Pall Corporation

UH211

UH211 Series

service instructions



EN UH211 Service Instructions

ENGLISH

IMSIUH211

*Filtration. Separation. Solution.*SM

1 Specifications

Housing materials:

Head and Cover:	Ductile cast iron
Tube:	Steel
Cage:	Steel, with corrosive resistant plating

Maximum operating pressure:
420 bar (6,100 psi)

Proof pressure:
630 bar (9,135 psi)

Minimum burst pressure:
1500 bar (21,750 psi)

Element collapse pressure:
UE211 element 210 bard (3000 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:
Non bypass

CAUTION:
Maximum surge flow should not exceed 1.3 times normal flow.

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.

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 IMUH211EN.

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 can be installed in any attitude, but for ease of servicing, it is recommended that it be installed vertically with the filter tube and cover pointing upwards (UH211C) or with the filter tube and cover pointing downwards (UH211H).

4.2 The minimum clearance required for element removal is as follows:

4.2.1 UH211C series (cover service): 203 mm (8 in) for length 8, 338 mm (13.3 in) for length 13, and 508 mm (20 in) for length 20 housings.

4.2.2 UH211H series (head service): 100 mm (3.9 in) for all lengths.

4.2.3 The UH211 housing is supplied without a filter element. For element installation and servicing procedures, refer to Section 7.

4.3 Threaded differential pressure devices, when fitted, must be torque tightened to 30-33 ft/lb or 40-45 Nm. All visual indicators must be clearly visible

NOTE: The UH211 head is supplied with two machined differential pressure warning device ports, one fitted with a bleed plug, the other with a plastic shipping plug. If no differential pressure warning device is ordered, the shipping plug must be removed and replaced with a 'B' type blanking plug (HA9000A104Z) AND torque tightened to 40 ft/lb / 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.

CAUTION:
Never operate the filter unless both warning device ports are sealed.

4.4 Mount the filter assembly in position using two 7/16"-14 ('A' and 'E' ports) or M10 x 1.5 ('C' and 'G' 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 users earthing system. This filter assembly must be earthed by connecting the users earthing system to one of the inlet/outlet connections.

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

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.

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

4.8 Bleed the filter.

4.8.1 UH211C series (cover service): Bleed the filter by opening the vent plug (7) at the top of filter one and one half turns. Jog system and fill filter until all air bleeds through the plug, then torque tighten the vent plug to 12 ft/lb or 16 Nm.

4.8.2 UH211H series (head service): Bleed the filter by opening the blanking plug (6b) one and one-half turns. Jog system and fill filter until all air bleeds through the plug, then torque tighten the blanking plug to 40 ft/lb or 54 Nm.

Pressurize system fully and check for leaks; if leaks occur refer to section 5.

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. 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 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 stabilize element life. If filter element service life is short or differential pressure is excessive, the 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

Reference should be made to product literature 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' (red button extends 5 mm, 3/16 "), reset by depressing the button when the normal operating temperature is reached. If indicator actuates after resetting, replace element.

NOTE: Option 'P' visual indicator has thermal lockout and manual reset. No signal below 0 °C (32 °F), signal above 29 °C (80 °F).

6.3 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 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.

Electrical connections and ratings for all differential pressure switch options:

110 VAC	=	4A (inductive), 4A (resistive)
220 VAC	=	4A (inductive), 4A (resistive)
28 VDC	=	3A (inductive), 5A (resistive)
48 VDC	=	1A (inductive), 1.5A (resistive)
125 VDC	=	0.25A (inductive), 0.5A (resistive)

Maximum inrush - 24 amps.

Underwriter's lab. Inc. listed ratings of pressure switch (Microswitch) options are:

4 amps at 250 VAC

0.25 amp resistive at 220 VDC

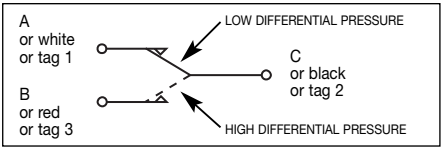
0.50 amp resistive at 110 VDC

Electrical differential pressure switch operation:

When preset differential pressure is exceeded continuity switches from 'C' - 'A' to 'C' - 'B'.

When differential pressure decreases below the pre-set value, continuity returns to 'C' - 'A'.

Figure 1 - Switch Circuit Diagram



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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 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 filter element will cause the filter to exceed its collapse rating

Refer to Service Parts List (Section 9) 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.

7.1.1 For UH211C series (cover service):
Open the vent plug (7) at the top of the filter one and one-half turns. Open partially the blanking plug (6b) in the filter head and drain fluid into a suitable waste receptacle. This sequence may be long for high viscosity fluids. Replace and torque tighten the blanking plug to 38 ft/lb or 54Nm. Unscrew and remove cover (3) from tube (2) counter-clockwise when viewed from above. It will be necessary to use a 1" socket wrench on the hexagon on the cover (3) to loosen the cover initially.

Note: The UE211 series elements feature a handle on the end-cap to facilitate element removal.

7.1.2 For UH211H series (head service):
Open the drain plug (7) at the bottom of the bowl assembly (tube and cover) and drain fluid from the bowl into a suitable waste receptacle. Replace and torque tighten drain plug to 12 ft/lb or 16Nm. Unscrew and remove the bowl assembly (2 and 3) from head (1) counter-clockwise when viewed from below. It will be necessary to use a 1" socket wrench on the hexagon on the cover (3) to loosen the cover initially.

7.2 Element replacement (UE211 Series): Remove filter element (8), if already fitted, and carefully inspect the exterior 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.

7.3 DO NOT run the system without a filter element installed. For UH211C series: check that the O-ring (4) between the cover (3) and tube (2) is not damaged.
For UH211H series: check that the O-ring (5) between the tube (2) and head (1) is not damaged.
Use the replacement filter as indicated by the part number on the element endcap.

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 Lubricate element O-ring with clean system fluid. Reinstall element in the shell assembly. Lightly lubricate cover-to-head or tube-to-head (as applicable) O-ring with clean system fluid and reassemble the housing until thread bottoms. The cover or tube should be torque tightened using a suitable socket wrench to 74 ft/lb or 100Nm. O-ring sealing is not improved by over tightening

7.5 Bleed the system and check for leaks as per section 4.8.

7.6 After element change ENSURE DIFFERENTIAL PRESSURE DEVICE IS RESET BY PUSHING IN THE RED BUTTON; electrical switches reset automatically. When system reaches normal operating temperature, check that the electrical switch has not actuated and/or the visual warning button has remained depressed. If visual indicator rises due to a cold start condition, reset again as per section 6.

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.

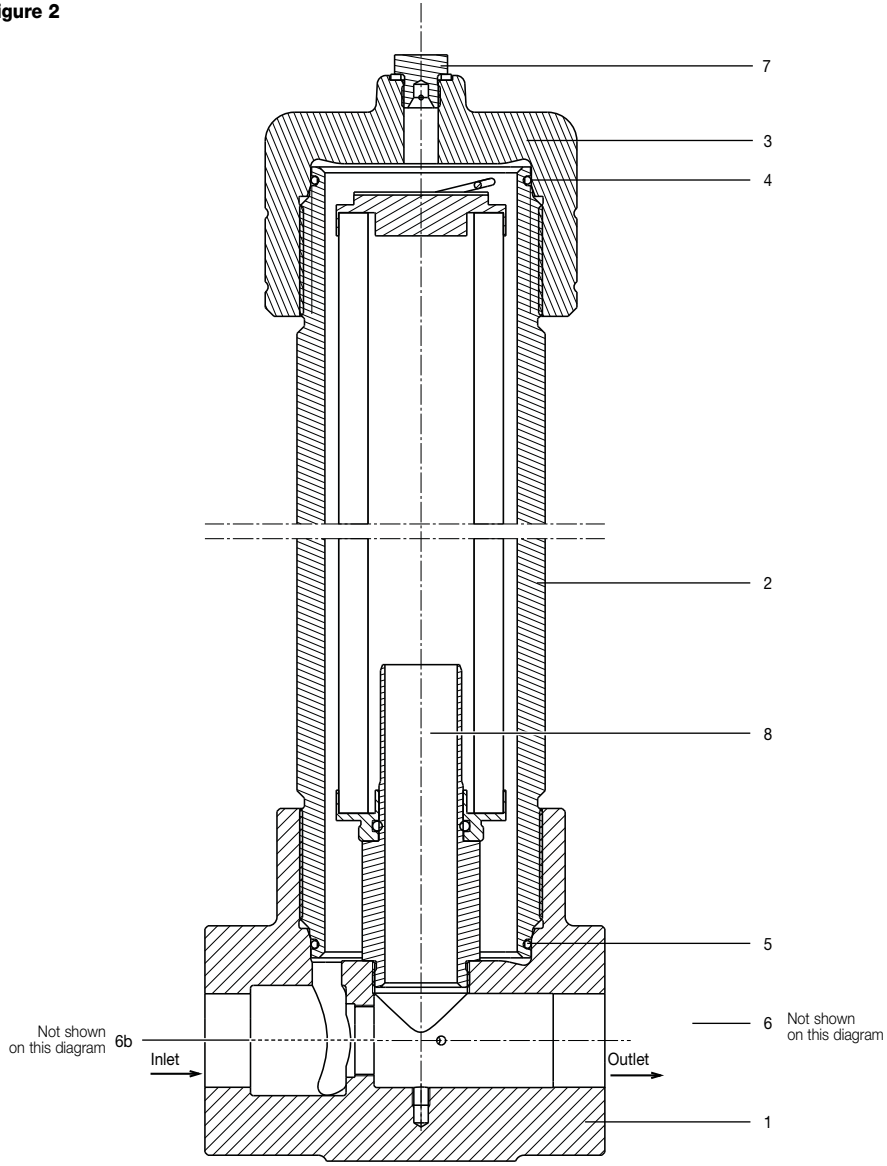
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9 Parts List

List	Description	Part Number	Quantity
1	Head		1
2	Tube		1
3	Cover		1
4, 5	O-ring (cover-to-tube and head-to-tube)	UH219SKZ Seal Kit (fluorocarbon)	2
6, 6b	Indicator or port plug kit (not shown)	See product literature	2
7	Vent/drain plug		1
8	Filter element	UE211**++Z See product literature	1

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Figure 2


7
3
4
2
8
5
6
Not shown
on this diagram
Not shown
on this diagram
6b
Inlet
Outlet
1

UH211

HIGH PRESSURE FILTERS

UH211 Series

service instructions

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