

3M™ Filtration Products

3M™ High Flow Sanitary Design Filter Housing (10”) Installation and Operation Instructions





Failure to follow installation, operation, and maintenance instructions may result in unit failure and will void warranty.

Safety Information

Please read, understand, and follow all safety information contained in these instructions prior to the use of this 3M High Flow Sanitary Design Filter Housing. Retain these instructions for future reference.

Intended Use

This 3M High Flow Sanitary Design Filter Housing has been evaluated for use in the filtration of food & beverage process fluids and has not been evaluated for use in any other applications. It is the end user’s responsibility to ensure process fluids are compatible with the materials of construction and can be safely used. The product is intended for installation by qualified installers in accordance with these installation instructions, local regulations/codes, and industry requirements.

EXPLANATION OF SIGNAL WORD CONSEQUENCES	
 WARNING	Indicates a potentially hazardous situation, which, if not avoided, could result in serious injury or death.
 CAUTION:	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and/or property damage.
NOTICE	Indicates a situation which, if not avoided, could result in product or system damage.
 WARNING	
<p>To reduce the risks associated with explosion, burns, or exposure to contaminants:</p> <ul style="list-style-type: none"> Always shut off inlet effluent supply and depressurize system as shown in manual prior to service. <p>To reduce the risks associated with fire or explosion:</p> <ul style="list-style-type: none"> Removal of packaging used with this product may produce static electrical charges or sparks, risking combustion of flammable or explosive materials, liquids, or gases. Only open packaging in an area free of flammable and explosive materials. <p>To reduce the risks associated with explosion and exposure to contaminants:</p> <ul style="list-style-type: none"> Always operate the housing within the pressure and temperature design limits. Refer to the housing nameplate for this information. Do not modify the vessel or its components. Over-pressurization of liquid should be prevented by the installation of proper pressure relief valves. Never, for whatever reason, open the filter housing’s closure nuts and bolts during operation or under pressure regardless of how low the pressure is. Use only 3M replacement parts. Replacement parts must be installed by personnel trained and equipped to service filter vessels. Ensure system is maintained above the freezing temperature of the process fluid. Do not use a vessel that has been damaged or has damaged components. <p>To reduce the risks associated with impact and exposure to contaminants:</p> <ul style="list-style-type: none"> Ensure product does not experience any external loads or forces on the vessel. These systems have not been evaluated for seismic activity. <p>To reduce the risks associated with explosion:</p> <ul style="list-style-type: none"> Use filter for liquid service only. Not for continuous gas service. <p>To reduce the risks associated with impact:</p> <ul style="list-style-type: none"> Do not open or remove filter housing cover unless the filter housing is bolted and anchored in place <p>To reduce the risks associated with exposure to contaminants:</p> <ul style="list-style-type: none"> Ensure that all system pressure has been relieved and inlet/outlet valves are closed prior to opening the system to atmosphere. Avoid water hammer. Always use appropriate personal protective equipment (PPE) when installing or servicing the filter housing, or when changing filter elements. This product must be installed per the appropriate federal, state, or local plumbing and pressure standards to ensure safe use in the desired application. Dispose of used filter housing or cartridge in accordance with federal, state, and local laws and regulations. 	
 CAUTION	
<p>To reduce the risks associated with pinch hazards:</p> <ul style="list-style-type: none"> Do not place hands or fingers under the vessel cover where they can be pinched. 	
NOTICE – To reduce Product damage:	
<ul style="list-style-type: none"> Ensure differential pressure is not exceeded prior to filter cartridge replacement. 	

Introduction

3M™ High Flow Sanitary Design filter housing meets general-purpose industrial and food & beverage filtration needs, it is designed to accept a 10 inch 3M™ High Flow series filter cartridge. All wetted surfaces are constructed of 316L stainless steel. The housing closure V-band clamp is of 300 series stainless steel. A single V-band clamp housing closure and independently sealed cartridge within the housing provide quick and easy cartridge change-outs.

CAUTION

To reduce the risk associated with property damage:

- Do not exceed maximum operating pressure or temperature limits.

IMPORTANT NOTE

- Filter housings are normally shipped without a cartridge. Before putting filter housing in service, be certain that the proper filter cartridge is installed. 3M High Flow series filter cartridge installation/operating instructions are packaged with each box of filter cartridges.

Operating Instructions

Operating Data

Specification	10" High Flow Sanitary Design Housing
Maximum Operating Pressure	150 PSI [10 BAR] / Full Vacuum -15 PSIG [-1.0 BAR] at 195 °F [90 °C]
Connection Inlet/Outlet	1.5" Sanitary Clamp closure

Construction Materials

Cover & Sump	316L SS
Standard Cover Gasket	EPDM
Cartridge Requirements	3M™ High Flow Filter Cartridge

I. Housing Installation

- Unpack and inspect the housing for any shipping damage.
- Remove the protective covers from inlet and outlet nozzles.

WARNING

To reduce the risk associated with crush related injuries:

- Do not attempt to open the housing cover unless housing is bolted and anchored in place.

- Ground the housing in accordance with local code requirements.
- Using the appropriate fittings and fasteners (not provided), connect the inlet/outlet nozzles to the system piping. Installation of valves (recommended) into the system piping upstream and downstream in close proximity to the housing will allow for easier maintenance when replacing the filter cartridges. Additionally, installation of pressure gauges will facilitate identifying pressure drop, thereby indicating when filter element replacement is required. Refer to Figure 2.

Figure 1. 3M™ High Flow Sanitary Design Filter Housing 10"

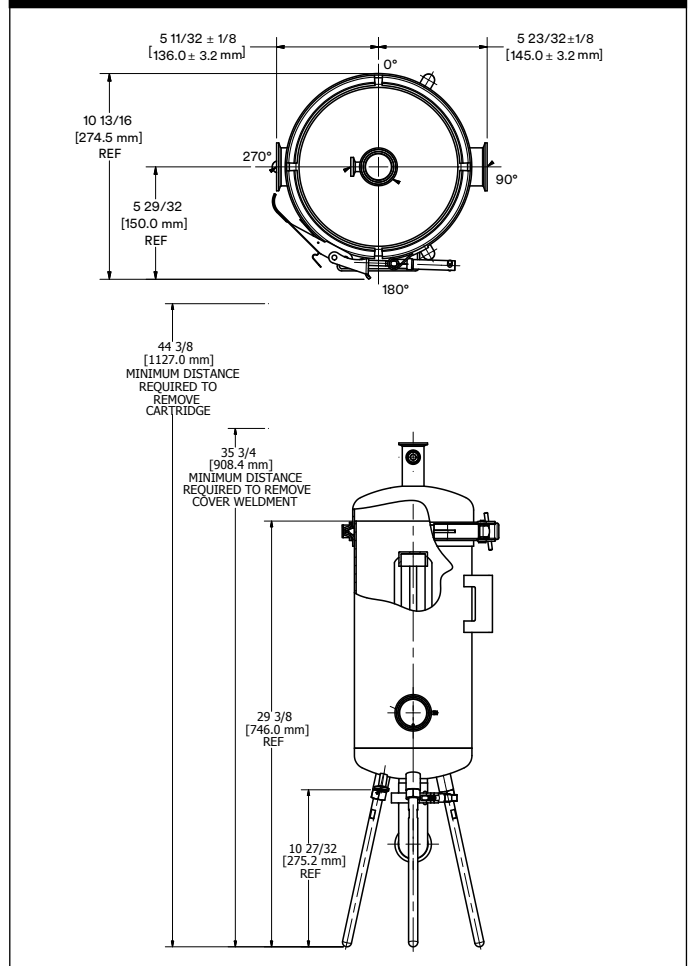
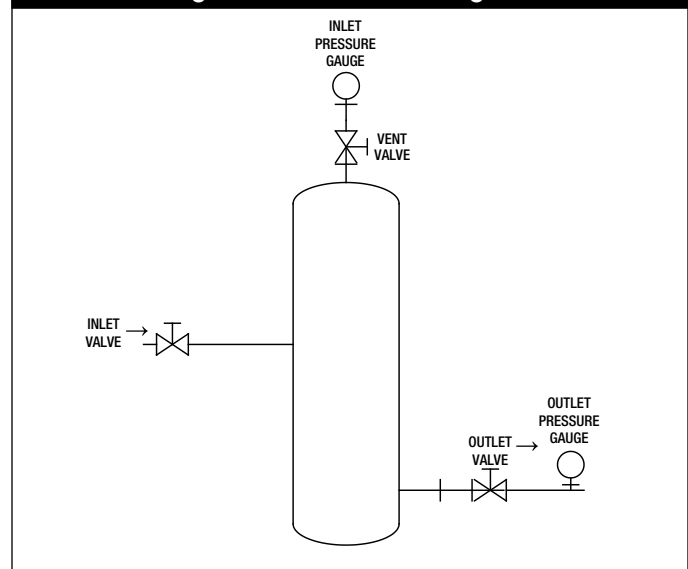


Figure 2. Installation Diagram



II. Installing Vent Valves

The filter housings are supplied with a vent port and gauge port on the cover. Installation of a 1/2" sanitary vent valve (recommended) into the vent port will allow for easier evacuation of air from the housing during preparation for operation. The inlet pressure gauge can be installed on the gauge port on top of the cover. Refer to Figure 2.

III. 3M™ High Flow Filter Cartridge Installation/Replacement

⚠ CAUTION

To reduce the risk of exposure to contaminants:

- Always use appropriate personal protective equipment (PPE) when installing, operating or changing the product as per your standard operating procedure.
- Dispose of used cartridges in accordance with federal, state, and local laws and regulations.

Cartridge Installation

1. Remove cartridge from packaging and ensure that the cartridge O-ring is properly seated in the O-ring groove of the bottom end-cap. This O-ring is not reusable. Verify filter housing and filter cartridge compatibility with the chemistry and temperature of the process fluids. O-rings are available in a variety of materials designed to be compatible with most manufacturing processes.
2. Lubricate cartridge O-ring with water or process fluid to ease installation.
3. With the cartridge handle approximately perpendicular to the direction of the flow, insert the cartridge into the filter housing and onto the cartridge receptacle on the diaphragm. Push the cartridge into the filter housing until it is fully seated. To ensure proper cartridge seating, gently twist the cartridge handle back and forth while pushing the cartridge into the housing. Do not force, jam or drop the cartridge in place.
4. Slowly turn the cartridge clockwise (Figure 3) holding the handle firmly until it stops (after 90° rotation). At this point, the O-ring is fully engaged into the cartridge receptacle. Maximum allowable turning torque: 100 inch-pound. To ensure that the cartridge is locked into the cartridge receptacle, gently pull the cartridge as if removing it but without rotating the filter cartridge handle. If the cartridge releases, repeat steps 3 and 4.
5. Lubricate cover gasket with water or process fluid to ease installation. Assemble gasket and housing cover; center cover flange with housing flange. Position the cover clamp and tighten by hand until T-bolt gap is closed within 1/2" (Figure 4). Ensure the T-bolt is engaged vertically in the clamp channel. Do not overtighten.

IV. Starting

With the vent valve open, open the inlet valve and slowly fill the filter housing. When a continuous stream of liquid comes out of the vent hole, close the inlet valve and close the vent valve. Open the inlet valve and check for leakage. If leakage is detected, shut the inlet valve, open the vent valve to relieve pressure, and re-tighten the V-Band clamp. Repeat leakage check. Open the inlet and outlet valves. Filter housing is now in operation.

V. Cartridge Life

3M™ High Flow series filter cartridges have been designed to filter a wide range of industrial fluids. The period at which cartridges should be replaced can only be determined by actual experience in your system. However, it is generally recommended that the cartridges be replaced when differential pressure across the cartridges reaches 25-35 psi, or at least once per year whichever condition occurs first. Do not exceed 35 psid.

Figure 3

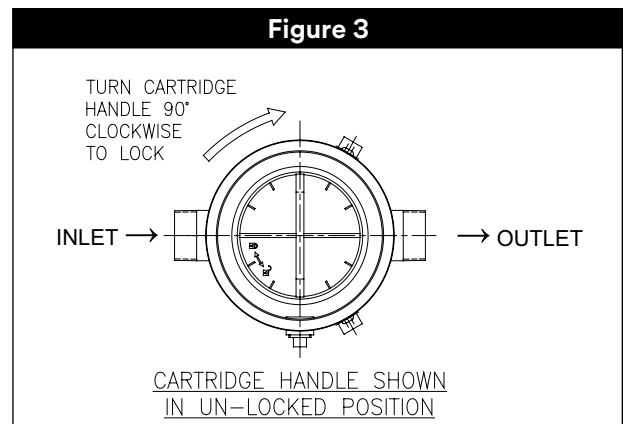


Figure 4

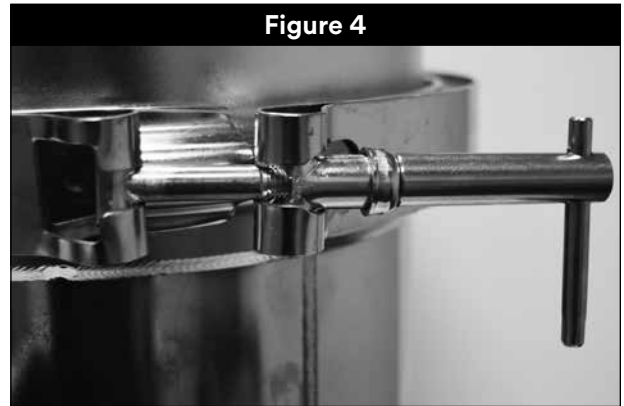
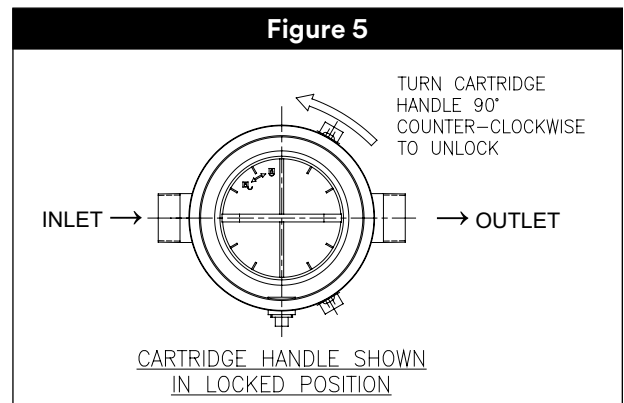


Figure 5



IMPORTANT NOTE

- Do not exceed recommended maximum pressure drop across the filter cartridge as doing so may result in physical damage to the filter cartridge.

Cartridge Replacement

1. Shut off inlet and outlet valves. Open vent valve to relieve pressure. Drain the vessel out the outlet port.
2. When the filter housing is drained, loosen cover clamp nut and unsnap T-bolt.
3. Turn the filter cartridge handle 90° (Figure 5) counter-clockwise until it releases out of the cartridge receptacle. Pull the cartridge handle upward to remove the cartridge from the filter housing. Clean all parts thoroughly and inspect cover gasket and replace if damaged.
4. Inspect the following items for damage and replace if necessary:
 - T-bolt threads (look for deformed/sheared threads).
 - Cover flange seal surface (look for scratches/deformation).
 - Housing flange seal surface (look for scratches/deformation).
 - Clamp (inside surfaces, look for cracks, deformation).

VI. Cartridge Identification

Since cartridge selection depends on each specific application, identification cannot be indicated on the filter housing label. The user should determine the type (usually found on the filter cartridge package) and record below the proper cartridge for each particular application.

Part Description: _____ Part Number: _____

Spare Parts

Part Number	Description	Material
6437331	Gasket	EPDM

Product Selection and Use:

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer:

Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

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Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



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