmonised standard
DIN EN ISO 12100-1	Safety of machinery	2004	Harmonised standard
DIN EN ISO 12100-2	Safety of machinery	2004	Harmonised standard

Unauthorised alterations made to the products described above will void this declaration of conformity.

Großefehn, 22nd of September 2008

Günter Saathoff
Director of
Construction Department

Contents

Nocado butterfly valves according to ATEX with manual and pneumatic actuator

 0044
  II1/2 G/D c II B

1	General safety instructions	4
1.1	Safety instructions related to components	5
2	Information for safe application	5
3	Intended use	5
4	Storage	7
5	Installation - Dismantling - Assembly	7
5.1	Installation	7
5.1.1	Planning	7
5.1.2	Realisation	7
5.2	Dismantling	8
5.3	Assembly of butterfly valve gasket	10
6	Commissioning	11
7	Maintenance	12
8	Marking	12
9	Technical data	13
9.1	Butterfly valve	13
9.2	Actuator	13
9.3	Parts list	14

1 General safety instructions

Local safety instructions must be observed.

Safety instructions and regulations exist for food industry, pharmaceutical industry, process engineering etc. They are published i.a. by professional associations and the German Engineer Association [VDI].

The valid safety instructions and regulations have to be observed and realised by the user.



The purchaser is obliged to effect a safety and hazard analysis of the installation or plant, in which Nocado components are installed, and is held liable for it.

The operating and maintenance personnel must know these operating and maintenance instructions. They should be stored in a place, which is accessible at any time for the operating and maintenance personnel.

Nocado components are designed and constructed for industrial use only, for operation and maintenance by personnel having the suitable qualification and training to carry out their tasks.

The respective regulations have to be observed

Used safety symbols according to ANSI Z535.4

Warning level (Signal word, safety symbol) ↓	1. criterion: Consequences	2. criterion: Consequences
 DANGER	Death / severe bodily injury (irreversible)	Possible
 CAUTION	Slight injury (reversible)	Possible
CAUTION	Property damage	Possible

1.1 Safety instructions related to components



- Only use original parts. If you do not use e.g. original screws, these may break under pressure and cause danger of life.
- Observe the torque indicated in the operating instructions when tightening the flange screws. Tightening with a torque that is either too high or too low leads to failure of the flange connection.
- When the Nocado butterfly valve is switching, never put your hands into moving components. Your fingers can be squeezed or cut off!
- There is a prestressed spring in the pneumatic spring returning rotary actuator. Only deactivated pneumatic rotary actuators may be scrapped.

Nocado accepts unopened pneumatic rotary actuators and arranges for proper disposal free of charge.

2 Information for safe application

The butterfly valves may be used according to the equipment category 2 in zone 1 or in zone 21.

In these areas potentially explosive atmosphere of gas and dust may occasionally arise.

The internal space of butterfly valves may be used according to the equipment category 1 in zone 0 or in zone 20. In these areas potentially explosive atmosphere of gas and dust may always arise.

The user must check the chemical compatibility.

Avoid any reaction with components causing an explosive atmosphere which might affect the safety in areas of potentially explosive atmosphere.

3 Intended use

Nocado butterfly valves are designed and constructed for installation in pipelines and tanks for shut-off of liquid stream in industrial use.

- Max. operating temperature: depends on the sealing material
- MVQ (Silicone): 200 °C, FPM (Viton): 200 °C, HNBR: 140 °C, EPDM: 150 °C
These temperatures are valid in dry atmosphere.
- Further information to sealing material can be found in Nocado catalogues or can be enquired at Nocado.

The butterfly valves may only be actuated by ATEX-approved actuators (e.g. Nocado pneumatic actuators) Nocado butterfly valves are pressurized equipment accessories (without safety function) according to Pressure Equipment Directive 97/23/EC. The pressure and the temperature within the butterfly valve must be between 0.8 to 1.1 bar absolute and between -20 to +60 °C in potentially explosive atmospheres, and the rest air must contain the normal air oxygen content. If the above mentioned device is operated outside these atmospheric conditions, this approval serves as guideline. Additional tests for special operating conditions are recommended. The operator is held liable for these tests.

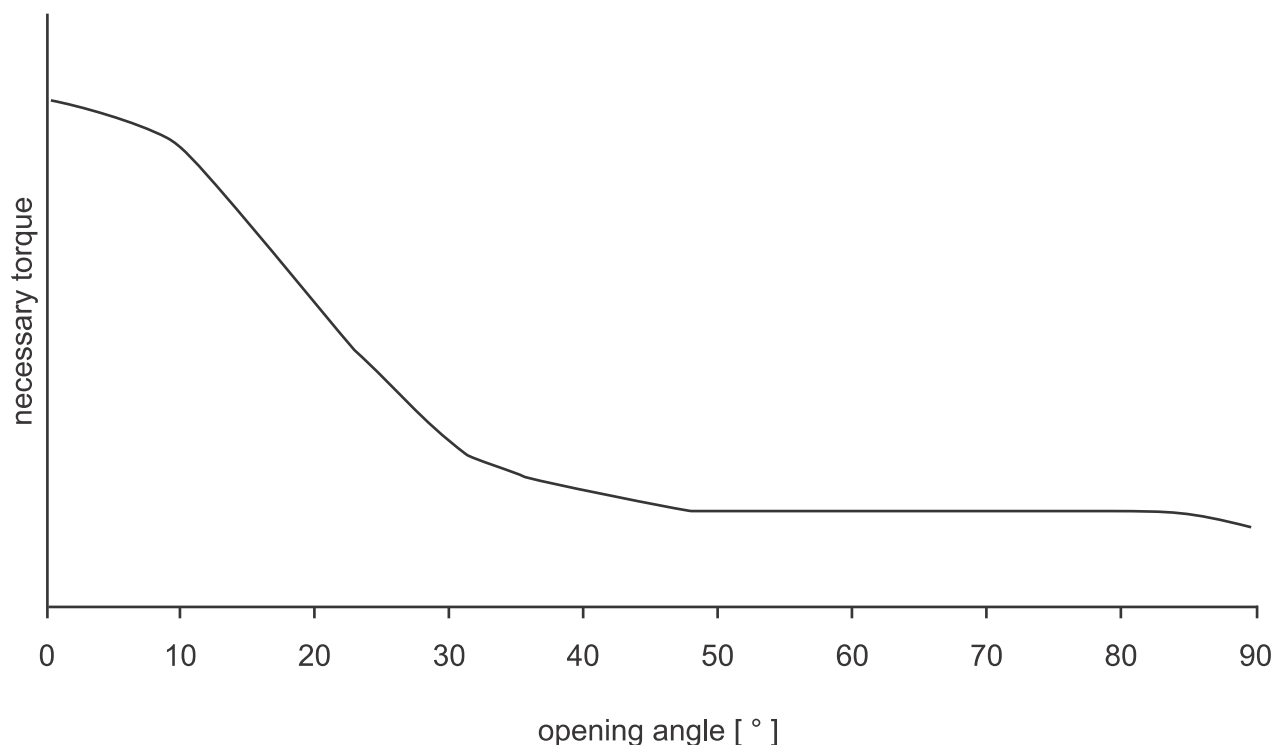
Operating instructions

The Nocado butterfly valve is actuated by pneumatic rotary actuator or is manually actuated. The pneumatic rotary actuator is available in 3 versions.

- Opening with compressed air – closing with spring force
Designation air/spring or NC (normally closed)
- Closing with compressed air – opening with spring
Designation spring/air or NO (normally open)
- Opening with compressed air – closing with compressed air
Designation air/air

CAUTION

The run of the necessary torque for actuating the butterfly valve is not linear.



Nocado rotary actuators are optimised for this run of torque.

The change of the function spring closing (NC) to spring opening (NO) should therefore only be effected with change of the pneumatic rotary actuator.

All Nocado butterfly valves can be equipped with end position feedbacks. Pneumatically actuated butterfly valves can optionally be equipped with feedback, control and positioner unities.

The corresponding operating and maintenance instructions must be observed. They are not part of this operating instruction.

4 Storage

The valves must be stored in a dry place. They must be protected against high temperatures and ozone. Conditions which can permanently be accepted for the operating area are also suitable for the storage of the valves.

5 Installation – Dismantling – Assembly

5.1 Installation

5.1.1 Planning

- The dismantling of the valve and if necessary of the pneumatic rotary actuator must be effected without problems
- The valve must be not energized when installed in the piping system – avoid any force effect on the valve
- When assembling butterfly valves and accessories avoid any occurrence of electrostatic insulated components
- Assembly or dismantling are only allowed, when the pneumatic rotary actuator is separated from the compressed air network

5.1.2 Realisation

- Welding
 - Remove the gasket (completely with valve disc and bearing bushes) off the valve housing
 - Only mount after cooling down
 - Before reassembling, the valve and if necessary the gasket must be cleaned
- Reassembly
 - Tighten all screws uniformly,
the max. allowable torque of the flange screws for
 - M 8 (DN 20 to DN 100) = 15Nm
 - M 10 (DN 125 to DN 200) = 30Nm
 - After the assembly switch the valve manually,
the max. allowable torque at opening/shutting for Nocado butterfly valves with the nominal diameter is
 - DN 20 to DN 100 = 35Nm
 - DN 125 to DN 200 = 55Nm

Operating instructions

5.2 Dismantling

Nocado butterfly valve with manual actuator

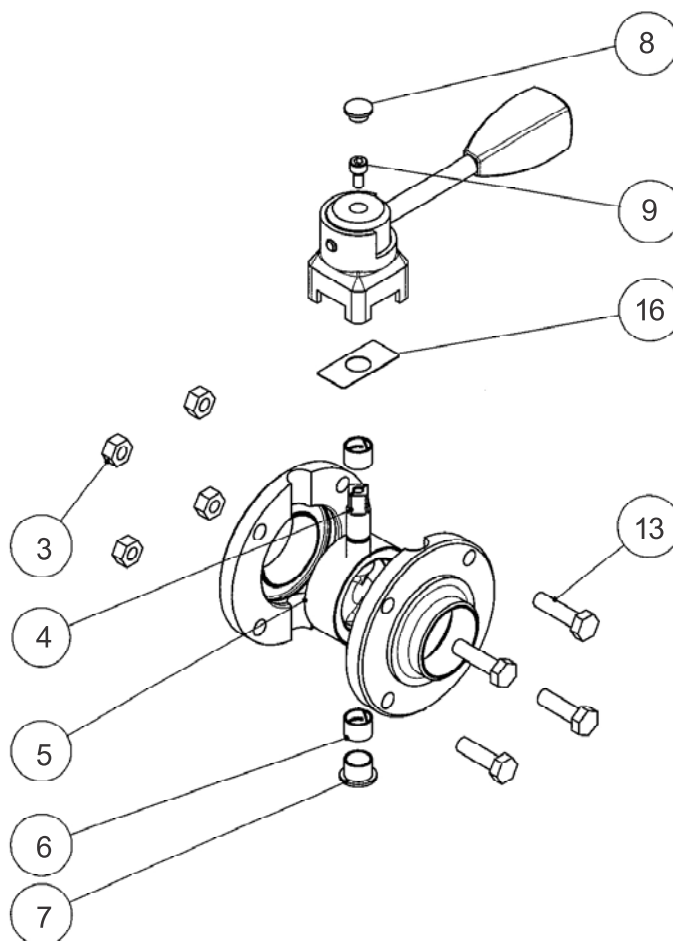


Figure 1: Dismantling with manual actuator

1. Remove protective caps (7,8) and unscrew the screw (9) through the handle
2. Detach manual actuator completely
3. Remove leaf spring (16)
4. Remove Screws and nuts (3,13)
5. Remove gasket together with valve disc and bearing bushes
6. Pull bearing bushes (6) from valve disc (4)
7. Remove gasket (5) off the valve disc

Nocado butterfly valve with pneumatic rotary actuator

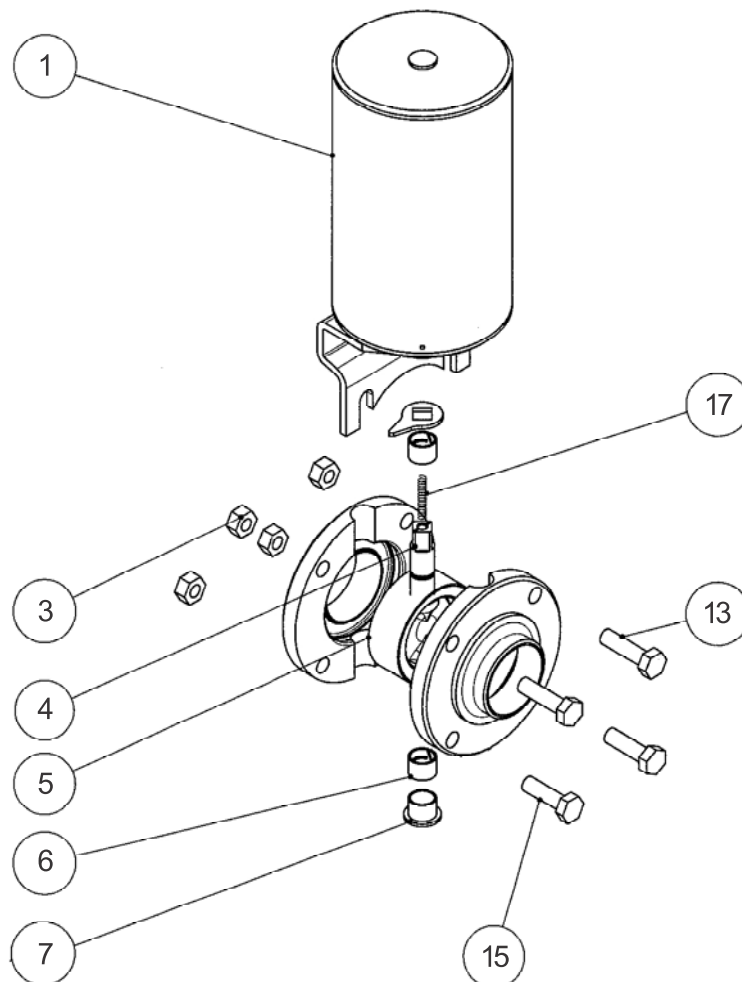


Figure 2: Dismantling of the pneumatic actuator

1. Remove protective cap (7)
2. Loosen nuts (3), but do not remove them completely
3. Detach holding device with pneumatic rotary actuator (1) from the valve
4. Remove coil spring (17)
5. Remove screws and nuts (3,13,15)
6. Remove gasket together with valve disc and bearing bushes
7. Pull bearing bushes (6) from valve disc (4)
8. Remove gasket (5) off the valve disc (4)

5.3 Assembly of butterfly valve gasket

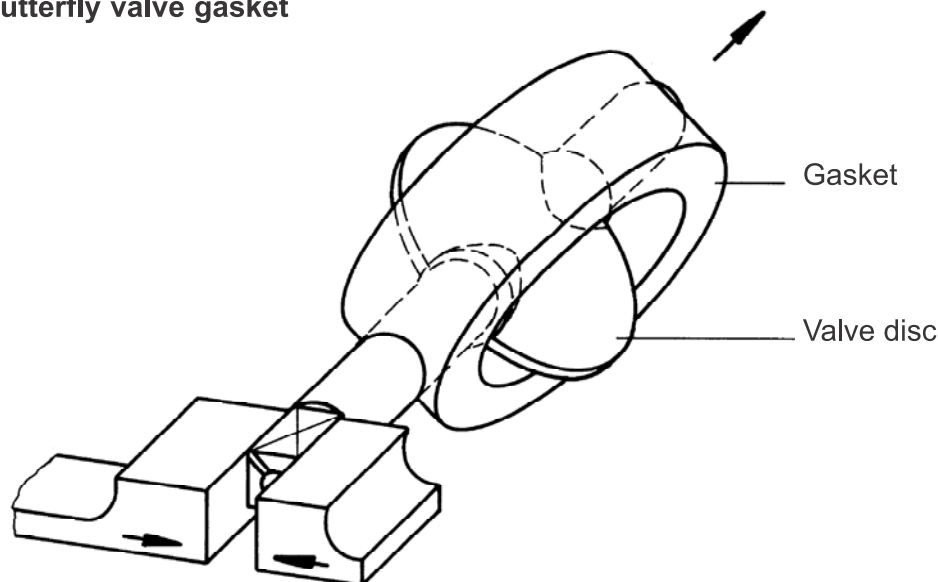
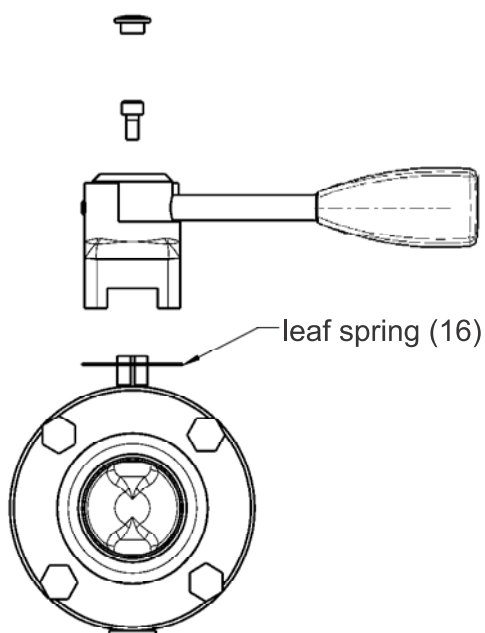


Figure 3: Assembly of butterfly valve gasket

1. Clean valve disc and grease very thinly (!) the boreholes of the gasket of MVQ (Silicone) or FPM (Viton) with the lubricant adequate for the process.
Avoid any chemical reaction between the lubricant and the explosive atmosphere that might lead to any impairment of the explosion protection
Gaskets of EDPM or HNBR must not be greased.
2. Push valve disc with the square through one axle hole of the gasket
3. Clamp the valve disc in the vice (see figure 3)
4. Pull the gasket with the free boring by hand over the short pivot of the valve disc
5. Remove the valve disc with the gasket off the vice
6. Push the bearing bushes over the axles of the valve disc until these lock in place

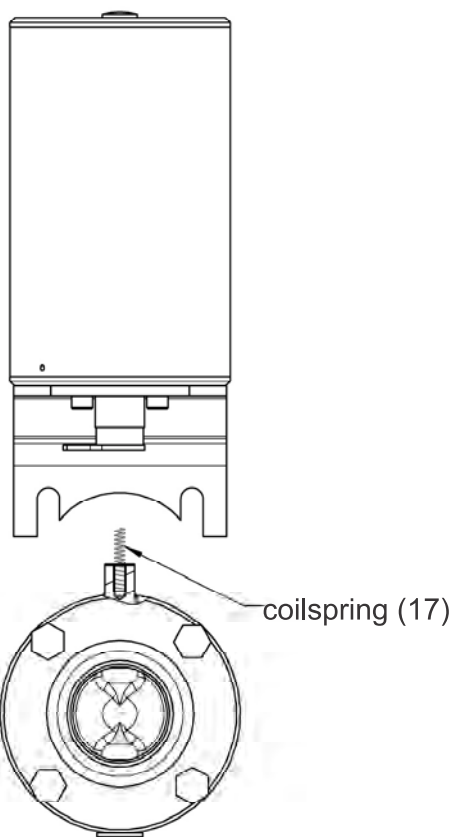
Assemble further parts in reversed order of the dismantling.

Operating instructions



DANGER

For potential equalization of the valve flap and the manual actuator make sure that the leaf spring of the butterfly valve with pneumatic actuation is assembled between handle and housing. Without spring the butterfly valve with handle must not be put into operation.



DANGER

For potential equalization of the valve flap make sure that the coil spring of the butterfly valve with pneumatic actuation is assembled in the threaded hole. Without spring the butterfly valve with pneumatic actuator must not be put into operation.

6 Commissioning

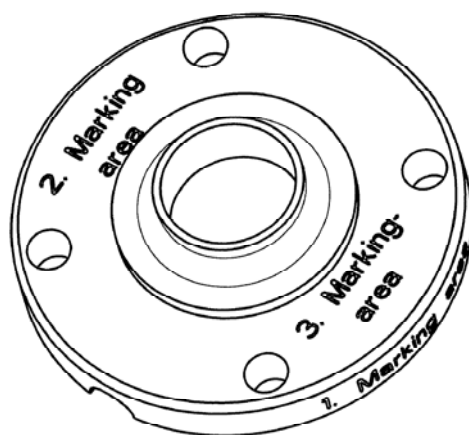
Check function and leak tightness.

7 Maintenance

During normal operation no maintenance is required.

To ensure highest operational reliability all wearing parts should be replaced at regular intervals. The ideal maintenance intervals can only be determined by the plant user, since they depend on the operating conditions.

8 Marking



Contents of the marking:




1. Marking area

- Manufacturer's mark
- Material
- Nominal diameter

2. Marking area

- TÜV08ATEX554362
- $P_{max.}$: ...bar⁽²⁾
- Month / Year
- $T_{amb(1)}$: - 20 – 80 °C

3. Marking area

-  II 1/2 G/D c II B
-  S/N: Serial number
-  0044

⁽¹⁾ T_{amb} = ambient temperature

⁽²⁾ DN15 - DN 65 / DN1" – 2,5"=16 bar
DN80 - DN150 / DN 3" – 4" =10 bar

9 Technical data

9.1 Butterfly valve

Allowable working overpressure:

DN15 - DN 65 / DN1" – 2,5"=16 bar

DN80 - DN150 / DN 3" – 4" =10 bar

Allowable flow rate: 5m/s

9.2 Actuator

Working pressure	Air: air	3 bar		
	Spring returning	5 bar to 8 bar		
Max. ambient temperature		+ 60 °C		
Min. ambient temperature		+ 1 °C		
Compressed air		ISO 8571.1	ISO 8753-1	Pneurop 6611
Min. classification (particle/pressure dew point/ oil))		3/3/5	3/3/5	3/2/5

Air requirement per switching:

- Small actuator DN 25-DN 100 0,35l
- Medium actuator 3"-DN 100 0,53l
- Large actuator DN 125-200 0,99l

CAUTION

When exceeding the allowable pressures, a Nocado butterfly valve which is mechanically blocked can be damaged by the pneumatic actuator. Safe operation of the butterfly valve can not be ensured when the air pressure is too low.

Operating instructions

9.3 Parts list

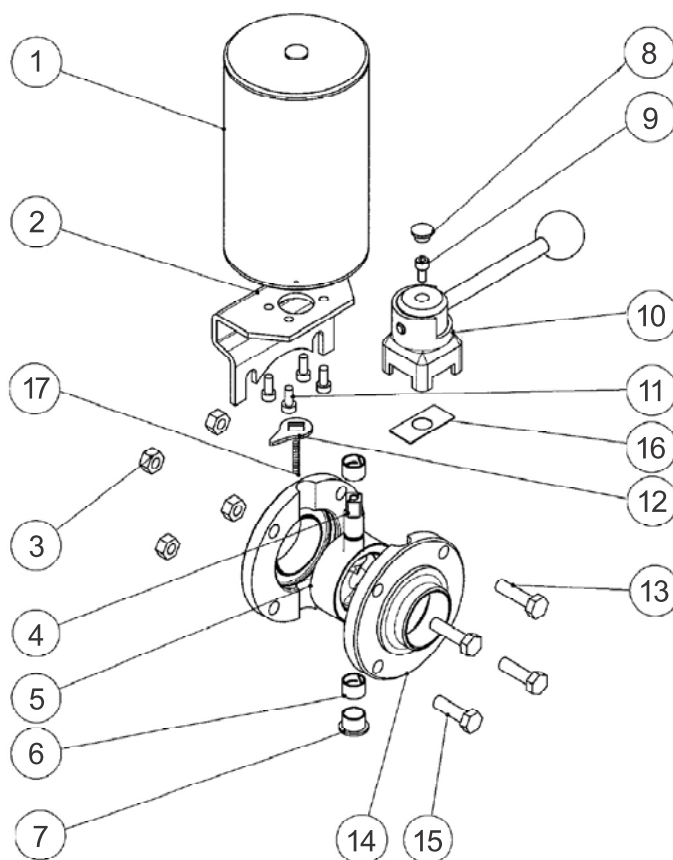


Figure 4: Parts list

Item	Quantity	Designation
1	1	Pneumatic actuator for butterfly valve
2	1	Butterfly valve holding device
3	4/6	Hexagonal nut
4	1	Disc for butterfly valve
5	1	Butterfly valve gasket
6	2	Butterfly valve bushing
7	1	Blind plug
8	1	Blind plug
9	1	Allen screw
10	1	Handle for butterfly valve
11	4	Allen screw
12	1	Position indicator for butterfly valve actuator
13	2	Hexagonal bolt
14	2	Housing flange for butterfly valve
15	2/4	Hexagonal bolt
16	1	Leaf spring
17	1	Coil spring

Subject to technical modifications.

865SV00101EN



cromatech AG
Mooswiesstr. 68
Postfach 1068
CH-9200 Gossau SG 2

Telefon 071/388 69 69
Telefax 071/388 69 65
E-Mail info@cromatech.ch
<http://www.cromatech.ch>

Anlagenbau
Verfahrenstechnische Anlagen
Beratung, Planung, Montage, Service

Handel und Vertrieb
Armaturen, Ventile, Pumpen, Apparate
 **nocado** -Generalvertretung

Operating



**Nocado pneumatic actuator
acc. to ATEX**



Declaration of Conformity

according to

EC - Directive 98/37/EC, annex II A relating to machinery
 EC - Directive Equipment and protective systems intended for use in Potentially
 Explosive Atmospheres 94/9/EC, ATEX 95

The manufacturer

Nocado GmbH & Co. KG
 Kirchweg 3
 26629 Großefehn

herewith declares that the following products

Nocado pneumatic actuators DN 15 – 150 TÜV08ATEX555035

with the marking:   II 2 G D c II

in the delivered version correspond to the above mentioned directives and the following
 DIN EN standards.

Directive/Standard	Title	Issue	Remarks
DIN EN 1127-1	Explosion prevention and protection	1997	Harmonised standard
DIN EN 13463-1	Non-electrical equipment for use in potentially explosive atmospheres	2002	Harmonised standard
DIN EN 13463-5	Non-electrical equipment for use in potentially explosive atmospheres	2003	Harmonised standard
DIN EN ISO 12100-1	Safety of machinery	2004	Harmonised standard
DIN EN ISO 12100-2	Safety of machinery	2004	Harmonised standard

Unauthorised alterations made to the products described above will void this declaration
 of conformity.

Großefehn, 22nd of September 2008

Günter Saathoff
 Director of
 Construction Department

Inhalt

Nocado pneumatic actuators according to ATEX



1	General safety instructions	4
1.1	Safety instructions related to components	5
2	Information for safe application	5
3	Intended use	5
4	Installation	6
5	Commissioning	7
6	Maintenance	8
7.	Marking	8
8.	Technical data	9

1 General safety instructions

Local safety instructions must be observed.

Safety instructions and regulations exist for food industry, pharmaceutical industry, process engineering etc. They are published i.a. by professional associations and the German Engineer Association [VDI].

The valid safety instructions and regulations have to be observed and realised by the user.



The purchaser is obliged to effect a safety and hazard analysis of the installation or plant, in which Nocado components are installed, and is held liable for it.

The operating and maintenance personnel must know these operating and maintenance instructions. They should be stored in a place, which is accessible at any time for the operating and maintenance personnel.

Nocado components are designed and constructed for industrial use only, for operation and maintenance by personnel having the suitable qualification and training to carry out their tasks.

The respective regulations have to be observed.

Used safety symbols according to ANSI Z535.4

Warning level (Signal word, safety symbol) ↓	1. criterion: Consequences	2. criterion: Consequences
 DANGER	Death / severe bodily injury (irreversible)	Possible
 CAUTION	Slight injury (reversible)	Possible
CAUTION	Property damage	Possible

1.1 Safety instructions related to components



- There is a prestressed spring in the pneumatic spring returning rotary actuator. Only deactivated pneumatic rotary actuators may be scrapped.

Nocado accepts unopened pneumatic rotary actuators and arranges for proper disposal free of charge.

2 Information for safe application

The pneumatic actuators may be used according to the equipment category 2 in zone 1 or in zone 21.

In these areas potentially explosive atmosphere of gas and dust may occasionally arise.

The atmosphere of gas and dust drawn in via the vent hole when closing the pneumatic actuator by spring force must not cause any exothermal reaction, including spontaneous ignition of dust in combination with materials or through lubricants in the pneumatic actuator.

The user must check the chemical compatibility.

3 Intended use

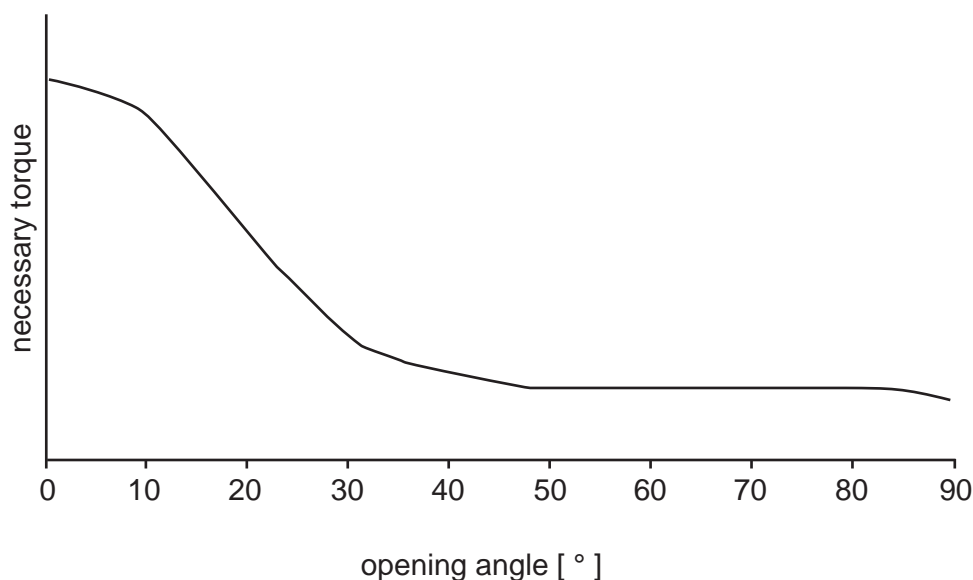
Nocado pneumatic rotary actuators are designed and constructed for the actuation of butterfly valves in industrial use

The pneumatically rotary actuator is available in 3 versions.

- Opening with compressed air – closing with spring force
Designation air/spring or NC (normally closed)
- Closing with compressed air – opening with spring force
Designation spring/air or NO (normally open)
- Opening with compressed air – closing with compressed air
Designation air/air

CAUTION

The run of the required torque for actuating the butterfly valve is not linear.



Nocado rotary actuators are optimised for this run of torque.

The change of the function from spring closing (NC) to spring opening (NO) should therefore only be effected by replacing the pneumatic actuator.

For reaching the required torques the following control air pressure is necessary:

Version air/spring	min.:	5 – 6 bar
Version air/air	min.:	3 bar

For further details see “Technical Information”.

Max. working pressure 10 bar

Allowable range of ambient temperature +1 to 60°C

Allowable range of supply temperature +1 to 60°C

4 Installation

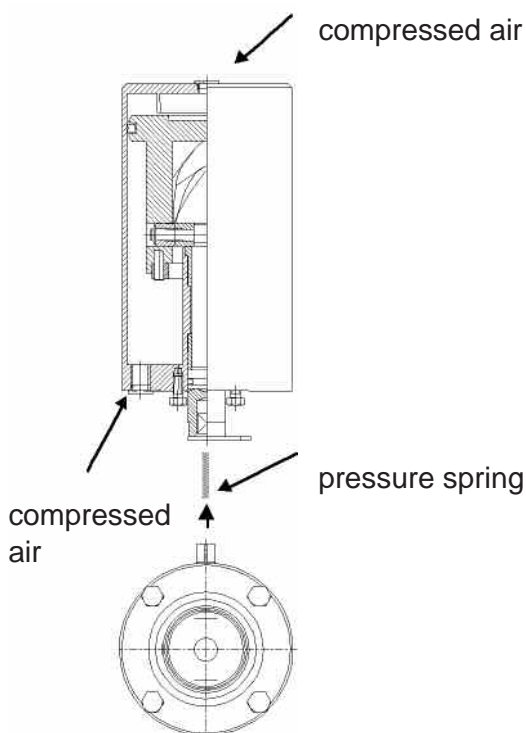
The installation of the pneumatic actuator must be carried out thoroughly, otherwise the reliable function of the product cannot be guaranteed. All connections and pneumatic pipes must be clean and free of damaging particles. Only mount the product with the appropriate fastening.

Make sure that

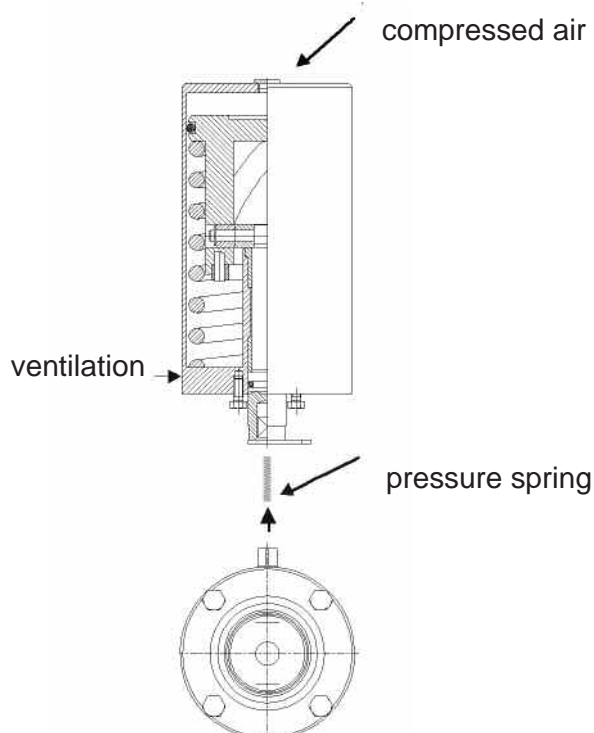
- the assembly and dismantling is only carried out when the pneumatic actuators are relieved from pressure
- the pneumatic actuators are connected to a potential equalization
- at the assembly of the pneumatic actuators and accessories electrostatic insulated components must be avoided

Operating instructions

Pneumatic actuator air/air



Pneumatic actuator air/spring



For potential equalization of the valve flap make sure that the compressed spring of the butterfly valve with pneumatic actuation is assembled in the threaded hole of the flap. Without spring the butterfly valve with pneumatic actuator must not be put into operation.

Only allow qualified personnel to carry out the installation.

5 Commissioning

The user is responsible for the safe commissioning which may be carried out only by especially trained personnel. Prior to commissioning the user must ensure that

- in case of operation the characteristic product features are met. This refers especially to pressure range, ambient temperature and compressed air.
- the compressed air does not contain any aggressive components which may lead to premature wear and tear and corrosion.
- prior to commissioning the relevant safety regulations have been observed and are ensured.
- operating conditions are not unduly altered by foreign influences.

6 Maintenance

The construction of the pneumatic actuators is designed for a high service life of 1,000,000 switches.

The pneumatic actuator is maintenance-free!

When actuators are opened the prestressed spring can cause loss of life. Therefore never try to force the actuator open. Only deactivated pneumatic actuators may be scrapped. Nocado accepts unopened actuators.



Never open the pneumatic actuator!

To ensure a failure-free operation an inspection of the pneumatic actuator is necessary, especially with respect to air leakage and technical damages. We recommend the inspection every 10,000 switches or at least after 12 months. If you realise signs of failure, you should replace the pneumatic actuator by a new one.

7 Marking

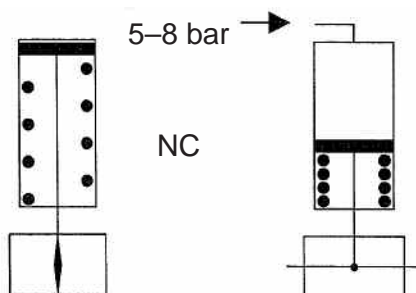
Design air / spring

Month / Year
Pmax: 10 bar
T.: 1–60 °C
Typ 678
S/N Serial number

TÜV08ATEX555035
 II 2 G/D c II



Pneumatik-Drehantrieb 90°
PneumatikRotary Actuator 90°



Nocado GmbH & Co. KG
Kirchweg 3
D-26629 Großefehn
www.nocado.de



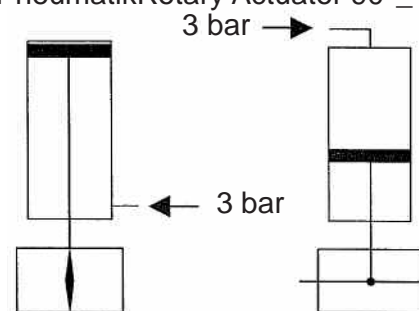
Design air / air

Month / Year
Pmax: 10 bar
T.: 1–60 °C
Typ 677
S/N Serial number

TÜV08ATEX555036
 II 2 G/D c II



Pneumatik-Drehantrieb 90°
PneumatikRotary Actuator 90°



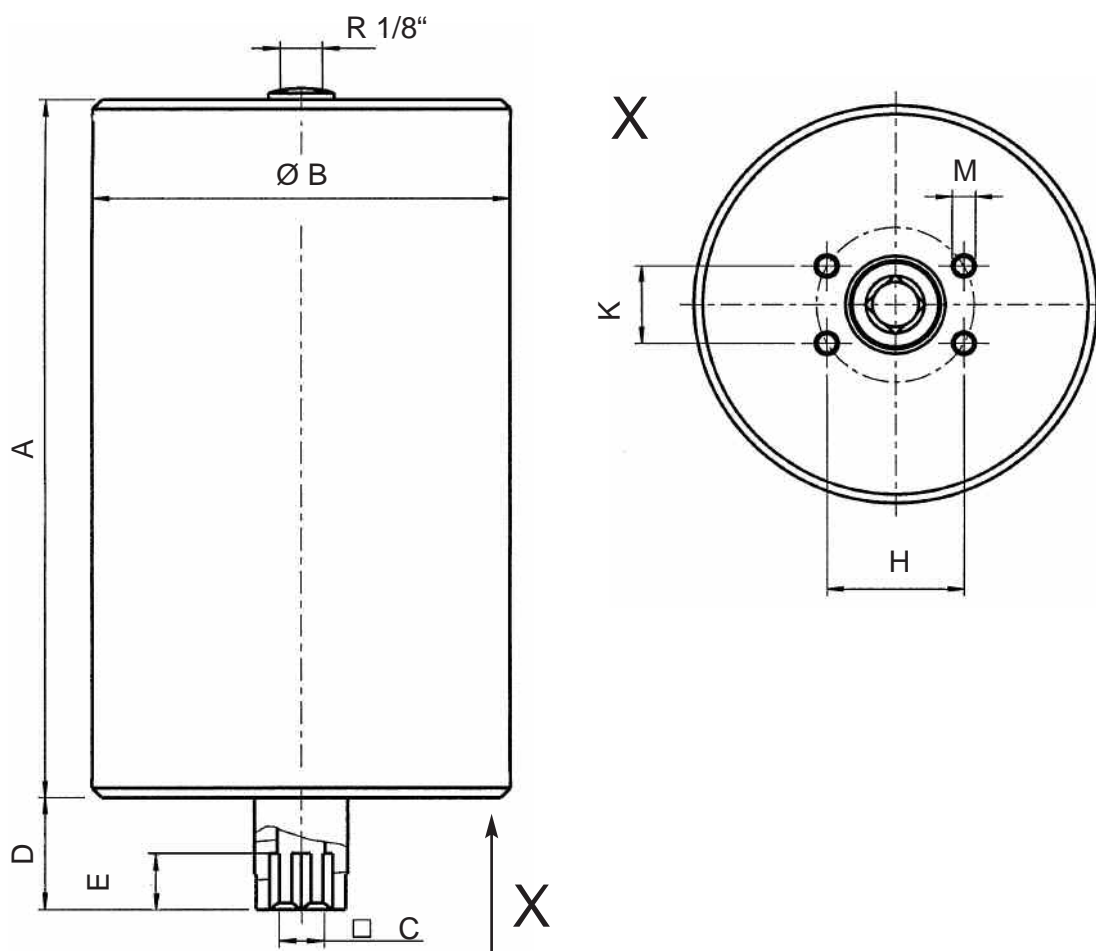
Nocado GmbH & Co. KG
Kirchweg 3
D-26629 Großefehn
www.nocado.de



8 Technical data

Working pressure	Air/air	3 bar		
	Spring returning	5 bar to 8 bar		
Max. ambient temperature		+ 60 °C		
Min. ambient temperature		+ 1 °C		
Compressed air		ISO 8571.1	ISO 8753-1	Pneurop 6611
Min. classification (particle/pressure dew point/oil)		3/3/5	3/3/5	3/2/5

DN	A	B	C	D	E	H	K	M	Weight	Air requirement per switching
25–100	149	89	9,5	24	12	30,3	17,6	M5	3,1 kg	350 cm ³
3"–100	192	108	11,5	24	12	30,3	17,6	M5	4,8 kg	530 cm ³
125–200	231	133	14	33	18	44	25,4	M8	9,3 kg	991 cm ³






cromatech AG
Mooswiesstr. 68
Postfach 1068
CH-9200 Gossau SG 2

Telefon 071/388 69 69
Telefax 071/388 69 65
E-Mail info@cromatech.ch
<http://www.cromatech.ch>

Anlagenbau

Verfahrenstechnische Anlagen
Beratung, Planung, Montage, Service

Handel und Vertrieb

Armaturen, Ventile, Pumpen, Apparate
 **nocado** -Generalvertretung



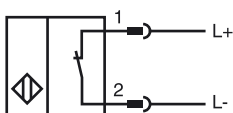
Model Number

NCB2-12GM35-N0-V1

Features

- 2 mm flush
- Usable up to SIL2 acc. to IEC 61508

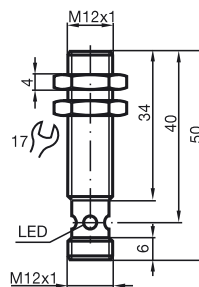
Connection



Wire colors in accordance with EN 60947-5-6

1	|	BN	(brown)
2	|	BU	(blue)

Dimensions



Technical Data

General specifications

Switching element function		NAMUR, NC
Rated operating distance	s_n	2 mm
Installation		flush
Output polarity		NAMUR
Assured operating distance	s_a	0 ... 1,62 mm
Reduction factor r_{Al}		0.23
Reduction factor r_{Cu}		0.21
Reduction factor r_{304}		0.7

Nominal ratings

Nominal voltage	U_o	8.2 V (R_i approx. 1 k Ω)
Operating voltage	U_B	5 ... 25 V
Switching frequency	f	0 ... 1000 Hz
Hysteresis	H	1 ... 10 typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		yes
Suitable for 2:1 technology		yes, Reverse polarity protection diode not required
Current consumption		
Measuring plate not detected		≥ 2.2 mA
Measuring plate detected		≤ 1 mA
Switching state indication		Multihole-LED, yellow

Functional safety related parameters

MTTF _d	2698 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)

Mechanical specifications

Connection type	Device connector M12 x 1, 4-pin
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	PBT
Protection degree	IP66 / IP67

General information

Scope of delivery	2 self locking nuts in scope of delivery
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

FM approval	
Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of ≤ 36 V do not bear a CCC marking because they do not require approval.

ATEX 1G

Instruction

Manual electrical apparatus for hazardous areas

Device category 1G

for use in hazardous areas with gas, vapour and mist
94/9/EG


Directive conformity
Standard conformity

EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007
Ignition protection "Intrinsic safety"
Use is restricted to the following stated conditions

CE marking

 0102

Ex-identification

 II 1G Ex ia IIC T6 Ga

EC-Type Examination Certificate

PTB 00 ATEX 2048 X

Appropriate type

NCB2-12GM...-N0...

Effective internal capacitance C_i

≤ 90 nF ; a cable length of 10 m is considered.

Effective internal inductance L_i

≤ 100 μH ; a cable length of 10 m is considered.

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

Highest permissible ambient temperature

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. Note: Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1:2007 has already been accounted for in the temperature table for category 1.

Installation, Commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. The associated apparatus must satisfy the requirements of category ia.

Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

Maintenance

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

Specific conditions

Protection from mechanical danger

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

Electrostatic charging

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

Release date: 2013-02-08 16:50 Date of issue: 2013-02-08 181099_eng.xml

ATEX 2G

Instruction

Device category 2G

Directive conformity

Standard conformity

CE marking

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i Effective internal inductance L_i

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Specific conditions

Protection from mechanical danger

Electrostatic charging

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist


94/9/EG

EN 60079-0:2009, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions


 0102

 II 1G Ex ia IIC T6 Ga

PTB 00 ATEX 2048 X

NCB2-12GM...-N0...

 ≤ 90 nF ; a cable length of 10 m is considered. ≤ 100 μ H ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

ATEX 1D

Instruction

Device category 1D

Directive conformity

Standard conformity

CE marking

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i

Effective internal inductance L_i

General

Maximum housing surface temperature

Installation, Commissioning

Maintenance

Specific conditions

Electrostatic charging

Manual electrical apparatus for hazardous areas

for use in hazardous areas with combustible dust

94/9/EG

IEC 61241-11:2002: draft; prEN61241-0:2002

type of protection intrinsic safety "ID"

Use is restricted to the following stated conditions

CE 0102

Ex II 1D Ex iaD 20 T 108 °C (226.4 °F)

The Ex-significant identification is on the enclosed adhesive label

ZELM 03 ATEX 0128 X

NCB2-12GM...-N0...

≤ 90 nF ; a cable length of 10 m is considered.

≤ 100 μH ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EC-Type Examination Certificate has to be observed.

The special conditions must be adhered to!

The maximum surface temperature of the housing is given in the EC-Type Examination Certificate.

Laws and/or regulations and standards governing the use or intended usage goal must be observed.

The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

The associated apparatus must satisfy at least the requirements of category ia IIB or iaD. Because of the possibility of the danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation in the power supply and signal circuits is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

The intrinsically safe circuit has to be protected against influences due to lightning. When used in the isolating wall between Zone 20 and Zone 21 or Zone 21 and Zone 22 the sensor must not be exposed to any mechanical danger and must be sealed in such a way, that the protective function of the isolating wall is not impaired. The applicable directives and standards must be observed.

The adhesive label provided must be affixed in the immediate vicinity of the sensor!

The surface to which the label is applied must be clean, flat and free from grease!

The affixed adhesive label must be readable and durable, taking account of the possibility of chemical corrosion!

No changes can be made to apparatus, which are operated in hazardous areas.

Repairs to these apparatus are not possible.

Electrostatic charges must be avoided on the mechanical housing components.

Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

FUNCTIONAL SPECIFICATIONS

**Project PRO-14-0013
Novartis Singapore
NSPM MELT EXTRUSION LINE**

**PTS
SG.TBP.202.M.5235/C005
SG.TBP.202.M.5235/C006**

**ATEX Inside Zone 20
Outside Zone 22**

Name	Signature Reason	Function/ Department	Signature	Date
K.Kutnar Frewitt SA	Author	Frewitt (Automation Manager)		
E.Gumy Frewitt SA	Reviewer	Frewitt (Project Manager)		
Ho Sook Hwa	Reviewer	Qualification Coordinator		
Christina Chen	Approver	NSPM Process Engineer		
Shivabalan Kanesan	Approver	NSPM Automation Engineer		
Panicker Shreekumar	Approver	NSPM Project Manager		

Versions control

Date	Revision	Reason of change
11.2.2014	0	Initial Version

Contains

1	INTRODUCTION	4
1.1	SPECIFICATIONS	4
1.2	BASIC DOCUMENTS	4
1.3	POWER REQUIREMENTS AND CONDITIONS	4
2	OVERVIEW.....	5
2.1	EQUIPMENT.....	5
2.2	CONTROL SYSTEM.....	5
2.2.1	<i>Architecture.....</i>	6
2.2.2	<i>Scope of supply Frewitt.....</i>	7
2.2.3	<i>Cabling.....</i>	7
2.2.4	<i>Components.....</i>	7
2.3	OPERATION.....	8
2.3.1	<i>Local mode / auto.....</i>	8
2.3.2	<i>Entry from the operator.....</i>	8
2.3.3	<i>Error display.....</i>	8
2.4	PROCESS SCREENS.....	8
2.4.1	<i>Main screen.....</i>	9
2.4.2	<i>Maintenance mode.....</i>	10
2.4.3	<i>Parameters.....</i>	11
2.4.4	<i>System.....</i>	12
2.4.5	<i>Time setting.....</i>	13
2.4.6	<i>Active Alarm.....</i>	14
3	SOFTWARE DESIGN.....	15
3.1	PLC HARDWARE CONFIGURATION.....	15
3.2	SOFTWARE-DESIGN	15
3.2.1	<i>Programming software.....</i>	15
3.2.2	<i>General description.....</i>	16
3.2.3	<i>FB10: Basic control.....</i>	16
3.2.3.1	<i>FB11: Discrete Inputs.....</i>	17
3.2.3.2	<i>FB13: Valves.....</i>	18
3.2.3.3	<i>FB38: Digitaloutput.....</i>	19
3.2.4	<i>FB100: Phase Control.....</i>	20
3.2.5	<i>FB110: Production.....</i>	20
3.2.6	<i>FB200: Supervision and communication.....</i>	20
3.2.7	<i>Sequencer.....</i>	21
3.3	INTERFACE TO MELT EXTRUDER PLC	23
3.3.1	<i>Main PLC (Melt Extruder PLC) to PTS PLC.....</i>	23
3.3.2	<i>PTS PLC to main PLC (Melt Extruder PLC).....</i>	24
3.3.3	<i>Communication setting PTS.....</i>	25
3.3.4	<i>Life-Counter.....</i>	25
3.3.5	<i>Error.....</i>	25

1 Introduction

1.1 Specifications

- Described is the PTS from Frewitt. This description is built according the basic module of the GAMP 5-standards.
- GAMP Level 3: WIN CE/Microsoft and WIN CC Siemens (Standard software package)
- GAMP Level 3: Application: S7_Programm and HMI-Application

1.2 Basic documents

This document is based on:

- Quotation Frewitt OFC-2527
- FS of PTS at Novartis Singapore PRO-12-0235
- Several Meeting reports
- The P&ID drawing 473527
- Layout 473515
- URS: SG.TBP.202 M 5235_URS_1.0, SG.TBP.202.M.5235.C005_C006_DS_1.0

1.3 Power requirements and Conditions

- Ex Zone : inside the PTS Zone 20, outside around the PTS Zone 22, HMI and cabinet: outside Ex Zone
- Electrical power feed: 400VAC, PE
- Control voltage 24VDC
- Pneumatic feeding: minimum 5 bar

2 Overview

2.1 Equipment

The PTS consists of the following elements:

- PTS with pneumatic cabinet
- Electro pneumatic control of the PTS
- Electrical cabinet outside of production room with PLC
- Interface card to Melt Extruder PLC

The PTS system shall have following features:

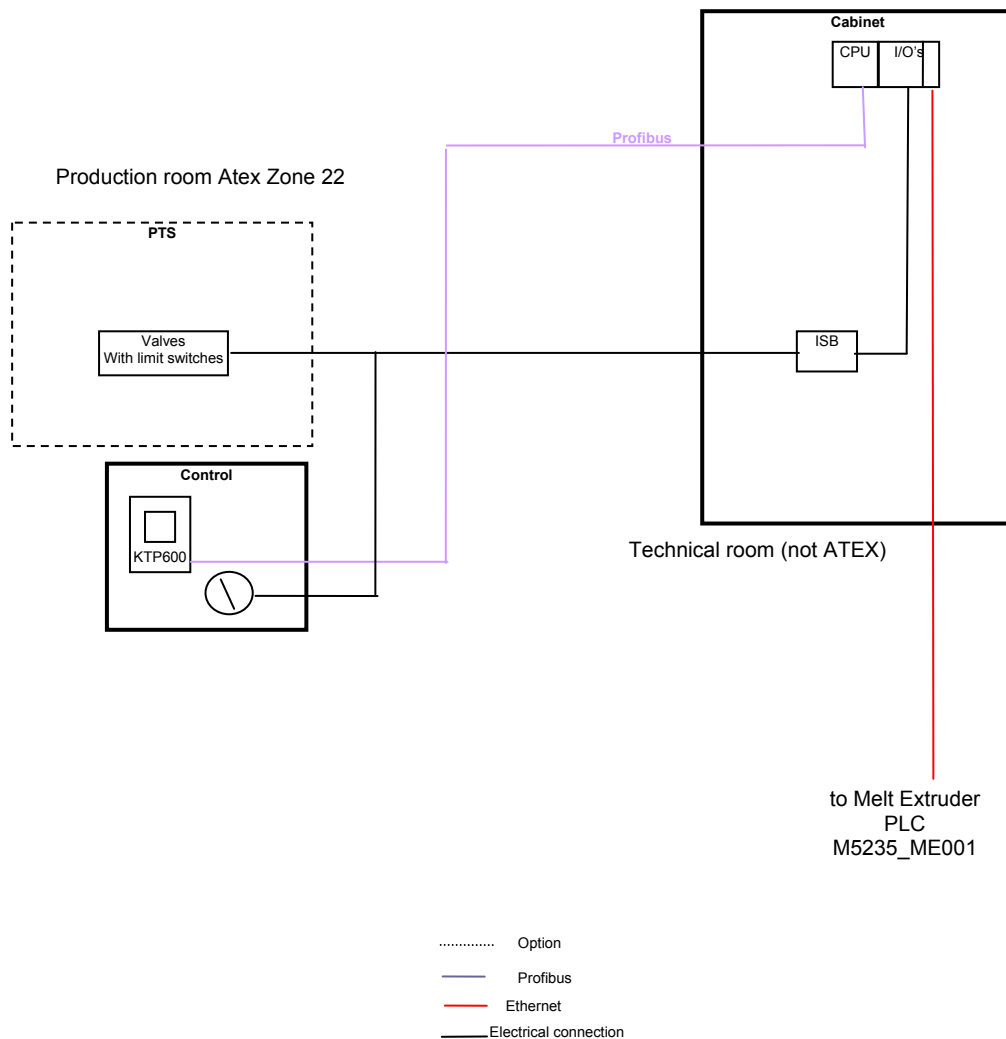
- Suitable at least for the Milled active substance, typical data:
 - Density typical 0.5 (range 0.4 to 0.7) kg/dm³
 - Dissolver level: < 0.5 weight-%
 - NPOH-Category: 2
- Conveyor capability:
Transfer / flow capacity ≥ 110 kg/h
The PTS system shall allow 'gentle flow' to transfer the feed from Hammer Mill to IBCs to meet the continuous throughput of the Melt Extruder by means of Vacuum system, Changeover valves / flaps and hose connections. The vacuum shall be created through a pneumatic injector e.g. an injector system (Venturi principle). The system shall be designed so that it avoids the possible backpressure of the product.
- Pressure:
Low-pressure shall be adjustable to achieve optimized conveying capacity. The pressure in the target container (IBC) shall be predominantly atmospheric.
- A magnetic separator (> 8000 gauss) shall be installed before each PTS system.
- All air inlets and outlets shall be equipped with a safeguard / police filter (0.2 micron), to prevent securely contaminations of the product, of the equipment and of equipment parts.
- The PTS system shall be designed such that the shifting of weight of the hoses shall not affect the containers (IBC) weight placed on the weigh scale. At the change of containers (IBC) the PTS remains connected to the discharge hopper and thus positioned at the connection unit of the mill.
- Maximal noise level during production in 1m distance shall not exceed 75 dB(A)
- All parts subject of electrostatic loading of the equipment shall be grounded for derivation of electrostatic charging. The grounding of main equipment shall be automatically controlled to avoid ignition source

Product contact parts material of construction shall be FDA compliant and suitable for Pharmaceutical applications. The product contact tubes must be anti-static (ATEX), abrasion resistant and FDA-compliant. All product and cleaning fluids contact parts manufactured with AISI 316 /316 L or equivalent with surface finish $R_a \leq 0.8 \mu\text{m}$. Non product metal contact surfaces in the production zone shall be AISI 304 / 304L with $R_a \leq 1.2 \mu\text{m}$.

Lubricants: Lubricated bearings for which an entry into the product may not be excluded absolutely e.g. oils/grease shall conform to FDA compliant food grade quality (for instance USDA class H1).

2.2 Control system

2.2.1 Architecture



The PTS is controlled by the Siemens-PLC (S7-300) delivered from Frewitt. The human /machine Interface (HMI) is realized with a KTP 600 :

- A panel from Siemens (touch screen) communicates with the PLC over a profibus network.
- Over an additional Ethernet card there is a connection from the PLC to the Melt Extruder PLC.

On the HMI there is a maintenance screen for all sensors and actuators. All valves can manually be controlled. For this function the necessary login rights are needed.

The PLC is placed inside the electrical cabinet

2.2.2 Scope of supply Frewitt

The control system contains of the following elements:

- A complete cabinet with all needed equipment
- PLC
- KTP600 Touch panel
- all necessary instruments cabled to the PLC

2.2.3 Cabling

The electrical cabling between PTS and electrical cabinet is done by Novartis. Cables, cable tray and all installation material is delivered by Novartis.

2.2.4 Components

The PLC from Siemens, Typ SIMATIC S7-300, contains of:

Number	Description
1	CPU315C-2DP 6ES7 315-2AH14-0AB0 or its compatibility
1	Modul 4AI/2AO
1	Modul 16DI
1	Modul 16DO
1	Ethernet card 6AG1343-1EX30-4XE0 or its compatibility

The electrical control contains:

Component	Type	Supplier
DC power supply	SITOP	Siemens
Pulse control relays	CM-WDS...	ABB
Ex-i converter	KFD...,	Pepperl-Fuchs
Ex-i Zener Barrier for PTC	9002/77...	Stahl

The user's control consists of:

Component	Type	Supplier
Switch	XB4-BD21	Schneider
Panel	KTP600 Touch 6AV6 647-0AC11-3AX0 or its compatibility	Siemens

2.3 Operation

2.3.1 Local mode / auto

If the PTS is switched to “Auto”, the operation is carried out by the Melt Extruder PLC. The local operation is only in “local mode” possible. Pending alarms are transmitted to the Melt Extruder PLC, an acknowledgment is local or from the Melt Extruder PLC.

If the PTS is switched to “local”, the control is carried out at the PTS HMI

2.3.2 Entry from the operator

After switching on the main switch the PLC and HMI boot up and the alarms have to be quit. On the main screen it is shown in which position the PTS is right now.

In local mode the operator changes the position of the PTS from the PTS HMI.

In Auto mode the position of the PTS can be changed from the Melt Extruder HMI. In a continuous operation, switchover of PTS units will be activated upon an external signal from the Melt Extruder PLC.

2.3.3 Error display

The following fault indications are displayed on the screen of active alarms.

No.	Alarm messages PTS	reaction	Alarmtext comes up
1	-	-	-
2	Error Watchdog	stop of unit	always (PTS PLC was stopped)
3	Error PSIA+ P03 Pressure switch	stop of unit	always
4	GO+G07 Container C005 not detected	stop of unit C005	when switching to C005
5	GO+G08 Container C006 not detected	stop of unit C006	when switching to C006
6	GO 01 Error close position SV07 not reached	only stop if F5 button is put to "with off"	If SV07 is closed
7	GO 02 Error open position SV07 not reached	only stop if F5 button is put to "with off"	If SV07 is opened
8	GO 03 Error close position SV08 not reached	only stop if F5 button is put to "with off"	If SV08 is closed
9	GO 04 Error open position SV08 not reached	only stop if F5 button is put to "with off"	If SV08 is opened
10	GO 05 Error close position SV09 not reached	only stop if F5 button is put to "with off"	If SV09 is closed
11	GO 06 Error open position SV09 not reached	only stop if F5 button is put to "with off"	If SV09 is opened
12	Element in manual mode	stop of unit	always
13	no connection to Melt extruder PLC	stop only if put to auto	always
14	PTS Switch C005 Vacuum	no stop	if C005 is activ
15	PTS Switch C006 Vacuum	no stop	if C006 is activ

2.4 Process screens

The control of the PTS is realized with a KTP600 touchpanel.

Switching between the various process screens via the buttons at the bottom of the screen.

With the function buttons the following process screens can be reached.

F1 Main screen see 2.4.1

F2 parameters, see 2.4.3

F3 maintenance, see 2.4.2

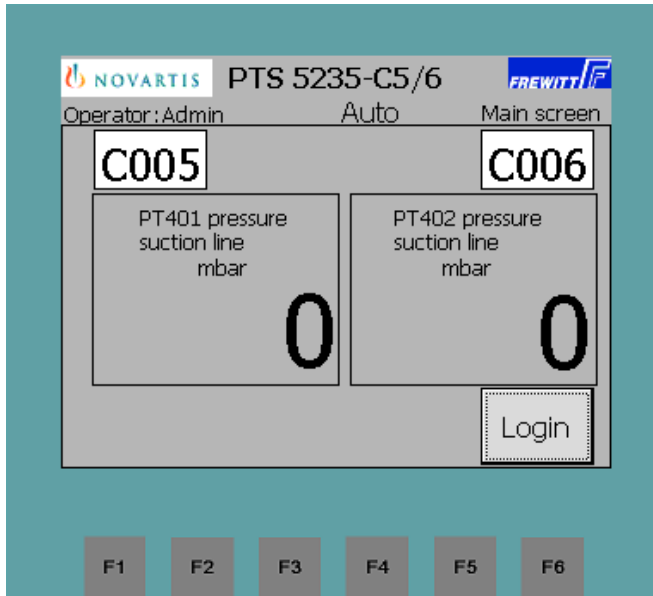
F4 active alarms, see 2.4.5

F5 system, see 2.4.4

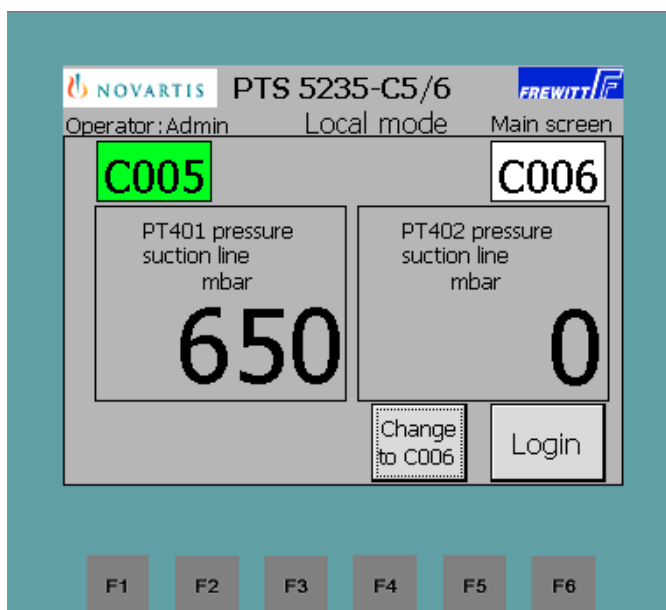
F6 acknowledgment for upcoming alarms and error messages

Description of application

2.4.1 Main screen

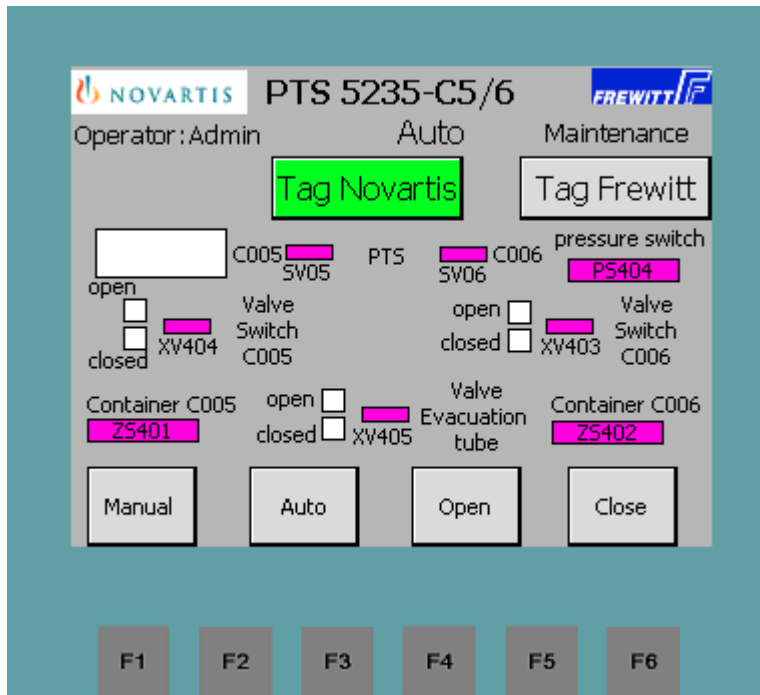


On this process screen the position of the switch is indicated. In local mode a change from C005 to C006 or from C006 to C005 is possible. The switching on and off of the unit is realized with a hardware switch (two positions).



2.4.2 Maintenance mode

On this screen only service, supervisor and administrator has access. Here each single element (actuator) can be selected and switched on/off in manual mode. For the sensors the status is indicated.



This screen gives an overview of the machine and permits:

- All valves and motors to control manually
- To show the status of all valves and motors in automatic and manual mode
- To show the status of all pressure switches
- Choosing whether the Frewitt tag names or Novartis tag names are indicated

Elements	Man. Mode	Deactivated	Activated	fault
valve	M	Magenta	Green	Red

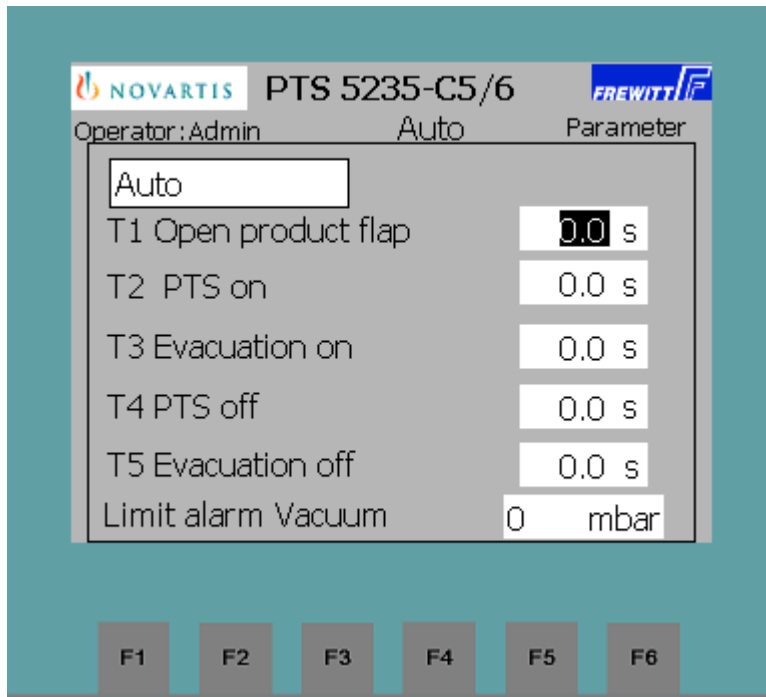
Element	Deactivated (-)	Deactivated (+)	Activated (-)	Activated (+)
Limit switch	White	White	Green	Green
Pressure switch	Magenta	Magenta	Green	Green

In order to control an element in manual or automatic mode, the operator must select the item and then press the "Manual" button or "Auto". If the item is in the "M" (manual) it can be switched on/off with the buttons OPEN and CLOSE.

Only the selected and displayed element (a M flashes next to the item) can be controlled in manual mode.

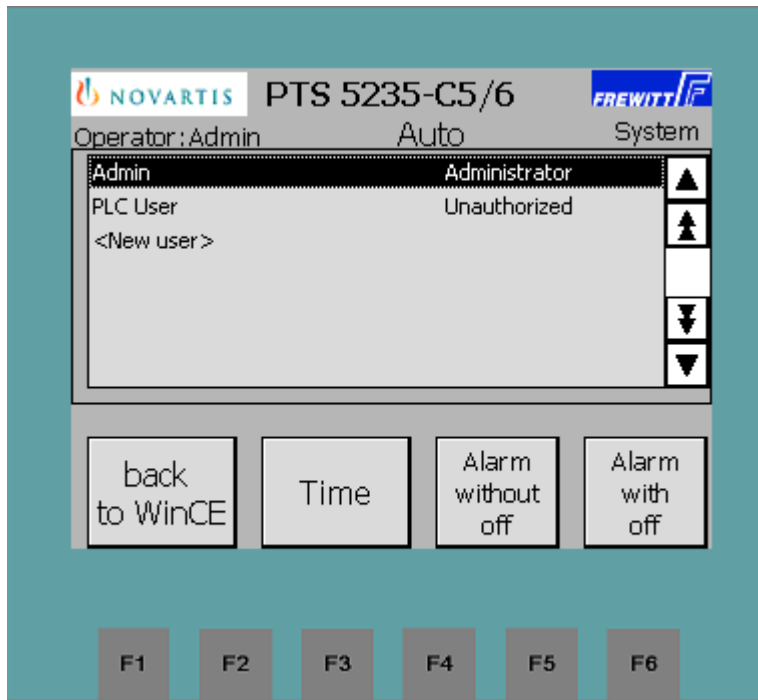
2.4.3 Parameters

The access to this screen is limited to the service, supervisor and the administrator.



Here the delays according to the sequencer are stored. On this screen also the selection between Local mode and auto (Melt Extruder PLC) is situated.

2.4.4 System



This view allows:

- Creating and changing user password
- To return to the operating system WinCE
- Access to the time synchronization
- To select whether a limit switch alarm of a valve positions stops the installation

On this screen which is only accessible to the administrator.

Name	description
user	User name (Login)
Password	User's password. It has to have 8 characters
Group	Authorization of the user-level
Logoff time	Validation time (0 to 60 min, at 0 no automatic logoff) – configurable on HMI

In addition, the wrong password attempts for users' account lockout is 3 times.

These user's groups are used:

Rights (G▶K)	Name	Description
9	Administrator	All access rights on the HMI (Administrator)
8	Supervisor	Access to all screens except system
7	Service	Access to all screens except system
1	Operator	Login necessary, access to limited screens and functions
0	unauthorized	no Login, no access, only display

For the following functions the user must have at least the following rights:

Button	Rights
Maintenance, Active Alarm, Logout, Login, Quit,	Service all

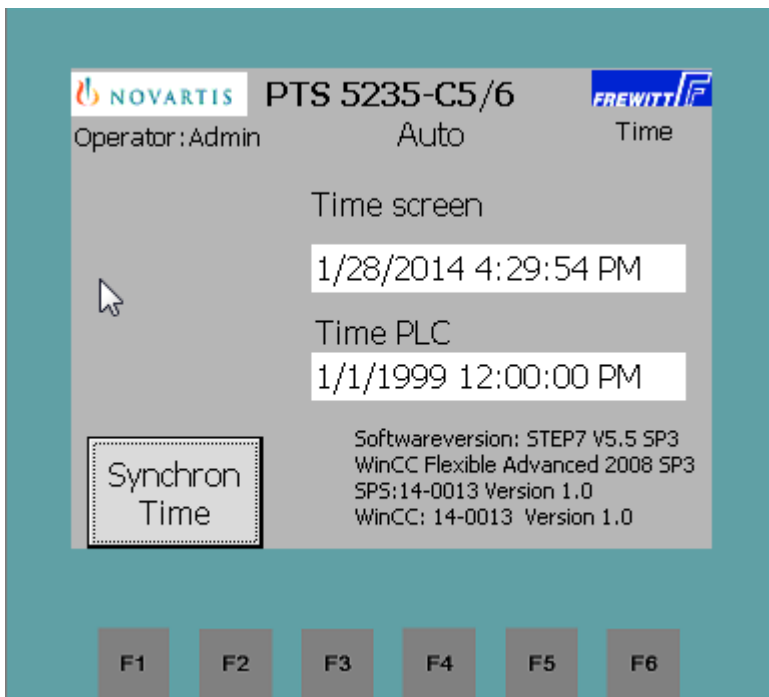
Functions	Rights
System: Synchronies PLC, back to WinCE Change from A/B,B/A in local mode	Administrator all

Input of parameters (setpoints)	Rights
Parameters, change Auto/local mode	Service

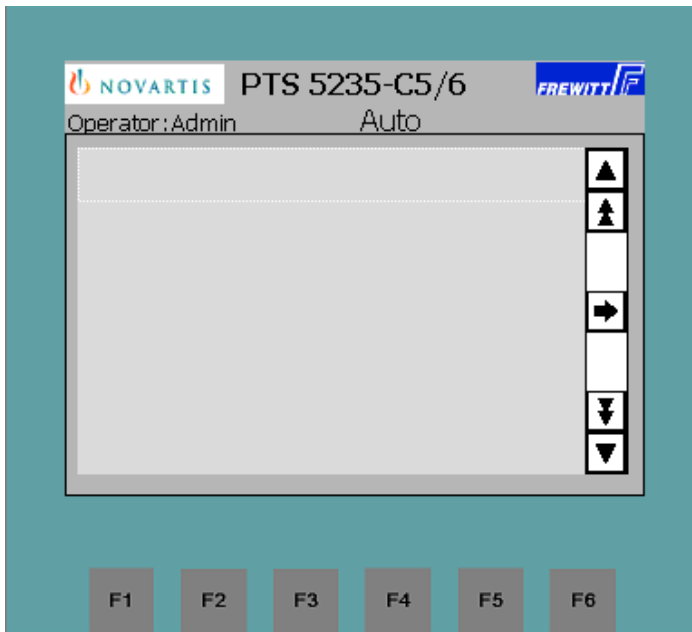
2.4.5 Time setting

- Setting the time synchronization with the display of the controller in the PLC

To set the time, the user must enter the “Time screen” and synchronize the time of the controller by pressing the “Synchron. Time” button. When starting the PLC takes over the time of the screen.



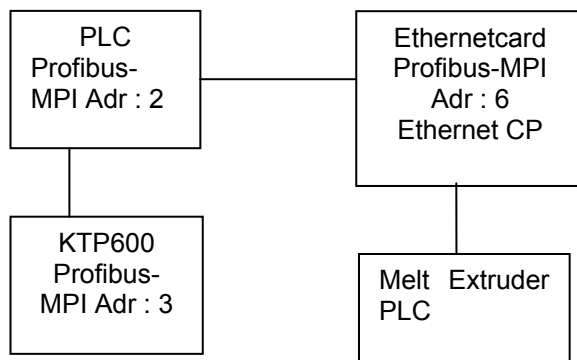
2.4.6 Active Alarm



This screen shows the active alarms

3 Software design

3.1 PLC Hardware configuration



PLC Profibus Adresse: 2		
Description	Input	Output
DI16/DO16	0...1	2...3
AI 4/AO2	128..134	138..140

3.2 Software-Design

According GAMP5 Level 3 basic blocks are used.

3.2.1 Programming software

Name	Version
SIMATIC STEP 7	V5.5+SP3
SIMATIC WinCC Flexible Advanced	2008+SP3

Programming language of the project: FUP (Function plan)

3.2.2 General description

The program is composed of the following groups:

FB	Name	Description
10	Basic control	Handles all the function blocks for each element type
100	Phase control	Handles all the function blocks for the automatic process
200	Supervision and communication	Handles all the function blocks for the HMI panel and the PLC

All these blocks are handled in the organisation block OB1 “_MAIN_PROGRAM”.

FB	Name	Description
600	Biblio	Library containing all the function blocks reusable for all the program with each time an other instance

The blocks of this group are handled in different blocks with each time another instance.

3.2.3 FB10: Basic control

All the data of this block are stored in the instance data block DB10 “BC”.

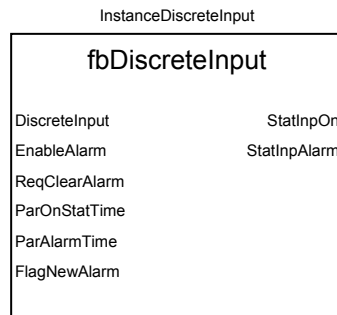
The following function blocks are handled in the FB10 “_BASIC_CONTROL”:

- One FB for all the discrete inputs FB11
- One FB for all the analogue inputs FB12
- One FB for all the valves FB13
- One FB for all the discrete outputs FB38

3.2.3.1 FB11: Discrete Inputs

All the data of this block are stored in the instance data block DB11 “DI”.

The function block used to manage the discrete inputs is the FB601 “fbDiscreteInput” and belongs to the group “_BIBLIO”. The FB601 may be called up several times in the FB11 with each time an other instance.



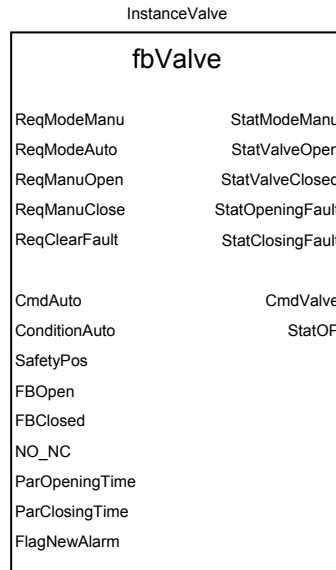
Inputs	Function
DiscreteInput	Discrete input to manage
EnableAlarm	Condition enabling the alarm appearance
ReqClearAlarm	Alarm clear request: Reset alarm
ParOnStatTime	Waiting time parameter before activation of StatInpOn
ParAlarmTime	Waiting time parameter before alarm generation (default value: 10 ms) Alarm deactivated if value = 0
FlagNewAlarm	Flag new alarm: set at the appearance of an alarm. Have to be reset by the alarm processing routine

Outputs	Function
StatInpOn	State input ON: Output state after waiting time if input = 1
StatInputAlarm	State input alarm: =1, if EnableAlarm=1 and DiscreteInput = 0 during more than “ParAlarmTime” seconds. Have to be reset by ReqClearAlarm

3.2.3.2 FB13: Valves

All the data of this block are stored in the instance data block DB13 “VA”.

The function block used to manage the discrete inputs is the FB604 “fbValve” and belongs to the group “_BIBLIO”. The FB604 may be called up several times in the FB13 with each time an other instance.



Inputs	Function
ReqModeManu	Manual mode request: switches the valve in manual mode
ReqModeAuto	Automatic mode request: switches the valve in automatic mode
ReqManuOpen	Opening request in manual mode: opens the valve in manual mode
ReqManuClose	Closing request in automatic mode: closes the valve in manual mode
ReqClearFault	Request clear default: acknowledge of valve defaults
CmdAuto	Automatic command: command of valve opening in automatic mode
ConditionAuto	Automatic condition: condition for opening in automatic mode
SafetyPos	Safety position: condition for activation of output CmdValve in automatic and manual modes. According to the opening sense NO_NC, it does a condition for the opening and the closing
FBOpen	Feed back valve open
FBClosed	Feed back valve closed
NO_NC	Without energy, valve normally open or normally closed. If 0, valve closed if output deactivated; If 1, valve open if output deactivated
ParOpeningTime	Waiting time parameter before opening default generation (default value: 5 s) Alarm deactivated if value = 0
ParClosingTime	Waiting time parameter before closing default generation (default value: 5 s) Alarm deactivated if value = 0
FlagNewAlarm	Flag new alarm: set at the appearance of an alarm. Have to be reset by the alarm processing routine

Outputs	Function
StatModeManu	State manual mode: =1 if valve in manual mode
StatValveOpen	State open valve: =1 if valve open
StatValveClosed	State closed valve: =1 if valve closed
StatOpeningFault	State valve in opening default =1 if FBOpen=0 during ParOpeningTime after the activation of CmdValve (or deactivation according to opening sense). Have to be reset by ReqClearFault
StatClosingFault	State valve in closing default =1 if FBClosed=0 during ParClosingTime after the deactivation of CmdValve (or activation according to opening sense). Have to be reset by ReqClearFault
CmdValve	<p>Valve command :</p> <p>Automatic mode, normally closed (StatModeManu=0, NO_NC=0) =1 if CmdAuto=1 and ConditionAuto=1 and SafetyPos=0</p> <p>Automatic mode, normally open (StatModeManu=0, NO_NC=1) =0 if CmdAuto=1 and ConditionAuto=1 or SafetyPos=1</p> <p>Manual mode, normally closed (StatModeManu=1, NO_NC=0) =0 if ReqManuClose=1 or SafetyPos=1 =1 if ReqManuOpen=1 and SafetyPos=0</p> <p>Manual mode, normally open (StatModeManu=1, NO_NC=1) =0 if ReqManuOpen=1 and SafetyPos=0 =1 if ReqManuClose=1 or SafetyPos=1</p> <p>In case of commutation automatic -> manual, the valve keeps the state in automatic mode</p>
StatOP	Valve state on panel (closed, open, fault)

3.2.3.3 FB38: Digitaloutput

All the data of this block are stored in the instance data block DB38 "DO".

This block treats the digitals output signals like triggering relays, acknowledgment of safety relay and E-stop relays. For these functions not special function block is created.

3.2.4 FB100: Phase Control

All the data of this block are stored in the instance data block DB100 „PC“.

In this block the function of each element is programmed.

The following block is called in FB100 :

FB	Data stored in	Description
110 „Phase control“	Instanz-DB110 „PROD“	Production phase

In this block all alarms are collected which lead to a switch-off.

3.2.5 FB110: Production

In this function block the sequencer according Graph7 (see 1.3) is presented. The elements are switched on/off according the steps of the sequence.

This block is also used to manage the „local mode/auto“ function as well as the switch-off.

3.2.6 FB200: Supervision and communication

All the data of this block are stored in the instance data block DB10 “BC”.

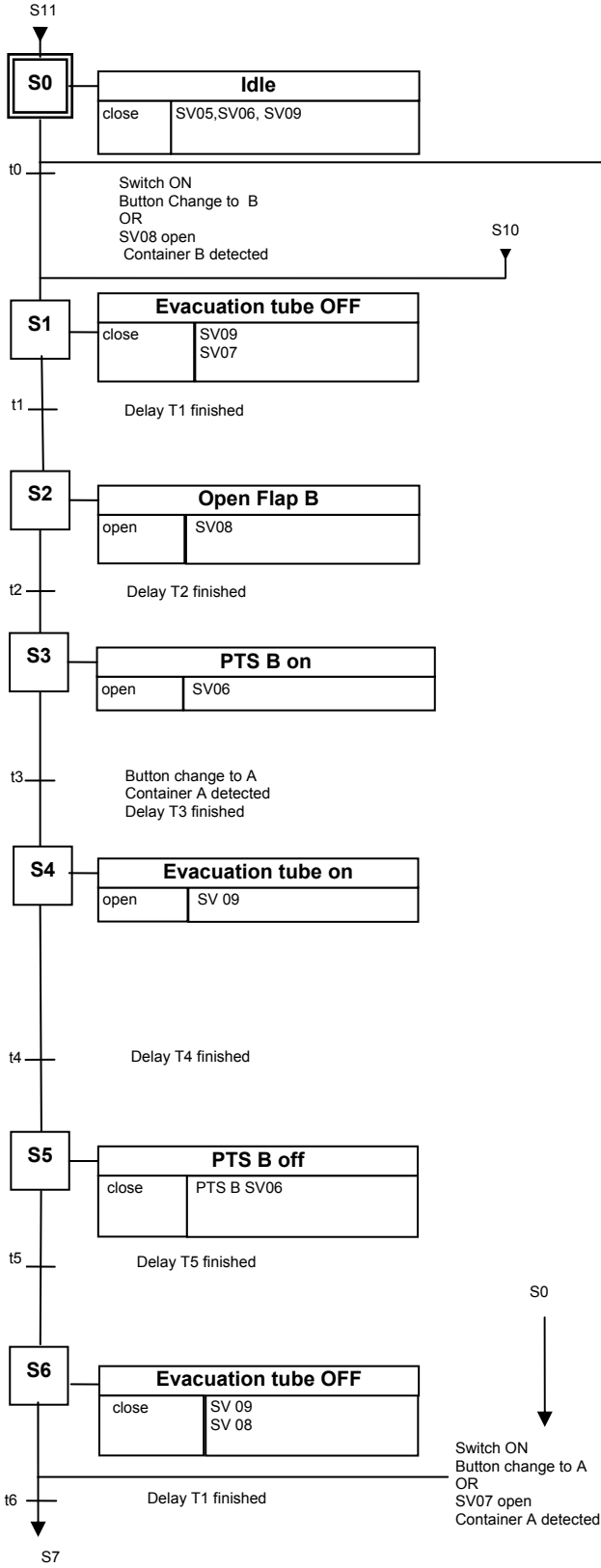
There is a function block for each supervision system and HMI.

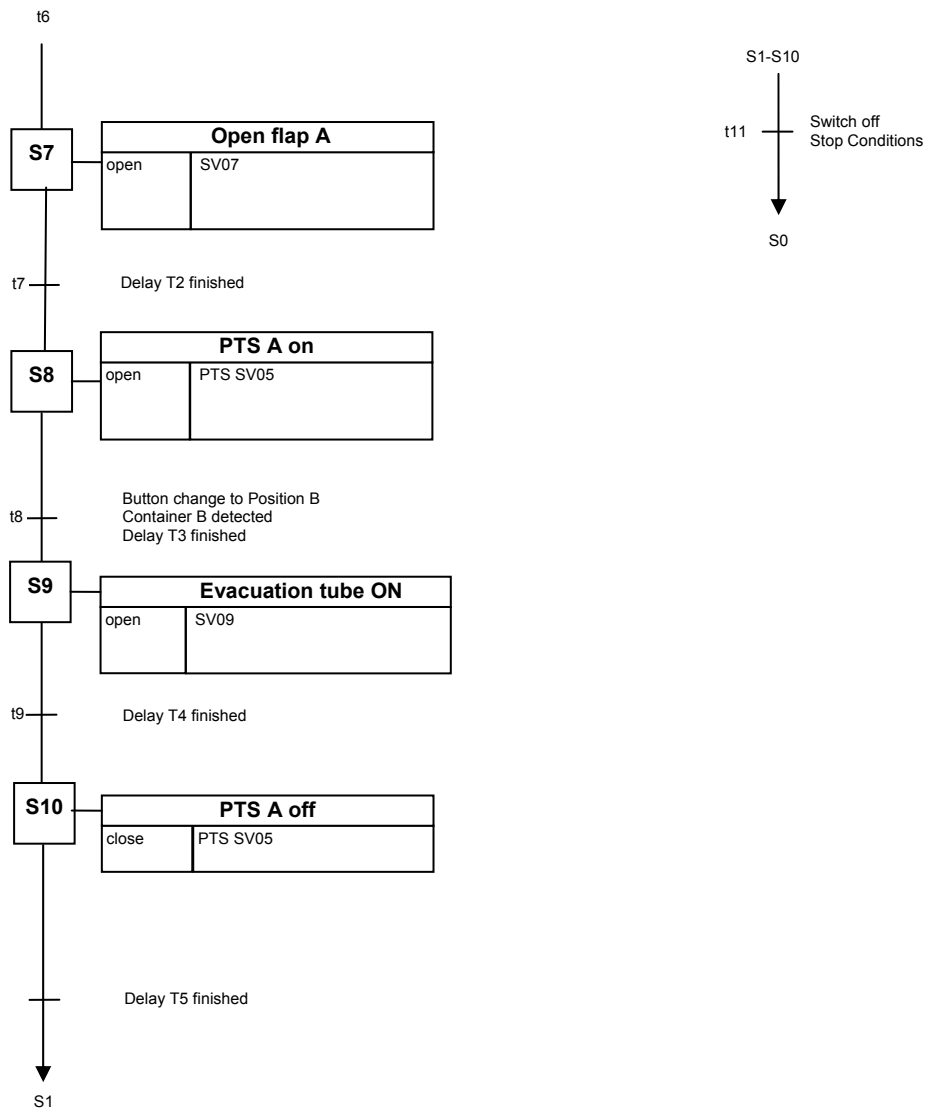
The following function blocks are called up in FB200:

FB	Data stored in	Description
210 “Panel“	Instanz-DB210 “HMI”	Synchronization of date/time HMI
222 “Alarms“	Instanz-DB222 “AL“	Alarms management

3.2.7 Sequencer

The following sequencer shows all the steps and conditions for the different elements.





Remarks: 1. PTS A on this diagram is equivalent to PTS C005
 2. PTS B on this diagram is equivalent to PTS C006

3.3 Interface to Melt Extruder PLC

3.3.1 Main PLC (Melt Extruder PLC) to PTS PLC

Main PLC DB202	Switch PLC DB202	PTS	Description
DBW0	DBW0	INT	Life- Counter
DBX2.0	DBX2.0	BOOL	Trigger: switch PTS ON
DBX2.1	DBX2.1	BOOL	Trigger: position switch A
DBX2.2	DBX2.2	BOOL	Reserve
DBX2.3	DBX2.3	BOOL	Reserve
DBX2.4	DBX2.4	BOOL	Reserve
DBX2.5	DBX2.5	BOOL	Reserve
DBX2.6	DBX2.6	BOOL	Trigger: Acknowledge ON
DBX2.7	DBX2.7	BOOL	Reserve
DBX3.0	DBX3.0	BOOL	Trigger: switch PTS OFF
DBX3.1	DBX3.1	BOOL	Trigger: switch position B
DBX3.2	DBX3.2	BOOL	Reserve
DBX3.3	DBX3.3	BOOL	Reserve
DBX3.4	DBX3.4	BOOL	Reserve
DBX3.5	DBX3.5	BOOL	Reserve
DBX3.6	DBX3.6	BOOL	Reserve
DBX3.7	DBX3.7	BOOL	Reserve
DBX4.0	DBX4.0	BOOL	Reserve
DBX4.1	DBX4.1	BOOL	Reserve
“	“	“	“
DBB11	DBB11	Byte	Reserve
DBX12.0	DBX12.0	BOOL	Global Error switch PTS
DBX12.1	DBX12.1	BOOL	Error 1
DBX12.2	DBX12.2	BOOL	Error 2
DBX12.3	DBX12.3	BOOL	Error 3
DBX12.4	DBX12.4	BOOL	Error 4
DBX12.5	DBX12.5	BOOL	Error 5
DBX12.6	DBX12.6	BOOL	Error 6
DBX12.7	DBX12.7	BOOL	Error 7
DBX13.0	DBX13.0	BOOL	Error 8
DBX13.1	DBX13.1	BOOL	Error 9
DBX13.2	DBX13.2	BOOL	Error 10
DBX13.3	DBX13.3	BOOL	Error 11
DBX13.4	DBX13.4	BOOL	Error 12
DBX13.5	DBX13.5	BOOL	Error 13
DBX13.6	DBX13.6	BOOL	Error 14
DBX13.7	DBX13.7	BOOL	Error 15
DBB14	DBB14	Byte	Reserve
“	“	“	“
DBB19	DBB19	Byte	Reserve

Total length 20 Byte

3.3.2 PTS PLC to main PLC (Melt Extruder PLC)

Values

Switch PTS PLC DB 203	Main PLC DB 203	Description
DBW0	DBW0	Life- Counter
DBB2	DBB2	Reserve
“	“	“
DBB9	DBB2	Reserve

Trigger

Switch PTS PLC DB 203	Main PLC DB 203	Description
DBX10.0	DBX10.0	Automatic mode switch PTS ok
DBX10.1	DBX10.1	Reserve
DBX10.2	DBX10.2	Reserve
DBX10.3	DBX10.3	Reserve
DBX10.4	DBX10.4	Switch PTS activ (ON)
DBX10.5	DBX10.5	Switch position A
DBX10.6	DBX10.6	Switch position B
DBX10.7	DBX10.7	Container MCG1 in position
DBX11.0	DBX11.0	Container MCG2 in position
DBX11.1	DBX11.1	Reserve
DBX11.2	DBX11.2	Reserve
DBX11.3	DBX11.3	Reserve
DBX11.4	DBX11.4	Reserve
DBX11.5	DBX11.5	Reserve
DBX11.6	DBX11.6	Reserve
DBX11.7	DBX11.7	Reserve
DBX12.0	DBX12.0	Global Error switch PTS
DBX12.1	DBX12.1	Error 1
DBX12.2	DBX12.2	Error 2
DBX12.3	DBX12.3	Error 3
DBX12.4	DBX12.4	Error 4
DBX12.5	DBX12.5	Error 5
DBX12.6	DBX12.6	Error 6
DBX12.7	DBX12.7	Error 7
DBX13.0	DBX13.0	Error 8
DBX13.1	DBX13.1	Error 9
DBX13.2	DBX13.2	Error 10
DBX13.3	DBX13.3	Error 11
DBX13.4	DBX13.4	Error 12
DBX13.5	DBX13.5	Error 13
DBX13.6	DBX13.6	Error 14
DBX13.7	DBX13.7	Error 15
DBB14	DBB14	Reserve
“	“	“
DBB19	DBB19	Reserve

Total length 20 Byte

Legend:

DBX = equivalent to a Bit

DBW = equivalent to a data word (Word = 2 Byte containing each 8 Bit)

DBD = equivalent to a double data word (Dword = 4 Byte containing each 8 Bit)

PLC = Programmable logic controller

3.3.3 Communication setting PTS

1. Ethernet Adresse CP: 192.168.172.62
2. Ethernet transmission speed: 100 Mbits/s
3. working group: EUCREAS
4. the cyclique data exchange over the system blocks SFC14/15 Put/Get is only needed on the Melt Extruder PLC
5. No system function for communication on the PLC of the PTS needed

3.3.4 Life-Counter

The Life-Counter is used to monitor the communication. This is the Life-Counter on the master PLC (Melt Extruder PLC) is incremented every second by 1. After reaching 9999 is started again at 1 (1 to 9999). The S7-control of the PTS puts this life-Counter from DB202 (receiving DB for the PTS) in DB203 (Send DB for the PTS)

The master PLC (Melt Extruder PLC) monitors these two life-counter. After the increment of the counter in the Life DB202 expected the master PLC (Melt Extruder PLC) the same value in DB203 back. If the two life-counter longer than 2 seconds are not equal, then there is a Error of communication or control of the PTS PLC is not working properly (stop).

3.3.5 Error

The errors (DB202.DBX12.1 - DB202.DBX13.7) are mirrored in the master PLC (Melt Extruder PLC). This allows the PLC to recognize, whether the information arrived in the master PLC (Melt Extruder PLC) (fault indicator on the control panel).

