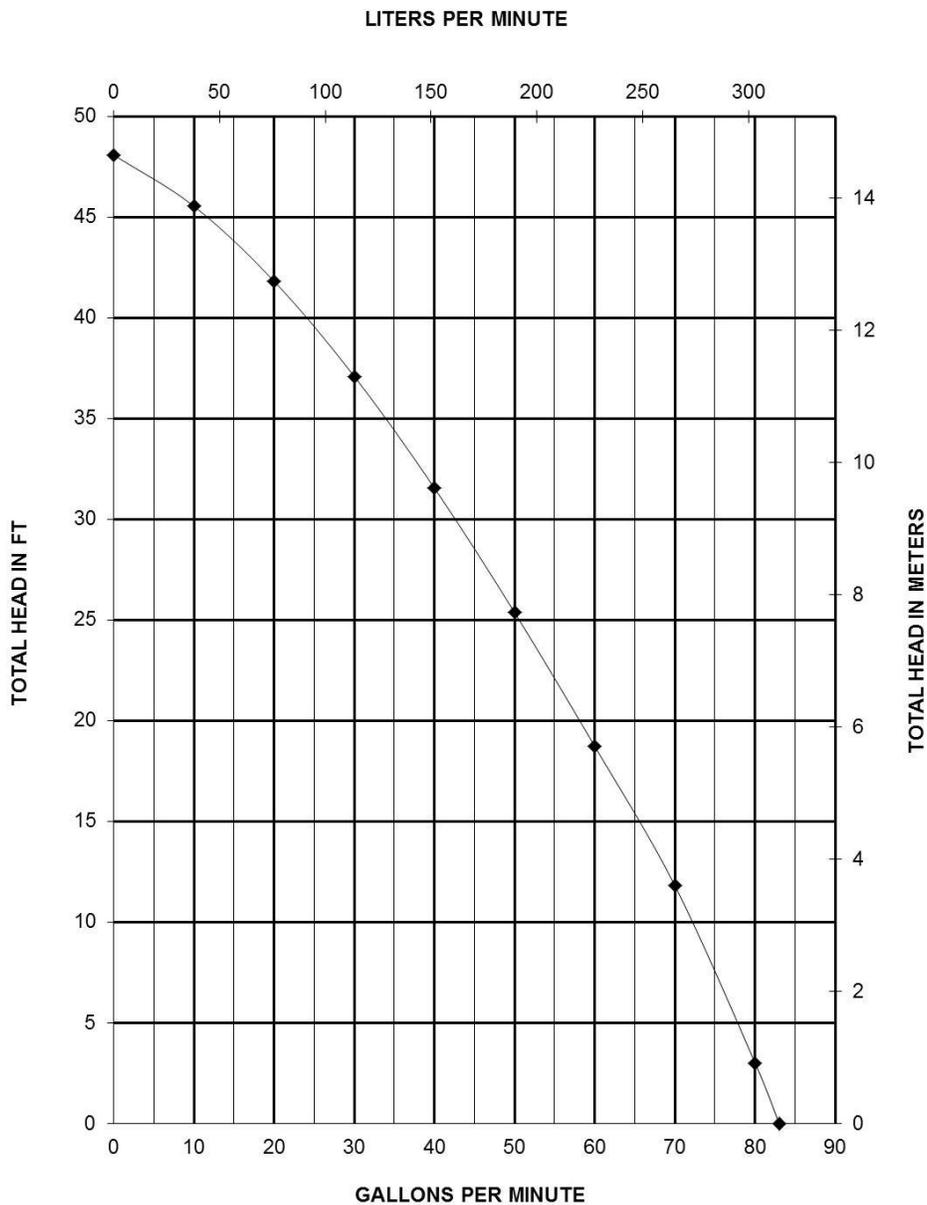
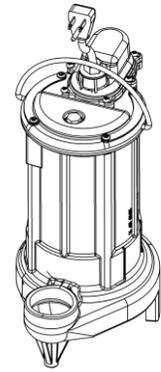


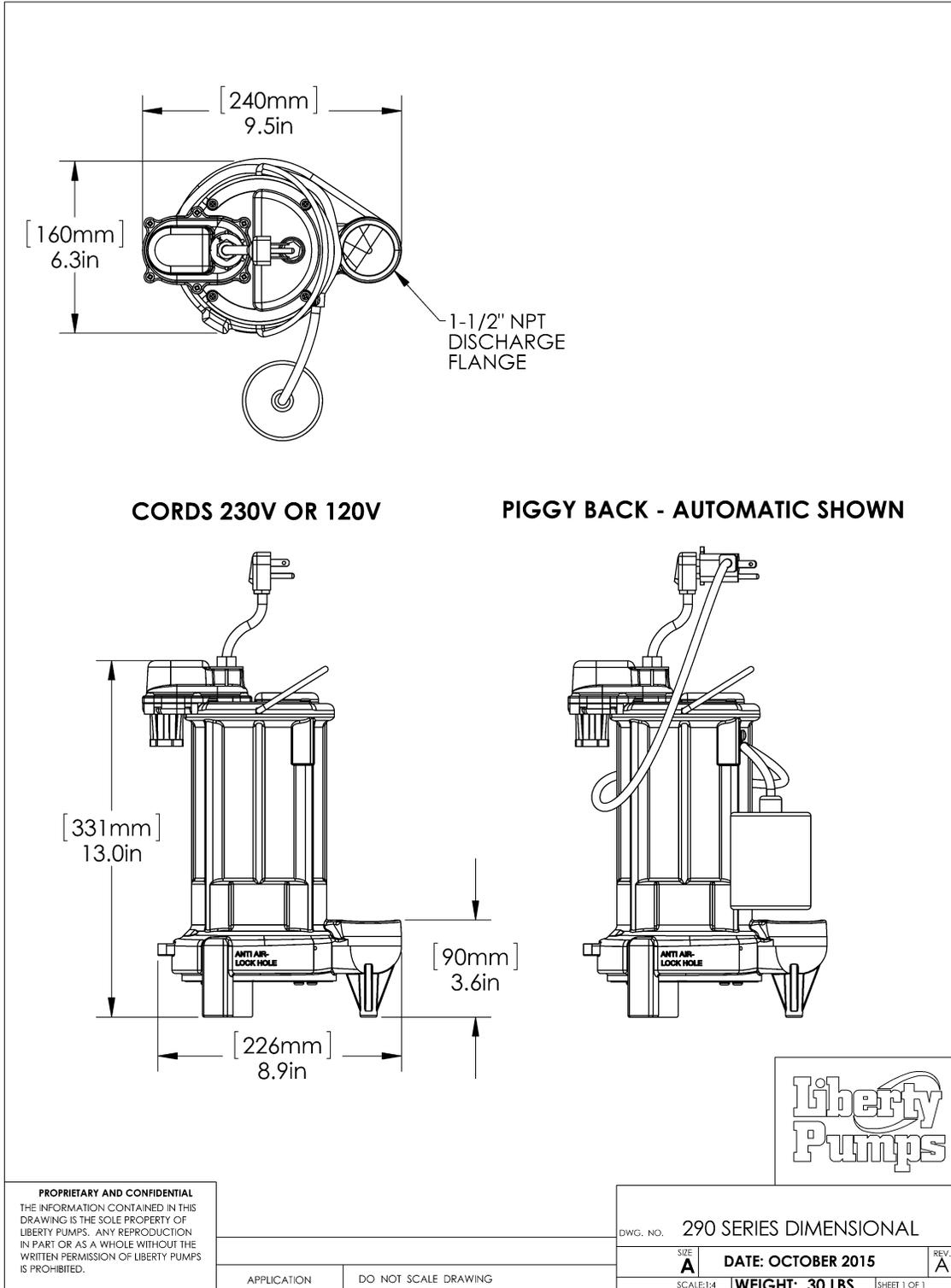


Pump Specifications

290 Series 3/4 hp Submersible Effluent Pump



290-Series Dimensional Data



290-Series Electrical Data

MODEL	HP	VOLTAGE	PHASE	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH FT	DISCHARGE	AUTOMATIC
290	3/4	115	1	10.4	24	120°C/ 248°F	B	10	1 1/2	NO MANUAL
291	3/4	115	1	10.4	24	120°C/ 248°F	B	10	1 1/2	YES INTEGRAL FLOAT
293	3/4	115	1	10.4	24	120°C/ 248°F	B	10	1 1/2	YES PIGGY BACK FLOAT
297	3/4	115	1	10.4	24	120°C/ 248°F	B	10	1 1/2	YES INTEGRAL VERTICLE FLOAT
290HV	3/4	208-230	1	5.3	13	105°C/ 221°F	B	10	1 1/2	NO MANUAL
291HV	3/4	208-230	1	5.3	13	105°C/ 221°F	B	10	1 1/2	YES INTEGRAL FLOAT
293HV	3/4	208-230	1	5.3	13	105°C/ 221°F	B	10	1 1/2	YES PIGGY BACK FLOAT
297HV	3/4	208-230	1	5.3	13	105°C/ 221°F	B	10	1 1/2	YES INTEGRAL VERTICLE FLOAT

290-Series Cord Length Options*

Model	10'	25'(-2)	35'(-3)	50'(-5)
290	Standard	Optional	Optional	Optional
291	Standard	Optional	Optional	Optional
293	Standard	Optional	Optional	N/A
297	Standard	Optional	N/A	N/A

10' cord length standard on all models. For optional lengths, add "-2, -3 or -5" suffix to model number.
Example: for model 290 with 35' cord. Order 290-3

WARNING: *Always use a replacement power cord assembly of the same length and type as originally installed on the Liberty product. Using a cord of improper gauge or length may lead to exceeding the electrical rating of the cord and could result in death, injury, fire or other significant failure.

290-Series Technical Data

IMPELLER	VORTEX ENGINEERED POLYMER
SOLIDS HANDLING SIZE	3/4"
PAINT	POWDER COAT
MAX LIQUID TEMP	60°C/ 140°F
MAX STATOR TEMP	CLASS B 130°C/ 266°F
THERMAL OVERLOAD	120°C/ 248°F (115V Models) 105°C/ 221°F (HV Models)
POWER CORD TYPE	SJTW (10ft & 25ft models) SJTOOW (35ft & 50ft models)
MOTOR HOUSING/ VOLUTE	CLASS 25 CAST IRON
SHAFT	STAINLESS
HARDWARE	STAINLESS
ORINGS	BUNA N
SHAFT SEAL	UNITIZED CERAMIC CARBON
WEIGHT	31 LBS

290-Series Specifications

1.01 GENERAL:

The contractor shall provide labor, material, equipment, and incidentals required to provide _____ (QTY) centrifugal pumps as specified herein. The pump models covered in this specification are Series 290 single phase 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 3/4 hp _____ volts, single phase, 60 Hz., 3450 RPM. The unit shall produce _____ G.P.M. at _____ feet of total dynamic head.

The submersible pump shall be capable of handling effluent with 3/4" solid handling capability. The submersible pump shall have a shut-off head of 48 feet and a maximum flow of 78 GPM @ 5 feet of total dynamic head.

The pump shall be controlled with:

_____ A piggy back style on/off float switch.

_____ An integrally wired on/off float switch.

_____ A Vertical Mechanical Float (VMF) type on/off switch.

_____ A NEMA 4X outdoor simplex control panel with three float switches and a high water alarm.

_____ A NEMA 1 indoor simplex control panel with three float switches and a high water alarm.

_____ A NEMA 4X outdoor simplex control panel with four float switches and a high water alarm.

_____ A NEMA 1 indoor simplex control panel with four float switches and a high water alarm.

_____ A NEMA 4X outdoor duplex control panel with three float switches and a high water alarm.

_____ A NEMA 1 indoor duplex control panel with three float switches and a high water alarm.

_____ A NEMA 4X outdoor duplex control panel with four float switches and a high water alarm.

_____ A NEMA 1 indoor duplex control panel with four float switches and a high water alarm.

3.01 CONSTRUCTION:



Each submersible pump shall be equal to the CSA[®] certified Series 290 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 an engineered double lip seal with stainless steel springs. The pump shall be furnished with stainless steel handle.

4.01 ELECTRICAL POWER CORD

The submersible pump shall be supplied with 10, 25, 35, or 50 feet of multiconductor power cord. It shall be cord type SJTW, or SJTOOW 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 cable 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. At maximum load the winding temperature shall not exceed 130 degrees C un submerged. Since air filled motors are not capable of dissipating heat they shall not be considered equal. The pump motor shall have an integral thermal overload switch in the windings for protecting the motor. The capacitor circuit shall be mounted internally in the pump.

6.01 BEARINGS AND SHAFT

An upper and lower ball bearing shall be required. The ball bearing 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 .311"

7.01 SEALS

The pump shall have a unitized carbon / ceramic seal with stainless steel housings and spring. The motor plate / housing interface shall be sealed with a Buna-N O-ring.

8.01 IMPELLER

The impeller shall be vortex style made of an engineered polymer, 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 CONTROLS

All pumps can be supplied with a CSA and UL approved VMF type switch, an integrally wired wide angle tilt float switch, or piggy back type wide angle tilt float switches. The piggy back style switches are equipped with a 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

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

11.01 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 3/4" solids to enter the volute.

12.01 SERVICEABILITY

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

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 nitrile grommets or o-rings. The Discharge piping shall be schedule 80 PVC and furnished with a PVC check valve and 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

_____ "diameter of basin size

_____ "height of basin size

_____ "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 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 is performed to ensure integrity of the motor housing. The pump shall be run, voltage current monitored, and the tester checks 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.