



Pall Corporation

# UH311

## UH311 Series Filters

**SRT DIRT-FUSE FILTERS**

Port Size 1¼", 1½" and 2"



### Features

- Non-bypass protection for critical system components
- High-collapse rated filter element
- Pall Stress-Resistant Technology (SRT) Media
- Out-to-in filter element flow path
- Flows to 700 L/min (185 US gpm)
- Pressures to 420 bar (6100 psi)
- Port size 1¼", 1½" and 2"

### Notes and Specifications

#### Filter Housing

- **Maximum Working Pressure:**  
420 bar (6100 psi)
- **Rated Fatigue Pressure:**  
0-240 bar (0-3500 psi) per NFPA T2.06.01R2-2001 CAT C/90 (1 million cycles), verified by testing at 0-280 bar (0-4050 psi) for 1 million cycles
- **Typical Burst Pressure:**  
1500 bar (21760 psi)
- **Fluid Compatibility:**  
Compatible with all petroleum oils, water glycols, water-oil emulsions and most synthetic hydraulic and lubrication fluids
- **Temperature Range:**  
Fluorocarbon Seals:  
-29 °C to 120 °C (-20 °F to 250 °F)  
60 °C (140 °F) maximum in HWCF or water glycol fluids
- **Bypass Valve Setting:**  
Non-bypass housing
- **Indicator Pressure Setting:**  
7.0 bard (100 psid)
- **Materials of Construction:**  
Head: Ductile Cast Iron  
Cover and Tube: Carbon steel

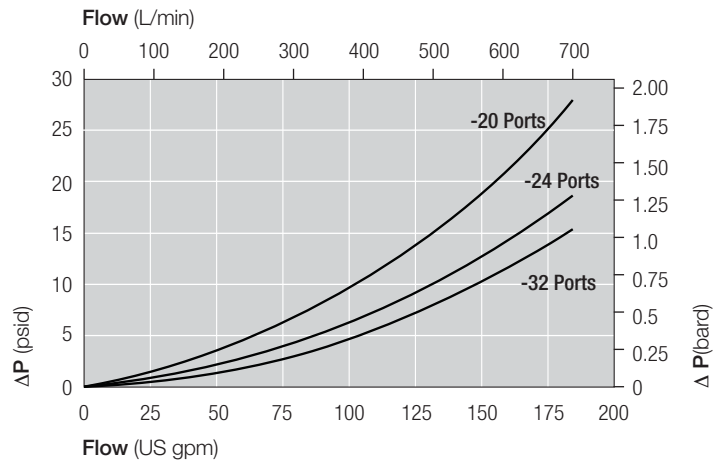
#### Filter Element

- **Filter Element Collapse Pressure:**  
210 bard (3000 psid)
- **SRT Dirt-Fuse Element Construction:**  
Inorganic fibers impregnated and bonded with epoxy resins. Upstream and downstream stainless steel mesh. Aluminium core and endcaps. Anti-static media

### Pressure Drop Information

#### Housing pressure drop using fluid with 0.9 S.G.

Housing pressure drop is directly proportional to specific gravity.



#### Element Pressure Drop

Multiply actual flow rate times factor in table below to determine pressure drop with fluid at 32 cSt (150 SUS), 0.9 S.G. Correct for other fluids by multiplying new viscosity in cSt/32 (SUS/150) x new S.G./0.9. Note: factors are per 1000 L/min and per 1 US gpm.

#### 311 Series Filter Elements

##### - bard/1000 L/min (psid/US gpm)

Length Code	AP	AS
10	4.55 (0.250)	2.55 (0.140)
20	2.27 (0.125)	1.27 (0.070)
40	1.15 (0.063)	0.64 (0.035)

#### Sample ΔP calculation

UH311 Series 20" length housing with G24 (1 ½"SAE) split flange ports using AP grade media. Operating conditions 200 L/min flow rate using a hydraulic fluid of 50 cSt and specific gravity (s.g.) 1.2.

#### Total Filter ΔP

$$\begin{aligned}
 &= \Delta P \text{ housing} + \Delta P \text{ element} \\
 &= (0.2 \times 1.2/0.9) \text{ bard (housing)} \\
 &+ ((200 \times 2.27/1000) \times 50/32 \times 1.2/0.9) \text{ bard (element)} \\
 &= 0.25 \text{ bard (housing)} + 0.95 \text{ bard (element)} \\
 &= \mathbf{1.2 \text{ bard (17.4 psid)}}
 \end{aligned}$$

# UH311 Series Filters

## Ordering Information

For new installations, select one complete part number from each section below

### Section 1

#### Housing P/N:

Note: Pall UH311 filter housings are supplied without filter elements or warning devices fitted. Only operate the filter if a filter element is fitted and all warning device ports are sealed.

#### Seal Kit P/N:




Table 1: Housing Orientation Options

Code	Port
C	Cap service (tube up) -standard
H	Head service (tube down)

Table 3: Housing Length Options

Code	Length (in)*
10	10
20	20
40	40

\* Nominal length

UH 311   ++  ZW9 X106

Note: Z indicates fluorocarbon seals are standard. Other options are available; contact Pall. The number '9' at the end of the Housing P/N designates 2 indicator ports, one fitted with a plastic shipping plug and the other with a bleed plug.

#### UH 319 SKZ

\*Other seal material options are available; Contact Pall.

Table 2: Housing Port Options

Code	Port	Max. Operating Pressure
A20	1 1/4" SAE J1926 straight thread	
A24	1 1/2" SAE J1926 straight thread	
A32	2" SAE J1926 straight thread	
C20	1 1/4" BSP ISO 228 threads	420 bar (6100 psi)
C24	1 1/2" BSP ISO 228 threads	
C32	2" BSP ISO 228 threads	
D20	1 1/4" Flange J518C code 61 with 7/16"-14 UNC holding bolts	275 bar (4000 psi)
D24	1 1/2" Flange J518C code 61 with 1/2"-13 UNC holding bolts	207 bar (3000 psi)
D32	2" Flange J518C code 61 with 1/2"-13 UNC holding bolts	207 bar (3000 psi)
E20	1 1/4" Flange J518C code 62 with 1/2"-13 UNC holding bolts	
E24	1 1/2" Flange J518C code 62 with 5/8"-11 UNC holding bolts	414 bar (6000 psi)
E32	2" Flange J518C code 62 with 3/4"-10 UNC holding bolts	
F20	1 1/4" ISO 6162 split flange with M10 x 1.5 holding bolts	250 bar (3625 psi)
F24	1 1/2" ISO 6162 split flange with M12 x 1.75 holding bolts	200 bar (2900 psi)
F32	2" ISO 6162 split flange with M12 x 1.75 holding bolts	200 bar (2900 psi)
G20	1 1/4" ISO 6162 split flange with M12 x 1.75 holding bolts	
G24	1 1/2" ISO 6162 split flange with M16 x 2.00 holding bolts	400 bar (5800 psi)
G32	2" ISO 6162 split flange with M20 x 2.50 holding bolts	

### Section 2

#### Element P/N:

UE 311   Z

Note: Z indicates fluorocarbon seals are standard. Other options are available; contact Pall.

Table 1: Filter Element Options

Code	$\beta_{x(c)} \geq 1000$ based on ISO 16889	CST Rating*
AP	5	12/07/02
AS	12	16/13/04

\* CST: Cyclic Stabilization Test to determine filter rating under stress conditions, based on SAE ARP4205

Table 2: Filter Element Length Options

Code	Length (in)*
10	10
20	20
40	40

\* Nominal length

### Section 3 (At least one Differential Pressure Indicator or 'B' type blanking plug must be ordered)

#### Differential Pressure Indicator P/N:

Note: Two Differential Pressure Indicators can be fitted on this housing

RC  097 Z   

Note: If no differential pressure indicator is selected, 'B' type blanking plug (P/N HC9000A104Z) must be ordered separately and fitted to replace the plastic shipping plug.

Note: Z indicates fluorocarbon seals are standard. Other options are available; contact Pall.

Table 1: Differential Pressure Indicator Options\*

Code	Indicator	'H' Dim.
778NZ	'P' type Visual indicator with thermal lockout	21mm (0.83in)
860MZ	'D' type Visual indicator with no thermal lockout	21mm (0.83in)
861CZ	'L' type Electrical switch (SPDT) with 6" leads	38mm (1.50in)
861CZ	'M' type Electrical switch (SPDT) with DIN43650 connector and matching cap	78mm (3.07in)
861CZ	'R' type Electrical switch (SPDT) and neon light indicator with DIN43650 connector and cap	89mm (3.50in)
771BZ	'S' type Electrical switch (SPDT) with 3-pin MS connector	57mm (2.24in)

\* Other options available on application.

Table 2: Differential Pressure Indicator Material

Code	Pressure Setting
Omit	Aluminium Alloy Indicator: use at operating pressures < 200 bar (3000 psi)
SS	Stainless Steel Indicator: use at operating pressures > 200 bar (3000 psi)

\* Other setting options are available; contact Pall.

Table 3: 'M' & 'R'-Type Indicator Codes\*

Code	Option
YM	'M' option
YR	'R' option

\* Use only if 'R' or 'M' Indicator is selected from Table 1

Table 4: 'R' Indicator Options

Code	Option
110AC	110V AC
220AC	220V AC
24DC	24V DC

\* Use only if 'R' Indicator is selected from Table 1

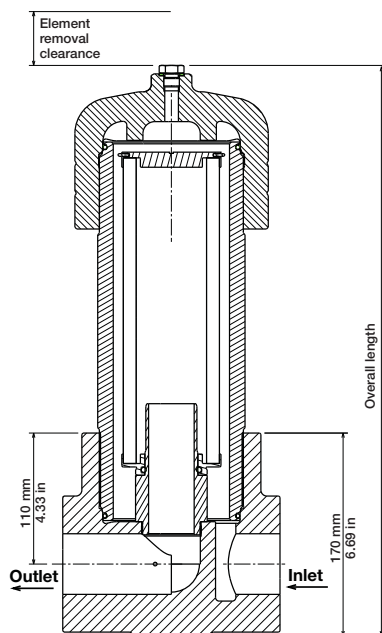
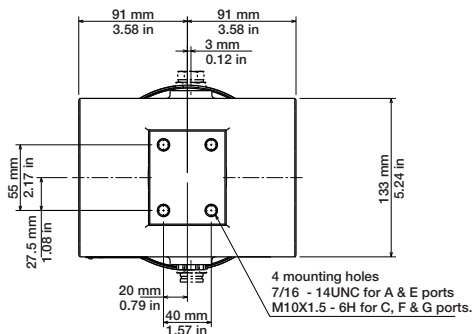
# UH311

## DIRT-FUSE FILTERS

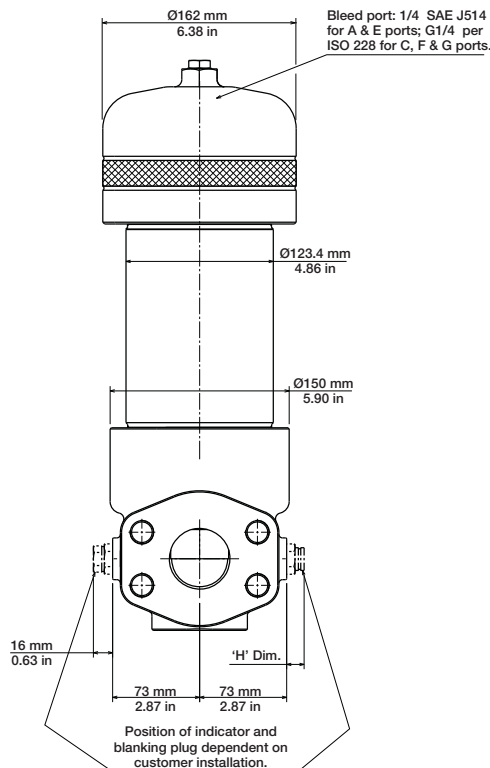
('C' option housing shown)

## UH311 Series Filters

# Technical Information



Length Code	Overall Length mm (in)	'C' Option Element Removal Clearance mm (in)	'H' Option Element Removal Clearance mm (in)	Empty Weight kg (lb)
10	478 (18.8)	330 (13)	140 (5.51)	38.6 (85.1)
20	783 (30.8)	601 (23.66)	140 (5.51)	49.9 (110)
40	1291 (50.8)	1169 (46.02)	140 (5.51)	68.7 (151.4)



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