

Work Area Safety

Safe installation procedures are the sole responsibility of the basin installer. Work safety requirements are defined in US Department of Labor 29 CFR 1926, Subpart P: Excavations.

Backfill

Careful selection, placement, and compaction of approved backfill material is critical to a successful basin installation. Among the common problems associated with basin leaks and premature failures are:

- Use of incorrect backfill material
- Inadequate or improper placement or compaction
- Rocks, clods, or debris left in the excavation or basin
- Voids under or around the perimeter of the basin
- Failure to prevent the migration of backfill materials

Basin Placement

⚠️ WARNING RISK OF SERIOUS INJURY OR DEATH

- Placement of a basin on a concrete pad or compacted sub-base smaller than the total basin bottom area or on intermediate supports (saddles) will cause uneven distribution of loads. This may contribute to structural failure and is never permitted.

Cover the bottom of the basin excavation with suitably graded, leveled, and compacted backfill material to a depth of at least 12" (compacted sub-base). If a concrete hold-down/anti-flotation pad is required, this bedding can be reduced to a depth of at least 6". Carefully lower the basin into the excavated area and center on the compacted backfill or concrete pad.

Backfill Material

Ensure backfill material is clean, well granulated, free-flowing, non-corrosive, and inert; free of ice, snow, debris, rock, or organic material, all of which could damage the basin and interfere with the compaction of the backfill material. The largest particles shall not be larger than 3/4". Not more than 3% (by weight) should pass through a #8 sieve, and the backfill material must conform to ASTM C-33, Paragraph 9.1 requirements. Approved backfill materials include:

- Pea gravel, naturally rounded particles, with a minimum diameter of 1/8" and a maximum diameter of 3/4"
- Crushed rock, washed and free-flowing angular particles between 1/8" and 1/2" in size

Backfill Placement and Compaction

NOTICE

- ◆ Do not exert heavy pressure or run heavy equipment on the backfill material as this could cause the tank to collapse.

Compaction of backfill materials must be adequate to ensure the support of the basin and to prevent movement or settlement. Place backfill materials in 12" lifts and compacted to a minimum soil modulus of 700 pounds per square foot.

Support Piping, Equipment and Accessories

⚠️ WARNING RISK OF SERIOUS INJURY OR DEATH

- Using the basin to support any loading carried or created by piping, equipment, cribbing, bracing, or blocking is never permitted.

Provide support for piping, equipment, and other accessories during backfilling. During backfilling, temporary support must be carefully installed and removed to prevent damage to the basin, piping, and/or equipment.

Anchorage

When basin installations are located in areas subject to high water tables or flooding, make provisions to prevent the basin, either empty or filled, from floating. The buoyancy force to be offset is determined primarily by the volume of the basin. The principle offsetting factors include:

- Backfill materials
- Concrete hold-down pad
- Friction between the basin, backfill materials, and surrounding soil

Anchorage Methods

All methods of anchoring the basin use the weight of the backfill materials to offset the buoyancy forces. The use of supplemental mechanical anchoring methods (i.e., a concrete hold-down pad) increases the amount of backfill ballast that is mechanically attached to the basin. The recommended method of attachment is to pour concrete grout over the basin's anti-flotation flange and concrete hold-down pad.

Anchorage Requirements

⚠️ WARNING RISK OF SERIOUS INJURY OR DEATH

- Use "submerged" material weights when calculating anchorage requirements.

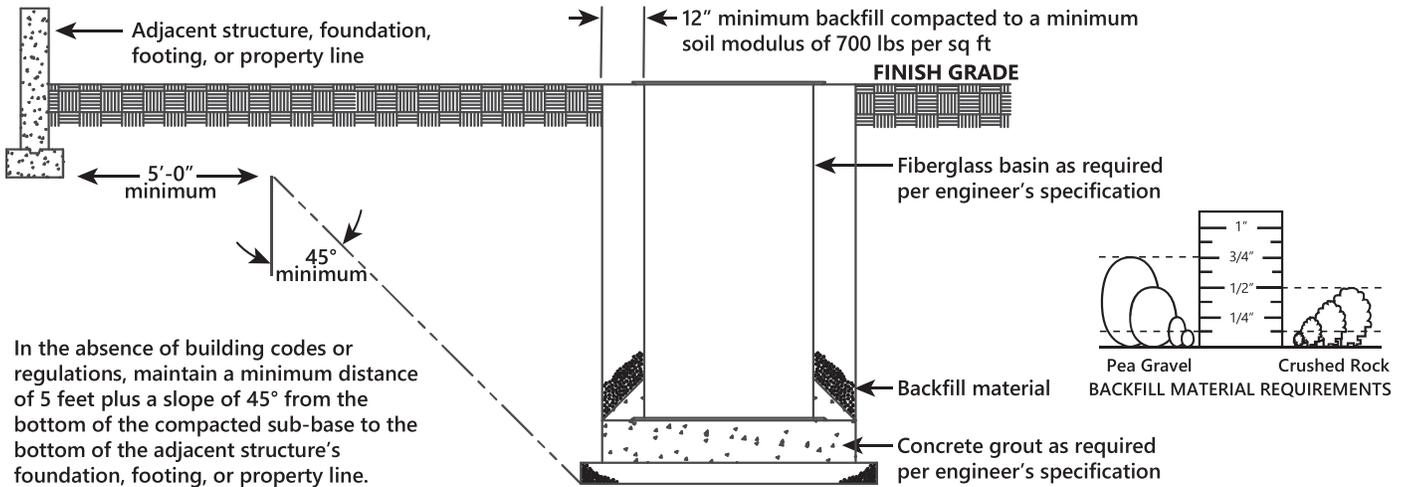
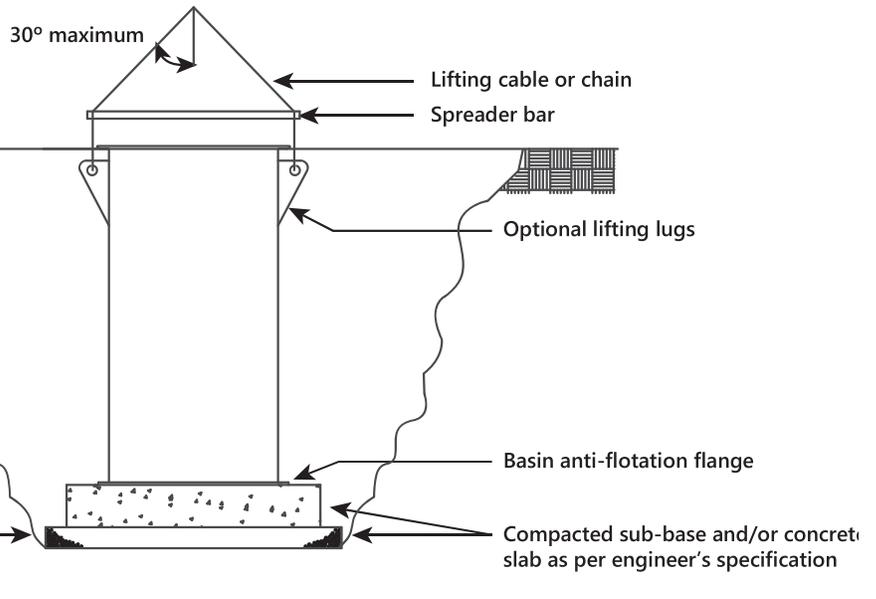
Requirements of anchorage, thickness of concrete hold-down pads, as well as the size of anchors and reinforcement must be calculated for each installation based on the environmental conditions of the specific installation.

Example: weight of concrete (150 pounds per cubic foot) minus the weight of the water (62.4 pounds per cubic foot) equals a "submerged" weight of 87.6 pounds per cubic foot.

CAUTION:
HANDLE WITH CARE
Do NOT drop
Do NOT impact
Do NOT roll
Do NOT wrap cable
or chain around
basin

Slope and size of excavation as per OSHA and engineer's specification. In the absence of these, consider condition of soil, depth of excavation, and safety considerations.

Compacted sub-base minimum 12" or 6" when used with concrete hold-down pad



In the absence of building codes or regulations, maintain a minimum distance of 5 feet plus a slope of 45° from the bottom of the compacted sub-base to the bottom of the adjacent structure's foundation, footing, or property line.

NOTE: The intent of these installation instructions and illustration is to ensure that damage or premature failure to the basin does not occur. These installation instructions and illustration are not intended to preclude normal safety procedures that should be followed to prevent injury to personnel.

SAFE INSTALLATION PROCEDURES ARE ENTIRELY THE RESPONSIBILITY OF THE INSTALLER

Figure 1. Basin Installation Reference

Installation

⚠️ WARNING ⚡ RISK OF ELECTRIC SHOCK

- All installation and maintenance of pumps, controls, protection devices, and general wiring shall be done by qualified personnel.
- All electrical and safety practices shall be in accordance with the National Electrical Code®, the Occupational Safety and Health Administration, or applicable local codes and ordinances.

NOTICE

- ◆ 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.

Electrical Connections

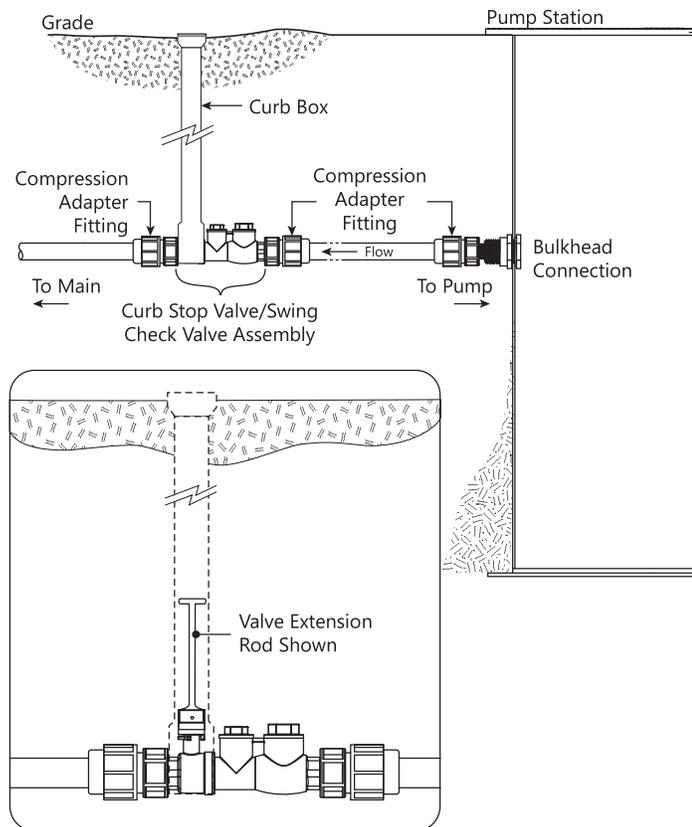
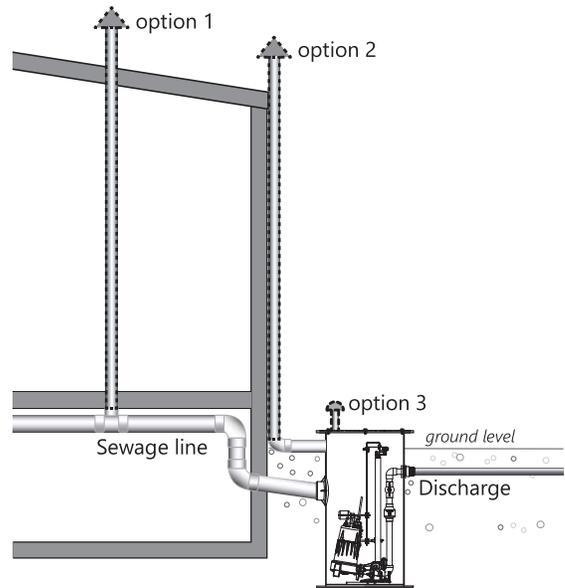
With mains power disconnected, complete pump, control panel, and alarm connections per included wiring diagrams. Verify connections. When complete, check all wires for unintentional ground.

Discharge Line

Connect appropriate pipe rated for at least 200 PSI to the pump discharge. Do not increase discharge piping to larger than 2". Do not reduce discharge to below the pump outlet size. The remainder of the discharge line should be as short as possible with a minimum number of turns to minimize friction head loss.

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.



Vent

The fiberglass basin provided with the system must be completely sealed and properly vented per local health and plumbing code requirements. If the system is to be vented through the inlet to an existing building vent stack, there must be no traps between the system inlet and the nearest building vent stack connection (option 1). If this is not possible or desirable per the application, a standalone vent can be installed in tank side (option 2) or a vent flange or grommet can be installed in a hole cut into the cover (option 3).

Inlet Line

Connect the inlet line to the inlet hub per engineer's specifications.

Float Switches

Float switches are pre-mounted on a QuickTree for basins up to 84" height and mounted on a float bracket for 96" and 120" height basins. For QuickTree removal, loosen the cord nut, locking clamp, and pull the tree straight out of the tank.

The pump cycle is preset at the factory. The pump cycle can be adjusted by loosening the cord grip and moving the "on" float up or down. Adjustments of more than 3" in either direction are not recommended—call customer service if the pump cycle needs to be adjusted beyond this recommended level. The preset pump levels are provided in Table 1.

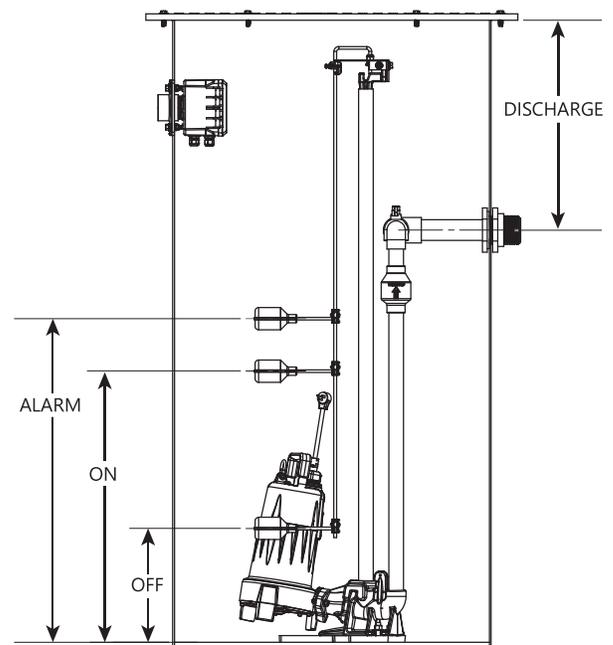
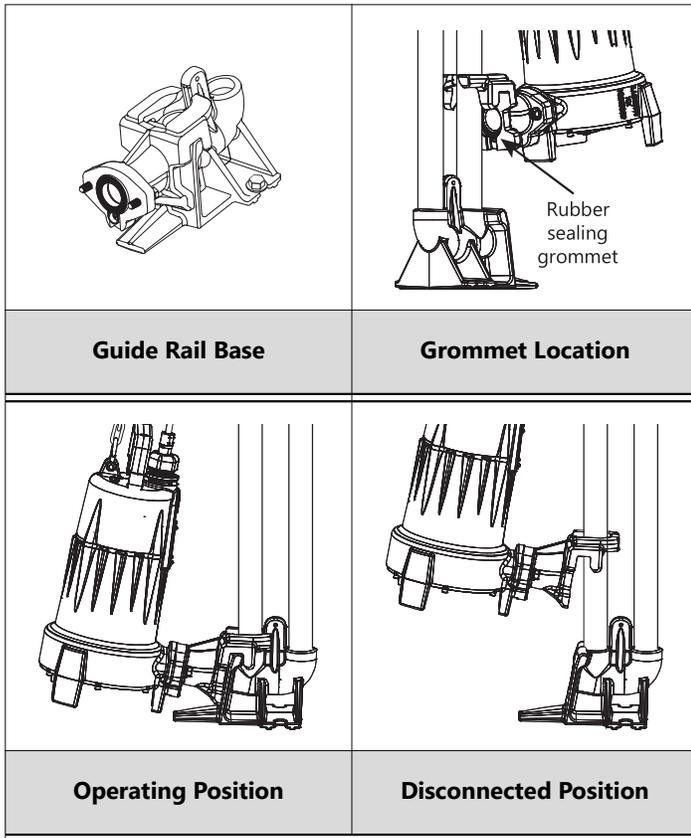


Table 1. Factory Set Float Switch Levels

System	OFF	ON	ALARM
D3648	13" [33 cm]	25" [64 cm]	31" [79 cm]
D3660	13" [33 cm]	28" [71 cm]	34" [86 cm]
D3672	13" [33 cm]	31" [79 cm]	37" [94 cm]
D3684	13" [33 cm]	34" [86 cm]	40" [102 cm]
D3696	13" [33 cm]	37" [94 cm]	43" [109 cm]
D36120	13" [33 cm]	43" [109 cm]	49" [124 cm]

GR-Series Guide Rail System

The GR20 quick-disconnect assembly guide rail system provided with the system is designed to allow easy installation and removal of the pump. When installed correctly, it will seal and provide a means to lift the pump without disconnecting any of the discharge piping. Ensure installation is done as shown.



Operation, Maintenance, Troubleshooting

Refer to supplied pump, alarm, and control panel manuals. For further questions, contact customer service at 1-800-543-2550 or support@LibertyPumps.com.

Warranty

Liberty Pumps Wholesale Products Limited Warranty

Liberty Pumps, Inc. warrants that Liberty Pumps wholesale products are free from all factory defects in material and workmanship for a period of three (3) years from the date of purchase (excluding* batteries and "Commercial Series" models). The date of purchase shall be determined by a dated sales receipt noting the model and serial number of the pump. The dated sales receipt must accompany the returned pump if the date of return is more than three years from the date of manufacture noted on the pump nameplate.

The manufacturer's sole obligation under this Warranty shall be limited to the repair or replacement of any parts found by the manufacturer to be defective, provided the part or assembly is returned freight prepaid to the manufacturer or its authorized service center, and provided that none of the following warranty-voiding characteristics are evident:

The manufacturer shall not be liable under this Warranty if the product has not been properly installed, operated, or maintained per manufacturer instructions; if it has been disassembled, modified, abused, or tampered with; if the electrical cord has been cut, damaged, or spliced; if the pump discharge has been reduced in size; if the pump has been used in water temperatures above the advertised rating; if the pump has been used in water containing sand, lime, cement, gravel, or other abrasives; if the product has been used to pump chemicals, grease, or hydrocarbons; if a non-submersible motor has been subjected to moisture; or if the label bearing the model and serial number has been removed.

Liberty Pumps, Inc. shall not be liable for any loss, damage, or expenses resulting from installation or use of its products, or for indirect, incidental, and consequential damages, including costs of removal, reinstallation or transportation.

There is no other express warranty. All implied warranties, including those of merchantability and fitness for a particular purpose, are limited to three years from the date of purchase. This Warranty contains the exclusive remedy of the purchaser, and, where permitted, liability for consequential or incidental damages under any and all warranties are excluded.

*Liberty Pumps, Inc. warrants StormCell® batteries for 1 year from date of purchase, and warrants that pumps of its Commercial Series are free from all factory defects in material and workmanship for a period of 18 months from the date of installation or 24 months from the date of manufacture, whichever occurs first, and provided that such products are used in compliance with their intended applications as set forth in the technical specifications and manuals.