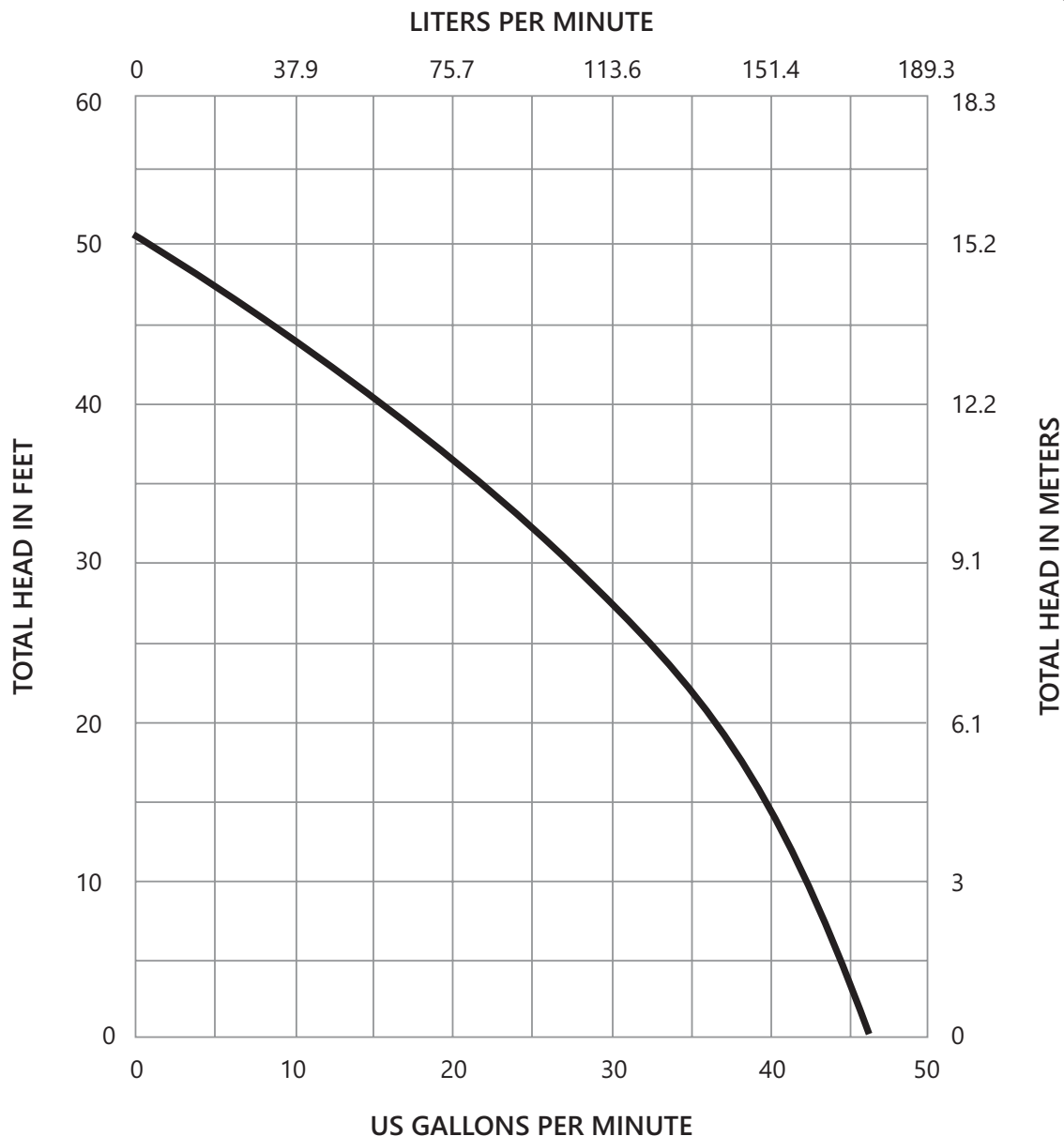
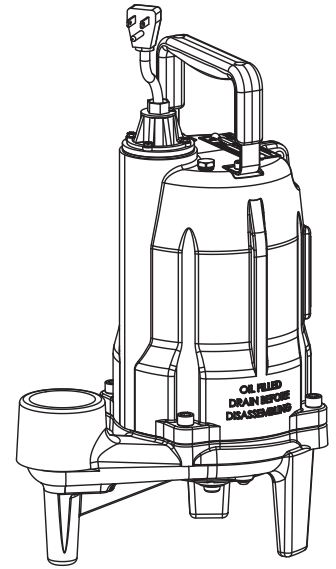


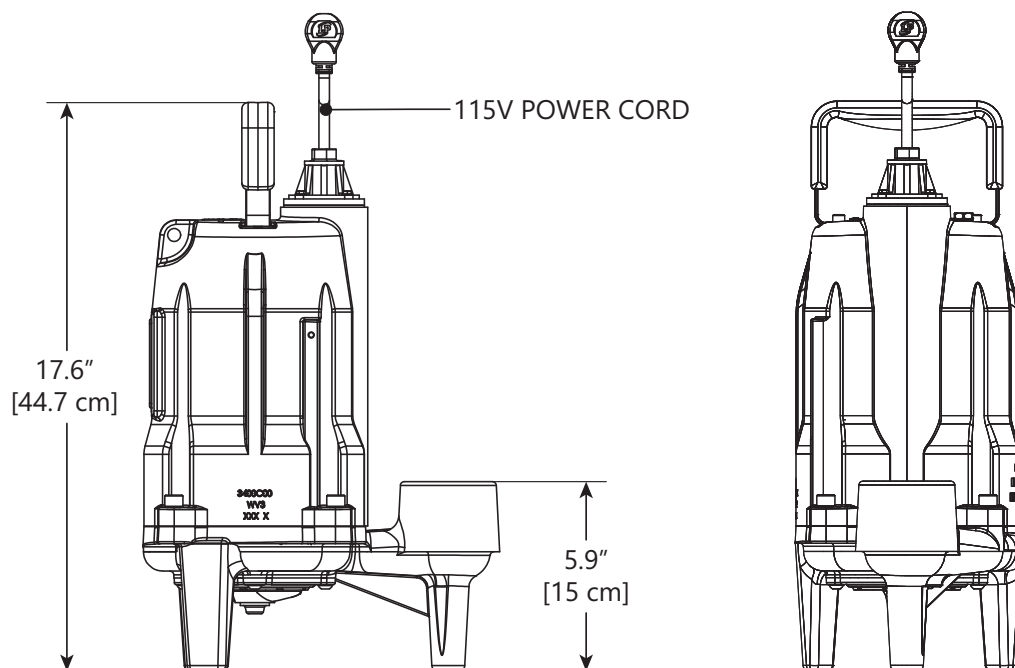
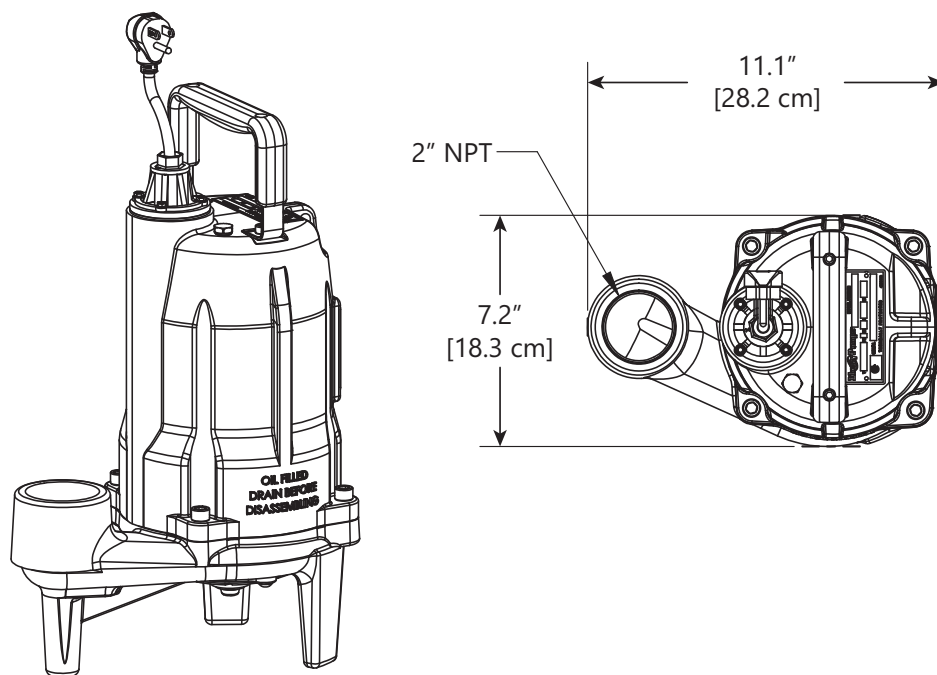
## Pump Specification

### PRG-Series

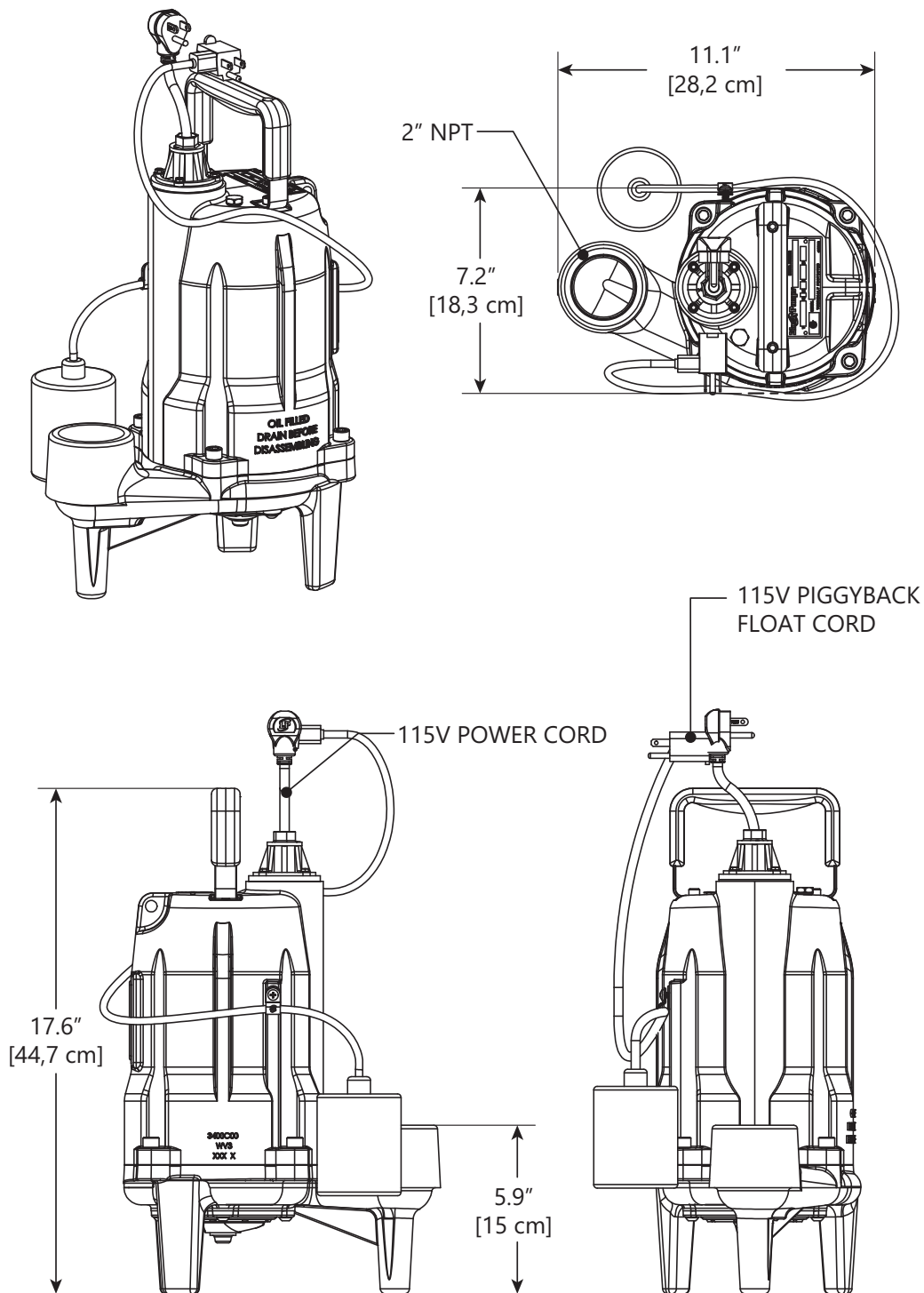
### 1 hp Submersible Grinder Pumps



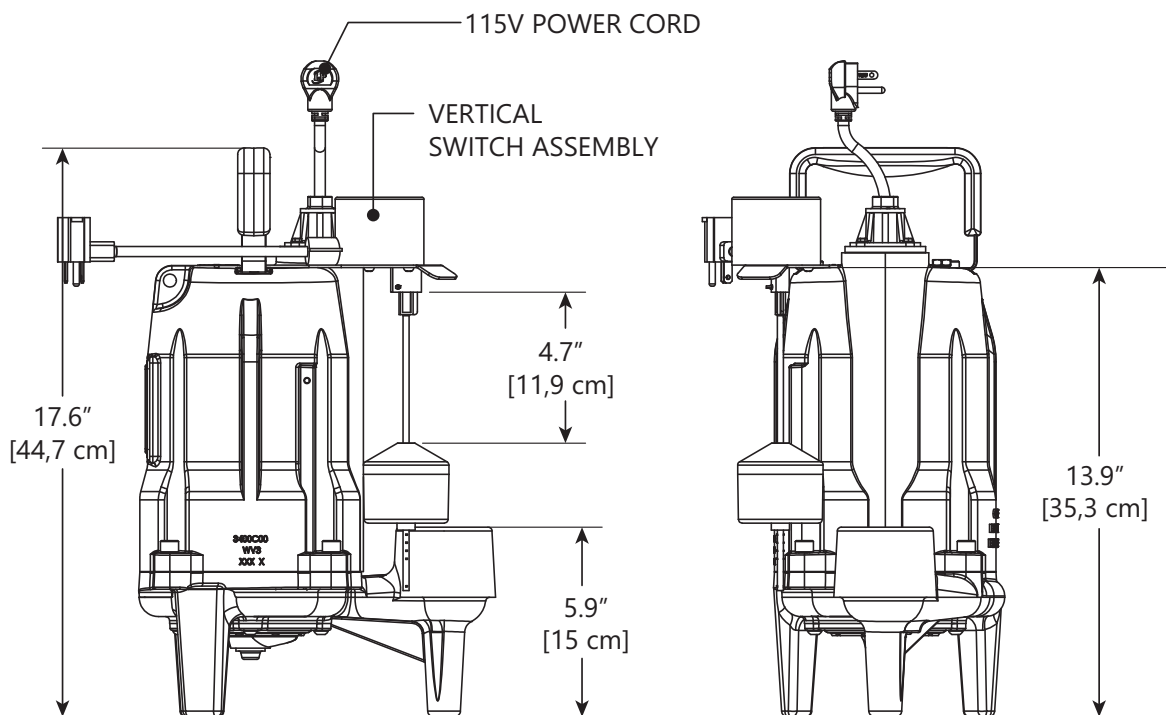
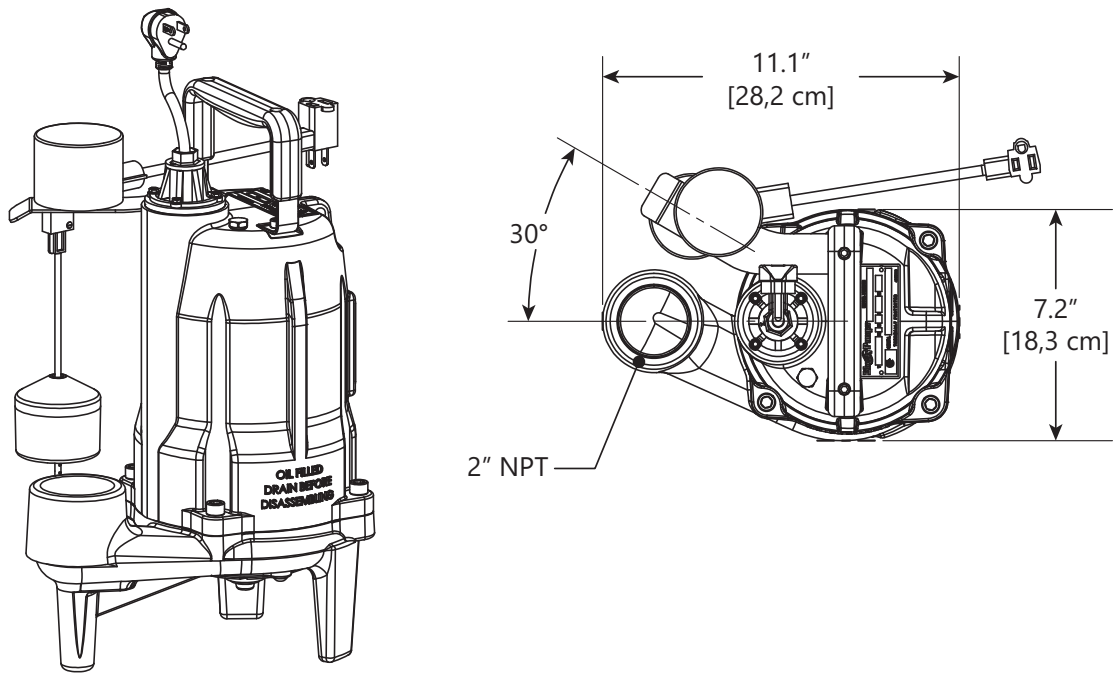
**SWITCHLESS (MANUAL) MODEL**



**AUTOMATIC MODEL**



**VERTICAL SWITCH MODEL**



## PRG-Series Electrical Data

MODEL	HP	VOLTAGE	PHASE	SF	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH	DISCHARGE NPT	AUTOMATIC
PRG101A	1	115	1	1.0	12	47.5	105°C	B	10'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG101A-2	1	115	1	1.0	12	47.5	105°C	B	25'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG101A-5-Y-BL <sup>1</sup>	1	115	1	1.0	12	47.5	105°C	B	50'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG101M	1	115	1	1.0	12	47.5	105°C	B	10'	2"	NO
PRG101M-2	1	115	1	1.0	12	47.5	105°C	B	25'	2"	NO
PRG101M-5	1	115	1	1.0	12	47.5	105°C	B	50'	2"	NO
PRG101AV	1	115	1	1.0	12	47.5	105°C	B	10'	2"	YES VERTICAL FLOAT SWITCH
PRG101AV-2	1	115	1	1.0	12	47.5	105°C	B	25'	2"	YES VERTICAL FLOAT SWITCH
PRG102A	1	230	1	1.0	6	23.7	105°C	B	10'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG102A-2	1	230	1	1.0	6	23.7	105°C	B	25'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG102A-5-Y-BL <sup>1</sup>	1	230	1	1.0	6	23.7	105°C	B	50'	2"	YES WIDE-ANGLE FLOAT SWITCH
PRG102M	1	230	1	1.0	6	23.7	105°C	B	10'	2"	NO
PRG102M-2	1	230	1	1.0	6	23.7	105°C	B	25'	2"	NO
PRG102M-5	1	230	1	1.0	6	23.7	105°C	B	50'	2"	NO

1 Bare leads (no plug end)

## PRG-Series Control Panel Information

PUMP MODEL	SX-SERIES 3 FLOAT NEMA 1	SX-SERIES 3 FLOAT NEMA 4X	AE-SERIES 3 FLOAT NEMA 1	AE-SERIES 3 FLOAT NEMA 4X	AE-SERIES 4 FLOAT NEMA 1	AE-SERIES 4 FLOAT NEMA 4X	IPS-SERIES	IPD-SERIES
	SIMPLEX		DUPLEX				SIMPLEX	DUPLEX
PRG101	SXL21=3	SXL24=3	AE21L=3	AE24L=3	AE21L=4	AE24L=4	IPS-24L	IPD-24L
PRG102	SXL21=3	SXL24=3	AE21L=3	AE24L=3	AE21L=4	AE24L=4	IPS-24L	IPD-24L

## PRG-Series Technical Data

IMPELLER	CLASS 25 CAST IRON
PAINT	POWDER COATING
MAX LIQUID TEMP	
CONTINUOUS DUTY	40°C / 104°F
INTERMITTENT	60°C / 140°F
MAX STATOR TEMP	105°C / 221°F
THERMAL OVERLOAD	105°C / 221°F
DISCHARGE SIZE	2" NPT
POWER CORD TYPE	SJTW
MOTOR HOUSING	CLASS 25 CAST IRON
VOLUTE	CLASS 25 CAST IRON
SHAFT	303 SERIES STAINLESS STEEL
HARDWARE	STAINLESS
O-RINGS	BUNA-N
MECHANICAL SEAL	UNITIZED GRAPHITE IMPREGNATED SILICON CARBIDE
MIN BEARING LIFE	50,000 HRS
CUTTER / CUTTER PLATE	V-SLICE® DESIGN, 440 STAINLESS STEEL ROCKWELL 57c
WEIGHT	28 KG / 61 LBS
CERTIFICATIONS	SSPMA, cCSAus

## ***PRG-Series Specifications***

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### **1.01 GENERAL**

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The contractor shall provide labor, material, equipment, and incidentals required to provide \_\_\_\_\_ (QTY) centrifugal grinder pumps as specified herein. The pump models covered in this specification are PRG-Series single-phase grinder pumps. The pump furnished for this application shall be model \_\_\_\_\_ as manufactured by Liberty Pumps.

### **2.01 OPERATING CONDITIONS**

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Each submersible pump shall be rated at 1 hp, \_\_\_\_\_ volts, 1-phase, 60 Hz, 3450 RPM. The unit shall produce \_\_\_\_\_ GPM at \_\_\_\_\_ feet of total dynamic head.


The submersible pump shall be capable of handling residential sewage and grinding it to a fine slurry, enabling it to be pumped over long distances in pipelines as small as 1.25" in diameter. The PRG-Series single-stage submersible pump shall have a shut-off head of 50 feet and a maximum flow of 28 GPM @ 30 feet of total dynamic head.

The pump shall be controlled with:

- \_\_\_\_\_ A piggyback style ON/OFF float switch
- \_\_\_\_\_ A NEMA 4X outdoor simplex control panel with three float switches including a high water alarm
- \_\_\_\_\_ A NEMA 1 indoor simplex control panel with three float switches including a high water alarm
- \_\_\_\_\_ A NEMA 4X outdoor duplex control panel with three float switches including a high water alarm
- \_\_\_\_\_ A NEMA 1 indoor duplex control panel with three float switches including a high water alarm
- \_\_\_\_\_ A NEMA 4X outdoor duplex control panel with four float switches including a high water alarm
- \_\_\_\_\_ A NEMA 1 indoor duplex control panel with four float switches including a high water alarm

### **3.01 CONSTRUCTION**

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Each centrifugal grinder pump shall be equal to the  Certified PRG-Series grinder pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of Class 25 cast iron. The motor housing shall be oil-filled to dissipate heat. Air-filled motors shall not be considered equal since they do not properly dissipate heat from the motor. All mating parts shall be machined and sealed with a Buna-N O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized graphite impregnated silicon carbide hard face seal with stainless steel housings and spring.

The upper and lower bearing shall be capable of handling all radial thrust loads. The lower bearing shall have the additional ability to handle the downward axial thrust produced by the impeller and cutters. The pump shall be furnished with stainless steel handle having a nitrile grip.

#### **4.01 ELECTRICAL POWER CORD**

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The submersible pump shall be supplied with length of multi-conductor power cord as per **Electrical Data** table. It shall be cord type SJTW. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cord shall not enter the motor housing directly but will conduct electricity to the motor by means of a water-tight compression fitting cord plate assembly, with molded pins to conduct electricity. This will eliminate the ability of water to enter internally through the cord, by means of a damaged or wicking cord.

#### **5.01 MOTORS**

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All motors shall be oil-filled, capacitor start/capacitor run, class B insulated, NEMA B design, rated for continuous duty. At maximum load the winding temperature shall not exceed 105°C un-submerged. Since air-filled motors are not capable of dissipating heat they shall not be considered equal. Pump motors shall have an integral thermal overload switch in the windings for protecting the motor. The capacitor circuit shall be mounted internally and motors shall have an integral solid state starting circuit switch for switching the start winding off.

#### **6.01 SEALS**

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The pump shall have a unitized graphite impregnated silicon carbide hard face seal with stainless steel housings and spring equal to Crane Type 6A.

#### **7.01 IMPELLER**

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The impeller shall be class 25 gray cast iron with pump out vanes on the back shroud to keep debris away from the seal area. It shall be keyed and bolted to the motor shaft.

#### **8.01 CUTTER MECHANISM**

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The cutter and plate shall be of the V-Slice® design and consist of 440 stainless steel with a Rockwell C hardness of 55–60. The stationary cutter plate shall have specially designed orifices through it, which enable the slurry to flow through the pump housing at an equalized pressure and velocity. The stationary cutter shall consist of V shapes to maximize cutting action and arc shape exclusion slots to outwardly eject debris from under the rotary cutter. The rotary cutter shall have (2) blades and be designed with a recessed area behind the cutting edge to prevent the accumulation and binding of any material between rotary cutter and the stationary cutter. The cutting system must incorporate close tolerances for optimum performance. Ring or radial cutters, or those that grind on the outside circumference of shall not be considered equal.

#### **9.01 CONTROLS**

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All pumps can be supplied with CSA and UL approved automatic wide-angle tilt float or pre-assembled HD vertical switches. The switches shall be equipped with a piggyback style plug that allows the pump to be operated manually without the removal of the pump in the event that a switch becomes inoperable. Manual pumps are operable by means of a pump control panel.

#### **10.01 PAINT**

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The exterior of the casting shall be protected with powder coat paint.



## **11.01 SUPPORT**

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The pump shall have cast iron support legs, enabling it to be a freestanding unit. The legs will be high enough to allow solids and long stringy debris to enter the cutter assembly.

## **12.01 SERVICEABILITY**

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Components required for the repair of the pump shall be shipped within a period of 24 hours.

## **13.01 TESTING**

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The pump shall have a ground continuity check and the motor chamber shall be Hi-potted to test for electrical integrity, moisture content and insulation defects. The motor and volute housing shall be pressurized and an air leak decay test performed to ensure integrity of the motor housing. The pump shall be run at rated voltage to verify current, performance curve and monitor operation.

## **14.01 QUALITY CONTROL**

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The pump shall be manufactured in an ISO 9001 certified facility.

## **15.01 WARRANTY**

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Standard limited warranty shall be 3 years.