



Pall Corporation

F310

F310 Series Versalon™ Filters

service instructions



EN F310 Service Instructions

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M&ESIF310EN

Filtration. Separation. Solution.SM

F310

VERSALON MEDIUM PRESSURE FILTERS

F310 Series

service instructions

1 Specifications

Housing materials:

Head: SG iron to BSEN1563 or American equivalent

Bowl: Aluminium

Bypass Valve Stainless steel and polyamide

Maximum operating pressure:

70 bar (1,015 psi)

Rated fatigue pressure:

0-40 bar (580 psi) per NFPA T2.6.1 R2-2001 CAT C/90

Proof pressure:

105 bar (1522 psi)

Typical burst pressure:

210 bar minimum (3045 psi)

Element collapse pressure:

G300 element 10 bard (145 psid) differential minimum

Operating temperature range:

-29 °C to 120 °C (-20 °F to 250 °F) with fluorocarbon seals for petroleum based and specified synthetic fluids 50 °C (122 °F) maximum in HWCF, water-oil emulsion or water glycol

Bypass valve setting options:

3.4 +/- 0.3 bard (50 PSID +/- 5psi)

4.5 +/- 0.5 bard (65 PSID +/- 7psid)

CAUTION:

Maximum surge flow should not exceed 1.3 times normal flow.

Seals:

The actual operating conditions should be checked by the user to ensure that the element, housing and all seals are compatible with the fluid and application, and are within local safety codes. Please contact Pall or an approved distributor if further information is required.

2 Receipt of equipment

The filter housing, and any optional equipment, may be packed individually if requested by the customer. Unpack carefully and ensure optional items are not mislaid in packaging to be discarded.

3 General sources of information

3.1 For dimensions, operating parameters, assembly/element part number, ordering information, notes, performance data and specifications refer to M&EF310EN

3.2 Where under reasonably foreseeable conditions, including external fires, the allowable limits could be exceeded, suitable protective devices must be installed by the customer within the connecting fluid system.

4 Installation of housing

4.1 The filter can be installed in any attitude, but for ease of servicing, it is recommended that it be installed vertically with the filter bowl pointing downwards.

4.2 The minimum clearance required for element removal is 150mm (6").

4.3 Threaded differential pressure devices, when fitted, must be torque tightened up to 38 ft/lb or 54 Nm. Visual indicators should be clearly visible when assembly is installed.

NOTE: The F310 head is supplied with either an unmachined or one machined differential pressure warning port fitted with a plastic shipping plug.

CAUTION:

Never operate the filter unless the warning device port is sealed.

4.4 Mount the filter assembly in position using four 3/8"-16 UNC 2B ('A' ports) or M10 x 1.5 ('C' ports) bolts in the holes on the head mounting pads. Torque bolts to 9-19 ft/lb or 12-26 Nm.

4.5 Use a check valve downstream of the filter if there is a possibility of reverse flow.

4.6 Install the filter housing using additional piping/valving to allow complete filter assembly bypass if filter maintenance is required without system shutdown. This series is not available in a duplex or service bypass configuration.

CAUTION:

Reverse flow through filter element will cause damage.

NOTE: Piping supports should be provided as close as is practicable to the port connections in order to minimize external loads. This filter assembly must not be electronically isolated from the user's earthing system. This filter assembly must be earthed by connecting the user's earthing system to one of the inlet/outlet connections.

WARNING:

USE FITTINGS OR ADAPTORS COMPATIBLE WITH SPECIFIED PORTS SUPPLIED. USE OF INCORRECT FITTINGS OR ADAPTORS CAN CAUSE FILTER HOUSING FAILURE RESULTING IN LOSS OF PRESSURE AND POSSIBLE SYSTEM FAILURE OR PERSONAL INJURY.

4.7 Connect lines or hoses to housing inlet and outlet ports.

NOTE: A painted filter housing is optional. The coating on the filter housing is a suitable painting base. Mask the differential pressure warning device and nameplate if fitted for painting.

4.8 Bleed filters. Open plug at top of filter (if fitted) one and a half turns. Jog filter and fill filter until all air bleeds through, then tighten the plug. Pressurize system fully and check for leaks. If leaks occur, refer to paragraph 5.2.

CAUTION:

Failure to bleed the filter housing adequately will increase the dissolved air content of the system fluid which will shorten fluid life and may cause other problems in the system.

5 Routine maintenance

- 5.1 Pall filters do not normally require special attention except for periodic monitoring of the differential pressure warning device. If no such device is fitted, a specified scheduled time period for replacement must be adopted.
- 5.2 If external leakage is noted, replace O-ring at leak. If leakage persists, check sealing surfaces for scratches or cracks; replace any defective parts.
- 5.3 Differential pressure devices actuate when the element needs changing or because of high fluid viscosity in 'cold start' conditions. If 'cold start' conditions exist, see Section 6.2 and 6.3.
- 5.4 A dirty system can quickly plug a new filter element, especially with Pall high efficiency filter media. It may require one or two initial element changes to reach a stabilized element life. If element life is short or differential pressure is excessive, filter may be undersized; refer to the sizing and selection section of the product literature or contact your local Pall representative.
- 5.5 Make sure replacement elements are stored clean and undamaged, and that a supply of replacement elements is available.

6 Differential pressure devices

Reference should be made to product literature M&ERCAEN for dimensions, operating parameters, part numbering, ordering information and specifications.

- 6.1 Differential pressure devices actuate when the element needs changing or because of high fluid viscosity in 'cold start' conditions.
 - 6.2 If visual indicator is fitted and actuates during 'cold start' (button changes from white to red), it will automatically reset when the normal operating condition is reached. If indicator actuates after resetting, replace element.
 - 6.3 If electrical differential device is fitted the use of both positive indication (green light) and negative indication (red light for dirty element) is recommended to effectively monitor filter element life.
 - 6.4 If the electrical switch actuates (e.g. red light comes on) during cold start, continue operating until the signal (red light) goes out as system warms to normal operating conditions. This feature can be used as 'warm up' indication in operating procedures. If the warning signal (red light) remains or appears when system is warm, replace the filter element.
- All electrical pressure switches have automatic reset.

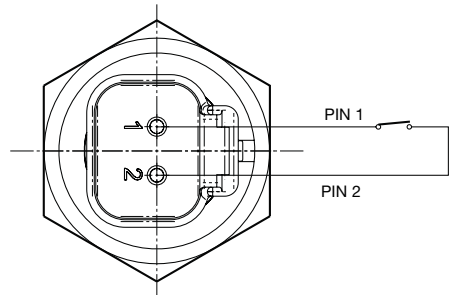
Electrical connections and ratings for "C" and "U" (normally closed) differential pressure switch options:

The switch is wired normally closed. Using normally closed configuration allows for the detection of damaged or broken cables or disconnection.

All electrical pressure switches have automatic reset.

Maximum Voltage Break AC or DC 48V
Switching Current 0.5A Max

If switch is to be connected to an inductive load or load where surge current or in rush current flows, then protective circuitry may be required to lengthen the life of the switch contacts.



7 Filter element installation / servicing

During servicing the external surfaces of the filter assembly must be cleaned to remove any dust deposits. Servicing must be conducted using suitable tools that do not present a hazard. Servicing must also not be carried out when a potentially explosive atmosphere is present.

CAUTION:

Filter elements should be replaced upon indication or at specified intervals, six months maximum is recommended. Failure to change the element will cause the filter to go on bypass.

Refer to product data sheet for item numbers for applicable replacement element series. Remove and replace element as follows:

WARNING:

FAILURE TO DEPRESSURISE THE FILTER BEFORE SERVICING ELEMENT COULD RESULT IN EXPLOSIVE LOSS OF FLUID, DAMAGE TO EQUIPMENT AND POSSIBLE PERSONAL INJURY.

- 7.1 Turn off and depressurize the system.
- 7.2 Unscrew and remove the filter bowl assembly (2) from head (1) counter-clockwise when viewed from below.
- 7.3 Element replacement (G300 Series): Remove filter element (5) by turning clockwise ¼ turn and pulling down. Carefully inspect the surface (flow through the element is out-to-in) for visible contamination. Normally no dirt should show, but visible dirt or particles can be an early warning of system component failure. Discard both the filter element and its O-ring. The filter element is **NOT CLEANABLE**. Any attempt to clean the filter element can cause degradation of the filter medium and allow contaminated fluid to pass through the filter element.
- 7.4 To replace the filter element, lubricate element O-ring with clean system fluid, align arrows on filter element end cap to arrows on the filter head. Push up and rotate anti-clockwise through ¼ turn to a stop. Use the replacement filter as indicated by the part number on

WARNING:

DO NOT ATTEMPT TO CLEAN OR RE-USE THE ELEMENT.

the element end cap.

- 7.5 DO NOT run the system without a filter element installed. Check that the O-ring between the bowl (2) and head (1) is not damaged. Replace if damaged. It is recommended that the o-ring head to bowl seal is changed at each element service.
- 7.6 Lightly lubricate head-to-bowl O-ring with clean system fluid. Lubricate the threads of the filter bowl with a suitable anti-galling compound and reassemble the housing until thread bottoms. The bowl should be torque tightened to 18 ft/lb or 25 Nm. **Caution: do not over torque the bowl.** O-ring sealing is not improved by over tightening
- 7.7 Bleed the system and check for leaks as per section 4.8.
- 7.8 After element change **ENSURE DIFFERENTIAL PRESSURE DEVICE IS RESET**; both visual and electrical switches reset automatically. When system reaches normal operating conditions, check that the electrical switch has not actuated and/or the visual warning button has returned to white.

8 Fluid Sampling

Optimum sampling to verify fluid condition can be achieved by the use of sampling adaptors installed in place of or in combination with the differential pressure device. For more information consult Pall or your local Pall Distributor.

Pall offers a fluid contamination analysis service – consult the Pall sales office.

9 Warranty, Limitation of Liability and Remedies

THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO ANY OF THE PRODUCTS, NOR IS THERE ANY OTHER WARRANTY EXPRESS OR IMPLIED, EXCEPT AS PROVIDED FOR HEREIN.

For a period of twelve months from the date of delivery from Seller or three thousand hours of use, whichever occurs first (the "Warranty Period"), Seller warrants that products manufactured by Seller when properly installed and maintained, and operated at ratings, specifications and design conditions, will be free from defects in material and workmanship. By way of explanation and not limitation, the Seller does not warrant the service life of the filter element as this is beyond the Seller's control and depends upon the condition of the system into which the filter is installed.

Seller's liability under any warranty is limited solely (in Seller's discretion) to replacing (FOB original ship point), repairing or issuing credit for products that become defective during the Warranty Period. Purchaser shall notify Seller promptly in writing of any claims and provide Seller with an opportunity to inspect and test the product claimed to be defective. Buyer shall provide Seller with a copy of the original invoice for the product, and prepay all freight charges to return any products to Seller's factory, or other facility designated by Seller. All claims must be accompanied by full particulars, including system operating conditions, if applicable.

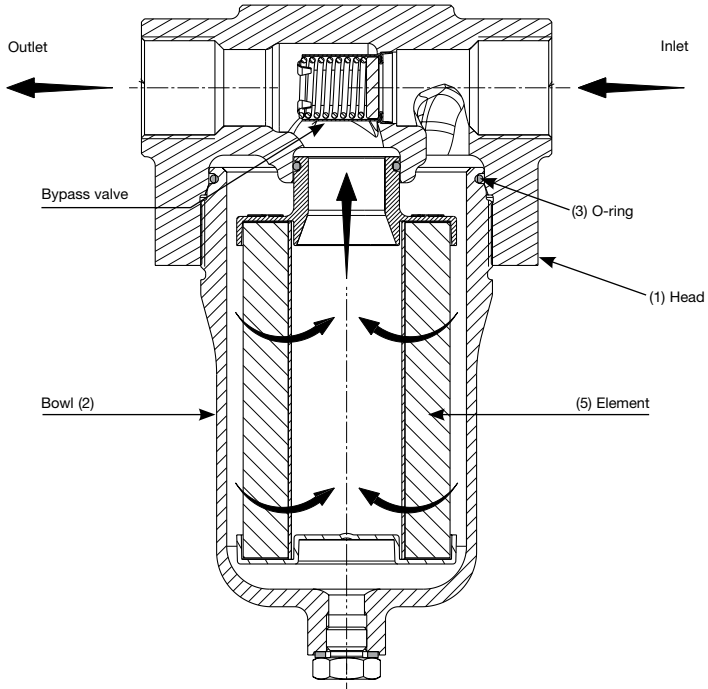
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10 Parts List

List	Description	Part Number	Quantity
1	Head		1
2	Bowl		1
3	O-ring (head-to-bowl)	G300 SKZ	1
4	Indicator	If fitted See product literature	1
5	Filter element	G300 series See product datasheet	1

Note: All product data requirements can be found at www.pall.com

Figure 2 - F310 section drawing



F310

VERSALON MEDIUM PRESSURE FILTERS

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Better Planet...**

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