



# Centrifugal Pumps

Document: **CSL112.DS.225.007**  
 Equipment Tag: **PM-VS33A19-01/02**  
 Quantity: **2**  
 Revision Number: **0**

Client: **CSL Behring**      JEG Project: **22FFNAXX**      Issue Date: **18-Jun-19**  
 Proj Name: **CSL 112-B33A Addition**      P&ID No.: **33A-D-71-003**      Issued By: **BM**  
 Location: **Kankakee, IL**      Initial Issue: **25-Apr-19**      Checked By: **PM**

1	rev		
2		<b>Service:</b>	<b>Slop Alcohol Transfer Pumps</b>
3			
4		<b>PROCESS INFORMATION</b>	
5		<b>General Information</b>	
6		Design Flow:	<b>275</b> lpm
7		Total Differential Head (Note 3):	<b>109.9</b> feet
8		Duty:	<b>Intermittent</b>
9		<b>Fluid Information</b>	
10		Fluid:	<b>20 to 95% Slop Ethanol</b>
11		Pumping Temperature:	<b>-8 to 0</b> deg C
12		Specific Gravity:	<b>0.8 to 2</b>
13		pH (1% w/w solution)	<b>2-14</b>
14		Viscosity:	<b>1 to 4</b> cP
15		Weight Percent Solids:	<b>(Note 2)</b> percent
16		Max Particle Size:	<b>105</b> microns
17		Fluid Vapor Pressure:	<b>0.158 @ -5 °C</b> psia
18			
19			
20		<b>MECHANICAL INFORMATION</b>	
21		<b>General</b>	
22		Type:	<b>Mag drive Pump</b>
23		Design :	<b>Class I Div 2 Groups C &amp; D</b>
24	0	* Manufacturer:	<b>Flowserve</b>
25	0	* Model:	<b>BG1.5X1-82 M3GD</b>
26	0	* Disch x Suction x Max Imp:	<b>1.0 x 1.5 x 8.19 inch</b>
27		Pump Mounting:	<b>Foot Mounted</b>
28		Casing Split:	<b>N/A</b>
29		Number of Stages:	<b>One</b>
30	0	* Pump Speed:	<b>3500</b> rpm
31		Pump / Motor Mounting:	<b>Foot Mounted</b>
32		Bedplate Type:	<b>Not Applicable</b>
33		Adjustable Height Legs	<b>No</b>
34			
35			
36		<b>Impeller / Casing</b>	
37	0	* Impeller Type:	<b>Reverse Vane</b>
38	0	* Impeller Dia. Furnished:	<b>5.38</b> inches
39	0	* Impeller Diameter Max:	<b>8.19</b> inches
40	0	* Casing Type:	<b>Manufacturer Standard</b>
41		Jacket Type:	<b>Not Applicable</b>
42		* Design Temperature:	<b>*</b> deg C
43			
44		<b>Seal Flush</b>	
45		Seal Flush Fluid:	<b>Not Applicable</b>
46		Seal Flush Required:	<b>NA</b> lpm <b>NA</b> psig
47		API Seal Flush Plan:	<b>Not Applicable</b>
48			
		<b>Pressures</b>	
		Discharge Pressure:	<b>41.18</b> psig
		Suction Pressure:	<b>2.08</b> psig
		Differential Pressure:	<b>39.09</b> psi
		NPSH Available:	<b>46.64</b> feet
		* NPSH Required:	<b>5.3</b> feet
		* Max Shutoff Pressure:	<b>*150</b> psig
		<b>Flows</b>	
		* Max. Operating Flow:	<b>482.0</b> lpm
		Normal Operating Flow:	<b>250.0</b> lpm
		* Minimum Flow:	<b>39.3</b> lpm
		<b>Water Cooling</b>	
		Required:	<b>No</b>
		Cooling Temp/Pressure:	<b>N/A</b> deg C <b>N/A</b> psig
		Flow Required:	<b>N/A</b> lpm
		<b>Shaft Seal</b>	
		Shaft Seal Type:	<b>Sealless</b>
		Mechanical Seal Type:	<b>Not Applicable</b>
		Shaft Seal Location:	<b>Not Applicable</b>
		Seal Manufacturer:	<b>Not Applicable</b>
		Seal Model:	<b>Not Applicable</b>
		Balanced Seal:	<b>Not Applicable</b>
		<b>Connections</b>	
		Suction Size / Type:	<b>1.5"</b> <b>150# ANSI RF Flg</b>
		Discharge Size / Type:	<b>1"</b> <b>150# ANSI RF Flg</b>
		Suction Gauge Size/Type:	<b>Not Applicable</b>
		Disch Gauge Size / Type:	<b>Not Applicable</b>
		Casing Drain Orientation:	<b>Vertical</b>
		Casing Drain Size / Type:	<b>1/2"</b> <b>150# ANSI FF Flg</b>
		Casing Drain Valve:	<b>By Vendor</b>
		<b>Coupling</b>	
		Coupling Manufacturer:	<b>Not Applicable</b>
		Coupling Model Number:	<b>Not Applicable</b>
		Coupling Type:	<b>Not Applicable</b>
		Cplg Guard Type:	<b>Not Applicable</b>



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MATERIALS OF CONSTRUCTION / SURFACE FINISH			
49	rev		
50		<b>Materials</b>	<b>Seal Materials</b>
51	0	Casing: <u>316 SS</u>	Rotating Face Inboard: <u>Not Applicable</u>
52	0	Impeller: <u>316 SS</u>	Stationary Face Inboard: <u>Not Applicable</u>
53	0	* Shaft: <u>316 SS</u>	Rotating Face Outboard: <u>Not Applicable</u>
54		Shaft Sleeve: <u>Not applicable</u>	Stationary Face Outboard: <u>Not Applicable</u>
55		Gland: <u>Not applicable</u>	Seal Housing: <u>Not Applicable</u>
56		Coupling Guard: <u>Not applicable</u>	Seal Elastomers: <u>Not Applicable</u>
57	0	Baseplate / Supports: <u>304 SS</u>	Seal Chamber Size: <u>Not Applicable</u>
58		Seal Pot: <u>Not Applicable</u>	
59			<b>Surface Finish</b>
60			Electropolish Internals: <u>No</u>
61			Passivate Internals: <u>Yes - w/ documentation</u>
62			Internal Surface Finish: <u>None required</u>
63			External Surface Finish: <u>None required</u>
64			

INCLUDED ACCESSORIES (IF REQUIRED)			
66	rev		
67		<b>Included Accessories</b>	
68		Seal Flush Rotameter: <u>Not Applicable</u>	Seal Flush Press Gauge: <u>Not Applicable</u>
69		Seal Flush Needle Valve: <u>Not Applicable</u>	Pressure Gauge Mfr: <u>Not Applicable</u>
70		Seal Flush Piping Mat'l: <u>Not Applicable</u>	Pressure Gauge Model: <u>Not Applicable</u>
71			

ELECTRICAL			
73	rev		
74		<b>General Information</b>	<b>Motor Information</b>
75		IEC Area: <u>Class I Div 2 Groups C &amp; D</u>	Severe Duty: <u>Yes</u>
76	0	Power Supplied: <u>480 V / 3 ph / 60 Hz</u>	Energy Efficient: <u>Yes</u>
77	0	* Power Draw: <u>23.3</u> amps	Inverter Duty: <u>Yes</u>
78	0	* Hydraulic Power: <u>4.03</u> hhp	Washdown Duty: <u>Yes</u>
79	0	* Design Efficiency: <u>41.1%</u> percent	* Motor Manufacturer: <u>WEG</u>
80	0	* Brake Power @ Design Eff: <u>9.82</u> bhp	* Motor Model Number: <u>01536ET3E254TC-W22</u>
81		* End of Curve Brake Power: <u>12.1</u> bhp	Motor Enclosure: <u>TEFC</u>
82	0		Motor Design Code: <u>NEMA</u>
83	0		* Motor Power: <u>15</u> hp
84			* Motor Frame Size: <u>254T</u>
85			Motor Starter: <u>By Others</u>
86			Motor Starter Size: <u>NA</u>
87		<b>Variable Speed Drive (VSD)</b>	* RPM: <u>3600</u>
88		VSD Required: <u>Yes, By Buyer</u>	
89		VSD Manufacturer: <u>N/A</u>	
90		VSD Model: <u>N/A</u>	
91		VSD Turndown: <u>N/A</u>	

WEIGHTS AND DIMENSIONS			
93	rev		
94	0	<b>Weights</b>	<b>Overall Dimensions</b>
95		* Pump, Base & Motor: <u>369.2</u> lbs	* Width x Height x Length: <u>18 x 17x 48</u> inch

NOTES	
97	1. Maximum Shutoff Pressure shall not exceed 150 PSIG
98	2. Slop alcohol will contain negligible amount of solids during normal conditions. During upset condition it could contain upto 0.25% of filter aid, Celite 574.
99	3. TDH is estimated based on th specific gravity of Ethanol @ 0.826.