Pump Specifications

280 Series 1/2 hp
Submersible Effluent Pump

LITERS PER MINUTE

TOTAL HEAD IN FEET

TOTAL HEAD IN METERS

GALLONS PER MINUTE
280-Series Dimensional Data

CABLES 230V, OR 120V

PIGGY BACK - AUTOMATIC SHOWN

Dimensions:
- 9.5" (240mm)
- 6.5" (166mm)
- 13" (332mm)
- 3.6" (90mm)
- 8.9" (226mm)
# 280-Series Electrical Data

<table>
<thead>
<tr>
<th>MODEL</th>
<th>HP</th>
<th>VOLTAGE</th>
<th>PHASE</th>
<th>FULL LOAD AMPS</th>
<th>LOCKED ROTOR AMPS</th>
<th>THERMAL OVERLOAD TEMP</th>
<th>STATOR WINDING CLASS</th>
<th>CORD LENGTH FT</th>
<th>DISCHARGE</th>
<th>AUTOMATIC</th>
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<tbody>
<tr>
<td>280</td>
<td>1/2</td>
<td>115</td>
<td>1</td>
<td>8.5</td>
<td>23</td>
<td>105˚C / 221°F</td>
<td>B</td>
<td>10</td>
<td>1 1/2</td>
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<td>281</td>
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<td>115</td>
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<td>287</td>
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<td>105˚C / 221°F</td>
<td>B</td>
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<td>1 1/2</td>
<td>YES INTEGRAL VERTICAL FLOAT</td>
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<tr>
<td>280HV</td>
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<td>208-230</td>
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## 280-Series Cord Length Options*

<table>
<thead>
<tr>
<th>Model</th>
<th>10’</th>
<th>25’(-2)</th>
<th>35’(-3)</th>
<th>50’(-5)</th>
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<td>Standard</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
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<td>283</td>
<td>Standard</td>
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<td>287</td>
<td>Standard</td>
<td>Optional</td>
<td>N/A</td>
<td>N/A</td>
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</table>

10’ cord length standard on all models. For optional lengths, add “-2, -3 or -5” suffix to model number. Example: for model 280 with 35’ cord. Order 280-3

**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.*
280-Series Technical Data

<table>
<thead>
<tr>
<th>IMPELLER</th>
<th>VORTEX ENGINEERED POLYMER</th>
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<tbody>
<tr>
<td>SOLIDS HANDLING SIZE</td>
<td>3/4&quot;</td>
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<tr>
<td>PAINT</td>
<td>POWDER COAT</td>
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<tr>
<td>MAX LIQUID TEMP</td>
<td>60 °C/140 °F</td>
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<tr>
<td>MAX STATOR TEMP</td>
<td>CLASS B 130 °C/266 °F</td>
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<tr>
<td>THERMAL OVERLOAD</td>
<td>105 °C/221 °F</td>
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<tr>
<td>POWER CORD TYPE</td>
<td>SJTW (10ft &amp; 25ft models)</td>
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<td></td>
<td>SJTOOW (35ft &amp; 50ft models)</td>
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<tr>
<td>MOTOR HOUSING/ VOLUTE</td>
<td>CLASS 25 CAST IRON</td>
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<tr>
<td>SHAFT</td>
<td>STAINLESS</td>
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<tr>
<td>HARDWARE</td>
<td>STAINLESS</td>
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<tr>
<td>ORINGS</td>
<td>BUNA N</td>
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<tr>
<td>MECHANICAL SEAL</td>
<td>UNITIZED CERAMIC CARBON</td>
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<tr>
<td>WEIGHT</td>
<td>30 LBS</td>
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280-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 280 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 1/2 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 37 feet and a maximum flow of 62 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 certified Series 280 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 unitized ceramic/carbon seal with stainless steel housings and spring. 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 unsubmerged. 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 equal to Crane Type 6A. 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. An 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 and 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.