

Universal Filtration Bag Filter System Installation & Operation Manual



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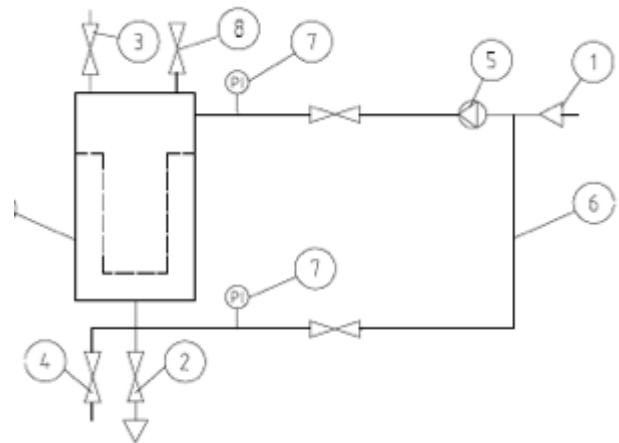
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1. Single Bag Filter Vessel Installation

Installation Diagram

Here is a diagram of a typical filter installation

1. Inlet
2. Outlet
3. Vent
4. Drain
5. Pump
6. Circulation line
7. Pressure gauge
8. Safety device against excess pressure
9. Filter housing



1(a) Start up



We suggest that you clean up the housing before use.

Cleaning of particles inside the housing
Filter housings are usually blasted with glass beads and cleaned afterwards. It is unavoidable that some beads may remain in the housing. It is suggested to clean the filter housing before use.

1(b) Operation

Cover lid - opening

To open the housing first loosen the eye nuts on the top The swing eye bolt can be loosened

using a small bar and allow it to be swung clear of the cover.

The cover of the housing may now be hinged back against the end-stop.

Filter bag installation

Remove the filter bag label before use and retain it for tracking purpose, the filter bag of the right micron size should then be inserted into the restrainer basket, which is used to support the filter bag.

The sealing ring of the filter bag must be positioned exactly on the edge of the restrainer basket to provide a good seal. The filter bag should be opened against the basket so that the bag is fully supported.

Cover lid - closing

Before closing the cover ensure that the sealing surfaces along with the gasket are clean and damage free. Check that the gasket is sitting in its correct position. Replace gasket if faulty.

Start of Filtration

The filter is now ready for use. Slowly open the valve on the inlet. (Avoid opening too fast as Shock loads can damage the filter media and the housing.) The vent valve should be open to ensure

no air is locked in the top of the filter housing. The valve should be closed as soon liquid runs out. In all cases (whether or not hazardous liquids are being filtered) precautions should be taken to prevent injury from spraying liquid.

If the filter is not vented any air in the filter will reduce the efficiency of the filter media.

Generally if air gets into the system it should be vented off immediately. When filtering gaseous fluids the filter should be vented at regular periods.

The outlet valve is now to be opened slowly. Due to the fact that filter bags may release some particles when first used, we recommend recirculation of the filtrate. The length of time for re-circulation will depend on the individual filter bag and level of filtration. This will ensure particles from newly installed filter bags will be collected and safely removed from filtrate.

The max differential pressure for filter bag is 2 Bars, we recommended that you install pressure gauges before and after the filter housing to monitor the differential pressure and change the filter bag at condition of differential pressure not exceeding 2 Bars.

profile gasket Filter Bag Selection



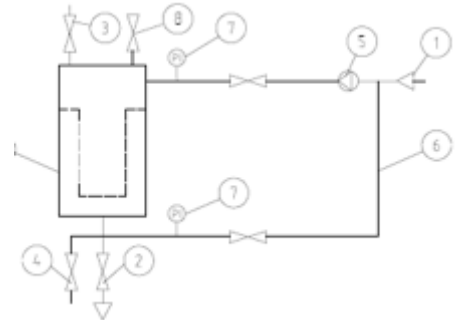
Please use Original Universal Plastic Collar fully welded filter bag to ensure good sealing without by pass

2. MF & VMF Multi Bag Vessel installation

Installation Diagram

Here is a diagram of a typical filter installation

1. Inlet
2. Outlet
3. Vent
4. Drain
5. Pump
6. Circulation line
7. Pressure gauge
8. Safety device against excess pressure
9. Filter housing



2(a) Start up

We suggest that you clean up the housing before use.

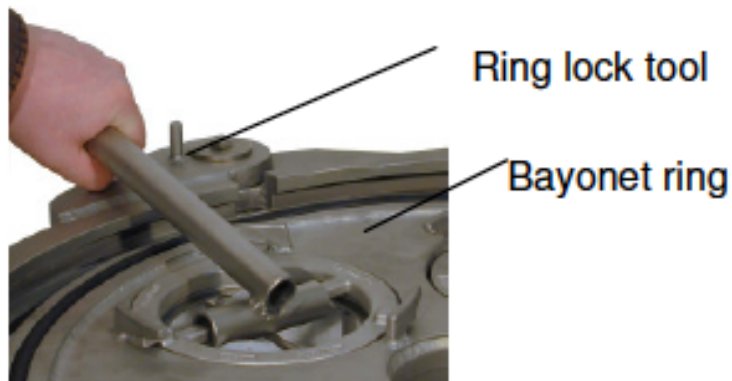
Cleaning of particles inside the housing, filter housings are usually blasted with glass beads and cleaned afterwards. It is unavoidable that some beads may remain in the housing. It is suggested to clean the filter housing before use.

2(b) Operation

Cover lid - opening

To open the housing first loosen the eye nuts on the top. The swing eye bolt can be loosened using a small bar and allow it to be swung clear of the cover.

The cover of the housing may now be hinged back against the end-stop.



Filter bag installation

Remove the filter bag label before use and retain it for tracking purpose, the filter bag of the right micron size should then be inserted into the restrainer basket, which use to support the filter bag.

The sealing ring of the filter bag must be positioned exactly on the edge of the restrainer basket to provide a good seal. The filter bag should be opened against the basket so that the bag is fully supported.

Cover lid - closing

Before closing the cover ensure that the sealing surfaces along with the gasket are clean and damage free. Check that the gasket is sitting in its correct position. Replace gasket if faulty.

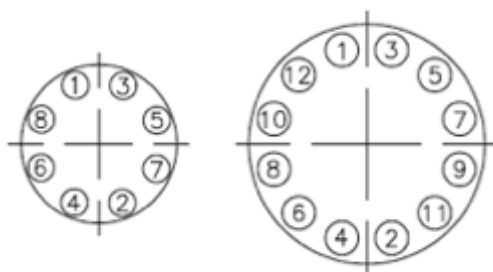
It is not necessary to over tightening of bolting of cover as the vessel is sealed with O ring, operator has to follow the sequence below to ensure the cover is properly close, over tightening may damage the bolts and lid. It is advised to tight in three rounds,

First round - 50% of torque

Second round – 80% of torque

Final round – max torque (refer to the table)

Max torque in Nm						
Metric ISO thread	M12	M16	M20	M24	M 27	M30
Hex/ring-nut/ thru bolt	36	86	168	290	425	580
Segment clamp screw	-	80	200	340	550	680



Start of Filtration

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The max differential pressure for filter bag is 2 Bars, we recommended that you install pressure gauges before and after the filter housing to monitor the differential pressure and change the filter bag at condition of differential pressure not exceeding 2 Bars.

2(c). Installation of VMF quick opening multi bag vessel



With our unique quick opening mechanism design, to open and close in a few seconds which make the operation becomes so easy to handle.

This unique quick opening mechanism comes with a pair of high precision machining V-shaped clamp that can be opened and closed using a hand operated spindle.

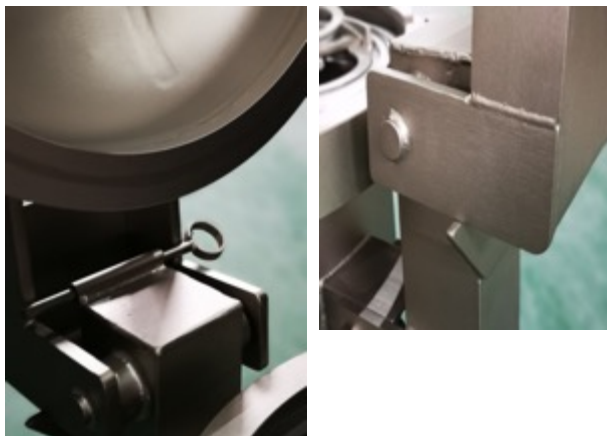


There is a handle that linked to the pressure relief valve need to be in lock position for complete close operation during filtration process.

It is also for safety measurement consideration to prevent mis-handling of sudden opening of quick opening mechanism.



After filtration for changing of filter bag, the operator first needs to open the pressure relief valve by lifting up the handle in order to operate the spindle to release the cover.



With the help of spring balancer incorporated in our filter vessel design, operator can easier lift up the cover and rest on at 110 deg position, there is a safety pin to lock the cover arm for safety precaution consideration to prevent the cover from dropping down



After changing the filter bag, each bag need to b securely lock with cover ring by using a tool provided to ensure each bag are properly installed, no by pass allowed.

2(d) Safety Precaution

Understanding in filtration operation is essential, includes process, type of filter bag uses and general safety precaution.

Please take note of -

- Do not exceed the permissible pressure rating or design temperature during operation
- Filtration of non-compatible fluids
- Use of incorrect spare parts (e.g. bolts and gaskets)
- Do not open the vessel opening under pressure or improper emptying or filling

2(e). Maintenance

The filter itself does not need any special maintenance with normal use. All parts should be regularly checked for corrosion and other damage.

Change new filter bag when differential pressure reach 1.5 Bar (Max 2.0 Bar) or at regular line shut down time.

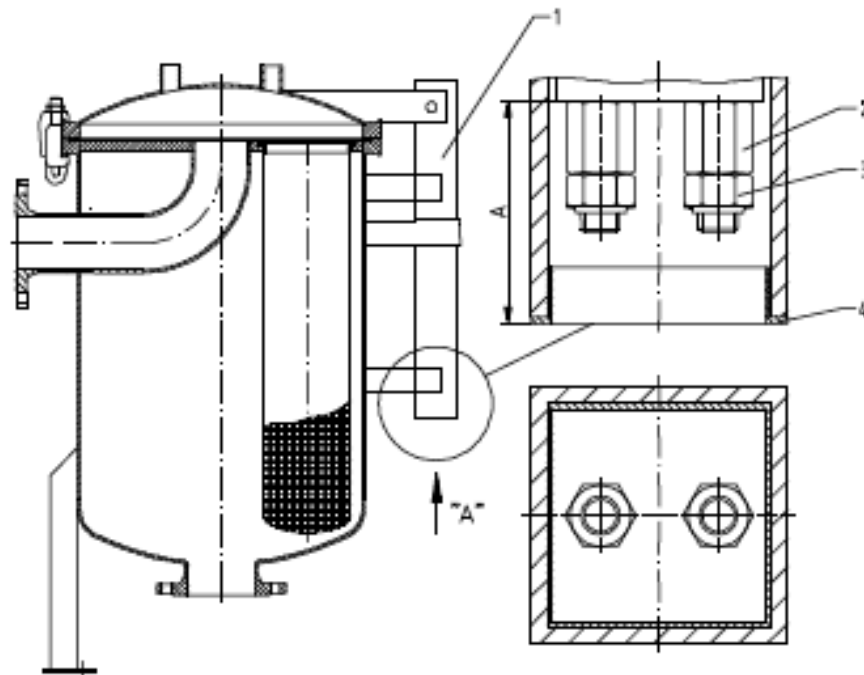
To remove the filter bag. Operator has to release the pressure in the housing first by opening the pressure relief valve. Every opening or clausing of filter, operator needs to check the gasket condition to ensure proper sealing, in case of damage, gasket need to be replaced immediately

Adequate cleaning and maintenance of all equipment is necessary at all times for trouble free operation. we recommend that all service and maintenance be documented, especially the condition of the seals and sealing surfaces and the function of moving parts.

The spring balancer cover lifting device has been properly set up at the factory before shipment, however the installation of pressure gauge, pressure relief valves etc. may increase the weight of the cover should may need to do some adjustment of the spring,

To do adjustment, first you have to remove the cap below the spring lift device, There are two hex-nuts that can be adjusted for the tension of the spring, by turning at clockwise direction to increase the tension of the spring, and turning at anti clockwise direction for reducing the tension of the spring

The spring lift device must be protected against aggressive and corrosive materials to prevent corrosion,



The removal and maintenance of the spring lift device may only be done when the cover is fully opened (usually upright position of the cover). Under tension the spring contains potential energy. This energy may be released suddenly and can lead to serious damage to people and property.

3. General Instruction

This operating manual contains installation, maintenance as well as all safety issue need to be taken note before use.

Universal bag filters are constructed and manufactured under strict Control under our ISO 9001 quality management system.

For operation safety, user need to take note during installation, impact of environment, hazard issue etc, he should follow factory safety guidelines and decide whether additional measures are necessary to ensure operator and facility safety.

The filter must be operated in a safe manner.

All normal and customary rules and regulations, as well as existing National regulations for safe operation and avoidance of injury must be followed.

No work on a filter should be performed without first shutting it down completely and releasing the vessel pressure. Universal filter housings are to be serviced by authorized personnel only.

This operating manual is part of the pressure equipment and it must be available at all times for the operator to look for necessary information in case of loss or damage happened.

3(a). Residual hazards

Residual risks due to vessel pressure and temperature

It is important to take note during new filter vessel installation to have calibrated pressure gauge set up at inlet and outlet of filter vessel.

Should the temperature of the medium be a safety hazard (e.g. by exceeding the boiling point), a temperature measuring device has to be installed.

Depending on the operating conditions, the surface of the filter vessel may become very hot, therefore adequate safety measures must be taken by the customer when operating the filter to protect against the danger of getting burnt.

Appropriate precautions can be:

Isolation, protection against contact and access restrictions

Residual hazard due to pressure:

It is important to prevent the actual operating pressure runs exceeding the rated design pressure of the filter which will cause high hazard to the plant and operators.

Plant engineer have to ensure at any point in time, filter always operate lower than design pressure, check with supplier to assure the right rating filter vessels are selected

Residual hazard due to corrosion or chemical effects:

Before selection of the filter vessel with right type of construction materials, user needs to provide necessary information of the liquid to be filtered to confirm chemical compatibility with the material of the filter vessel and filter media.

Users also have to take into consideration the effects of the liquid like corrosion or other chemical effects being filtered on the filter housing and accessories, likes filter body, basket, gasket and bolting etc...

Regular inspection must be performed while the equipment is in service. It is recommended to record on the inspections and to keep the record.

Warning notices

Factory are advised to place warning signage on the filter vessel as follows to ensure safe operation at all times.

Warning: Do not open under pressure

3(b) Storing and transport, installation and adjustment

Storage

All filter bags are packed in proper carton with a big plastic bag inside and need to store in dry, free from chemical warehouse to ensure no contamination.

Transport and installation precaution

Filter vessels are in general heavy, it need to take special care during transportation with proper forklift and carrying belt, special precaution need to take note on the weight and lifting points to ensure the work are carry out in safety manner.

Please refer to forklift manual for more detail when lifting the filter vessels.

Installation

It is important to take note that proper flange connection, pressure gauge, vent and drain valves are proper set up during the filter vessel

installation, the operator should have the checklist to go through to avoid miss out items, study the installation and study manual carefully before operation.

As for filter bag installation, please assure the right type of filter bags are selected for the process, the specification and model no. are indicated on each bag label, remove the bag label before use.

Ensure operators are trained before using the filter vessel, they should be aware about the procedure to operate it properly, know how to read the operating pressure from the pressure gauge, it is critical not to exceed rated pressure of the vessel.

It is critical to take note that user must go through their process parameters and select the right material for filter vessel, Sealing O ring as well as type of filter bags to be used, to ensure these materials are compatible to their process. Universal filtration is not responsible for and provides no guarantee for the suitability of materials.