

HYDRO→FLO

TECHNOLOGIES, INC.

— THE ART & SCIENCE OF WASTEWATER TREATMENT —

Installation, Operation & Maintenance Manual

General IO&M Considerations

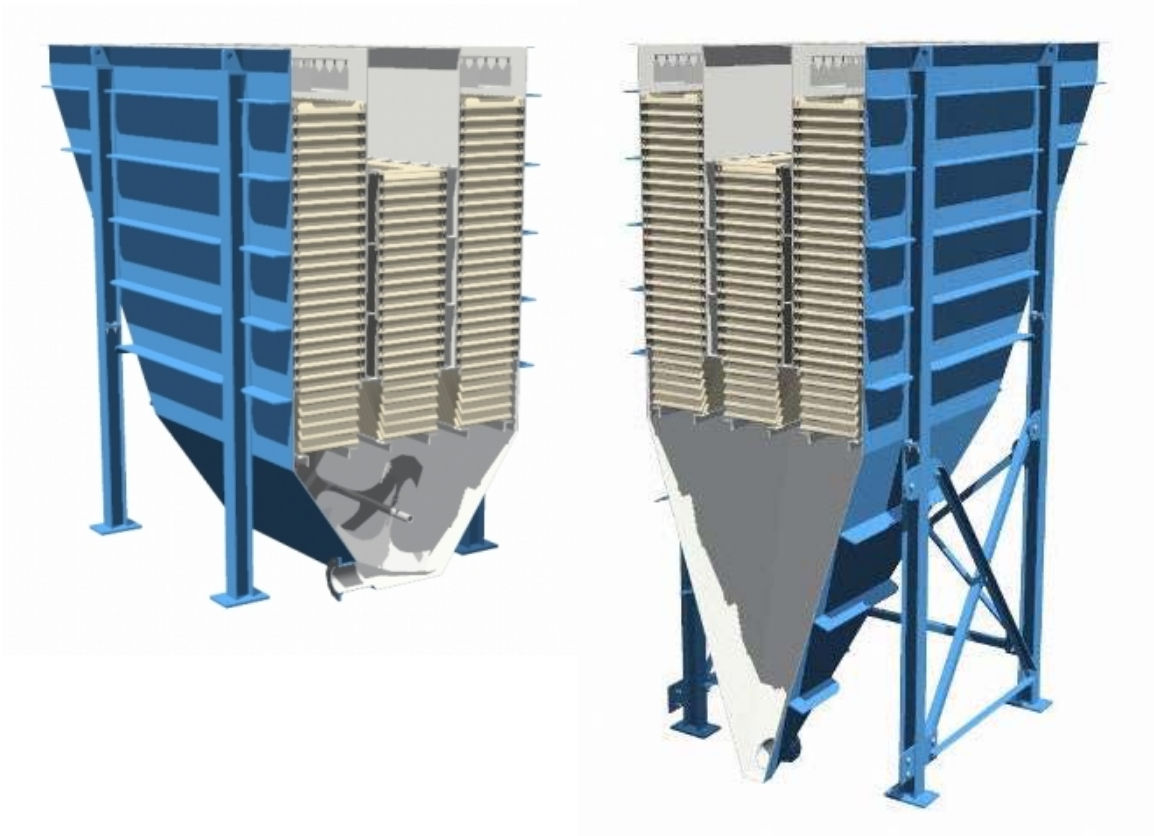
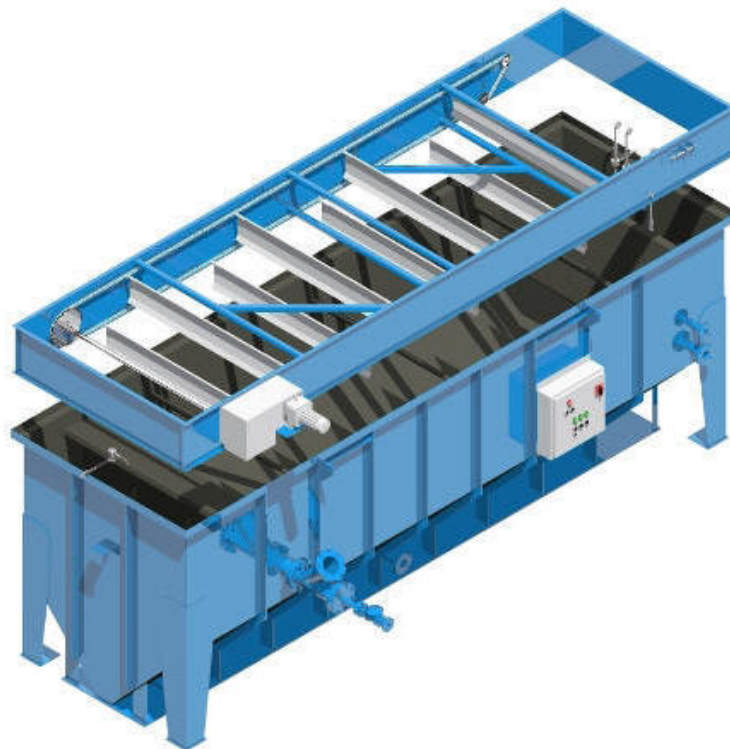


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1. PREFACE

The information found in this manual is based on years of experience with the installation, operation and maintenance of this type of equipment, however it is intended only as a guide. The methods that are available to you may require other, more appropriate procedures for the proper installation of this equipment. Proper care and safety should always be paramount. Use only qualified technicians and procedures in compliance with local building codes.

1.1. WARRANTY

Hydro-Flo Technologies, Inc. warrants its equipment to be free from defects in materials and workmanship for a period of one year from startup or 16 months from shipment, whichever occurs first. All component manufacturer's warranty will supersede this warranty and shall take precedence.

HYDRO-FLO TECHNOLOGIES, INC. will not accept any back charges for warranty work, changing, adjusting, servicing or any other work that has not received advanced written authorization.

HYDRO-FLO TECHNOLOGIES, INC. will grant authorization for the changing, adjusting or servicing of this equipment only in the interest of warranty repair, or to correct any deficiency discovered. Such work will only be considered upon written agreement from Hydro-Flo Technologies, Inc. to do so.

1.2. INSPECTION

Thoroughly inspect all equipment upon arrival. If any items are missing or damaged, note this on the shipping papers and contact your transportation company representative and HYDRO-FLO TECHNOLOGIES, Inc. immediately.

Touch up all coatings damaged during shipment immediately. See the specification information for this particular piece of equipment for proper procedures for coatings touchups.

1.3. STORAGE

If you are not ready to install the equipment upon arrival, store it in an area away from traffic. The ground should be level and free of any sharp objects that might damage the structure or coatings. Store the equipment with all factory packing intact as much as possible until ready for installation. Store the equipment out of the elements, preferably indoors. If this is not possible, make sure the equipment does not fill with water and debris. Verify that ancillary components (accessories, pumps, instruments) were not shipped inside the unit prior to outdoor storage. If components were shipped inside of the unit, insure that they are stored in a manner that is appropriate with their respective I, O & M manuals.

For outdoor storage, we recommend you cover the equipment with a tarp!

Store any pumps and other accessory items in a similar fashion.

1.4. ADDITIONAL INFORMATION

For additional information that may be required for this installation or for answers to any questions you might have, contact:

Hydro-Flo Technologies.
3985 Commerce DR.
St Charles, IL 60174
Tel: (630) 762-0380 Fax: (630) 762-0390

www.hydroflotech.com

2. INSTALLATION

CAUTION! Prior to off-loading and installation of equipment, study the general arrangement drawing(s) as well as all documentation and make yourself familiar with all aspects of the installation, operation and maintenance of this equipment.

2.1. TOOLS REQUIRED FOR INSTALLATION

Masonry drill with masonry bit set for the installation of the equipment anchors (if applicable).

Standard socket set, wrench set and miscellaneous drift pins for the installation and adjustment of the effluent weir.

Leveling equipment (laser level, carpenter's level, etc...) for leveling the length and width of unit.

Machinery shims and grout for leveling the unit

2.2. LIFTING THE UNIT

Crane (or fork truck) may be required for offloading and placing the equipment. The size and type of equipment used for the offloading and placement of the equipment is site specific and must be determined by the personnel at the site. The lifting, offloading and placement of the equipment is the responsibility of the installer.

Warning: Unit must be empty (no water) when lifted!

All units are designed to be lifted vertically and moved into place. When picking with a crane, always lift the unit with a spreader bar to prevent damage to the equipment.

Attach lifting cables directly to all lifting eyes on the unit. Check load balance and readjust if required.



2.3. ANCHORING AND LEVELING OF EQUIPMENT

For the equipment to operate correctly the unit must be level.

Steps for anchoring and leveling of the equipment are as follows:

1. Make sure that the ground is free of any sharp objects that might damage the coating.
2. Set the tank in position on a level floor or pad.
3. Check the equipment for level from side to side and from end to end. Any type of leveling equipment is applicable, but by using a length of clear tubing filled with water is usually the easiest and most accurate. The water/air interface in the clear tubing (at both ends) should line up with the equipment consistently at several points around the perimeter of the equipment.
4. If the floor or pad is not level, shim equipment till level.
5. Mark the anchor bolt locations.
6. Move the equipment aside (if necessary) and drill holes for the anchors of your choice. Install the anchor bolts per the manufacturer's recommendations. Check local codes for seismic or other anchoring requirements.
7. If you had to move the equipment to drill the anchor bolt holes, set the unit back in place.
8. Once the unit is back in place, check for level again and finish the installation off with a good quality machinery grout. Follow the grout manufacturer's instructions for shimming and grouting when leveling the unit.
9. Note: If grouting is required, the height the anchor bolts extends above the surface must be increased to compensate for the thickness of the grout layer.
10. Securely tighten anchor bolt nuts.



*HYDRO-FLO TECHNOLOGIES does not supply the anchor bolts.

2.4. PLUMBING CONNECTIONS

Connections do not have to be made in the order listed below. Review your situation and make the plumbing connections in the most logical order for your installation.

The plumbing connections typically required, include, but are not limited to:

1. All influent connections
2. All effluent connections
3. Any equipment drains
4. Any vent connections
5. Any and all waste product connections such as sludge and oil draw off connections



Please refer to your project specific drawings and documentation for details.

The fittings on the unit are not designed to support a load due to connecting piping. When making plumbing connections to the unit, the plumbing must be properly supported to carry the weight of the plumbing when full of water. **DO NOT USE THE EQUIPMENT AS A PIPE SUPPORT.** Damage caused to this equipment by improperly supported plumbing will void the warranty.

HYDRO-FLO TECHNOLOGIES, INC. cannot honor a warranty for tank failure due to improperly supported piping or incorrect installation.

2.4.1. CONNECT THE EFFLUENT PLUMBING

The effluent plumbing must be the same size or larger than the nozzle size on the equipment. Do not reduce the size of the effluent piping as this might cause hydraulic overloading of the equipment. Also, try to run the discharge piping as short a distance as possible, through as few changes of direction as possible and at a pitch of not less than 1/16" per foot.

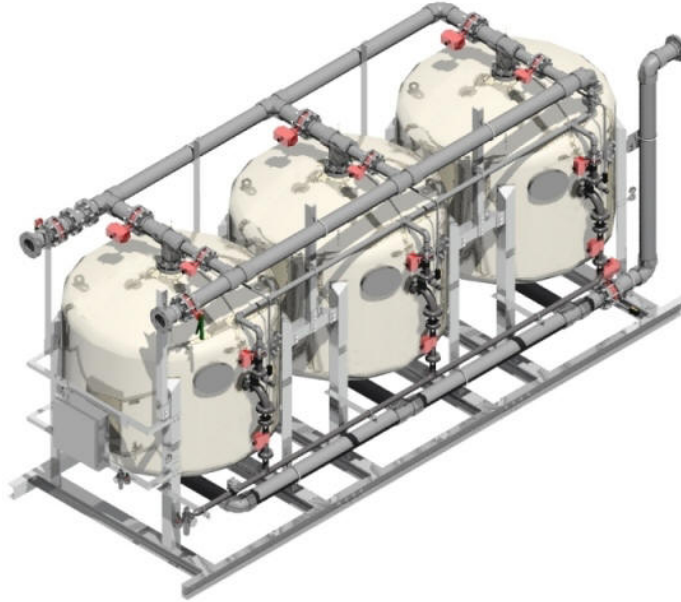
2.4.2. CONNECT THE INFLUENT PLUMBING

The influent plumbing must be the same size as the nozzle size on the equipment for a minimum of 20 pipe diameters. Do not reduce the size of the influent piping as this might cause inappropriate velocities before it enters the unit. Also, try to run the inlet piping as short a distance as possible, through as few changes of direction as possible and at a pitch of not less than 1/16" per foot.

2.4.3. CONNECT ALL WASTE PRODUCT PLUMBING

Connect a valve to the waste product draw-off flange and run a short length of pipe to a place where the waste product can be periodically decanted. When selecting a valve make sure that it is suitable for use with the type of product collected in your unit. Plumb

up all waste product draw off nozzles for best evacuation of accumulated product. This includes the fittings on both sides of the equipment.



2.5. ELECTRICAL CONNECTIONS

SAFETY FIRST! Never perform any work or make any adjustments to ANY mechanical or electrical system without first disconnecting and locking out power to the unit or serious injury can result.

Refer to project specific electrical drawing for all required field connections.

2.6. MECHANICAL

SAFETY FIRST! Never perform any work or make any adjustments to ANY mechanical or electrical system without first disconnecting and locking out power to the unit or serious injury can result.

Prior to sustained operation, bump all motors to ensure proper rotation.

The unit may be equipped with a mechanical sludge auger/thickener. These units will be equipped with a gearbox for speed reduction. The standard gear reducers are maintenance free and may be installed in any position.

3. MAINTENANCE

3.1. COATING MAINTENANCE

Touch up all damaged coatings immediately prior to putting the clarifier into service.

Regularly inspect the coatings ANNUALLY for damage or degradation and repair immediately to prevent severe damage. Drain the clarifier completely, wash out any accumulated sludge and inspect the coatings from the top to the bottom sludge chamber. CAUTION: Observe proper confined space entry procedures for internal inspections. Pay particular attention to coating condition at the weld seams, and any corners.

See the specification information for this particular piece of equipment for proper procedures for coatings touchups for the coatings applied to this equipment. Pay particular attention to coatings condition and perform touchups after installation of any accessory equipment such as mixers, electrical, and media plate packs.

Coatings used can vary depending on project requirements.

See Project Specific Drawings and Data for coatings used for your project

3.2. EFFLUENT QUALITY

Regularly check the effluent quality of your unit. If you notice any loss in effluent quality, take steps to correct the situation immediately. Some areas to check if your effluent quality has deteriorated are:

1. Have you exceeded the unit's maximum rated flow?
2. Have the influent characteristics changed due to some process change upstream?
3. Are you chemically treating before the unit and if so have these chemicals changed?
4. Are the chemicals being used for treatment completely mixed and are they fresh?
5. Has the sludge collected to the point where it has begun to interfere with the media packs?
6. Have you introduced anything new or foreign into the waste stream?