# Translation of the Original Operating Manual

| | |
|---|---|
| **CLIENT** | **SERPA Packaging Solutions**<br>**93291 Visalia (CA)**<br>**USA** |
| **END USER** | **GILEAD**<br>**(Job 2098)** |
| **Machine Type** | **Friction Feeder**<br>**MFc-220RAVuSmcBaSvSt** |
| **Machine No.** | **16-3679** |
| **Order No.** | **125816-00** |
| **Year of Manufacture** | **05/2016** |

RonTech feeds to leaders.

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# 1 General

## 1.1 Introduction

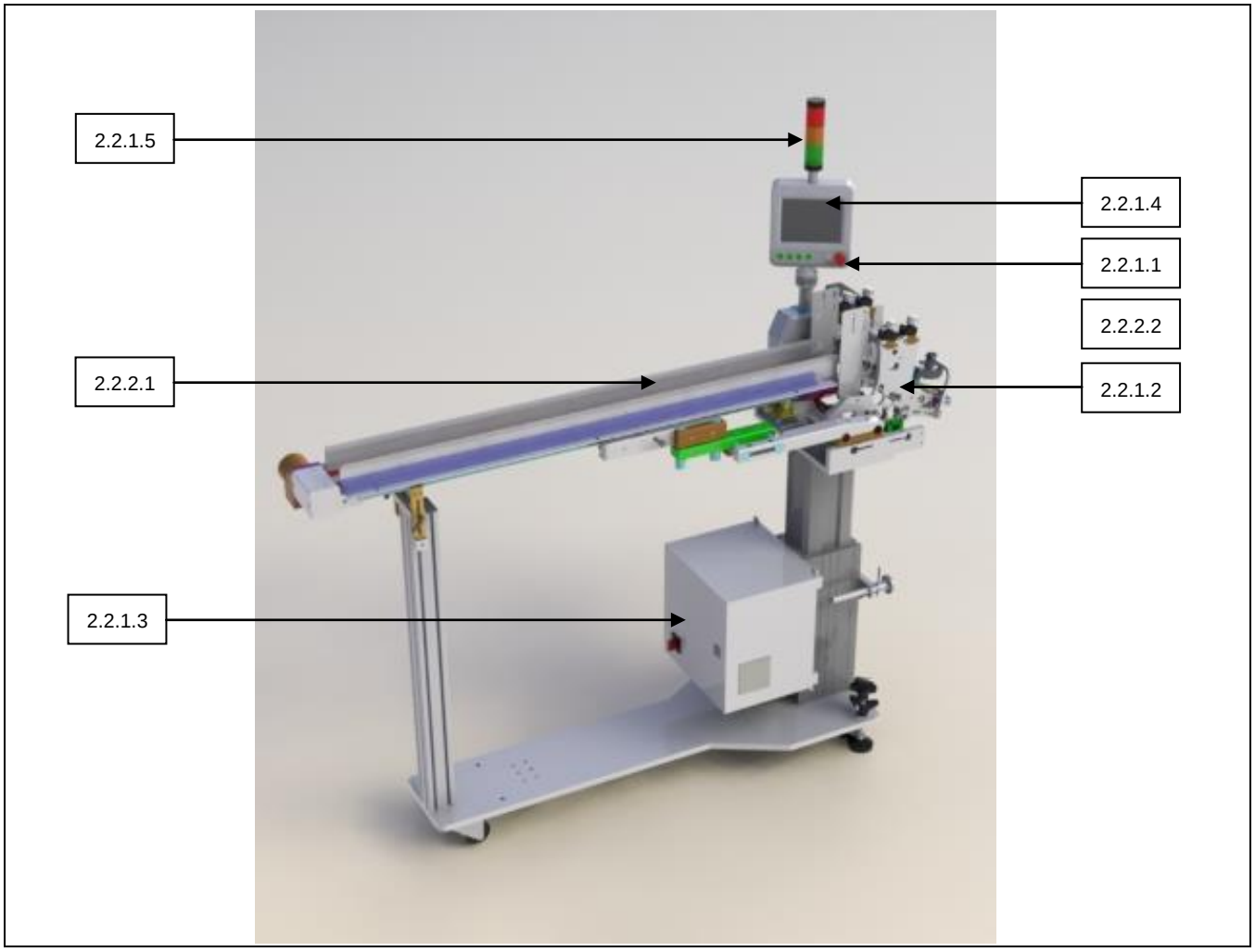
**Before reading these Operating Instructions, you must read the document entitled "General Safety Instructions"!**

## 1.2 Explanation of Symbols

| Symbols | Description |
|---|---|
|  | **Caution**<br>Indicates a warning about potential damage to the device or other physical assets if the corresponding precautions are not taken. |
|  | **Danger**<br>Means there is a danger to the life and health of the user if the corresponding precautions are not taken. |
|  | **Warning**<br>Means there is a danger of the user being crushed if the corresponding precautions are not taken. |
|  | **Note**<br>Contains important information that you definitely should comply with. |

# 2 Function

## 2.1 Overview of Machine




## 2.2 Functional Description

### 2.2.1 Electrical System

The electrical system module includes all electrical parts of the machine and switch cabinet, for example motors and drives as well as their control units, initiators, switches, and fuses. The parts are identified by operating material identifiers (German abbreviation BMK). This can be used to identify parts in the circuit diagram and in the parts list.

#### 2.2.1.1 Emergency Stop

Activating an Emergency Stop button causes the machine to come to a stop. All safety-relevant parts are deenergized and depressurized.

#### 2.2.1.2 Safety hood

Observe the safety clearances. It must be possible to open the safety hood without obstruction.

Opening the safety hood must cause to machine to come to a stop (If safety hood present) All safety-relevant parts are deenergized and depressurized.

#### 2.2.1.3 Switch cabinet

The electrical cabinet contains all components required for control and fuse protection.

#### 2.2.1.4 Control panel

To the left and right on the control panel are pushbuttons for starting Automatic mode, for starting individual dispensing processes, for acknowledging alarms and finally for activating and deactivating the supply belt. Above the pushbuttons is a color graphics touch panel that indicates the current operating state and shows menus.

#### 2.2.1.5 Indicator lights

Red: Malfunction.

Orange: Level control.

Green: Ready

### 2.2.2 Process

Machine processes are described below.

#### 2.2.2.1 Supply belt

Products are placed in the feeder here after the magazine is filled. Products that have been placed in the feeder are automatically fed into the feeder on this supply belt.

#### 2.2.2.2 Feeder

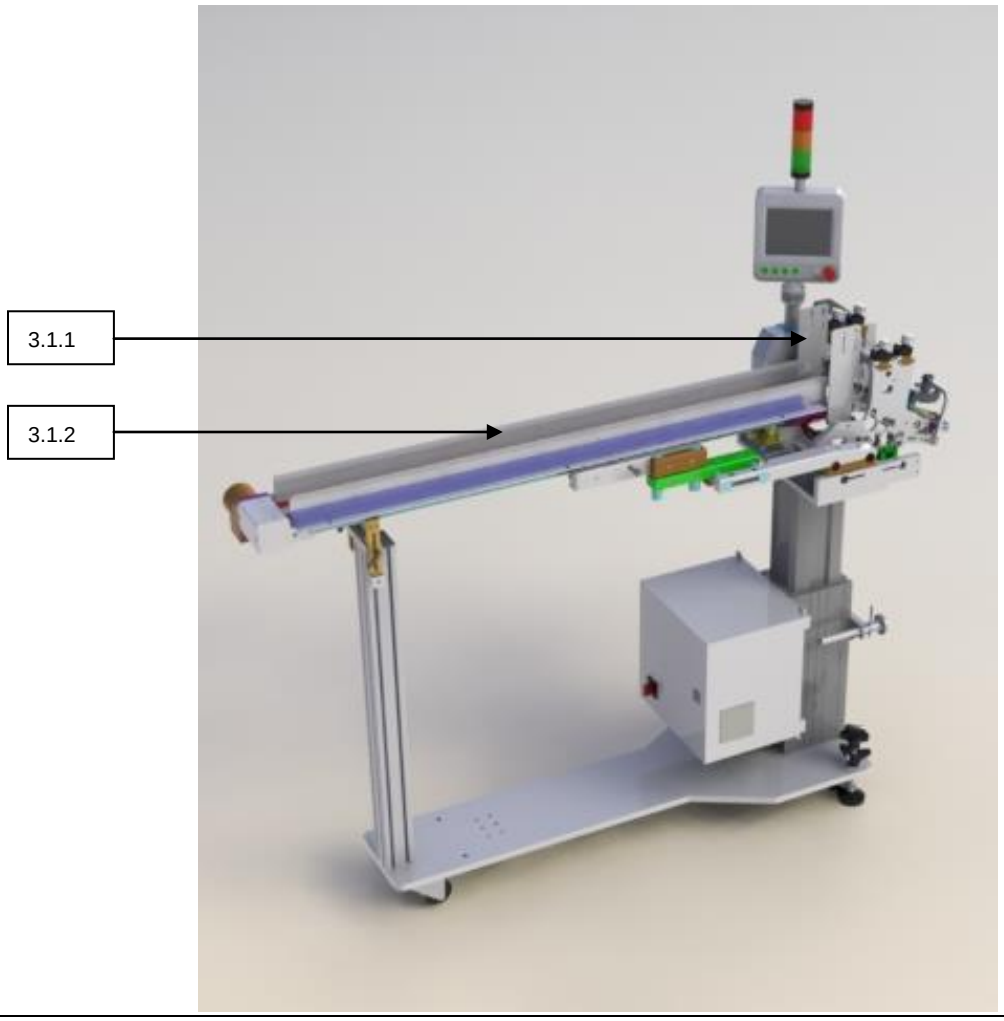
The feeder is used to separate products into individual units.

# 3 Commissioning

| | |
|---|---|
|  | A description of function keys and visualization may be seen in the section on the control panel. |

- Move the main switch to the “I“ position. The machine starts the initialization process. When this happens, the operating system is booted and then the current project is loaded. No input is possible.
- Machine status "Alarm pending". The machine has detected an alarm. Acknowledge the alarms with the Reset key.
- Machine status "Initialization running". Wait for the initialization time of all operating equipment.
- Fill the magazine with the products intended for it. See the section on initial filling.
- Machine status "Provide product“. A product must be provided in advance by pressing the green flashing Start button.
- Machine status "Manual mode“. When the machine is in this operating state, "Automatic mode On" can be started by pressing the white Auto On button.
- You can switch to Manual mode with the black Auto Off button.

## 3.1 Initial Filling




### 3.1.1 Initial Filling of the Feeder Magazine

- Fill the feeder magazine with the designated products.
- Move the feeder to Manual mode status.
- Fill the feeder magazine with the designated products up to 10 [mm] below the transfer height of the supply belt

### 3.1.2 Supply Belt Filled with Products

- Perform initial filling of the feeder magazine.
- Activate the supply belt with the Belt button on the feeder.
- Products inserted onto the supply belt are moved to the feeder by the supply belt.
- When the supply belt is filled with products up to the feeder shaft, it switches off automatically.
- Move the feeder to "Automatic mode On" status.

# 4 Control Panel

## 4.1 Function Keys

| | |
|---|---|
| | The machine is equipped with a control panel consisting of color-coded command and message devices (function keys). |

### 4.1.1 Function Keys

| Function keys | Description |
|---|---|
|  | 1. 4.1.1.1 White automatic On key<br>2. 4.1.1.2 Black automatic Off key<br>3. 4.1.1.3 Green Start key<br>4. 4.1.1.4 Blue Reset key<br>5. 4.1.1.5 White Transition belt key<br>6. 4.1.1.6 USB Interface<br>7. 4.1.1.7 Option Emergency Stop |

#### 4.1.1.1 White Automatic On Key

| White automatic On key | Description |
|---|---|
| | You can use the Automatic mode On key to switch to "Automatic mode On". |

#### 4.1.1.2 Black Automatic Off Key

| Black automatic Off key | Description |
|---|---|
| | You can use the Automatic Off key to switch to "Manual mode". |

#### 4.1.1.3 Green Start Key

| Green Start key | Description |
|---|---|
| | The Start key is used to trigger the process to supply a product. |

#### 4.1.1.4 Blue Reset Key

| Blue Reset key | Description |
|---|---|
| | Malfunctions can be acknowledged with the Reset key if they are no longer active. |

#### 4.1.1.5 White Transition Belt Key

| White Transition belt key | Description |
|---|---|
| | The Transition belt key can be used to turn the transition belt on and off.<br>When the Transition belt key is lit, the transition belt is turned on. |

#### 4.1.1.6 USB Interface

| USB Interface | Description |
|---|---|
| | Over the USB interface it is possible to load programs and exchange data. |

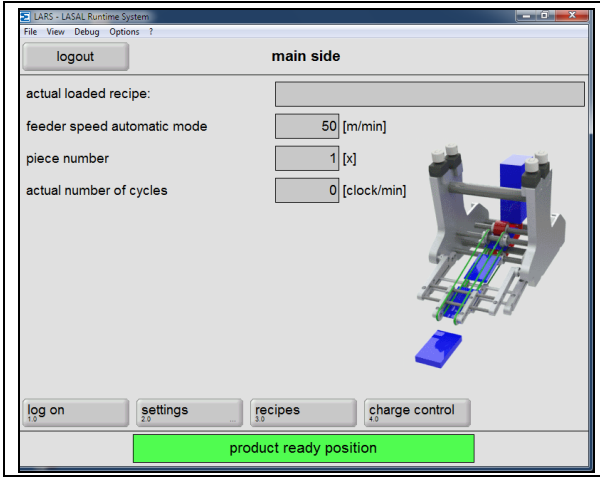
#### 4.1.1.7 Option Emergency Stop

| Option Emergency Stop | Description |
|---|---|
| | Activating an Emergency Stop button causes the machine to come to a stop. All safety-relevant parts are deenergized and depressurized. |

## 4.2 Visualization

| | |
|---|---|
|  | The control panel has color graphics touch panel visualization. |

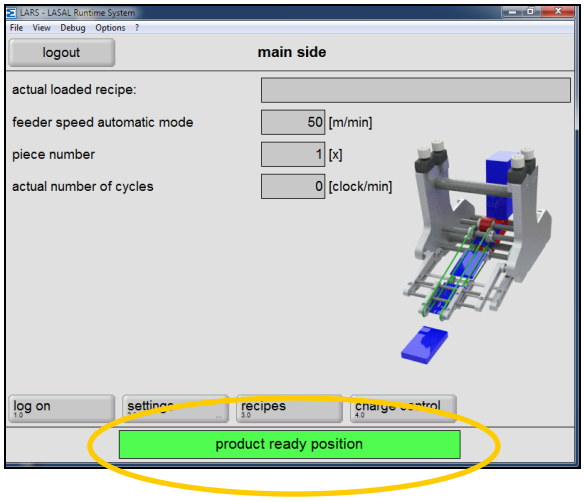
## 4.3 Main Page




Description

| | |
|---|---|
| Feeder speed | Shows the currently set feeder speed |
| Number of pieces | Shows the number of pieces to be dispensed |
| Actual number of cycles | Shows the number of pieces currently being dispensed per minute |
| Actual loaded recipe | Shows the currently loaded recipe |

## 4.4 Operating Status

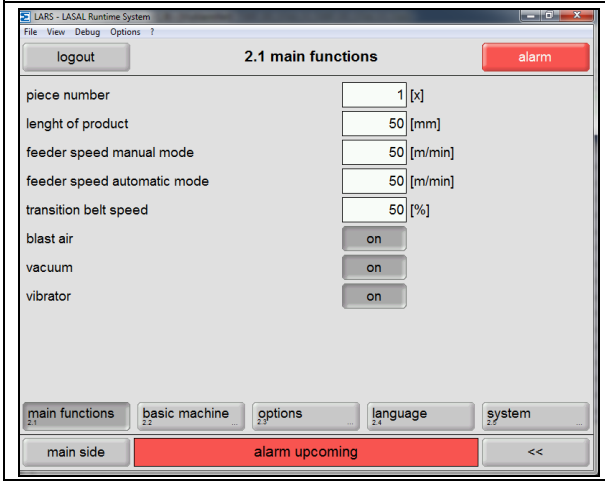



**Description**

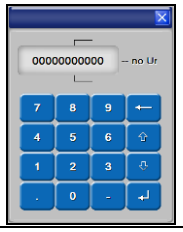
Visualization indicates the relevant operating state. The system distinguishes between operating states.

| | |
|---|---|
| Bootup, load project | The control system is booted and then the current project is loaded. |
| Alarm upcoming | The machine has detected an alarm and shows the alarm. |
| Initialization running | The operating equipment is initialized. |
| Product ready position | Products must be provided |
| Manual mode | Ready for "Automatic On" status. |
| Automatic mode On | The feeder is in Automatic mode |

## 4.5 Navigation

| Navigation | Description |
|---|---|
|  | The following buttons are used for navigation in menus.<br>Main page: Click this button to return to the main page.<br>Alarm: Click this button to go to the page with the alarm list.<br><<: Click this button to to one level back.<br>Menu jump: You can use a menu selection button to go to the selected menu. |

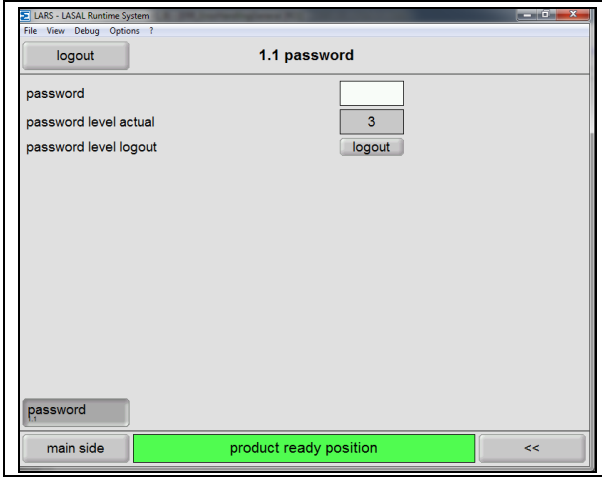
## 4.6 Input

| Navigation | Symbol activated | Symbol Deactivated | Description |
|---|---|---|---|
| Numpad |  | | When you click the Parameter button, the input screen appears. The current value is shown. A new value can be entered with the numeric keypad. Confirm the new value with OK. |
| On - Off | **"ON"** | **"OFF"** | Functions can be activated and deactivated with the On - Off button. |

## 4.7 Selection Menus

### 1.0 Logging In

### 1.1 Password



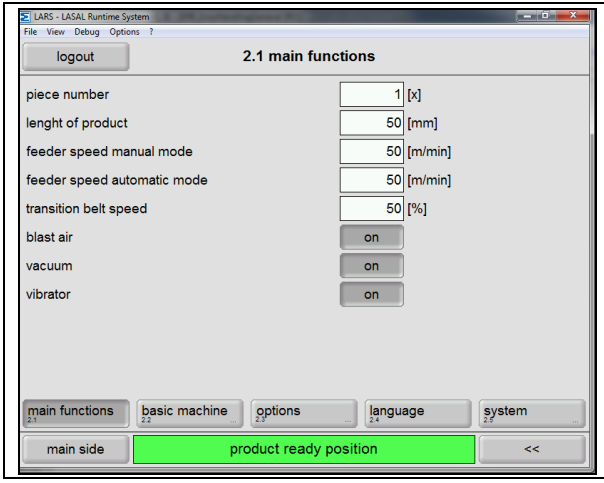

**Description**

You can use the Login button to reach the password login window. The password can be entered and confirmed there. After the correct password has been entered, the current user level appears and the Logout button is activated.

Machine functions can be changed with passwords.

| Password level | 0 | 1 | 2 | |
|---|---|---|---|---|
| 1.1 Password | | | | |
| 2.0 Settings | | | | |
| 2.2 Basic machine | | | | |
| 2.3 Options | | | | |
| 2.4 Language | | | | |
| 2.5 System | | | | |
| 3.0 Recipe | | | | |

## 2.0 Settings




**Description**

In the Settings area you can view and change information and parameter values for the machine and its components.

| | |
|---|---|
| 2.1 | Main functions |
| 2.2 | Basic device |
| 2.3 | Options |
| 2.4 | Languages |
| 2.5 | System |

## 2.1 Main Functions

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Piece number | • | • | • | Specifies the number of pieces of product to be fed. | |
| Length of product | • | • | • | Indicates the length of the product | |
| Feeder speed manual mode | • | • | • | Speed of feeder in manual mode | |
| Feeder speed automatic mode | • | • | • | Speed of feeder in automatic mode | |
| Transition belt speed | • | • | • | Transition belt speed | |
| Synchronity | | • | • | Synchronity | |
| Blast air | • | • | • | On/Off | |
| Vacuum | • | • | • | On/Off<br>The vacuum under the friction belt results in better after-running for products. | |
| Vibrator electrical | • | • | • | On/Off | |
| Vibrator pneumatics | • | • | • | On/Off | |
| Double sheet control | • | • | • | On/Off | |

## 2.2 Basic machine

### 2.2.1 Feeding Function

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Number of pieces | • | • | • | Specifies the number of pieces of product to be fed. | |
| Feeder speed manual mode | • | • | • | Speed of feeder in manual mode | |
| Feeder speed automatic mode | • | • | • | Speed of feeder in automatic mode | |
| Braking distance | • | • | • | Braking distance from front edge of products | |
| Braking distance offset | • | • | | Additional offset to specified braking distance | |
| Search run | • | • | | On/Off | |
| Search run speed | • | • | | Specifies the search run speed. | |
| Search run way | • | • | | After the search run path and search time expire, dispensing occurs at search speed. | |
| Search run time | • | • | | After the search run path and time expire, dispensing occurs at search run speed. | |

### 2.2.2 Feeding control

#### 2.2.2.1 Length Measurement

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Length of product | • | • | • | Indicates the length of the product. | |
| Length of product tolerance | • | • | • | If the product length assignment is exceeded by the tolerance value, a malfunction occurs. | |
| Runtime gap | • | • | • | Monitors the runtime between products during the feed procedure. | |
| Runtime gap sequence | • | • | • | Runtime gap sequences that occur one after the other as malfunctions are counted. When the specified value is reached, a malfunction occurs. | |
| Length of product sequence | • | • | • | Length of product sequences that occur one after the other as malfunctions are counted. When the specified value is reached, a malfunction occurs. | |
| Length of product multiple | • | • | • | Multiplies “Length of product“ value by the value “Length of product multiple“. A product slip of more than this resulting value results in a malfunction. | |

### 2.2.2.1 Double sheet control

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Double sheet control | • | • | • | On/Off | |
| Double sheet control length measurement | • | • | • | If the double sheet control is still detecting a double sheet after expiring this value, the malfunction double sheet occurs. | |
| Double sheet control actual value | • | • | • | Displays the current analog value of the double sheet control.<br>When setting up a new product the double sheet control has to be readjusted. The product will be placed under the double sheet control. The adjusting screw of the double sheet control has to be turned as long as the value „Double sheet control actual value“ approximately corresponds the specified setpoint value „Double sheet control setpoint with product“.<br>The background of the „Double sheet control actual value“ field must then be highlighted in green. | |
| Double sheet control setpoint with product | • | • | • | Setpoint value for setting up the product.<br>When setting up a new product the double sheet control has to be readjusted. The product will be placed under the double sheet control. The adjusting screw of the double sheet control has to be turned as long as the value „Double sheet control actual value“ approximately corresponds the specified setpoint value „Double sheet control setpoint with product“.<br>The background of the „Double sheet control actual value“ field must then be highlighted in green. | |
| Double sheet control threshold | • | • | • | If during the feeding process (after Double sheet control length measurement) the predetermined threshold value is exceeded in relation to the setpoint value, an error occurs. | |
| Remove double sheet | • | • | • | On/Off<br>When this function is activated the double sheet located under the double sheet control has to be removed by hand. Then the the error can be acknowledged.<br>When this function is deactivated the double sheet located under the double sheet control has not to be removed by hand. The error can directly be acknowledged.<br>By pressing the green start key the feeder can be started as long as the double sheet has left the feeder. | |

### 2.2.2.4 Magazine

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Level control | • | • | • | On/Off | |
| Level control rise delay | • | • | • | Rise delay can be used to delay turning on the level control message. | |
| Level control cut-out delay | • | • | • | The cut-out delay can be used to delay turning off the level control message. | |
| Level start counter | • | • | • | On/Off | |
| Level starts | • | • | • | The number of possible starts after the level in the feeder magazine has fallen short of the minimum level.<br>If the set value is exceeded, a malfunction is generated. | |

## 2.2.3 Feeding help

### 2.2.3.1 Blastair

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Blast air | • | • | • | On/Off | |
| Blast air switch-off delay | • | • | • | Blast air switch off delay can be used to delay switching off of blast air. | |

### 2.2.3.2 Vacuum

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Vacuum | • | • | • | On/Off | |
| Vacuum On time-dependent | • | • | • | Vacuum On with switch off delay time | |
| Vacuum On continuous | • | • | • | Vacuum On continuous | |
| Vacuum On minimum speed | • | • | • | Vacuum On minimum speed | |
| Vacuum switch-off delay | • | • | • | Switching off of the vacuum can be delayed with vacuum switch off delay. | |
| Vacuum minimum speed | • | • | • | “Vacuum minimum speed” can be used to switch the vacuum speed related to the master encoder speed.<br>The vacuum is turned off at speeds lower than the target value. | |

### 2.2.3.3 Vibrator

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Vibrator electrical | • | • | • | On/Off | |
| Vibrator On time-dependent | • | • | • | Vibrator On with switch off delay time | |
| Vibrator On continuous | • | • | • | Vibrator On continuous | |
| Vibrator On minimum speed | • | • | • | Vibrator On minimum speed | |
| Vibrator switch-off delay | • | • | • | Turning off the vibrator can be delayed with the vibrator cut out delay. | |
| Vibrator minimum speed | • | • | • | “Vibrator minimum speed” can be used to switch the vibrator speed related to the master encoder speed.<br>The vibrator is turned off at speeds lower than the target value. | |
| Vibrator pneumatics | • | • | | On/Off | |
| Vibrator forward time | • | • | | After forward time delayed it is supposed the cylinder reached the front position | |
| Vibrator backward time | • | • | | After backward time delayed it is supposed the cylinder reached the back position | |
| Vibrator on when transition belt running | • | • | • | When this function is activated and in addition the transition belt function, the vibration process will also be switched on when the transition belt is running. | |

## 2.2.4 Start release

### 2.2.4.1 Standard Start

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Start delay | • | | | On/Off | |
| Response time | • | | | The length of the external start signal is measured and when the specified value is reached, an external start is generated.<br>No external start is generated for start signals that are too short. | |
| Start delay time | • | | | External start is passed on with a time delay. | |
| Cycle dispense set value | • | | | The external starting pulse sent to the feeder is counted until the set value is reached, at which time the feeder is triggered. Then the process begins again. | |
| Cycle dispense actual value | • | | | Indicates the actual value of the feeder cycle counter. | |
| Cycle dispense reset | • | | | The actual value of the feeder cycle counter can be set back to zero. | |
| Start delay memory control | • | | | On/Off<br>The machine is capable of passing on multiple external start signals with a time delay. If the number of starts stored in temporary memory is too large, a malfunction occurs. | |
| Early start control | • | | | On/Off | |

### 2.2.4.2 Self Start

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Self start Off | • | | | Self start is turned off | |
| Self start rhythmical | • | | | Generates start signals at equal intervals. | |
| Self start after stop time | • | | | After the feeder has stopped, the self start time elapses. After the time elapses, a start occurs. | |
| Self start time | • | | | Time delay of the two functions "Rhythmical" and "After stop time" | |

### 2.2.4.3 Master Start 1

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Master encoder start release | • | • | • | On/Off<br>Start with the master encoder can be turned on or off. | |
| S1 | • | • | • | Distance S1 after the start signal. | |
| S2 | • | • | | Distance S2 after the start signal. | |
| S3 | • | • | | Distance S3 after the start signal. | |
| S4 | • | • | | Distance S4 after the start signal. | |
| S5 | • | • | | Distance S5 after the start signal. | |
| S6 | • | • | | Distance S6 after the start signal. | |
| SB | • | • | | Blind point<br>Start detection is switched to blind after a start is detected until the set target value is reached. | |
| S0 | • | • | | *RonTech service function:*<br>Distance S0<br>Generates an unending series of starts spaced the same distance S0 apart. | |

## 2.3 Options

### 2.3.1 Transition Belt

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Transition belt | • | • | • | On/Off<br>This function has a higher priority than the transition belt switch on the control panel. | |
| Transition belt speed | • | • | • | Supply belt speed | |
| Transition belt rise delay | • | • | • | Rise delay can be used to delay turning on of the transition belt. | |
| Transition belt cut-out delay | • | • | • | Turning off of the transition belt can be delayed with the cut-out delay. | |
| Transition belt step mode setpoint setting | • | • | • | Each feeder start increments the value by one. When the assigned setpoint is reached, the supply belt is turned on. Then the supply belt remains turned on for the supply belt step mode On time. | |
| Transition belt step mode runtime | • | • | • | Supply belt step mode On time | |
| Transition belt runtime control | • | • | • | On/Off | |
| Transition belt runtime control time | • | • | • | If the supply belt runtime exceeds this time, a malfunction occurs. | |

### 2.3.2 Slide

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Slide | • | | | On/Off | |
| Slide initiator control in front | • | | | On/Off<br>The basic position of the slide is monitored when the slide is initialized. If the slide loses its basic setting during initialization, an error message is generated. | |
| Slide initiator control rear | • | | | On/Off | |
| Slide initialization time | • | | | The slide must be shut before the initialization time has expired. If the slide does not close within the initialization time, an error message will be generated. This function only takes effect if the slide initiator control in front is turned on. | |
| Slide forward time | • | | | The slide must be closed before the slide forward time has expired. If the slide does not reach the closed position during this time, an error message is generated. This function only takes effect if the slide initiator control in front is turned on.<br>When the slide initiator control in front is turned off, the system assumes after the slide forward time that the slide is closed. | |
| Slide backward time | • | | | The slide must be opened before the slide backward time expires. If the slide does not reach the open position within this time, an error message will be generated. This function only takes effect if the slide initiator control in front is turned on. When slide initiator control in front is turned off, the opening of the slide is not monitored. | |
| Feeder start delay time | • | | | After the slide close command has been issued, this time begins to run.<br>After this time has expired, the feeder starts feeding. | |
| Ready after feeding | • | | | After a malfunction #x a feeding must be performed successfully until the feeder reports ready. | |
| Slide throwing off control | • | | | On/Off<br>If there is something in the throwing off shaft while the slide is being initialized, an error message is generated.<br>If there are products in the throwing off shaft while the slide is closing, an error message is generated. | |

## 2.4 Language

| Language selection | MF/CoF | MFc | MFcc | Description |
|---|---|---|---|---|
| German | • | • | • | |
| English | • | • | • | |

## 2.5 System

### 2.5.1 System Controls

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Air pressure control | • | • | • | On/Off | |

### 2.5.2 Modes

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Test signal lamp | • | • | • | On/Off<br>Lamp test of indicator lights and illuminated keys | |
| Empty run function | • | • | • | Show key empty run on main side | |
| Test run | • | • | • | With test run On, it is possible to operate without a product. The test run simulates a product. | |
| Test run time | • | • | • | After the test run time has elapsed, a product is simulated and the feeding procedure is stopped. | |
| Emergency stop auto reset | • | • | | After the elimination of an emergency stop error an automatical reset of the system will be executed. | |
| Cover auto reset | • | • | | After the elimination of an cover error an automatical reset of the system will be executed. | |

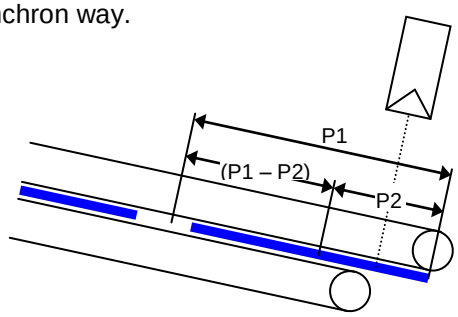
## 2.5.3 Configurations

### 2.5.3.1 Master Encoder

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Direction master encoder | | • | • | Direction of master encoder. Machine has to be switched off after parameter changing. | |
| Impulse per rotation | | • | • | Number of impulse per rotation of master encoder | |
| Way per rotation | | • | • | Way per rotation of master encoder | |
| Response delay start sensor | | • | • | The master encoder start sensor has a response time delay. This time has to be compensated. | |
| Master way | | • | • | Master way | |
| Slave way | | • | • | Slave way | |
| Master speed | | • | • | Set point master speed, workspace | |
| Actual master speed | | • | • | Display the actual master speed | |
| Encodersignal A, A\ | | • | • | Display the encodersignal A, A\ | |
| Encodersignal B, B\ | | • | • | Display the encodersignal B, B\ | |
| Safety master encoder position control | | • | • | The positions will be supervised after an emergency stop and door open error when the machine is in synchron mode.<br>The master encoder position may not be out of this defined range otherwise an error take place | |
| Safety main axis position control | | • | • | The positions will be supervised after an emergency stop and door open error when the machine is in synchron mode.<br>The main axis position may not be out of this defined range otherwise an error take place | |

### 2.5.3.2 Drives

#### 2.5.3.2.1 Servo feeder

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Direction motor | • | • | • | Direction motor main axis. Machine has to be switched off after parameter changing. | |
| Acc/dcc | • | • | • | Acceleration and deceleration | |
| Outlet photocell offset | • | • | • | Outlet photocell offset | |
| Synchron mode | | • | • | On/Off | |
| Synchronity | | • | • | Synchronity | |
| Compensation factor position motor | | • | | The „master encoder latch“ has to be compensated against the present driven speed while the synchron mode is activ. | |
| Filter actual speed | | • | • | Filtering of the actual master speed | |
| Defined way after product latch P1 | | | • | For the calculation of the synchron way who has to be driven the way P1 has to be defined. The braking distance P2 in the MFcc mode is the actual brake distance multiplied with two. Resulting of both is the synchron way. | |
| Braking distance after product latch P2 | | | • |  | |
| Calculated synchron way (P1- P2) | | | • | | |
| Current | • | • | • | Electrical current information for the feeder drive | |
| Efficiency | • | • | • | Capacity utilization information for the feeder drive | |

### 2.5.3.2.2 FC Belt (Frequency Converter Belt)

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Direction transition belt motor | • | • | • | Direction transition belt motor. Machine has to be switched off after parameter changing. | |
| Acc/dcc transition belt motor | • | • | • | Acceleration and deceleration transition belt motor. | |

### 2.5.3.3 Inputs

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Inputs | • | • | • | Inputs | |

### 2.5.3.4 Outputs

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Outputs | • | • | • | Outputs | |

### 2.5.3.5 Zeit/Datum

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Date | • | • | • | Date | |
| Time | • | • | • | Time | |

### 2.5.4 User

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Password level 0 | • | • | • | Password level 0 | |
| Password level 1 | • | • | • | Password level 1 | 1462 |
| Password level 2 | • | • | • | Password level 2 | 8462 |
| Password level 3 | • | • | • | Password level 3 | ***** |
| Time out | • | • | • | Password level logout time. Log-out occurs after this time expires | 15 - 600 [s] |
| Side main functions without password protection | • | • | • | On/Off | |
| Side recipes without protection | • | • | • | On/Off | |
| Side charge control without protection | • | • | • | On/Off | |
| Side mechanics without password protection | • | • | • | On/Off | |

### 2.5.5 Information

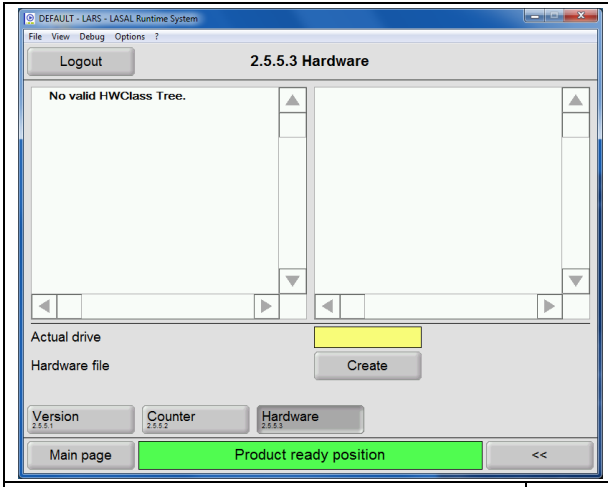
#### 2.5.5.1 Version

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Project name | • | • | • | ########## | |
| IP number | • | • | • | ###.###.###.### | |

#### 2.5.5.2 Counter

| Parameter | MF/CoF | MFc | MFcc | Description | Range |
|---|---|---|---|---|---|
| Unit counter | • | • | • | ########## | |
| Hours counter | • | • | • | ########## | |

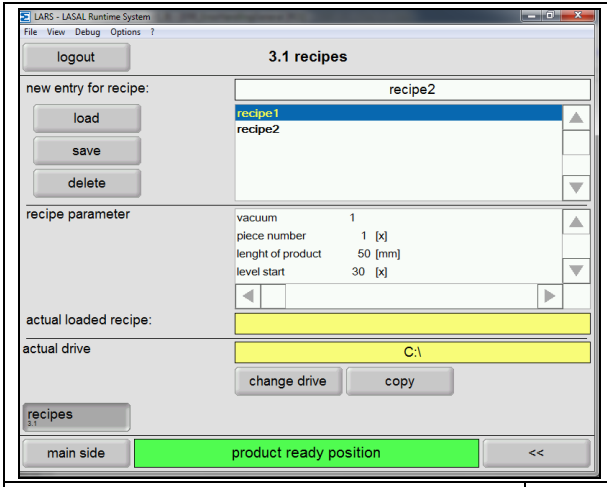
## 2.5.5.3 Hardware




| Description |
|---|
| In this menu, all the data of the built in Sigmatek control technology hardware will be displayed. In the left side display window, the single component names are listed. In the right side display window, however, component specific informations are displayed.<br>Using a USB stick, a „hardware“ file can be created with the actual data of the hardware. |

| Functions | Description |
|---|---|
| Actual drive | To create a „hardware“ file a USB stick (external data carrier) has to be plugged in first. When plugged in, the E: drive will be displayed as current drive. |
| Hardware file | If the USB stick is plugged in and the key „Create“ will be pressed, a „Hardware“ file will be created on the USB stick.<br>This file contains all data of the built in Sigmatek control technology hardware. |

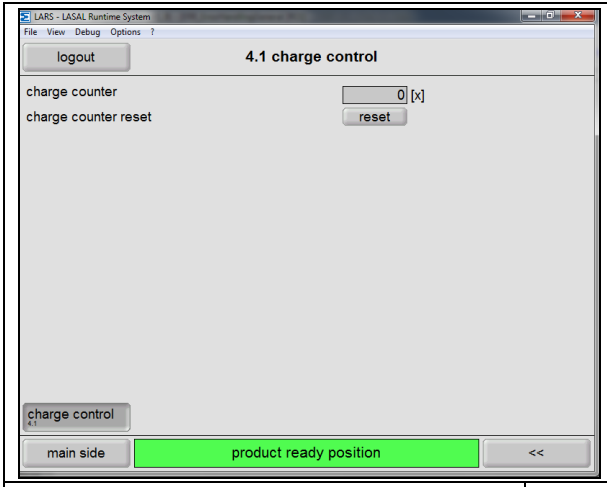
## 3.0 Recipe




| Description |
|---|
| Recipe administration |

| Functions | Description |
|---|---|
| New entry for recipe | After you click on the input field, you can enter a new recipe name |
| Load | To load the selected recipe, click Load. |
| Save | After a new recipe name has been entered, click Save to save the recipe |
| Delete | To delete the recipe selected in the recipe list, click Delete. |
| Recipe list | The commands explained above, Load and Delete, can be used to select the desired recipe. |
| Recipe parameter | If a recipe is selected in the recipe list, the recipe parameters defined in that recipe parameter list by the manufacturer appear. The values can be changed directly from this list. Values that have just been set are not transferred until the recipe is reloaded |
| Actual loaded recipe | Display of currently loaded recipe |
| Actual drive | You can switch between drives C: and E: The C: drive is located on the controller. The E: drive is a USB stick (external data carrier) that can be inserted |
| Change drive | You can switch between drives C: and E: with this button. |
| Copy | When a recipe is selected from the recipe list on the C: or E: drive, the currently selected recipe is copied to the corresponding drive. |
| Messages during working with the recipes. | • Really delete?<br>• Delete failed!<br>• No name decleared!<br>• File allready existing!<br>• Load failed!<br>• Load successful!<br>• Save failed!<br>• Save successful!<br>• Import/Export failed!<br>• Import/Export successful!<br>• Undefinded error occurred!<br>• Export failed!<br>• Export successful! |

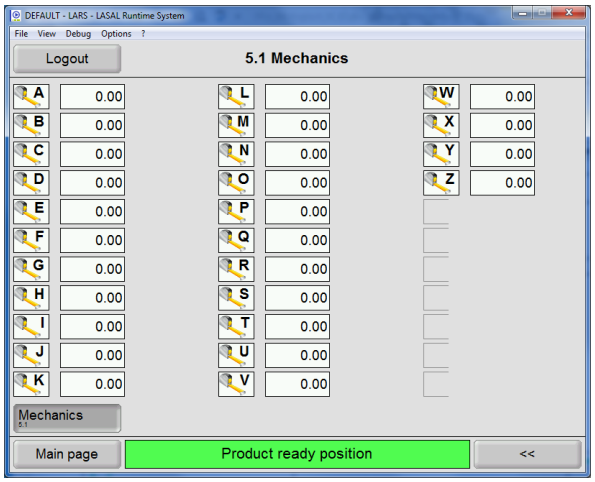
## 4.0 Batch




| Description |
|---|
| |

| Functions | Description | Range |
|---|---|---|
| Batch counter | Incremented for each feeder cycle | |
| Batch counter Reset | You can use the Reset key to reset the batch counter to zero | |

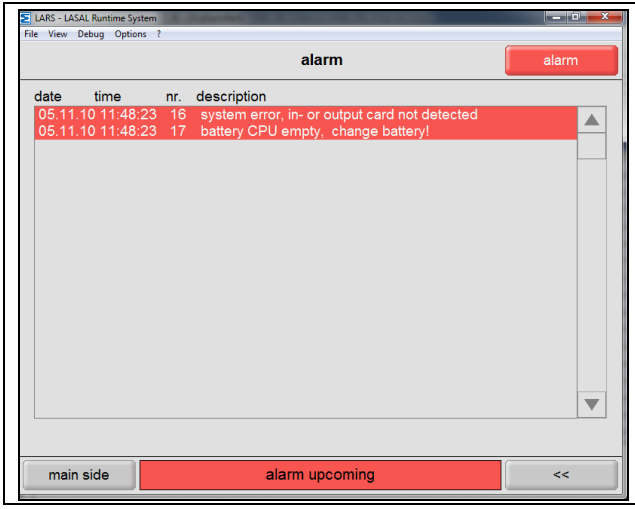
## 5.0 Mechanics




| Description |
|---|
| Each device has to be adjusted manually to the corresponding format.<br>The set values for the format settings can be entered or read in this menu.<br>This menu contains a defined number of input fields for the mechanical parameters. The desired parameter value can be entered into the single input fields.<br>If a new recipe will be created with the actual set parameter values, the set values will be displayed after reloading the corresponding recipe. Now there is the possibility to adjust manually the device, after reading the single parameter values. |

| Functions | Description | Range |
|---|---|---|
| A – Z input fields | Parameter values for mechanical adjustments. | |

## 4.8 Alarm List




| Description |
| --- |
| Alarms that occur are shown in the alarm list. |

# 5 Alarms

## 5.1 Safety Instructions

| | |
|---|---|
|  | Malfunctions may only be remedied by<br>• Persons authorized to do so as a result of their training and qualification.<br>• Persons authorized to do so by the machine owner.<br>• Observe the instructions in the document “General Safety Instructions”! |

## 5.2 Effects of Alarms

Machine damage.

Inserting or removing products improperly may result in damage to the machine. Only allow trained persons to insert or remove products.

Danger of death.

Dangerous electrical currents and voltages on the machine may injure or kill people. Only electricians are permitted to perform jobs on the electrical equipment of the machine according to relevant electrical regulations.

Warning – hand injuries.

There is danger of crushing the whole time the machine is in dispensing mode.

## 5.3 General Procedure for Remedying Malfunctions

Before starting troubleshooting, check all settings and compare them with the parameter list.

In the event of machine malfunctions, first check:

- Electrical power supply
- Compressed air supply

## 5.4 Preparations for Remedying Malfunctions

After improper functioning in the magazine area, clear the magazine area. Observe the safety operating status display. Failure to observe this instruction may result in serious damage and improper settings on the machine caused by jammed products.

If necessary, switch off the machine according to the instructions in document “General Safety Instructions” and secure to prevent unexpected restarting.

Inform the operating personnel.

## 5.5 Types of Errors

| Types of errors | Machine status | Acknowledgement | Machine status |
|---|---|---|---|
| Simple malfunction | The machine sequence is interrupted. | After the error source is eliminated, click Reset | The machine does not need to be reinitialized. You can continue to work directly in Automatic mode. |
| Permanent malfunction | The machine sequence is interrupted. | After the error source is eliminated, click Reset. | The machine (components) do not need to be reinitialized. |
| Safety circuit open | The machine sequence is interrupted. Electrical power and compressed air to the machine are shut off. | After the error source is eliminated, click Reset. | The machine (components) must be initialized or you will be unable to work directly in Automatic mode. |

## 5.6 Alarm and Message Texts on the Machine

### 5.6.1 Table Information about Malfunctions and Remedies

| No. | EI | Alarm message | MF/CoF | MFc | MFcc | Causes | Remedy |
|---|---|---|---|---|---|---|---|
| 1 | | Feeding interrupted Emergency Stop | • | • | • | Emergency Stop lock during dispensing process. | Unlock Emergency Stop. Click Reset. |
| 2 | | Feeding interrupted door open | • | • | • | The safety door was opened during the dispensing process. | Close the safety door. Click Reset. |
| 3 | | Emergency Stop | • | • | • | Emergency Stop locked. | Unlock Emergency Stop. Click Reset. |
| 4 | | Door open | • | • | • | The safety door has been opened. | Close the safety door. Click Reset. |
| 10 | | Main axis error no.: .. | • | • | • | Servo controller malfunction. See Section 5.6.3 | Click Reset. It may be necessary to turn the machine off and back on. |
| 11 | | Main axis CNC malfunction | • | • | • | Servo controller software malfunction. | Click Reset. It may be necessary to turn the machine off and back on. |
| 12 | | Transition belt axis error no.: .. | • | • | • | Servo controller malfunction. See Section 5.6.3 | Click Reset. It may be necessary to turn the machine off and back on. |
| 13 | | Transition belt axis CNC error | • | • | • | Servo controller software malfunction. | Click Reset. It may be necessary to turn the machine off and back on. |
| 16 | | System error, input or output card not detected | • | • | • | The input or output cards for input or output signals are not inserted. | Turn off the machine. Check the input/output cards to ensure they are inserted. Turn on the machine again. |
| 17 | | CPU battery empty, change battery! | • | • | • | The ETV controller backup battery must be replaced, since it is almost completely discharged. | The CPU battery must be replaced. If it is not, permanent storage of data in memory can no longer be ensured after the machine is turned off.<br>Do not turn the machine off to replace the battery!!!!<br>Install the new battery according to the instructions from Sigmatek. After the battery has been replaced, the malfunction can be acknowledged with Reset. |
| 18 | | Master encoder error | | • | • | Master encoder has an error | Check Master Encoder. Click Reset |
| 20 | | System error, CAI024 | • | • | • | Missing or fault/defect or wrong module in slot 5. | Turn off the machine.<br>Check module.<br>Check electrical installation.<br>Check mechanical mounting.<br>Turn on the machine again. |
| 200 | | Runtime gap sequence | • | • | • | Runtime gap sequences that occur one after the other as | Check for products that are jammed or missing in the |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | malfunctions are counted. When the specified value is reached, a malfunction occurs. | feeder magazine.<br>Click Reset. |
| 201 | 3B4 | Length of product sequence | • | • | • | If the length specification and tolerance for products is exceeded, a malfunction occurs.<br>Length of product sequences that occur one after the other as malfunctions are counted. When the specified value is reached, a malfunction occurs. | Check the "Product length" parameter or mechanical settings.<br>Click Reset. |
| 202 | 3B4 | Length of product multiple | • | • | • | Multiplies “Length of product“ value by the value “Length of product multiple“. A product slip of more than this resulting value results in a malfunction. | Click Reset. |
| 203 | | Product length is smaller than braking distance! Braking distance must be adjusted! | • | • | • | If the product length setting is less than the specified braking distance, a malfunction occurs | The braking distance is automatically readjusted when the speed is increased. However, the product length must also match these physical properties for braking.<br>Click Reset. |
| 204 | 11S8 | Feeding interrupted stop/ reset key | • | • | • | If a feeding procedure is interrupted by Stop or Reset without authorization, an error message is appears | Click Reset. |
| 205 | 12B2 | Level start counter | • | • | • | If the set value is exceeded, a malfunction is generated. | Click Reset. |
| 206 | | Runtime transition belt control | • | • | • | If the transition belt has been running for too long a time, a malfunction is generated. | Click Reset. |
| 207 | | Early start control | • | • | • | If an external start signal reaches the machine while it is still in operation, a malfunction occurs. | Click Reset. |
| 208 | | Start delay memory control | • | | | The machine is capable of passing on multiple external start signals with a time delay. If the number of starts stored in temporary memory is too large, a malfunction occurs. | Click Reset. |
| 212 | | Air pressure too low | • | • | • | Compressed air is too low or sensor is faulty. | Check compressed air<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 214 | | Double sheet control | • | • | • | Double sheet detected | Click Reset. |
| 216 | 12B6 | Slide initialization failure | • | | | The slide must be shut before the initialization time has expired. If the slide does not close within the initialization time, an error message will be generated. | Check compressed air<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 217 | 12B6 | Slide out of home position | • | | | The basic position of the slide is monitored when the slide is initialized. If the slide loses its basic setting during | Check compressed air<br>Check sensor. After the malfunction is eliminated, |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | initialization, an error message is generated. | click Reset to acknowledge. |
| 218 | 12B6 | Slide does not close | • | | | The slide must be closed before the slide forward time has expired. If the slide does not reach the closed position during this time, an error message is generated. | Check compressed air<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 219 | 12B6 | Slide does not open | • | | | The slide must be opened before the slide backward time expires. If the slide does not reach the open position within this time, an error message will be generated. | Check compressed air<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 220 | | Slide jam throwing off | • | | | If there is something in the throwing off shaft while the slide is being initialized, an error message is generated. | Check slide throwing off shaft.<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 221 | | Slide product throwing off | • | | | If there are products in the throwing off shaft while the slide is closing, an error message is generated. | Check slide throwing off shaft.<br>Check sensor. After the malfunction is eliminated, click Reset to acknowledge. |
| 236 | | Main axis position out of defined range | | • | • | The positions will be supervised after an emergency stop and door open error when the machine is in synchron mode.<br>The main axis position is out of this defined range. | Click Reset. |
| 237 | | Master encoderposition out of defined range | | • | • | The positions will be supervised after an emergency stop and door open error when the machine is in synchron mode.<br>The Master encoderposition is out of this defined range. | Click Reset. |
| 238 | | Calculated profile can not be executed! | | | • | For the calcualtion of the profile the values will be provided from the master axis and the main axis.<br>If the new calculated profile can not be driven, a malfunction occurs. | Click Reset. |
| 239 | | Master speed to high for preset braking distance | | • | • | The set limit of the master speed was exceeded by the actual master speed. | Reduce actual master speed or increase parameter for set point master speed.<br>Click Reset. |

### 5.6.2 Table Information about Message Texts

| | Alarm message | MF/CoF | MFc | MFcc | Causes | Remedy |
|---|---|---|---|---|---|---|
| | Transition belt not activated! | • | • | • | Transition belt deactivated. | Transition belt activating by pressing the white Transition belt key (4.1.1.5) |
| | Active empty run! | • | • | • | Empty run has been activated | |

### 5.6.3 Table with Possible Axis Malfunctions

| Error number | Description |
|---|---|
| 0 | Mains phase (1-phase supply) |
| 1 | Mains fault |
| 3 | Over Voltage DC-Link |
| 4 | Under Voltage DC-Link |
| 6 | Holding brake error |
| 7 | Holding brake switch damaged |
| 9 | Motor thermostat |
| 10 | Ambient temperature |
| 11 | Heat sink temperature |
| 12 | Feedback error |
| 13 | Commutation error |
| 14 | Over speed |
| 15 | Contouring error |
| 16 | Trajectory error |
| 17 | Host communication error |
| 18 | Drive error ramp |
| 19 | Drive error no ramp |
| 20 | External enable locked error |
| 21 | IGBT drive voltage error |
| 22 | Max. Regen power error |
| 23 | 24V Brake supply error |
| 24 | External brake enable error |
| 25 | $I^2T$ error |
| 26 | Motor temperature warning |
| 27 | Motor parameter error |
| 28 | Multi-turn position error |

# 6 Backup / Restore

## 6.1 Backup

A backup of the program is not possible without tools. RonTech AG provides a "Restore" routine. The backup of the parameters and recipes is described below.

### 6.1.1 Backup of the parameters

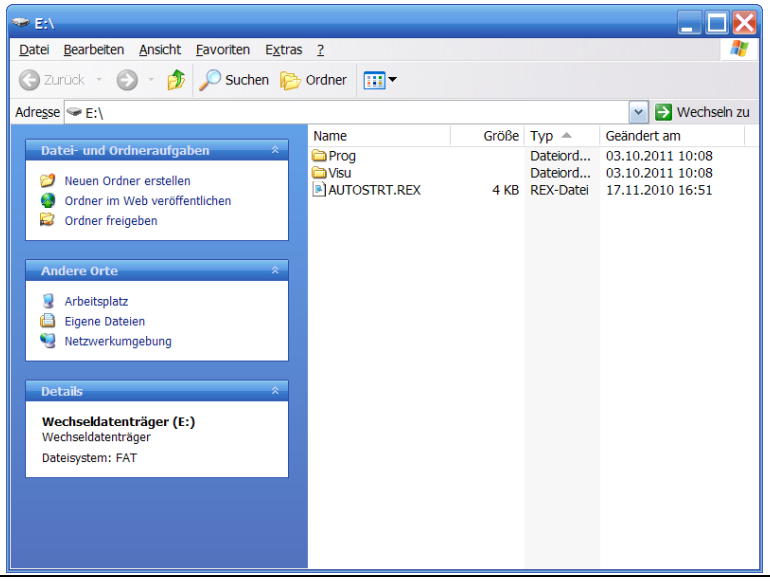
- Switch to the "Recipes" page
- Insert a USB stick. The "Drives" display shows the drive letter for the USB stick.
- Touch the "Drives" button to switch to the system drive C:\.
- Touch the "Copy" button.
- A popup message "Import/export successful" confirms the backup of the parameters.

## 6.2 Disaster Recovery

### 6.2.1 Restoring the program

- Unpack the "Restore" archive to the root (highest) level of a USB stick, referred hereinafter as "bootstick".

### Directory structure on the bootstick

| Description | Figure |
|---|---|
| Directory structure on the bootstick:<br>Prog, Visu, AUTOSTRT.REX |  |



### 6.2.2 Restore procedure

- Switch off the machine
- Insert prepared bootstick
- Switch on the machine
- Wait until the following text is displayed on the monitor: "Press Enter to continue"
- Switch off the machine
- Remove the bootstick
- Switch on the machine and check the version
- Switch to the "Recipes" page
- Insert the USB Stick with the backup parameters or recipes
- The "Drives" display shows the drive letter for the USB stick
- Touch the "Copy" button
- A popup message "Import/export successful" confirms the import of the backed up parameters
- Load the corresponding recipe

# 7 Maintenance

## 7.1 General

Each time before performing maintenance on the machine, turn the machine and all power supplies off and protect the machine and all power supplies from being turned on again.

Observe the safety regulations in document “General Safety Instructions"!

Installation, commissioning, maintenance and testing of the equipment may only be performed by properly qualified and authorized electrical experts familiar with the safety standards of automation and electrical drive power systems.

The installation, wiring or opening of components may only take place after the machine has been separated from the electric power supply and may only be performed by properly qualified and authorized personnel.

Check live cables and wires to which the components are connected regularly for insulation damage or breaks. Should a defect be found in the cables or wiring, the machine must be disconnected from the electric power supply immediately.

Prior to commissioning, check whether the permissible voltage range conforms to the local mains power.

Check the machine periodically for loose screw connections and if necessary retighten them.

Check for excessive wear and resulting damage.

Replace partially broken or bent parts.

Protect the machine from possible hazards, such as falling objects.

### 7.1.1 Maintenance Tables

| | |
|---|---|
|  | The individual maintenance jobs are listed one after the other in the maintenance tables with an indication of the times required for each job. |

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

| | |
|---|---|
|  | **Activity**: Jobs to be performed<br>**Maintenance intervals**:<br>50: Perform maintenance task every 50 operating hours or weekly.<br>200: Perform maintenance task every 200 operating hours or monthly.<br>500: Perform maintenance task every 500 operating hours or quarterly.<br>1000: Perform maintenance task every 1000 operating hours or semi-annually.<br>2000: Perform maintenance task every 2000 operating hours or annually.<br>**Comments / auxiliary materials**: Reference to required auxiliary material (lubricant). |

### 7.1.2 Auxiliary Materials Table

| | |
|---|---|
|  | You can find suitable auxiliary materials / lubricants for maintenance in the auxiliary materials table. |

| Auxiliary material | Oil lubrication | Grease lubrication | Number |
|---|---|---|---|
| Shell Alvania AS2 | | X | 1 |
| Lubrication oil:<br>ISO V32-68 | X | | 2 |

### 7.1.3 Lubricants for the food-processing and pharmaceutical industries (FDA H1)

| Auxiliary material | Oil lubrication | Grease lubrication | Number |
|---|---|---|---|
| Klübersynth UH1 14-151 | | X | 3 |
| Klüberoil 4 UH1 32N…100N | X | | 4 |

## 7.2 Safety Equipment

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Emergency Stop test | X | | | | | Function test. |
| Safety hood test | X | | | | | Function test. |

## 7.3 Drives

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Belt check | | | | | X | Check for dirt.<br>Check for wear.<br>Clean if necessary. |

## 7.4 Pneumatic Cylinder

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Check cylinder stroke | X | | | | | Check for dirt.<br>Check for adjustability.<br>Clean if necessary. |

## 7.5 Sensors

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Sensor check | X | | | | | Function test.<br>Check for dirt.<br>Check for adjustability.<br>Clean if necessary. |

## 7.6 Wear Parts

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Replace wear parts | | | | | X | Order according to mechanical parts list. |

## 7.7 Service Intervals

| Activity | 50 | 200 | 500 | 1000 | 2000 | Comments |
|---|---|---|---|---|---|---|
| Perform service | | | | | X | Verification of process flow and safety-related components by RonTech AG or its representative. |

The operator is responsible for monitoring the operating hours.

# 8 Mechanical Settings

| | |
|---|---|
|  | Please note the mechanical parameters list included with delivery (if available). |

# 9 Contact Information

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