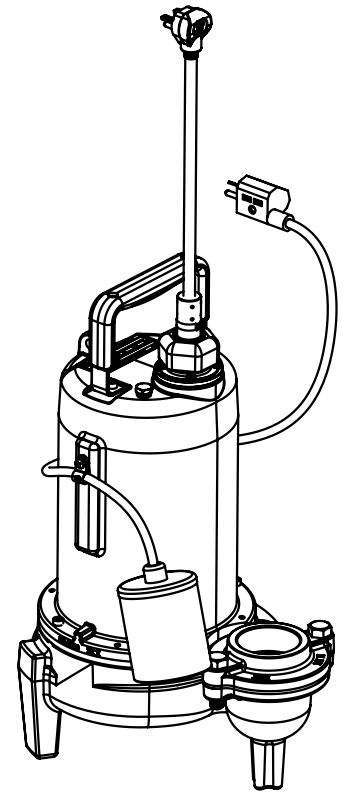
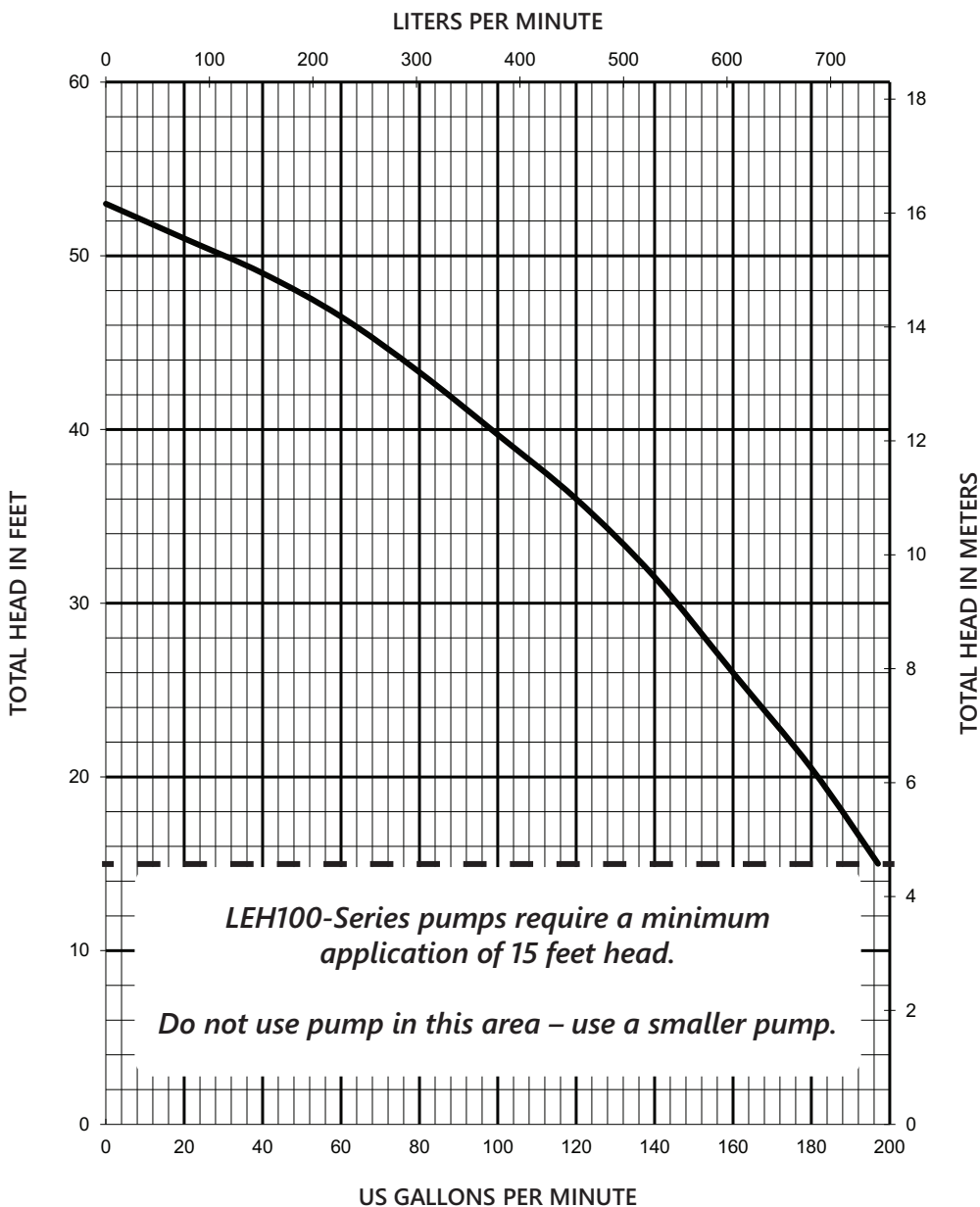


Pump Specification

LEH100-Series

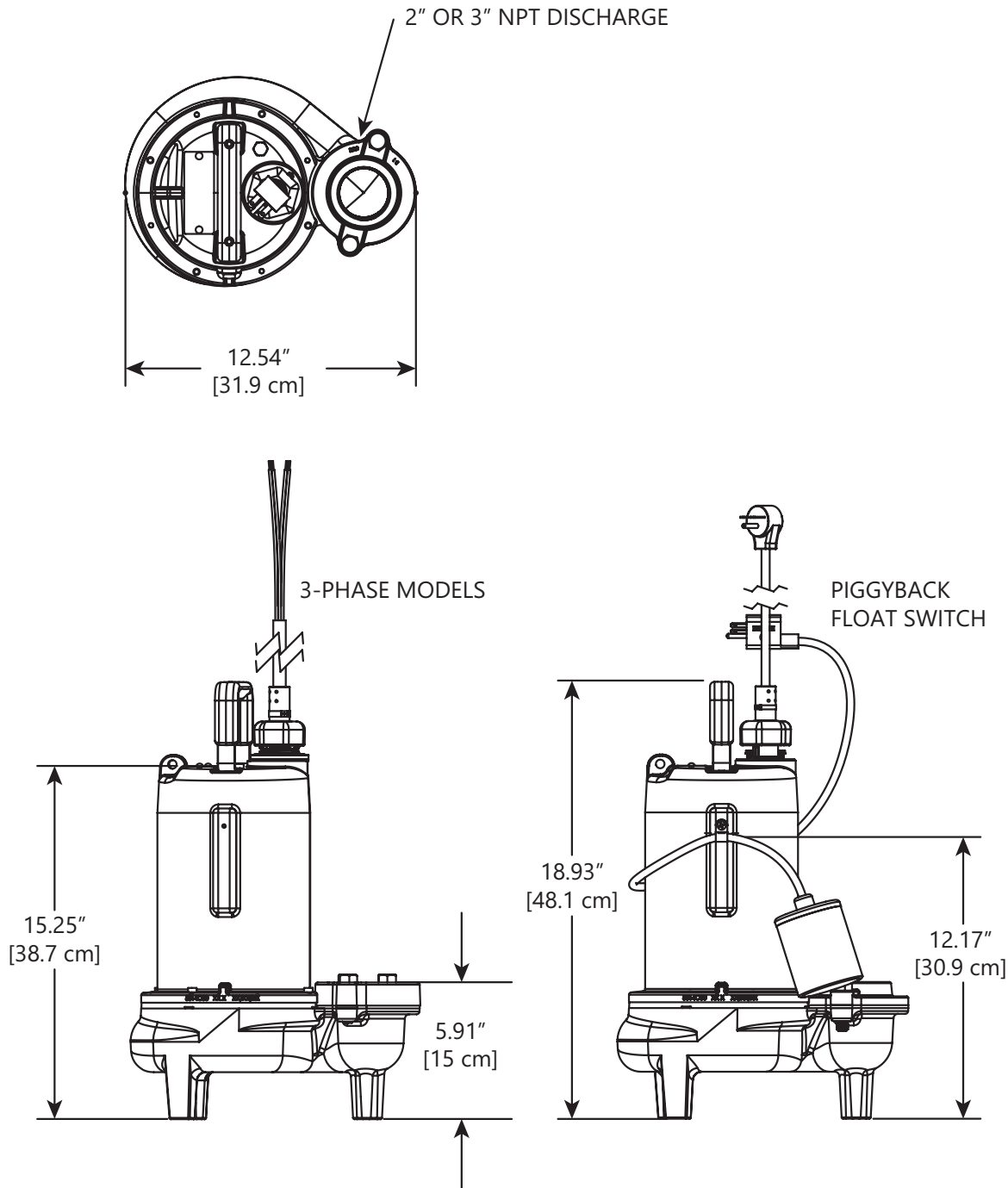
1 hp High Head 2" Solids Handling Sewage Pumps



ATTENTION

For pressure sewer applications, verify a **Redundant Check Valve Assembly** (curb stop and check valve) is installed between the pump discharge and the street main, as close to the public right-of-way as possible, on all installations to protect from system pressures.

LEH100-Series Dimensional Data



LEH100-Series Electrical Data

MODEL	HP	VOLTAGE	PHASE	SF	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH	DISCHARGE	AUTOMATIC
LEH102A2	1	230	1	1.00	12	28.6	120°C	B	10'	2" FLANGED	YES
LEH102A2-2	1	230	1	1.00	12	28.6	120°C	B	25'	2" FLANGED	YES
LEH102A2-3	1	230	1	1.00	12	28.6	120°C	B	35'	2" FLANGED	YES
LEH102A2-5-Y-BL ¹	1	230	1	1.00	12	28.6	120°C	B	50'	2" FLANGED	YES
LEH102M2	1	230	1	1.00	12	28.6	120°C	B	10'	2" FLANGED	NO
LEH102M2-2	1	230	1	1.00	12	28.6	120°C	B	25'	2" FLANGED	NO
LEH102M2-3	1	230	1	1.00	12	28.6	120°C	B	35'	2" FLANGED	NO
LEH102M2-5	1	230	1	1.00	12	28.6	120°C	B	50'	2" FLANGED	NO
LEH102A3	1	230	1	1.00	12	28.6	120°C	B	10'	3" FLANGED	YES
LEH102A3-2	1	230	1	1.00	12	28.6	120°C	B	25'	3" FLANGED	YES
LEH102A3-3	1	230	1	1.00	12	28.6	120°C	B	35'	3" FLANGED	YES
LEH102A3-5-Y-BL ¹	1	230	1	1.00	12	28.6	120°C	B	50'	3" FLANGED	YES
LEH102M3	1	230	1	1.00	12	28.6	120°C	B	10'	3" FLANGED	NO
LEH102M3-2	1	230	1	1.00	12	28.6	120°C	B	25'	3" FLANGED	NO
LEH102M3-3	1	230	1	1.00	12	28.6	120°C	B	35'	3" FLANGED	NO
LEH102M3-5	1	230	1	1.00	12	28.6	120°C	B	50'	3" FLANGED	NO
LEH103M2-2	1	208/230	3	1.00	9	32.4	N/A	B	25'	2" FLANGED	NO
LEH103M2-3	1	208/230	3	1.00	9	32.4	N/A	B	35'	2" FLANGED	NO
LEH103M2-5	1	208/230	3	1.00	9	32.4	N/A	B	50'	2" FLANGED	NO
LEH103M3-2	1	208/230	3	1.00	9	32.4	N/A	B	25'	3" FLANGED	NO
LEH103M3-3	1	208/230	3	1.00	9	32.4	N/A	B	35'	3" FLANGED	NO
LEH103M3-5	1	208/230	3	1.00	9	32.4	N/A	B	50'	3" FLANGED	NO
LEH104M2-2	1	440-480	3	1.00	4.5	16.2	N/A	B	25'	2" FLANGED	NO
LEH104M2-3	1	440-480	3	1.00	4.5	16.2	N/A	B	35'	2" FLANGED	NO

MODEL	HP	VOLTAGE	PHASE	SF	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH	DISCHARGE	AUTOMATIC
LEH104M2-5	1	440-480	3	1.00	4.5	16.2	N/A	B	50'	2" FLANGED	NO
LEH104M3-2	1	440-480	3	1.00	4.5	16.2	N/A	B	25'	3" FLANGED	NO
LEH104M3-3	1	440-480	3	1.00	4.5	16.2	N/A	B	35'	3" FLANGED	NO
LEH104M3-5	1	440-480	3	1.00	4.5	16.2	N/A	B	50'	3" FLANGED	NO
LEH105M2-2	1	575	3	1.00	3.3	12.8	N/A	B	25'	2" FLANGED	NO
LEH105M2-3	1	575	3	1.00	3.3	12.8	N/A	B	35'	2" FLANGED	NO
LEH105M2-5	1	575	3	1.00	3.3	12.8	N/A	B	50'	2" FLANGED	NO
LEH105M3-2	1	575	3	1.00	3.3	12.8	N/A	B	25'	3" FLANGED	NO
LEH105M3-3	1	575	3	1.00	3.3	12.8	N/A	B	35'	3" FLANGED	NO
LEH105M3-5	1	575	3	1.00	3.3	12.8	N/A	B	50'	3" FLANGED	NO

1 Bare leads (no plug end)

LEH100-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 4-FLOAT NEMA 1	AE-SERIES 3-FLOAT NEMA 4X	AE-SERIES 4-FLOAT NEMA 4X	IPS-SERIES	IPD-SERIES
	SIMPLEX		DUPLEX				SIMPLEX	DUPLEX
LEH102	SXL21	SXL24	AE21L	AE21L	AE24L	AE24L	IPS-24L	IPD-24L
LEH103	N/A	SX34=3-191	N/A	N/A	AE34=3-191	AE34=4-191	IPS-34-191	IPD-34-191
LEH104	N/A	SX34=3-171	N/A	N/A	AE34=3-171	AE34=4-171	IPS-34-171	IPD-34-171
LEH105	N/A	SX54=3-151	N/A	N/A	AE54=3-151	AE54=4-151	IPS-54-151	IPD-54-151

LEH100-Series Technical Data

IMPELLER	2 VANE, CLASS 25 CAST IRON
SOLIDS HANDLING	2"
PAINT	POWDER COATING
MAX LIQUID TEMP	
CONTINUOUS DUTY	40°C / 104°F
INTERMITTENT	60°C / 140°F
MAX STATOR TEMP	130°C / 266°F
THERMAL OVERLOAD (1-PHASE)	120°C / 248°F
POWER CORD TYPE	
1-PHASE	SJOOW
3-PHASE	SEOOW
MOTOR HOUSING	CLASS 25 CAST IRON
VOLUTE	CLASS 25 CAST IRON
SHAFT	STAINLESS
HARDWARE	STAINLESS
O-RINGS	BUNA-N
MECHANICAL SEAL	
1-PHASE	CARBON CERAMIC
3-PHASE	UNITIZED GRAPHITE IMPREGNATED SILICON CARBIDE
MIN BEARING LIFE	50,000 HRS
APPROX WEIGHT	64 LBS / 29 KG
CERTIFICATIONS	SSPMA, cCSAus

LEH100-Series Specifications

1.01 GENERAL

The contractor shall provide labor, material, equipment, and incidentals required to provide _____ (QTY) centrifugal sewage pumps as specified herein. The pump models covered in this specification are LEH100-Series single or three-phase sewage 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 hp, _____ volts, _____ 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 with 2" solid handling capability. The submersible pump shall have a shut-off head of 53 feet and a maximum flow of 197 GPM @ 15 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

Each centrifugal sewage pump shall be equal to the  Certified LEH100-Series 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 carbon ceramic seal with stainless steel housings and spring. The second/main seal shall be silicone carbon (1-phase) or a unitized graphite impregnated silicon carbide (3-phase) hard face seal with stainless steel housings and spring. The upper and lower bearing shall be capable of handling all radial thrust loads. The pump shall be furnished with stainless steel handle.

4.01 ELECTRICAL POWER CORD

The submersible pump shall be supplied with multiconductor power cord as per **Electrical Data** table. It shall be cord type SJOOW (1-phase) or SEOOW (3-phase), 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 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

Single-phase motors shall be oil-filled, permanent split capacitor, Class B insulated NEMA B design, rated for continuous duty.

Three-phase motors shall be polyphase. At maximum load the winding temperature shall not exceed 130°C unsubmerged. Since air-filled motors are not capable of dissipating heat they shall not be considered equal. Single-phase pump motors shall have an integral thermal overload switch in the windings for protecting the motor. Three-phase motors shall be used with an appropriate controller with integral overload protection. The capacitor circuit shall be mounted internally in the pump on single-phase units.

6.01 BEARINGS AND SHAFT

Upper and lower ball bearings shall be required. The bearings shall be a single ball/race type bearing. Both bearings shall be permanently lubricated by the oil, which fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel and have a minimum diameter of 0.625".

7.01 SEALS

The single-phase pumps shall have a carbon ceramic seal with stainless steel housings and spring equal to Crane Type 6A. Three-phase pumps shall have graphite impregnated silicon carbide seals. The motor plate/housing interface shall be sealed with a Buna-N O-ring.

8.01 IMPELLER

The impeller shall be Class 25 cast iron with pump out vanes on the back shroud to keep debris away from the seal area. It shall be threaded to the motor shaft.

9.01 PRESSURE SEWER APPLICATIONS

A redundant check valve assembly consisting of a curb stop and check valve must be installed between the pump discharge and the street main, as close to the public right-of-way as possible, on all pressure (force main) sewer installations to protect from system pressures. The curb stop valve is necessary to isolate the site from the pressure sewer while the check valve provides redundant protection against potentially detrimental backflow. All valves and fittings should be rated for at least 200 PSI service. See Liberty Pumps line of CSV-Series Curb Stop/Swing Check Valve Assemblies and CK-Series Connection Kit.

10.01 CONTROLS

All single-phase units can be supplied with CSA and UL approved automatic wide-angle tilt float switches. The switches shall be equipped with 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.

11.01 PAINT

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

12.01 SUPPORT

The pump shall have cast iron support legs enabling it to be a freestanding unit. The legs will be high enough to allow 2" solids to enter the volute.

13.01 SERVICEABILITY

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

14.01 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 nitrile grommets or O-rings. The discharge piping shall be Schedule 80 PVC and furnished with a check valve and PVC shut-off ball valve. The tank shall be wound fiberglass or roto-molded plastic. An inlet hub shall be provided with the fiberglass systems.
- ☐ Stainless steel guide rail
- ☐ Zinc plated steel guide rail
- ☐ Diameter of basin in inches
- ☐ Height of basin in inches
- ☐ Distance from top of tank to discharge pipe outlet in inches
- ☐ Fiberglass cover
- ☐ Structural foam polymer cover
- ☐ Steel cover
- ☐ Simplex system with outdoor panel and alarm
- ☐ Duplex system with outdoor panel and alarm
- ☐ Simplex system with Indoor panel and alarm
- ☐ Duplex system with Indoor panel and alarm
- ☐ Separate outdoor alarm
- ☐ Remote outdoor alarm

15.01 TESTING

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.

16.01 QUALITY CONTROL

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

17.01 WARRANTY

Standard warranty shall be 3 years.