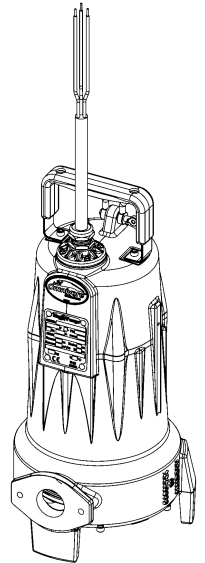


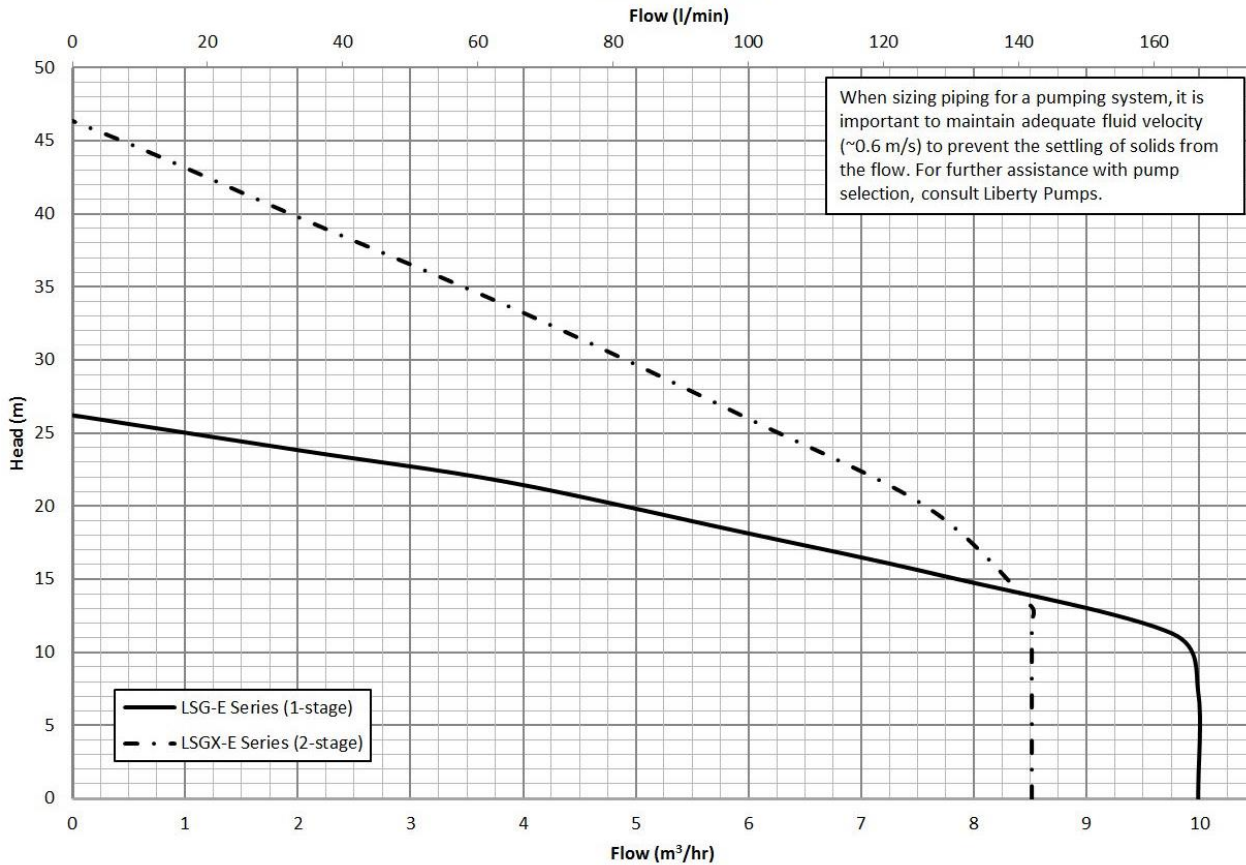
Pump Specifications

LSG200-E SERIES (SINGLE STAGE)
LSGX200-E SERIES (TWO STAGE)
Omnivore® 1.5kW Submersible Grinder Pumps



50Hz Hydraulic Performance

Omnivore® Grinders

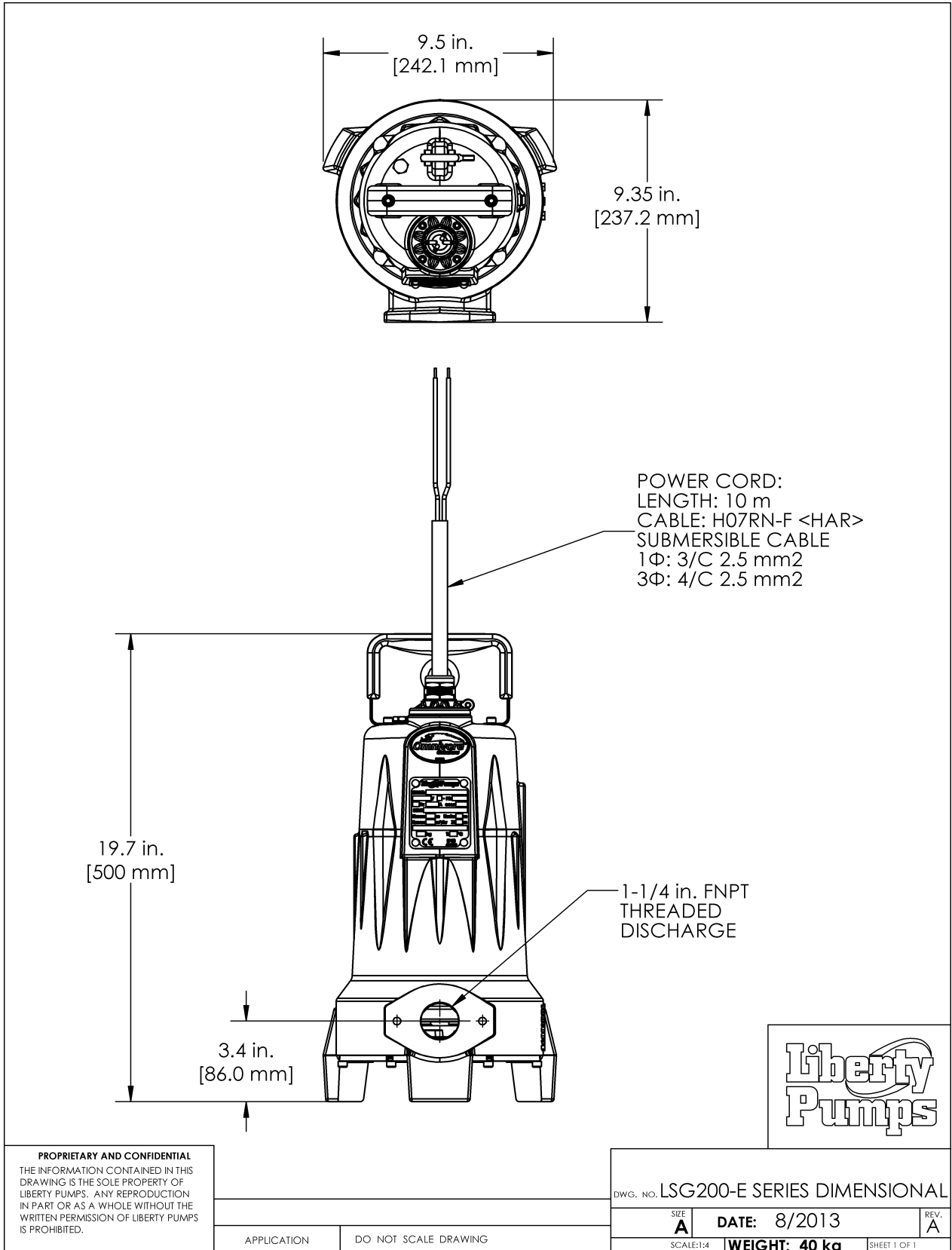


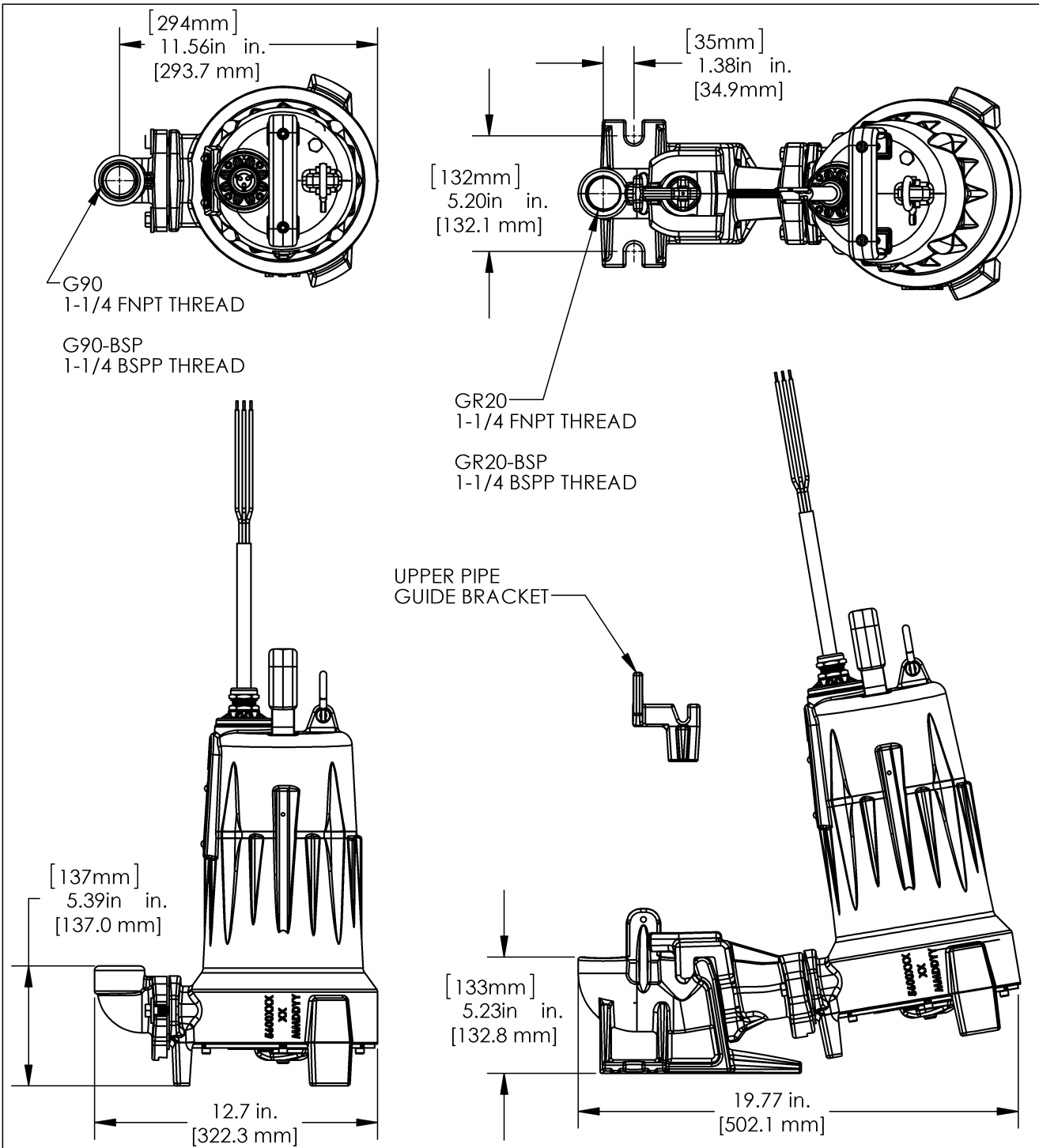
NSF/ANSI 46

Omnivore models LSG202M-3E and LSGX202M-3E are Certified NSF/ANSI 46 – 2012.



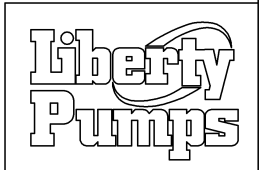
LSG/LSGX 200-E Series Dimensional data





G90 OPTION

GR20 OPTION



PROPRIETARY AND CONFIDENTIAL
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APPLICATION	DO NOT SCALE DRAWING
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LSG200 SERIES DIMENSIONAL G90/GR20 OPTIONS		
DWG. NO.	DATE: 8/2013	REV. A
SIZE A	SCALE:1:4	WEIGHT: 40 kg
		SHEET 1 OF 1



LSG/LSGX 200-E Series Electrical data

MODEL	k W	H P	VOLTAGE	PHASE	SF	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH M	DISCHARGE
LSG202M-3E	1.5	2	230	1	1.0	9.4	48	135°C 275°F	B	10	1-1/4" NPT + FLANGE
LSG203M-3E	1.5	2	230	3	1.0	6.0	68	N/A	B	10	1-1/4" NPT + FLANGE
LSG204M-3E	1.5	2	400	3	1.0	3.4	32	N/A	B	10	1-1/4" NPT + FLANGE
LSGX202M-3E	1.5	2	230	1	1.0	11.4	48	135°C 275°F	B	10	1-1/4" NPT + FLANGE
LSGX203M-3E	1.5	2	230	3	1.0	7.0	68	N/A	B	10	1-1/4" NPT + FLANGE
LSGX204M-3E	1.5	2	400	3	1.0	4.0	32	N/A	B	10	1-1/4" NPT + FLANGE

Notes:

- All LSG/LSGX200M-3E pumps are manual models and have 10 m bare lead power cords.
- The voltages of 230 and 400 mentioned above are EN Harmonized voltages and cover system voltages 220-240 and 380-415, respectively.

LSG/LSGX 200-E Series Technical Data

IMPELLER	300 SERIES S.S.
PROTECTIVE COATING	POWDER COAT
MAX LIQUID TEMP	40°C 104°F
MAX STATOR TEMP	140°C
THERMAL OVERLOAD	135°C / 275°F (single phase only)
POWER CORD TYPE	H07RN-F
MOTOR HOUSING	CLASS 25 CAST IRON
VOLUTE	CLASS 25 CAST IRON
SHAFT	300 SERIES S.S.
HARDWARE	STAINLESS
ORINGS	BUNA N
MIN SUBMERSION	1 METER
MAX SUBMERSION	7 METERS
MECHANICAL SEAL	UNITIZED SILICON CARBIDE
MIN BEARING LIFE	50,000 HRS

All Omnivore® products will ship in a carton not exceeding 58.5 cm tall, or a square base pattern of 32.5 cm. All Omnivore® products will not exceed a carton weight of 40.5 kg.

LSG/LSGX 200-E Series Specifications

1.01 GENERAL:

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 Series LSG200-E and LSGX200-E single phase or three phase grinder pumps. The pump furnished for this application shall be model _____ as manufactured by Liberty pumps.


2.01 OPERATING CONDITIONS:

Each submersible pump shall be rated at 1.5 kW _____ volts _____ phase 50 Hz. 2875 RPM. The unit shall produce _____ m³/hr at _____ meters of total dynamic head.

The submersible pump shall be capable of handling residential and commercial sewage and grinding it to a fine slurry, enabling it to be pumped over long distances in pipelines as small as 31,8 mm (1.25") in diameter. The LSG series single stage submersible pump shall have a shut-off head of 26 meters and a maximum flow of 10 m³/hr at 3 meters of total dynamic head. The LSGX series two stage submersible pump shall

have a shut-off head of 46 meters and a maximum flow of 8.5 m³/hr at 3 meters of total dynamic head.

3.01 CONSTRUCTION:

Each centrifugal grinder pump shall be equal to the  certified Series LSG Grinder pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of class 25 grey 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 using a Buna-N rubber. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with an IP68 rated cord entry system, eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a dual seal arrangement. The first seal is a lip seal molded in elastomeric rubber. The second / main seal shall be a unitized hard face silicon carbide 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 by design of angular contact roller races. Machined pump components shall be concentric and parallel, thereby equalizing the pressures and forces experienced during operation, which will extend the service life of seals, bearings and cutting implements. Additionally there shall be no cutwater in the housing volute in order to discourage the entrapment of flowing debris. The pump shall be furnished with stainless steel handle having a nitrile grip.

4.01 ELECTRICAL POWER CORD

The submersible pump shall be supplied with 10 meters of multi-conductor power cord. It shall be cord type H07RN-F capable of continued exposure to the pumped liquid. The power cord shall be sized for the rated full load amps of the pump in accordance with the IEC 60335-1. The power cable enters the motor housing directly by means of a water tight compression fitting, with a cast iron cord plate, sealed to the housing by a Buna-N gasket. The power cord termination internal to the pump has been epoxied, to eliminate the ability of water to enter the pump housing through the cord, by means of wicking through a damaged cord insulation jacket. The power cord entry system shall carry an IP68 degree of protection.

5.01 MOTORS

All motors shall be class B insulated NEMA B design, oil cooled, rated for continuous duty. Single phase motors shall be capacitor start / capacitor run, controlled by an integral solid state starting circuit to switch the start winding off. The capacitors and solid state switch shall be mounted to the motor, internal to the pump housing. Single phase motors shall include an integral thermal overload device that prevents a maximum load winding temperature from exceeding 135 °C. Three phase motors shall be used with an appropriate controller with integral overload protection. Since air filled motors are not capable of dissipating heat they shall not be considered equal.

6.01 BEARINGS AND SHAFT

The upper bearing shall be a radial type, single ball / race bearing. The lower bearing shall be a thrust type, angular contact heavy duty ball / race bearing, designed to handle the axial thrust loads occurring while operating the grinder pump. Both bearings shall be open type, exposing the balls and races for permanent lubrication by the oil internal to the motor housing. The bearing system shall be designed to enable proper cutter alignment from shut off head to maximum load at 3 m of TDH. The motor shaft shall be made of 300 or 400 series stainless steel and have a minimum diameter of 17,0 mm (.670").

7.01 SEALS

The pump shall have a dual seal arrangement consisting of a lower and upper seal to protect the motor from the pumping liquid. The lower seal shall be an elastomeric rubber molded lip seal, designed to exclude foreign material away from the main upper seal. The upper seal shall be a unitized silicon carbide hard face seal with stainless steel housings and spring equal to Crane Type T-6a. The motor plate / housing interface shall be sealed with a Buna-N O-ring.

8.01 IMPELLER

The impeller shall be an investment cast stainless steel impeller, with pump out vanes on the back shroud to keep debris away from the seal area. The impeller shall be keyed and bolted to the motor shaft.

9.01 CUTTER MECHANISM

The cutter and plate shall 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 (4) 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.

10.01 CONTROLS

All LSG/LSGX200-E series pumps must be operated by means of control panel. Control panel components must comply with national and local electrical codes, and be set using the pump electrical ratings to function properly.

11.01 PROTECTIVE COATING

The exterior of the casting shall be protected with Powder Coat Epoxy.

12.01 SUPPORT

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

13.01 FACTORY ASSEMBLED TANK SYSTEMS WITH GUIDE RAIL AND QUICK DISCONNECT DISCHARGE

_____ Guide factory mounted rail system with pump suspended by means of bolt on quick disconnect which is sealed by means of Buna-N grommets. The disconnect system shall have an internal ball check. The Discharge piping shall be schedule 80 PVC and furnished with a PVC shut-off ball valve. The Tank shall be wound fiberglass or roto-molded plastic. A cast iron inlet hub shall be provided with the fiberglass systems.

_____ Stainless steel Guide Rail

_____ Zinc plated steel Guide Rail

_____ mm diameter of basin size

_____ mm height of basin size

_____ mm distance from top of tank to discharge pipe outlet

_____ Fiberglass cover

_____ Structural foam polymer cover

_____ Steel cover

_____ Simplex System with Outdoor panel and alarm

_____ Duplex System with Outdoor panel and alarm

_____ Separate Outdoor Alarm

_____ Remote Outdoor Alarm

14.01 TESTING

The pump shall have an earth continuity check and the motor chamber shall be submitted to an electrical strength test, to test for electrical integrity, moisture content and insulation defects. The motor and volute housing shall be pressurized, and an air leak decay test is performed to ensure integrity of the motor housing. The pump shall be run where, the voltage and current is monitored, and checked for noise or other malfunction.

15.01 QUALITY CONTROL

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

16.01 WARRANTY

Standard limited warranty shall be 3 years.