



Pall Corporation

# UT310

## UT310 Series

service instructions



EN

UT310 Service Instructions

ENGLISH

M&ESIUT310EN

*Filtration. Separation. Solution.<sup>SM</sup>*

### 1 Specifications

#### Housing materials:

Head and Can: Aluminium Alloy

#### Maximum operating pressure:

10 bar (150 psi)

#### Element burst pressure:

UE310 element 10 bard (150 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  
60°C (140°F) maximum in HWCF, water-oil emulsion or water glycol

#### Bypass valve setting options:

1.7 ± 0.2 bard (25 ± 3 psid) cracking pressure

3.4 ± 0.3 bard (50 ± 5 psid) cracking pressure

#### Seals:

Fluorocarbon

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.

#### CAUTION:

Maximum surge flow should not exceed 1.3 times normal flow.

### 2 Receipt of equipment

The filter housing, and any optional equipment, are packed individually for assembly 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 datasheet.
- 3.2 This equipment has been assessed in accordance with the guidelines laid down in the European Pressure Directive 97/23/EC and has been classified within sound engineering practice S.E.P. We hereby declare the equipment meets the requirements of article 3, section 3, thus meeting the directive requirements. Under the provisions of this directive the filter assembly is suitable for use with group 2 fluids only.
- 3.3 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 should be installed vertically with the cover pointing upwards.
- 4.2 The minimum clearance required for element removal of is as follows:
  - 4.2.1 UT319 series: 248mm (9.8in) for length 8, 383mm (15.1in) for length 13 and 553mm (21.8in) for length 20.
  - 4.2.2 The UT310 Housing is supplied without a filter element. For element installation and servicing procedures, refer to Section 7.
- 4.3 Threaded pressure gauges or electrical pressure switches, when fitted, hand tighten plus 1-2 turns with a wrench. Threaded differential pressure indicator, if fitted, must be torque tightened to 40 lbf ft or 54 Nm. If no differential pressure warning device is ordered, the shipping plug must be removed and replaced with a 'B' type blanking plug (HA9000-A104Z) and torque tightened to 40 lbf ft /54 Nm.

NOTE: Never place the port plug in this port without first installing uniform size -014 O-ring in lower O-ring groove, otherwise a small bypass flow will result, allowing contaminant downstream of the filter element.

NOTE: The UT310 housing is supplied with a machined pressure gauge/switch ports fitted with blanking plug.

#### CAUTION:

Never operate the filter unless all warning device ports are sealed.

- 4.4 Mount the filter assembly in position using four bolts in the holes on the head mounting pads. Torque bolts to 16-20 lbf ft (22-27 Nm).
- 4.5 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 PORTS SUPPLIED AS SHOWN BY PART NUMBER ON NAMEPLATE AND NOTED IN DATA SHEETS: USE OF INCORRECT FITTINGS OR ADAPTORS CAN CAUSE FILTER HOUSING OR MANIFOLD FAILURE RESULTING IN LOSS OF PRESSURE AND POSSIBLE SYSTEM FAILURE OR PERSONAL INJURY.**

- 4.6 Connect lines or hoses to housing inlet ports.

Note: Painting of the filter housing is optional. The coating on the filter housing is a suitable painting base. Cover the pressure warning device and nameplate if painting of the housing takes place.

### 5 Routine maintenance

- 5.1 Pall filters do not normally require special attention except for periodic monitoring of the pressure gauge or electrical pressure warning device. Schedule replacement of filter element every six months or sooner, and have ample supply of spare elements available.
- 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 The pressure gauge and electrical pressure devices will indicate 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 stabilize 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 element change labels are clean and undamaged. Replace illegible labels with the appropriate new labels.

### 6 Differential pressure devices

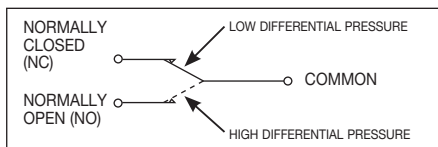
- 6.1 The pressure gauge and electrical pressure devices will indicate when the element needs changing or because of high fluid viscosity in 'cold start' conditions.
- 6.2 If a pressure gauge is fitted and shows high pressure during 'cold start' conditions, check that the pressure returns to a 'normal' reading when the normal operating temperature is reached. If the gauge continues to show high pressure after system warm-up, replace the filter element.
- 6.3 If the electrical pressure 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 temperature. 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.
- 6.4 Use of both positive indication (green light) and negative indication (red light for dirty element) is recommended to effectively monitor filter element life.
- 6.5 Electrical pressure switch specifications and wiring instructions:  
**Pressure switches mount with a 1/8" NPT thread.**  
**Typical AC switch rating dependent on indicator option:**  
 5 AMP - 250VAC, 110 VAC  
**DC switch rating:**  
 5 AMP 24VDC Normally Open, when not pressurized.  
 Wetted parts are Brass. Switches are pre-set:  
 1.1 bar (16 psi) or 2.4 bar (35 psi) depending on bypass valve setting.  
 Maximum system pressure 10 bar (150 psi)

#### Electrical differential pressure switch operation:

When preset differential pressure is exceeded continuity switches from Normally Closed (NC) - Common to Normally Open (NO) - Common.

When differential pressure decreases below the pre-set value, continuity returns to Normally Open (NO) - Common to Normally Closed (NC) - Common.

**Figure 1 - Switch Circuit Diagram**



See individual indicator options for connection details.

### 7 Filter element 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 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. Failure to change the element will cause the filter to go on bypass.**

Refer to Service Parts List (Section 9) for item numbers for applicable replacement element series. Remove and replace element as follows:

- 7.1 Turn off and depressurize the system.

#### WARNING:

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

- 7.2 Unscrew and remove filter cover assembly (2) from head assembly (1) counterclockwise when viewed from above. It may be necessary to use a correct sized wrench on the hexagon on the filter cover assembly (2) to loosen the cover initially. Check that the O-rings are not damaged.

Note: The UT319 series assembly is equipped with Pall's 'Auto-Pull' element extraction mechanism to facilitate element removal. While removing the cap, tabs on the element endcap lock into hooks in the cap and the element is automatically pulled from the nipple.

- 7.3 Remove filter element (8) and carefully inspect the surface 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-rings. 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.

#### WARNING:

**DO NOT ATTEMPT TO CLEAN OR RE-USE THE ELEMENT.**  
**ONLY USE GENUINE PALL REPLACEMENT FILTER ELEMENTS. USE OF SUBSTITUTE ELEMENTS MAY INVALIDATE PRODUCT WARRANTY.**

- 7.4 DO NOT run the system without a filter element installed. Use replacement filter element part number called for on the element change label.
- 7.5 Thoroughly clean the cover threads. Apply a high quality anti-seize made for use with Aluminum to the entire threaded surface of the cover.
- 7.6 Lubricate the element O-rings with clean system fluid and install element in the Can subassembly (3). Refit the Cover Sub-assembly (2). **HAND TIGHTEN ONLY.**
- 7.7 After starting the system check for leaks as per section 5.2. When system reaches normal operating temperature, check that the electrical switch has not actuated and/or the pressure gauge shows pressure in the normal operating range.

### 8 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.

Seller shall not be liable for any product altered outside of the Seller's factory except by Seller or Seller's authorized distributor, and then, as to the latter, only for products which have been assembled by the distributor in accordance with Seller's written instructions. Nor shall Seller be liable for a product subjected to misuse, abuse, improper installation, application, operation, maintenance or repair, alteration, accident or negligence in use, storage transportation or handling.

In no event will Seller be liable for any damages, incidental, consequential or otherwise, whether arising out of or in connection with the manufacture, packaging, delivery, storage, use, misuse, or non use of any of its products or any other cause whatsoever.

# UT310

RETURN LINE IN-TANK FILTERS

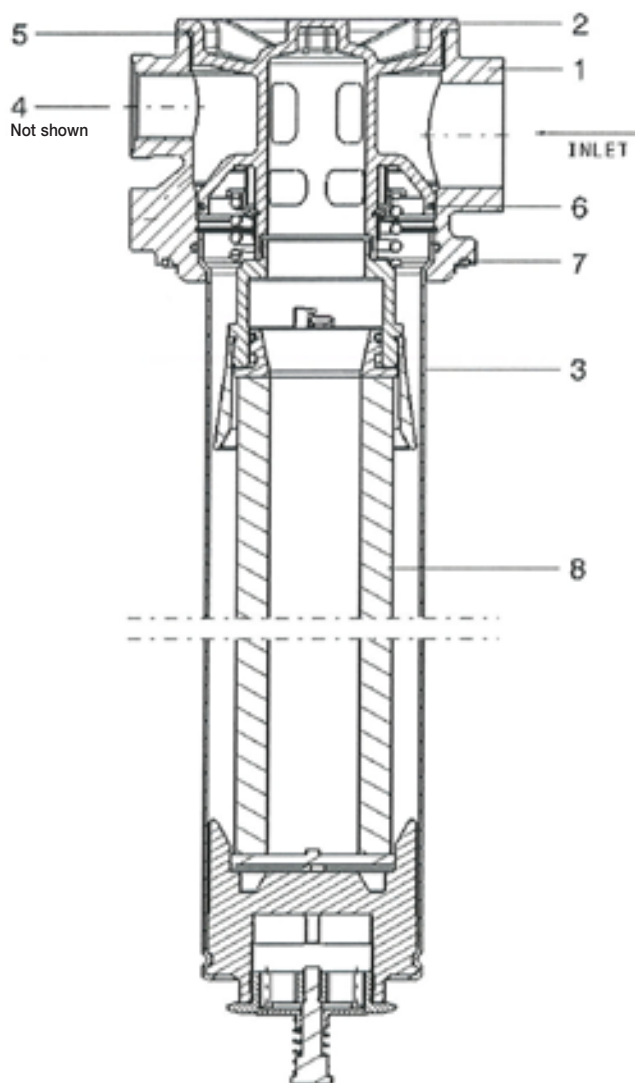
## UT310 Series

**service** instructions

### 9 Parts List

| List | Description                                      | Quantity |
|------|--------------------------------------------------|----------|
| 1    | Head                                             | 1        |
| 2    | Cover sub-assembly (Fluorocarbon)                | 1        |
| 3    | Can sub-assembly                                 | 1        |
| 4    | Indicator options<br>Gauge or<br>Pressure switch | 3        |
| 5    | O-ring (cover-to-head)                           | 1        |
| 6    | O-ring (isolation cone-to-head)                  | 1        |
| 7    | O-ring (head-to-tank)                            | 1        |
| 8    | Filter element UE319                             | 1        |

**Figure 2**



# UT310

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### Tank mounting dimensions

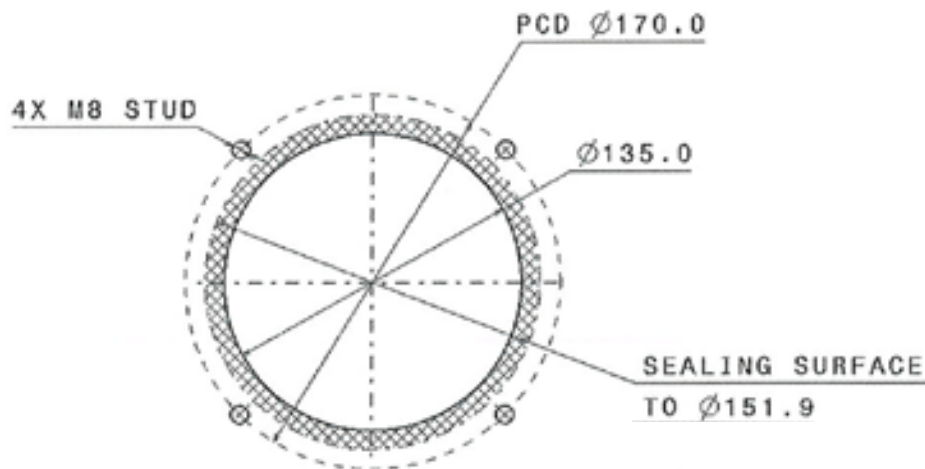
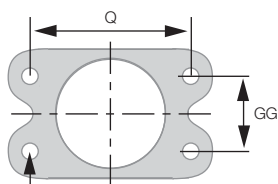


Figure 3



- Z  
4 HOLES FULL THREAD DEPTH AA  
4 Gewindebohrungen mit Gewindetiefe AA  
4 huller med gevind, dybde AA  
4 taladros pasantes roscados. Profundidad AA  
4 täyskierteistä reikää, syvyys AA  
4 trous taraudés de profondeur AA  
4 fori completamente filettati profondità AA  
4 tapgaten (met draad over volle diepte)  
4st fästhål. Gänga "Z". Min gängdjup "AA"

### Flange Connection Details

| Flange Code | Nominal Tube Size | GG      | Q       | Z Thread    | AA    |
|-------------|-------------------|---------|---------|-------------|-------|
| D32         | 2"                | 1.688"  | 3.062"  | ½" - 13 UNC | 1"    |
| F32         | 2"                | 42.9 mm | 77.8 mm | M12 x 1.75  | 25 mm |

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