

OPENCHANNELFLOW FIBERGLASS MANHOLES

Installation Instructions



Important Reminders

Openchannelflow fiberglass manholes must be handled and installed according to these general instructions. Installation details may vary depending upon site and application particulars but these general instructions should be followed regardless.

Failure to comply with these installation instructions will void any warranty coverage and may cause damage or failure of the product and potential injury or death of personnel.

All applicable national, state, and local construction codes should be consulted as they apply to the work involved.

It is important that installing parties familiarize themselves thoroughly with these instructions before proceeding with an installation.

Handling / Movement / Storage

1. Manholes must be lifted using nylon or similar fabric slings or lifting lugs, if furnished on the unit. Under no circumstances should cable or chain be used as they will serrate the fiberglass.
2. Proper rigging practices must be observed. Taglines should be used to control the movement of the structure during lifting.
3. Manholes should never be dropped, rolled, slid, or impacted.
4. If storing the manhole before installation, the unit should be stored on its original shipping packaging, padded shipping cradles, or on a smooth flat surface, free of sharp objects. Chocks and / or tie downs should be used to prevent rolling and movement due to wind.

Site Preparation

5. The site must be of adequate size to accommodate the manhole and provide safe working room for the installing personnel.
6. Provide a concrete foundation slab. The slab should extend at minimum of 12 inches [30.48 cm] on all sides beyond the manhole, base mounting flange, connecting pipes / flanges, and any portion of a structure integrated into the manhole (commonly flumes).
7. The thickness of the slab should be a minimum 6 inches [15.24 cm], but as local soil conditions may vary, the final design of the slab and anchoring details are the responsibility of the installing party and must be sized so as to prevent shifting and flotation of the manhole structure. Retain a knowledgeable engineering firm as necessary.
8. The concrete foundation slab must have a smooth, troweled surface with no exposed aggregate or debris to provide uniform support over the entire base area. The slab must be level in both directions to within 1/8 inch [0.3175 cm]. Grout as necessary.
9. In determining the elevation of the concrete slab, refer to the manhole design drawings provided by Openchannelflow.com in the equipment submittal, making sure to allow for the 1/2 inch [1.27 cm] thick foam pad (provided with the manhole) that fits between the manhole barrel and the concrete slab.
10. Where buoyant forces are very high due to a high water table, the flume / pipe stubs may be encased with reinforcing concrete – poured in 6 inch [15.24 cm] lifts – up to the top of the flume.



Setting the Manhole

11. Verify that that concrete slab is level – grouting as necessary – and free from exposed aggregate and debris.
12. Place the foam pad on the concrete slab where the manhole barrel will rest.
13. Place the flexible couplings on the manhole pipe stubs (where provided).
14. Lower the manhole onto the concrete slab – taking particular care to secure the manhole from overturning during movement and lowering.
15. Loosely secure the manhole to the concrete slab with anchor bolts. The quantity, type, diameter, and depth of embedment of the anchor bolts – along with type of concrete mix for the pad – should be based upon buoyant forces and should be determined by the engineer (as indicated in the Site Preparation section above). The holes provided in the base anchoring flange as shipped from the factory are for shipping purposes only. The quantity / size / location of these holes may or may not be sufficient to secure the manhole properly.
16. Where additional anchoring holes are drilled on-site in the base mounting flange of the manhole, seal the edges of the drilled holes with a compatible resin (typically isophthalic polyester – available at most marine supply stores).
17. For flow monitoring and grinder manholes, check that the interior structure (flume / weir / grinder channel) is level, adjusting as necessary. For flumes verify the level at the inlet floor of the flume. For weirs verify the level at the face of the weir. Do not level flume flow monitoring manholes by leveling the top of the flume – level the inlet floor of the flume. Minor level variations should not affect diversion / flow control, energy absorbing, or storm water manholes.
18. Once the manhole level has been verified, complete the tightening of the anchor bolts to secure the manhole to the concrete slab.
19. All open spaces under any structure (typically a flume) that extends outside of the manhole must be filled with a non-shrink grout to provide permanent structural support.

Piping Connections – Flexible Couplings

20. Finish securing the flexible pipe couplings to the incoming / outgoing piping.
21. Considerable force (30 psi [206.8 kPa]) must be exerted on the sealing surfaces during installation. Installation torque of 60 psi [413.6 kPa] is required for the 5/16 inch hex head screws on the stainless steel clamps.
22. If the coupling installs with little effort or appears loose, stop and contact the coupling manufacturer for assistance. The proper operation of the couplings relies upon the information that you provide at the time of order. It is important to understand that the couplings may not function as intended due to improper or insufficient description of the pipes being connected or changes in pipe dimensions or design. All connections should be tested before backfill or enclosure.



23. Do not use any petroleum lubricants to install the couplings. If lubricate is needed, water or a water / dish soap combination may be used.
24. The incoming pipes must be self-supported by their bedding.

Two-Piece Manhole

For certain manhole depths and/or flume configurations, the manhole may be provided in two (or more) barrel sections. Each section is provided with a factory matched / drilled external connection flange requiring field assembly by the installer along with submersible sealant for each manhole barrel section.

Inside the manhole, orient the manhole barrel sections so that the ladders rails line up. Following the instructions on the sealant, apply a generous bead (or beads) of sealant on the connection flange between the flange bolt pattern on the connection flange(s) and the inside surface of the manhole.

Start by hand-tightening all bolts, then using a torque wrench in a star or crisscross pattern, gradually increase the torque in stages.

The installer should apply external joint wrap (by others) over each connected joint to maximize the water intrusion resistance of the assembled joint(s).

Once the manhole connection flanges have been connected and sealed, the ladder splice plates should be completed – securing the upper ladder rails to the lower ladder rails.

Backfilling

25. Backfill should be placed evenly around the manhole in lifts of no more than 12 inches [30.48 cm]. A common packing standard is 85% proctor. Care should be taken to insure that no void areas exist between the concrete slab and any portion of the manhole structure (i.e. under a flume or pipe connection).
26. Fill material should be imported sand or pea gravel material (naturally round aggregate 1/4-3/8 inches [0.635 cm – 0.9525 cm] in size). If backfilling with another material avoid rocks, concrete, or soil clumps larger than 1 inch [2.54 cm] in size.
27. It is recommended that the advice of a knowledgeable engineering firm be obtained to ensure that proper backfilling materials and procedures be use to match the local conditions.
28. Do not allow groundwater or surface runoff to accumulate in an open excavation around a manhole that has not been completely backfilled.

Manhole Shoulder

29. For manholes containing flumes or other structures where there is a void space between the inside of the manhole barrel and the structure, the void space should be filled with supporting material to the top of the structure so that water does not collect.
30. The void space may be on either side of the structure in the manhole and extended under the structure.

AS PART OF OPENCHANNELFLOW'S FIBERLOCK WARRANTY A MANHOLE SHOULDER (INTEGRAL FIBERGLASS OR POURED CONCRETE) IS REQUIRED

31. Failure to fill the void spaces inside the manhole may result in the collection of water that may go septic or become the home of aquatic reptiles, insects, or other pests.
32. Pea gravel or compacted sand with a 6 inches [15.24 cm] cap of sulfate resistant non-shrink grout may be used. Pours should be in lifts of no more than 4 inches [10.16 cm] at a time.
33. Care should be taken not to distort the structure. Temporary internal bracing is recommended to prevent any distortion of the structure. The top surface of the grouted portion should be sloped to drain toward the structure.
34. A protective tape is factory applied to the top flange of the structure. This tape is intended to assist the installer in making a cleaner installation where grout is pouted to the top of the structure.
35. Once the grout has been poured and smoothed, the tape should be removed.

Proper Installation

In general, fiberglass manholes are easy to install if good, basic construction and installation procedures are used. Properly installed, **Openchannelflow** fiberglass manholes will provide many trouble-free years of service.

Installation / Operations Photographs

As part of the registration process for **Openchannelflow's** FiberLock equipment warranty:

PHOTOGRAPHS OF THE INSTALLATION PROCESS AND THE COMPLETED INSTALLATION MUST BE SUBMITTED FOR THE FULL (5) YEAR FIBERLOCK WARRANTY

These photos not only serve to document the installation process actually used but also help **Openchannelflow** assist in troubling shooting operations that are not performing optimally. The better the pictures (or set of pictures), the better (and more accurate) the service that **Openchannelflow** can provide.

