



NOZZLE SCHEDULE				
MARK	LOCATION	SIZE	TYPE	SERVICE
F2	TOP HEAD	1.5"	RFWN FLANGE CL150	NITROGEN INLET
F3	TOP HEAD	1.5"	RFWN FLANGE CL150	NITROGEN SENSING LINE
L1	TOP HEAD	4"	RFWN FLANGE CL150	LEVEL TRANSMITTER
L2	TOP HEAD	2"	RFWN FLANGE CL150	LEVEL SWITCH HIGH HIGH
M2	TOP HEAD	24"	MANWAY	MANWAY
P1	TOP HEAD	2"	RFWN FLANGE CL150	PRESSURE TRANSMITTER
R1	TOP HEAD	2"	RFWN FLANGE CL150	CONSERVATION VENT
R2	TOP HEAD	6"	RFWN FLANGE CL150	EMERGENCY VENT
V1	TOP HEAD	2"	RFWN FLANGE CL150	VENT
X1	TOP HEAD	2"	RFWN FLANGE CL150	SPARE W/BLIND
X2	TOP HEAD	3"	RFWN FLANGE CL150	SPARE W/BLIND
X3	TOP HEAD	6"	RFWN FLANGE CL150	SPARE W/BLIND
F1/F1A	SHELL	6"4"	RFWN FLANGE CL150	INLET
F4/F4A	SHELL	6"3"	RFWN FLANGE CL150	RECIRC
F5/F5A	SHELL	6"4"	RFWN FLANGE CL150	N. RAILCAR
L3	SHELL	2"	RFWN FLANGE CL150	LEVEL SWITCH LOW LOW
M1	SHELL	30"	MANWAY	MANWAY
R3	SHELL	6"	RFWN FLANGE CL150	OVERFLOW
S1	SHELL	0.75"	RFWN FLANGE CL150	SAMPLE
T1	SHELL	0.5"	FNPT	THERMOWELL
B1	BOTTOM HEAD	4"	RFWN FLANGE CL150	OUTLET

GENERAL NOTES:

- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE NOMINAL AND TOLERANCES ARE AS SPECIFIED IN ENR222 (FOR REFERENCE GENERAL LINEAR ±1/4 AND ANGULAR ±1 DEG). MEASUREMENTS FOR ANY FIELD ATTACHMENTS SHOULD BE VERIFIED ON SITE BY OTHERS BEFORE FABRICATION OF THE ATTACHMENTS.
- CORROSION DISCLAIMER**
PAUL MUELLER COMPANY IS NOT RESPONSIBLE FOR CORROSION OR SUITABILITY FOR USE OF ANY MATERIAL IN ANY PARTICULAR APPLICATION! THE CORROSION RESISTANCE AND SUITABILITY FOR USE OF A MATERIAL IS DEPENDENT ON OPERATING ENVIRONMENT AND CONDITIONS, CLEANING PRACTICES, AND MANY OTHER FACTORS BEYOND THE CONTROL OF THE EQUIPMENT FABRICATOR. THE USER OF THE EQUIPMENT BEARS TOTAL RESPONSIBILITY FOR CORROSION OR SUITABILITY FOR USE OF ALL MATERIALS IN THEIR PARTICULAR APPLICATION!
- VESSEL TO BE VENTED FOR SHIPMENT.
- CORROSION ALLOWANCE: 0 INCHES.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, VESSEL NOZZLES ARE NOT DESIGNED FOR EXTERNAL LOADINGS OF ANY KIND. CUSTOMER IS RESPONSIBLE TO ENSURE THAT CONNECTING PIPING IS ACCURATELY ALIGNED, PARALLEL, ADEQUATELY SUPPORTED AND WITHOUT STRAIN. NEVER USE FORCE TO DRAW PIPING INTO POSITION FOR MATING WITH VESSEL NOZZLES, WHICH CAN IMPOSE DANGEROUS STRAINS AND POTENTIALLY DAMAGE THE VESSEL.
- CERTAIN ITEMS ARE INDICATED TO BE SHIPPED LOOSE FROM THE MAIN ASSEMBLY. ADDITIONAL ITEMS MAY BE DISASSEMBLED AND SHIPPED LOOSE DUE TO TRANSPORTATION CONSTRAINTS. REFER TO THE PACKING LIST FOR A COMPLETE RECORD OF ITEMS SHIPPED.
- OVER FILLING, FAILURE TO PROPERLY VENT THE TANK DURING CIP, OR FILLING/EMPTYING THE TANK IN A MANNER THAT CAUSES A PRESSURE OR VACUUM IN EXCESS OF THE RATING STATED ON THIS DRAWING MAY CAUSE STRUCTURAL DAMAGE TO THE TANK.
- ALL PRESSURES LISTED AS PSI ARE IMPLIED AS GAUGE PRESSURE (PSIG), UNLESS STATED OTHERWISE.

ASME NOTES:

- RADIOGRAPHY REQUIREMENTS BASED ON THE DESIGN JOINT EFFICIENCY ARE AS FOLLOWS:
DESIGN JOINT: NONE
TOP HEAD TO SHELL: NONE
SHELL: NONE
BOTTOM HEAD: NONE
BOTTOM HEAD TO SHELL: NONE
HEAT TRANSFER SURFACE: NONE
ADDITIONAL RADIOGRAPHY MAY BE REQUIRED DUE TO THE PHYSICAL CONSTRUCTION OF THE VESSEL (E.G. CROSSES, NOZZLES LOCATED IN SEAMS, ETC.)
- ALL WELDING TO BE DONE BY ASME CERTIFIED WELDERS.
- SUITABLE PRESSURE RELIEF VALVE MUST BE INSTALLED BY CUSTOMER FOR VESSEL OPERATION.
- ASME CODE JURISDICTION ENDS AT THE FIRST SEALING SURFACE EXCLUDING MANWAY.

PROJECT NOTES:

- ALL FLANGES WILL HAVE BOLT HOLES STRADDLE THE 0-180 DEGREES AND 90-270 DEGREES CENTER LINES, UNLESS SPECIFIED OTHERWISE.
- PRIOR TO SHIPMENT, ALL UNOCCUPIED NOZZLES SHALL HAVE DUST TIGHT PLASTIC OR RUBBER CAPS INSTALLED EXCEPT ONE NOZZLE TO BE FITTED WITH DUST MASK FOR VENTING.
- DELETED-
- DELETED-
- HEAT TINT MUST BE REMOVED ON ID & OD
- SETS OF GASKETS ARE TO BE PROVIDED FOR ALL CONNECTIONS THAT PMCO IS PROVIDING THE MATING FLANGE.
(1) SET SHALL BE USED FOR BOTH HYDROSTATIC TESTING AND SHIPPING.
(2) SETS SHALL BE SHIPPED AS SPARES.
GASKETS USED FOR HYDROSTATIC TESTING SHALL BE IDENTICAL TO THE SERVICE GASKETS
- TESTING REQUIREMENTS
- HYDRO TEST PER QAGN 500
- DRAIN TEST PER QAGN 400
- DYE TEST PER QAGN 304/309 (AS REQ'D PER ENG 103)
- RADIOGRAPH PER QAGN 307 (AS REQ'D PER ENG 102)
- CLEAN PER QAGN 702
- MTR'S REQUIRED ON ALL WETTED PARTS
- PASSIVATE PER QAGN 700 WITH CITRIC ACID
- ESTIMATED WEIGHT
EMPTY W/O PLATFORM: 35,485 LBS
W/50,000 GALLONS W/O PLATFORM: 452,485 LBS
COMPLETELY FULL W/PLATFORM: 507,576 LBS
- SEE DRAWING 1914506-04-00-01 FOR PLATFORM REQUIREMENTS.

PARTS LIST									
ITEM NO.	QTY	DESCRIPTION	MAT'L TYPE	DOC. REQ'D	PART NO.	REF. DOCUMENT	A	M	
1	1	TOP HEAD ASSY ASME D&F .3125" THK 144" ID 144.625" IDE 9" IKR 1.5" SF W/FITTINGS #4/AS IS	304/304L S/S	MTR	1914506-0321	1914506-03-12-01		08	
2	1	HEAD ASME D&F .5" THK 144" ID 145" IDR 9" IKR 1.5" SF	304/304L S/S SA-240	MTR	1914506-0302			08	
3	1	INNER SHELL ASSY .3125" THK 144" ID 765" LG	304/304L S/S SA-240	MTR	1914506-0340	SD1914506-0340		08	
4	1	MANWAY ASSY 30" FLAT BOLTED W/DVAIT	304/304L S/S	MTR	1914506-0080	SD1914506-0080		08	
5	4	FLANGE WELDNECK 6" CL150 W/SCH40 EXT 18" OAL	304/304L S/S	MTR	1914506-0015	SD9000032		08	
6		-DELETED-							
7	1	FLANGE WELDNECK 2" CL150 SCH40 BORE W/EXT 28" OAL	304/304L S/S	MTR	1914506-0012	SD9000032		08	
8	1	FLANGE WELDNECK 0.75" CL150 SCH40 BORE W/EXT. 10" OAL	304/304L S/S	MTR	1914506-0016	SD9000032		08	
9	1	THERMOWELL .5" FPT X 9.625" LG O/A W/ .260" DIA BORE	316/316L S/S SA479	MTR	9901275	9901275			
10	1	OUTLET PIPE 4" CL150 RFWN FLANGE W/SCH40 EXT. BEND 90°	304/304L S/S	MTR	1914506-0069	SD1914506-0069		08	
11	1	SKIRT TANK MOUNT .25" THK 144" ID 76" LG HR/2S	304/304L S/S SA-240		1914506-0020	SD1914506-0020		08	
12	1	BASE RING 1" THK X 6" WIDE X 142" ID W/(8) 1.375" DIA HOLES	304/304L S/S SA-240		1914506-0021	SD1914506-0021		05	
13	1	COLLAR .25" THK 12" OD 3" LG AS IS	304/304L S/S		1914506-0027	SD1914506-0027		08	
14	4	ROD OUTLET SUPPORT .5" DIA X 3.5" LG AS IS	304 S/S		1914506-0028			08	
15	1	ACCESS ASSY 24" ID W/HINGED COVER	304 S/S		1914506-0061	SD1914506-0061		08	
16	3	PIPE 2" SCH10 X 4.5" LG AS IS	304/304L S/S SA-312		1914506-0036			08	
17	4	LUG LIFTING VERTICAL 0.75" THK 10" WIDE 21" OAL W/2.875" DIA HOLE HR/2S	304/304L S/S SA-240		1914506-0116	SD1914506-0116			
18	4	LUG LIFTING BRACE .75" THK X 5" X 8" HR/2S	304/304L S/S SA-240		9851149	SD2003325			
19	1	LUG TAILING .75" THK 8" WIDE W/2.875" DIA HOLE HR/2S	304/304L S/S SA-240		1914506-0050	SD1914506-0050		08	
20	1	LUG GROUNDING .25" THK X 2" X 3" W/ .5625" DIA HOLE #4	316L S/S		9828947	SD2003142			
21		-DELETED-							
22	4	CLIP OVERFLOW SUPPORT .375" THK 4" X 12" W/(2) .625" DIA HOLES HR/2S	304/304L S/S SA-240		1914506-0913	SD1914506-0913		08	
23	1	DIP PIPE ASSY 3" CL150 SCH40 BORE RFWN FLANGE W/6" CL150 MOUNT (SHIP LOOSE)	304/304L S/S	MTR	1914506-0060	SD1914506-0060		05	
24	2	DIP PIPE ASSY 4" CL150 SCH40 BORE RFWN FLANGE W/6" CL150 MOUNT (SHIP LOOSE)	304/304L S/S	MTR	1914506-0355	SD1914506-0355		08	
25	1	FLANGE BLIND 2" CL 150 RF ANSI B16.5	304/304L S/S SA-182	MTR	9810760				
26	1	FLANGE BLIND 3" CL 150 RF ANSI B16.5	304/304L S/S SA-182	MTR	9803668				
27	1	FLANGE BLIND 6" CL150 RF ANSI B16.5	304/304L S/S SA182	MTR	9829228				
28	3	GASKET FLANGE 2" .125" THK CL150 SCH40 6" OD 2.13" ID W/BOLT HOLES (PROJECT NOTE 6)	TUF-STEEL	COC	1914506-0038	9000794		05	
29	3	GASKET FLANGE 3" .125" THK CL150 SCH40 7.5" OD 3.13" ID W/BOLT HOLES (PROJECT NOTE 6)	TUF-STEEL	COC	1914506-0039	9000794		05	
30		-DELETED-							
31	12	GASKET FLANGE 6" .125" THK CL150 SCH40 11" OD 6.13" ID W/BOLT HOLES (PROJECT NOTE 6)	TUF-STEEL	COC	1914506-0041	9000794		05	
32	3	GASKET FLANGE 24" .125" THK CL150 SCH40 32" OD 24.25" ID W/BOLT HOLES (PROJECT NOTE 6)	TUF-STEEL	COC	1914506-0042	9901460		05	
33	3	GASKET FLANGE 30" .125" THK 38.375" OD 30.875" ID W/BOLT HOLES (PROJECT NOTE 6)	TUF-STEEL	COC	1914506-0043	SD1914506-0043		05	
34	40	SCREW CAP HH .75" THK 8" WIDE 10NC X 3.5" LG	304 S/S SA193 GRB8		9828701				
35	40	WASHER LOCK .75"	18-8 S/S		3200049				
36	40	NUT HEAVY HEX .75-10NC	MONEL 400 SB164		9824761				
37	1	BRACKET NAMEPLATE 14GA 8" X 18" W/2" STANDOFF 2B/2S	304/304L S/S SA-240		1914506-0004	SD1914506-0004		08	
38	1	PLATE NAME "U.S. FLAG"	LEXAN		513916				
39	1	PLATE NAME "MUELLER"	LEXAN		9808998				
40	1	PLATE DATA "MUELLER"	FOIL		9852750				
41	1	PLATE DATA "ASME" VESSEL & HTS	18-8 S/S		9851152				
42	1	PERMANENT STAMPED SERIAL NUMBER							
43	1	PLATE DATA GENERAL 5.5" X 4" X 18GA THK	18-8 S/S		9900973				
44	1	VORTEX BREAKER FORMED 10GA X 9" DIA 3 LEG 20RA MAX	316/316L S/S SA240	MTR	9824914	9824914			
45	1	PAD REINFORCING .25" THK X 2.75" WIDE HR/2S	304/304L S/S SA-240	MTR	1914506-0115	SD1914506-0115		08	
46	1	EYEBOLT .375" THK .75" ID EYE .75" LG SHANK	316/316L S/S SA-240	MTR	1914506-0560	SD1914506-0560		08	
47	1	PAD REINFORCING .375" THK X 4" WIDE HR/2S	304/304L S/S SA-240		1914506-0148	SD1914506-0148		08	
48	4	GUSSET .375" THK HR/2S	304/304L S/S SA-240	MTR	1914506-0150	SD1914506-0150		08	
49	1	PAD REINFORCING .3125" THK X 4" WIDE HR/2S	304/304L S/S SA-240	MTR	1914506-0210	SD1914506-0210		08	
50	1	CLIP OVERFLOW SUPPORT .375" THK 4.25" X 5" W/(1) .5625" DIA HOLES HR/2S	304/304L S/S SA-240		1914506-0914	SD1914506-0914		08	
51	1	SUPPORT ASSY OVERFLOW PIPE	C/S GALVANIZED		1914506-0978	SD1914506-0978			
52	1	LUG LIFTING LOOP .75" DIA 1.5" CENTERLINE RADIUS	316L S/S SA-479		9808581	9000478			
53	9	NUT HEAVY HEX .5-13NC	ZP SA-194 CL2B GR2H		9806452				
54	9	WASHER LOCK .5"	ZN PLD		3204006				
55	9	SCREW CAP HH .5"-13NC X 1.5" LG	ZN PLD		3204097				
56	3	CHANNEL DOWN PIPE SUPPORT C8X11.5 X 33.5" LG	C/S		1914506-0916	SD1914506-0916		08	
57	1	SHIPPING COVER ASSY			1914506-0371	1914506-03-14-01		08	

PROJECT: ALCOHOL RECOVERY
PURCHASE ORDER NUMBER: 4400106895
LOCATION: KANKAKEE, IL
EQUIPMENT TAG NO: VS-208-011
VDR NO: D01, D04, D06

CERTIFIED "AS-BUILT"

NB# 53785
CERTIFIED BY
BY PAUL MUELLER COMPANY
VESSEL

MAWP 2 P.S.I. at 356 °F
MAWP -0.5 P.S.I. at 356 °F
MDMT -40 °F at 2 P.S.I.

SERIAL NUMBER 18191450603-02
YEAR BUILT 2020

HEAT TRANSFER SURFACE
MAWP P.S.I. at °F
MAWP P.S.I. at °F
MDMT °F at P.S.I.

VS-208-011
MUELLER

INTERIOR FINISHES

MATERIAL 45RA MAX
WELDS 45RA MAX

EXTERIOR FINISHES

MATERIAL HR/2B
WELDS BUFF (BF)

DESIGN SPECIFICATIONS

SIZE (GALLONS) - MODEL 50,000 GAL F SERIAL NUMBER 18191450603-02

VESSEL INFORMATION
DESIGN PRESSURE 2 PSI DESIGN TEMP 356 °F
HYDRO TEST PRESSURE 3 PSI DESIGN VACUUM 0.5 PSI

HEAT TRANSFER INFORMATION
DESIGN PRESSURE -- PSI DESIGN TEMP -- °F
TEST PRESSURE -- PSI DESIGN VACUUM -- PSI

HEATING / COOLING MEDIUM -- / -- VS-208-011

CODES

VESSEL: ASME SECTION VIII, DIV. 1, 2017 EDITION
HEAT TRANSFER: --

STRUCTURAL SPECIFICATIONS

SEISMIC CODE: IBC 2015
SEISMIC FACTORS: SS=0.144 S1=0.072
LOCATION: BRADLEY, IL
WIND LOAD: 115 MPH
SNOW LOAD: 25 PSF LIVE LOAD: 40 PSF
SPECIFIC GRAVITY: 0.98
NOZZLE LOADS: GENERAL NOTE 5
ESTIMATED WEIGHTS (LBS):
EMPTY: PROJECT NOTE 8
FULL AT INDICATED LEVEL: PROJECT NOTE 8

PROCESS SPECIFICATIONS

HEAT TRANSFER: AREA (SQ. FT.): -- VOLUME (CU. FT.): --
AGITATION: PROCESS: --
MAX VISCOSITY (CPS): --
BENDING MOMENT (IN-LBS): --
TORQUE (IN-LBS): --
DOWNWARD LOAD (LBS): --
CIP: FLOW (GPM): -- PRESSURE (PSI): --
VENTING: FILL RATE (MAX): GENERAL NOTE 7
EMPTY RATE (MAX): GENERAL NOTE 7

DRAWN BY T. MCKNABB DATE 12/16/2019
DESIGN REVIEWED BY B. PESCHKE DATE 1/16/2020
PROCESS REVIEWED BY DATE
STRUCTURAL REVIEWED BY J. DU DATE 3/16/2020
ASME APPROVED BY J. DU DATE 3/16/2020

SOLD TO CSL BEHRING, LLC
ADDRESS KANKAKEE, IL
CUSTOMER ORDER NO. 4400106895
CUSTOMER TAG NO. VS-208-011

TITLE
**TANK ASSEMBLY
50,000 GALLON MODEL F
PROCESS ALCOHOL STORAGE #VS-208-011**

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SERIAL NO. 18191450603-02 DRAWING NO. 1914506-03-11-01

REV	DESCRIPTION	BY	DATE	REVIEW	DATE
K	TITLE BLOCK UPDATED* AS-BUILT RELEASE**	BCP	11/3/2020	J.D.	11/3/2020
J	ADDED SHIP LOOSE @ ITEMS 23 & 24** ADDED PROJECT NOTE	TLM	10/1/2020	JD	10/1/2020
H	ITEM 5 WAS QTY 3" DELETED ITEM 6**	TLM	9/15/2020		
G	CORRECTED PART NUMBER @ ITEM 10**	TLM	7/30/2020	JD	7/31/2020
F	ADDED ITEM 57**	TLM	7/22/2020	JD	7/29/2020
E	ITEM 52 WAS 1/2" DIA PN 9808580**	TLM	7/1/2020	JD	7/1/2020
D	ITEM 22 WAS 4" X 5" DELETED MCMASTER CARR # & ADDED MTR AT ITEM 46** ADDED ITEMS 50-56** REVISED SECTION B-B** ADDED SECTION T-T**	TLM	6/16/2020	JD	6/23/2020