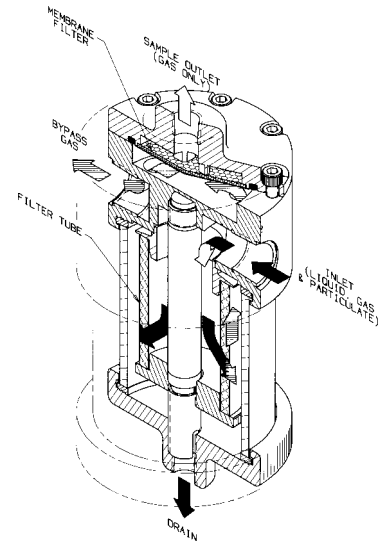


# TECHNICAL INFORMATION

## Installation, Operation and Maintenance Balston® Models 39 and A39/12(G) Hydrophobic Sample Filters



**These instructions must be thoroughly read and understood before installing and operating this product. If you have any questions or concerns, please call the Technical Services Department at 800-343-4048, 8AM to 5PM Eastern Time (North America only). For other locations, please contact your local representative.**

### General Description

The Balston Hydrophobic Sample Filter (HSF) effectively protects analyzers and sample system components from sample stream contaminants (water, particulate). Balston offers two versions of the HSF. The Model A39/12(G) combines a coalescing filter and membrane separator into one assembly. The first stage of filtration (coalescing) removes oil, water, and particulate. The second stage of filtration (hydrophobic membrane) blocks entrained liquids, protecting instruments from damage. The Model 39 has only the hydrophobic membrane installed. (**Note:** The Model 39 filter should only be used if coalescing filtration is already installed on the sample line.) The Balston HSF assemblies have been designed to reduce the probability of liquid being forced through the membrane by a high pressure differential.

### Filter Housing Installation

**All installation, operation, and maintenance procedures for the Balston Hydrophobic Sample Filters should be performed by suitable personnel using reasonable care.**

Filter housings are pressure vessels and all system connections and accessory outlets must be leaktight. It is good practice to apply pipe sealant to the male threads before connecting the pipe to the filter ports. For all stainless steel filters, a non-galling thread lubricant must be used on the threads of the filter bowl. The lubricant must be compatible with the filtered media. The use of lubricant facilitates disassembly at a later time, if necessary.

Install the Hydrophobic Sample filter directly upstream from the analyzer to avoid condensation or recontamination in the piping downstream from the filter assembly. All models of the Balston HSF assemblies have 3 labelled ports: inlet, bypass, and sample. When installing the Balston HSF filter, pipe the unfiltered sample stream to "inlet". Pipe the flow from "bypass" back to the process or bulk sample stream. Pipe "sample" directly to the analyzer. **The bypass port must never be plugged or the membrane will rupture.** (**Note:** When installing the Model 39 filter, the inlet and bypass ports may be interchanged for ease of installation.) **The sample port must always be piped to the analyzer.**

For all HSF installations, install a flow control valve (or flow restrictor) on the bypass line and on the sample line to the analyzer (if a valve is not incorporated into the analyzer design). See Figures 1 and 2 for installation diagrams. All fittings must be leaktight before applying gas pressure to the filter.

The Model A39/12(G) is shipped with a plug for the drain port. The filter assembly should be drained on a regular basis to ensure that moisture does not get re-entrained into the sample line. Parker Balston has many drain valves available. Please contact your local representative for a recommendation.

The Balston HSF assemblies may be pipe mounted if the size and weight of the housing and piping permit it. If the filter must be mounted, a bulkhead fitting (P/N 11098) or a mounting bracket (P/N 11095) is available to mount the filter housing.

## Notes:

- 1 Minimize the sample gas pressure to the inlet port of the filter assembly. A high differential pressure across the membrane could cause the membrane chamber to be flooded with liquid. If the membrane chamber is flooded, liquid could be forced through the membrane cartridge (i.e., the bubble point will be exceeded). **The pressure differential across the membrane must not exceed 30 psi.**
- 2 Do not allow the bypass pressure to fall below the sample pressure (i.e., "blow-down"). This pressure differential could reverse pressurize the membrane and cause it to be dislodged from the support element. A flow control valve or other flow restrictor installed on the bypass line will eliminate the possibility of reverse pressurization (see Figure 2).

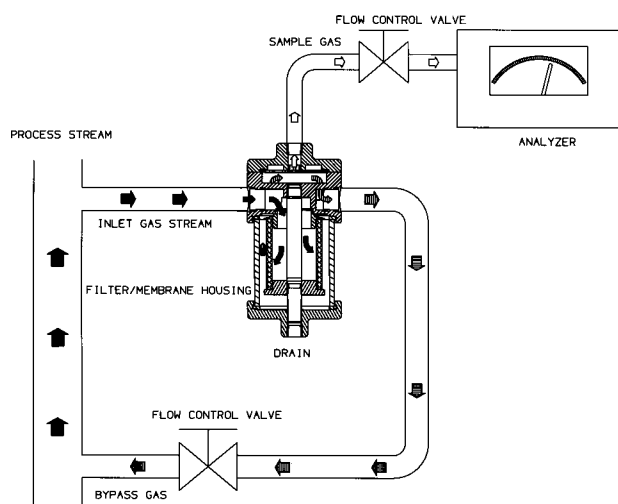


Figure 1  
Installation Schematic  
Model A39/12(G)

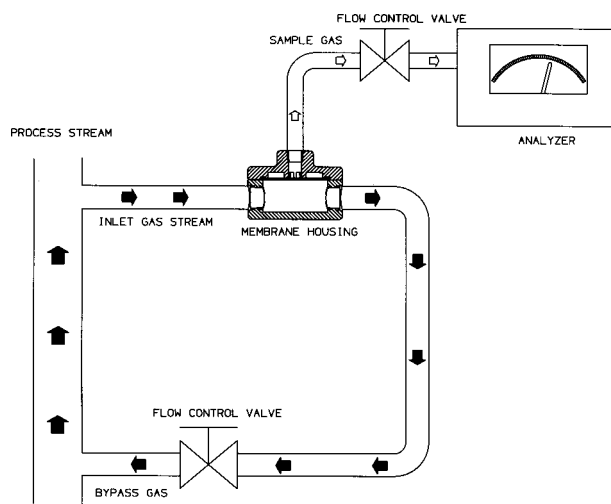


Figure 2  
Installation Schematic  
Model 39

## Coalescing Filter Cartridge Life (Model A39/12(G) only)

The efficiency of the Balston Microfibre filter cartridge is relatively unaffected by liquids entrained in the sample stream. The life of the filter cartridge is determined by the increase in flow resistance caused by solids trapped within the depth of the filter cartridge. The change in pressure through the filter cartridge should be monitored while the filter is in use. The filter cartridge should be changed when the flow through the housing falls below an acceptable level, or when the pressure drop becomes too high for the application. In any case, **the filter cartridge should be changed when the pressure drop through the filter reaches 10 psid.** (Note: The Balston Microfibre filter cartridge cannot be cleaned by back-flushing because the solids are trapped within the depth of the cartridge, not on the surface.)



**Failure of the filter cartridge resulting from a high pressure drop or excessive solids loading may cause damage to the filter housing and/or any downstream equipment.**

## Coalescing Filter Cartridge Replacement (Model A39/12(G) only)

Please refer to the replacement parts drawing for correct filter cartridge part number. Replace seals as needed.

To change the coalescing filter cartridge, follow the procedure outlined below:

- 1 Turn off the sample flow to the housing and depressurize the filter assembly.
- 2 Unscrew the filter bowl base from the tierod and remove bowl.
- 3 Unscrew element retainer from tierod and remove old filter.
- 4 Install new filter on tube seat and re-install element retainer.
- 5 Make sure gaskets (upper and lower) are properly seated and position bowl on upper gasket.
- 6 Re-install base to retain bowl and tighten by hand.

## Membrane Replacement



**If the membrane is installed incorrectly or torn during installation, damage to downstream equipment may occur. Use care when handling the membrane.**

The membrane installed in a Balston HSF should be replaced when the pressure drop becomes unacceptable for the application. **Do not allow the pressure drop across the membrane to exceed 30 psi.** Always replace the o-ring each time the membrane is replaced. To install a membrane into a filter assembly, follow the procedure outlined below.

- 1 Disconnect analyzer piping from Port 3 (sample port).
- 2 Remove the eight 10-32 socket head screws which secure the membrane housing head to the base.
- 3 Remove membrane and o-ring and discard.
- 4 Check that sintered element is properly seated and install new membrane on base. Place new o-ring on top of the membrane, and align with o-ring groove. Press the o-ring into the groove. Seat the o-ring evenly around the circumference of the membrane. This should seat the membrane into place.
- 5 Check for tears in the membrane.
- 6 Re-install the membrane head to the base. Torque socket screws to 45 in-lbs.

## Ordering Replacement Parts

To replace coalescing filter cartridges (Model 39/12(G) only), membranes, and o-rings, please reference the replacement parts drawing shipped with each HSF assembly (or the table below).

Replacement Parts	Description*	P/N
	Standard Membrane	39002
	High Flow Membrane	39020
	Standard Membrane and Viton O-rings	39014
	High Flow Membrane and Viton O-rings	39015
	Seal/Gasket Sets	See Replacement Parts Page shipped with product

\*Note: Each replacement part comes in a quantity of five each. Kalrez®, Buna, and EPR o-rings also available. Refer to replacement parts page shipped with filter.

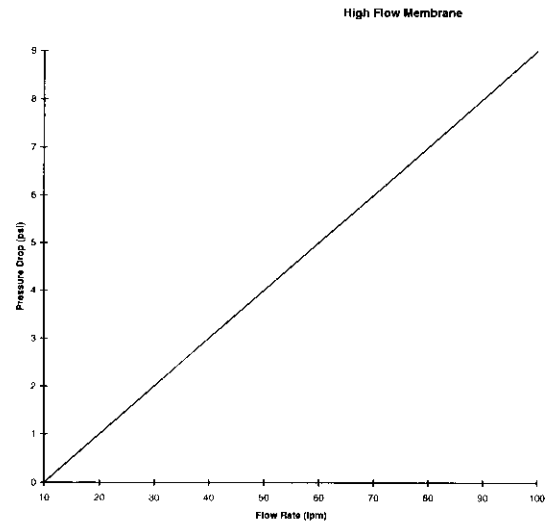
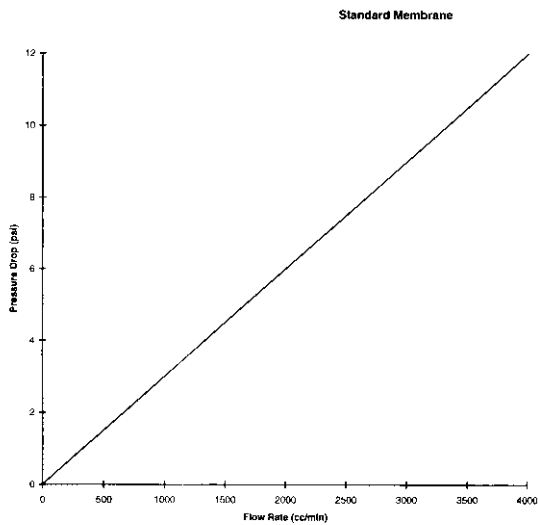
# Principal Specifications

## Principal Specifications

	Model A39/12(G)	Model 39
<b>Integral Coalescing Filter</b>	Grade DQ or BQ	None
<b>Membrane (1)</b>	Standard (Type 0) High Flow (Type 2)	Standard (Type 0) High Flow (Type 2)
<b>Ports (inlet, bypass)</b>	1/2" NPT	1/2" NPT
<b>Sample Port</b>	1/4" NPT	1/4" NPT
<b>Max. Operating Pressure</b>	100 psig	500 psig
<b>Max. Operating Temperature</b>	212°F (100°C)	212°F (100°C)
<b>Material of Construction</b>	316 SS/Viton/Pyrex (2)	316 SS/Viton (2)
<b>Internal Volume</b>	18.3 cu. in. (.3 l)	3.7 cu. in. (.06 l)
<b>Outside Dimensions</b>	3.3" dia x 7.3" l (8 cm x 19 cm)	3.3" dia x 2.0" l (8 cm x 5 cm)
<b>Shipping Weight</b>	7 lbs. (3.2 kg)	3 lbs. (1.4 kg)

**Notes:**

- 1 See membrane flow characteristics on graphs below.
- 2 Kalrez, Buna, EPDM O-rings available.



\* HSF= Hydrophobic Sample Filter

*Model 39*

*Model A39/12(G)*

### WARRANTY (NORTH AMERICA ONLY) (FOR INFORMATION CONTACT YOUR LOCAL REPRESENTATIVE)

Parker Hannifin guarantees to the original purchaser of this product, that if the product fails or is defective within 12 months from the date of purchase, when this product is operated and maintained according to the instructions provided with the product, then Parker guarantees, at Parker's option, to replace the product, repair the product, or refund the original price for the product. This warranty applies only to defects in material or workmanship and does not cover: ring and valve wear on compressors, routine maintenance recommended by the instructions provided with this product, or filter cartridges. Any modification of the product without written approval from Parker will result in voiding this warranty. Complete details of the warranty are available on request. This warranty applies to units purchased and operated in North America.



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