



Information, research, and solutions for open channel flow

Operation and Maintenance of Openchannelflow Fiberglass Manholes

Remember that manholes may be classified as confined spaces. When so classified, all applicable national, state, and local access codes should be consulted and followed as they apply to the work involved.

General Manhole Construction

Regardless of size or configuration, all Openchannelflow fiberglass manholes share certain common characteristics and methods of construction.

The barrels of Openchannelflow.com manholes utilize a polyester resin with various glass and silica reinforcement / fillers. The interior of the manhole barrel is an unpigmented, resin rich, corrosion resistant surface capable of withstanding a wide variety of chemicals, solvents, detergents, and sanitary wastes.

Ladder and rungs are chemically resistant pultruded fiberglass. Rungs may have either an integral or factory applied non-slip design / surface and may additionally be reinforced with stainless steel rods.

Manhole bases and interior structures are commonly constructed of isophthalic polyester resins with glass reinforcements. Reinforcements may take the form of strands (chopped or continuous), weaves, mattes, and veils as necessary.

Inspection

Each time a manhole is entered there are a series of standard items that should be inspected and corrected as necessary to minimize any potential safety issues and extend the operational life of the structure.

Manhole Top

- 1) Is the manhole properly secured / locked / covered at the time of arrival?
- 2) If provided, has the locking hasp become loose due to vandalism, damage, or other reason?
- 3) Does the manhole top open smoothly so as not to impede entrance / exit from the manhole?
- 4) Does the top lock or move out of position so that entrance / exit from the manhole can be made without restriction?
- 5) If provided, is the fall protection grating or net at the top of the manhole in good repair and proper working order?

Ladder

- 6) Are all rungs securely attached to the ladder uprights?
- 7) Are any rungs cracked, broken, or missing?
- 8) Are non-slip surfaces present on all ladder rungs and free from debris?
- 9) Are any wall brackets loose where they attach either to the manhole barrel or the ladder uprights?
- 10) If provided, does the ladder assist deploy smoothly and lock into place correctly?



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Accessories

- 11) Are the manhole accessories (lights, fans, intermediate platforms, etc.) in good repair and operating correctly?
- 12) If required, is the confined space entry sign clearly visible at the top of the manhole?

Flow Monitoring Manholes

If staff-level gauges or flow sensor mounting brackets are supplied by Openchannelflow, they are in the proper locations. Zero levels for staff-level gauges are also correct, but for primary devices without staff-level gauges you will need to determine the correct zero level to calibrate your secondary device (flow meter).

Flumes

Flumes act a restriction (either in area, slope, or some combination of the two) in an open channel. The result is an increase in velocity and a change in the elevation of the flow though the flume.

Flumes are fixed primary devices without moving parts or wear surfaces; properly installed, maintenance involves little more than ensuring that flume is level from front-to-back and from side-to-side, that the staff-level gauges are readable, and that the flume interior does not have build-up on the surfaces exposed to the flow steam.

Magnetic Flow Meters

Little is required that is specific to the operation and maintenance of magnetic flow meters particular to their installation in fiberglass manholes. The flanged connections between the piping and the flow meter should be checked periodically for signs of leakage, but other than this, all other maintenance associated with magnetic flow meter is covered in the operation and maintenance procedures published by the meter manufacturer.

Weirs

Weirs are dams built across an open channel over which water flows, usually though a specially shaped notch or opening. Like flumes, weirs have no moving parts or wear surfaces. Unlike flumes, there are several points of operation that must be periodically checked due to the nature of the weir and flow over the crest.

- 13) Verify that the weir is level from front-to-back and from side-to-side. No deviation from these conditions is allowed.
- 14) Carefully inspect the crest of the weir for signs of nicks, rust, debris, vegetative growth, or any other condition that impedes or affects the clean flow of water over the crest.
- 15) Verify that the nappe (the water flowing over the weir crest) springs freely from the crest and does not cling to the downstream surface of the weir plate.



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- 16) Inspect the weir pool (upstream channel) for signs of sediment collection – cleaning as necessary.
- 17) Verify that the zero level at the point of measurement is at the same elevation as the bottom of the weir crest (for weir installations where a staff-level gauge is not provided).

Grinder Manholes

As with all Openchannelflow fiberglass manholes, there is little in the way of actual maintenance required for grinder manholes. The integral bench around the grinder should be periodically washed down so as not to present a slip hazard and the grinder channel should be checked for any debris that may be present either in the upstream channel or on the downstream bar screen (where provided).

Nothing should be removed from the grinder channel without first safing the grinder.

The correct operation and maintenance of the grinder itself should be covered by the documentation accompanying the grinder installed.

Storm Water Manholes

Storm water manholes provide an additional point of inspection beyond what is customary for regular Openchannelflow fiberglass manholes. Depending upon the configuration, storm water manholes may have trash baskets and / or oil coalescing media that need to periodically inspected / removed / maintained. These items and their maintenance periods are specific to each application.

Energy Absorbing / Diversion / Control Manholes

By far the simplest styles of fiberglass manholes to operate and maintain, Openchannelflow energy absorbing and flow diversion / control manholes require no additional maintenance other the period wash down of the integral bench (where provided) at the manhole bottom.

General Maintenance

Manhole surfaces may be washed down with most normal industrial detergents and water. If there is a doubt as to the chemical compatibility of the detergent, consult the detergent manufacturer before proceeding.



Packaged Metering Manhole Inspection Report

Manhole #: _____ Inspector: _____ Date: _____

MANHOLE COVER

Locked: Visible Damage: Notes: _____
Operation: Good Poor Notes: _____

Confined Space Entry Sign Present & in Good Repair: Notes: _____

LADDER

Grating in Place at First Ladder Rung: Notes: _____
All Rungs Securely Attached: Notes: _____
Any Rungs Cracked / Broken / Missing: Notes: _____
All Non-Slip Tape in Place on Rungs: Notes: _____
All Ladder Brackets Secured to Manhole: Notes: _____
Ladder Assist in Place & Operational: Notes: _____

When indicating any ladder / bracket deficiencies, count from top down to indicate rung / bracket. Ladder assists are not present on most manholes.

MANHOLE ACCESSORIES (IF APPLICABLE)

Light(s) Operational & in Good Repair: Fan Operation & in Good Repair:
Outlet Operation & in Good Repair: Shelf / Mounting Panel Secure & in Good Repair:
Adhesive Joint Sealed with No Leakage Visible:
Intermediate Platform Grating Secure & in Good Repair:
Intermediate Platform Locked:
Bench Secure & in Good Repair:

INTERIOR CONDITION

Visual Evidence of Surcharging Since Last Inspection: Height of Surcharge: _____
Does the Packaged Metering Manhole Need Cleaning:
Interior Notes: _____

Use Flume Inspection Report in conjunction with this report for flow measurement portion of the Packaged Metering Manhole.