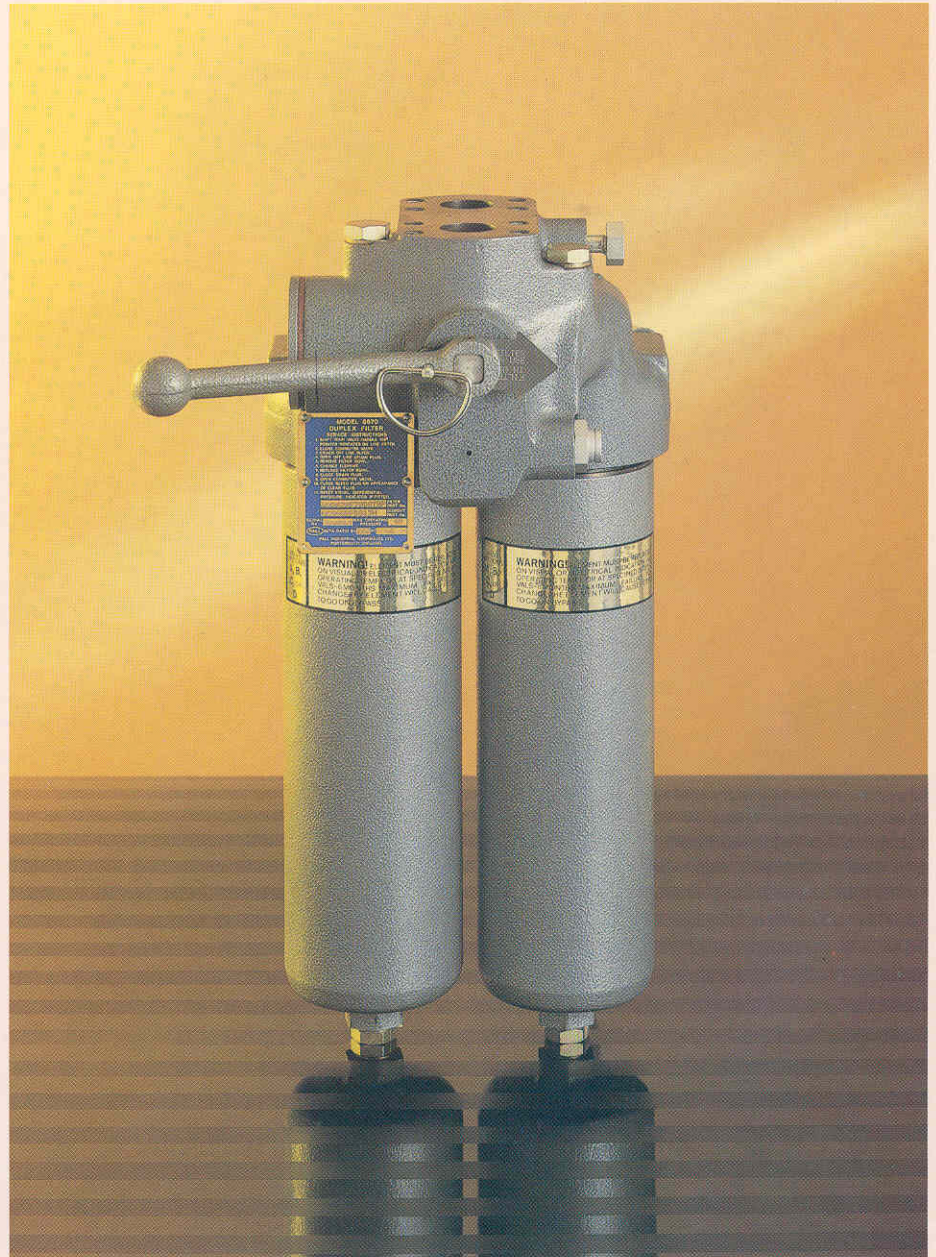


Medium Pressure Filters

8670 Series

Duplex Filter Assembly

PORT SIZE 1" AND 1 1/4"



Pall Industrial Hydraulics

TOTAL CLEANLINESS CONTROL

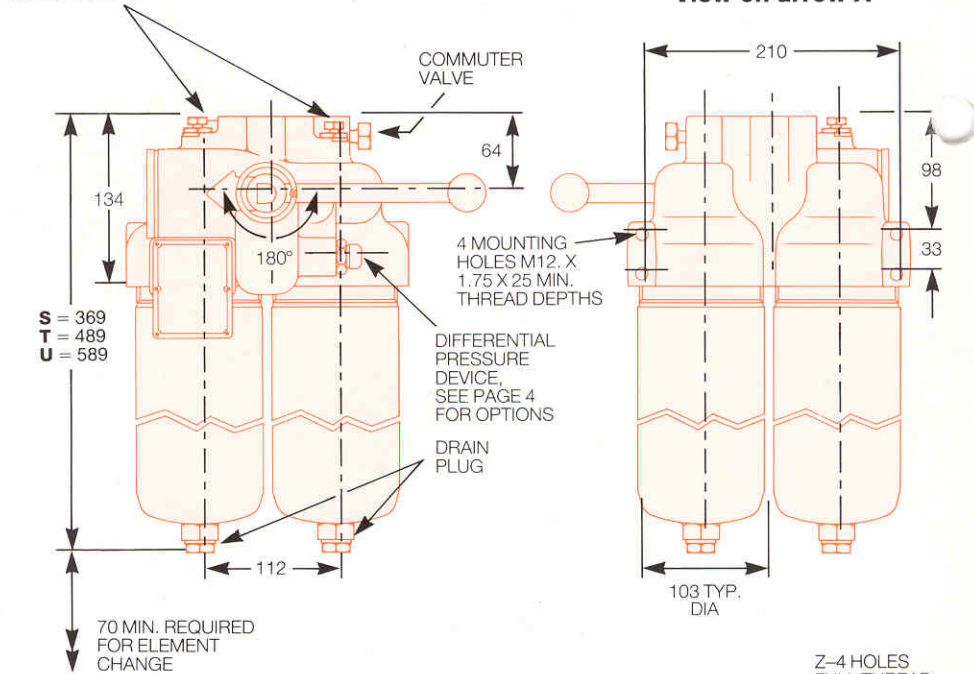
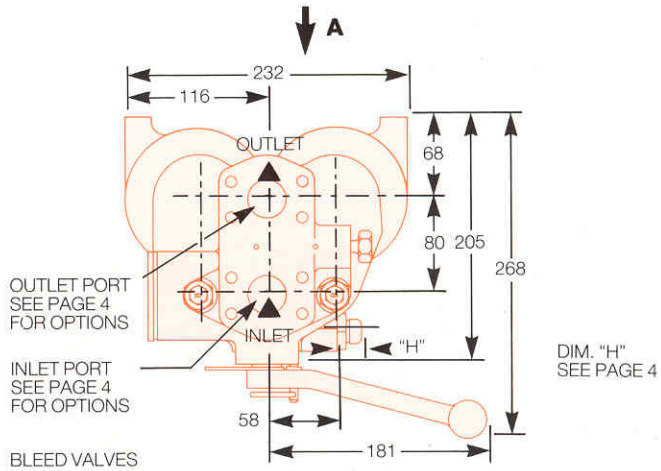
Technical Information

Operating pressure 80 bar.

20 bar collapse rated elements with bypass valve.

Compatible with all petroleum oils, water glycols, water-oil emulsions and most synthetic hydraulic and lubrication fluids.

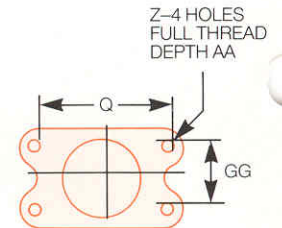
All dimensions in mm unless otherwise stated.



S = 369
T = 489
U = 589

Flange mounting bolt dimensions (per SAE 518c)

'Pall' P/N Code	Nominal Pipe size	Maximum recommend Pressure	GG	Q	Z Thread	AA Min
F20	1 1/4"	210 bar	30.2mm	58.7mm	M12 X 1.75	28mm



Removal ratings

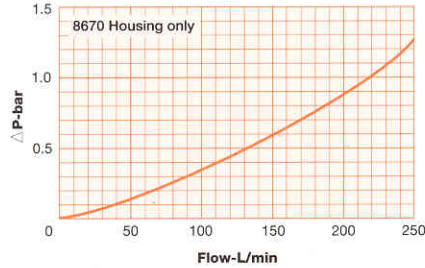
Multi-pass filtration ratings per ANSI/NFPA T3.10.8.8RI and ISO4572 modified for silt control with in-line particle counting									
Element & Media	Micrometre size for Beta (βx) values				Filtration ratio			Terminal ΔP bar	
	βx=2	βx=20	βx=75	βx≥200	B2	B10	B20		
9600	KZ	<1	<1	<1	<1	>3000	>3000	>3000	4
	KP	<2	<2	2.2	3	60	>3000	>3000	4
	KN	<2	2.7	4.6	6	12	>3000	>3000	4
	KS	2	7	9.9	12	2	80	>3000	4
	KT	10	18	22	25	NA	2	40	4

For the application of 'Ultipor III' filters for flushing it is recommended that a βx≥1000 rating at the critical particle size is used. 'Pall' flushing media are rated KZ=1; KP=5.3 and KN=8.3 micrometres at βx≥1000.

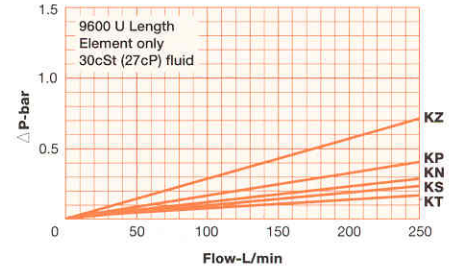
Technical Information

Filter assembly clean pressure drop
 = ΔP housing + ΔP element.

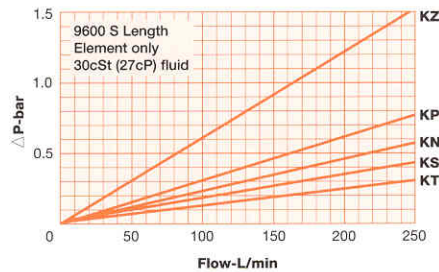
Housing pressure drop. Using fluid with s.g. 0.9 housing pressure drop is directly proportional to specific gravity.



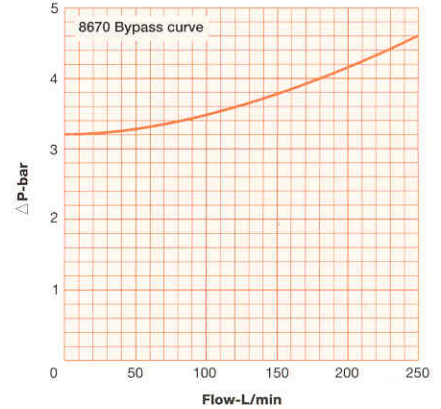
U length element pressure drop. Element pressure drop is directly proportional to absolute viscosity*.



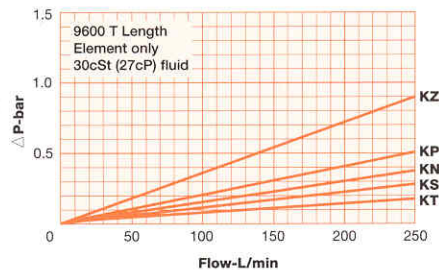
S length element pressure drop. Element pressure drop is directly proportional to absolute viscosity*.



Bypass valve curves. Bypass valve pressure drop at full bypass flow using fluid with s.g. ≤ 0.9 . Valve pressure drop is directly proportional to fluid specific gravity.



T length element pressure drop. Element pressure drop is directly proportional to absolute viscosity*.



*Absolute viscosity is measured in units of centipoise (cP) which equals kinematic viscosity in centistokes (cSt) x specific gravity (s.g.). Therefore, element ΔP from curve should be corrected by multiplying by:

New viscosity in cP/27
 or new viscosity in cSt/30 x new specific gravity/0.9

Sample ΔP calculation

Assume KS filter medium with an "S" length element and C16 ports. Flow rate is 150 L/min using a hydraulic fluid at 20cSt and specific gravity (s.g.) 0.87:

$$\begin{aligned} \Delta P &= (0.6 \times 0.87/0.90) + (0.27 \times 20/30 \times 0.87/0.90) \\ &= 0.58 \text{ (housing)} + 0.17 \text{ (element)} \\ &= 0.75 \text{ bar clean assembly pressure drop} \end{aligned}$$

Ordering Information

Filter Assembly 'Pall' Part No: **H** **8670** **B**

Replacement Element 'Pall' Part No: **HC9600 F**

Seal Kit 'Pall' Part No: **H8670SK**

Table 1

SEAL TYPE		
CODE	Seal Material	Fluid Service
H	Nitrile	Petroleum, water-oil emulsions, water glycol.
Z	Fluorocarbon	Specified synthetics.

Table 2

PORT TYPE	
CODE	Option
C	BSP thread.
F	SAE split flange with metric holding bolts. Standard pressure 210 bar.

Table 3

PORT SIZE OPTIONS		
CODE	Option	Available for
16	1"	Port type C.
20	1½"	Port type C, F.

Table 4

FILTER ELEMENT		
	MEDIUM CODE	Rating (µm) (Bx≥200)
	9600	KZ
KP		3
KN		6
KS		12
KT		25

Table 5

LENGTH		
ASSEMBLY CODE	ELEMENT CODE	Dry Wt. Kg
S	8	28.9
T	13	33.5
U	16	37.9

Table 6

ΔP DEVICE		
CODE	Option	"H" Dimensions
O	Unmachined ΔP port. Cannot be modified to any of the options listed below.	-
B	Bleed plug and seal plug in place of ΔP device.	8mm
F	ΔP plug adaptor. Connections (2) ¼" BSP female ports. (For element upstream and downstream pressure connection or sampling).	30mm
D	Visual indicator - red button rises 5mm on actuation, remains up until manually reset.	23mm
P	Visual indicator - with thermal lockout and manual reset. No signal below 0°C; signal above 27°C. Indicator includes clear plastic cover and filter screen protection for ΔP piston. Button rises 5mm on indication.	23mm
E	Stainless steel visual indicator - brass button rises 5mm on actuation, remains up until manually reset.	23mm
L	Electrical switch - SPDT. Automatic reset. Connection: M25 male conduit threads (3). Colour coded 150mm flying leads.	38mm
Q	Electrical switch - SPDT. Automatic reset. Waterproof to IEC Class IP65. Sheathed cable 3x colour coded. 1000mm flying leads.	66mm
M	Electrical switch - SPDT. Automatic reset. Connection plug and socket as per DIN43650. ISO4400 (Hirschmann type). Weatherproof to IEC Class IP65.	78mm
T	Electrical switch - SPDT. Automatic reset. Connection plug as per DIN43650. ISO4400 (Hirschmann type). Socket not supplied.	49mm
V	Combined visual/electrical indication. Manual reset. SPDT connection plug and socket as per DIN43650. ISO4400 (Hirschmann type).	66mm
X	Electrical switch - SPDT. Automatic reset. Suitable for British Coal underground use.	71mm
W	Electrical switch - SPDT. Automatic reset. For use in hazardous environments. Explosion protected to CENELEC EN 50014 Class EExdIICT6.	47mm
Z	Sensor plus monitor display unit. 3 LED visual indication; normal condition (green), 75% rated ΔP (amber), 100% rated ΔP (red). Temperature indication: <30°C to 100°C. Analogue output for computer link.	70mm
2	P and L.	-
6	D and L.	-
Settings (Switches and indicators) 2.4 ± 0.3 bar differential with 3.4 bar bypass.		

Table 7

OPTIONS	
CODE	Specification
YMIN	Aluminium-free filter with white paint to British Coal spec. 520.
YA54	Lightweight bowl, 40 bar maximum working pressure.

Example filter assembly 'Pall' Part Number HZ8670C16KSSBP

This is a 8670 series filter assembly with fluorocarbon seals for industrial grade phosphate ester fluids and 1" BSP ports. Filter element is rated at 20 bar diff. collapse and 12 micrometres rating (β₁₂ ≥ 200). "S" length element and bowl. Bypass assembly (3.4 bar cracking). Pop-up visual indicator with thermal lock-out. The replacement element for this assembly is 'Pall' Part Number HC9600FKS8Z.

Features and Benefits

Features and Benefits

All steel housings of non-welded construction

Rugged, compact construction with cast iron head, and carbon steel bowls.

Vent plugs

Allows bleeding of offline housing prior to bringing clean element onto stream.

Low torque lever

Located by locking pin for security.

Differential pressure devices

Optional visual and electrical indicating devices provide accurate and reliable indication of the need for element service. Differential pressure devices are mechanically independent of the bypass valve and signal *before* the bypass valve opens.

Sampling

Pull sampling units can be used in the differential indicator port to permit sampling of system fluid without breaking lines.

Changeover valve

Unique design ensures fluid flow cannot be interrupted during changeover. Ensures continuous fluid supply to services.

Drain plugs

Offline filter chamber can be drained prior to bowl removal and element replacement.

Anti-backflow

Anti-backflow valves are standard fitment to prevent drainage of lines (in installations where assembly is mounted below fluid level) during element change of the off-service chamber.

Optional ports and mounting

Port options are 1", 1½" BSP parallel and 1¼" SAE split flange.

Commuter valve

Allows priming of offline housing prior to bringing clean element onto stream.

Positive sealing

Standard O-rings are used throughout. O-rings are more reliable than flat gaskets. Sealing does not depend on torque loading. Standard seals are readily available in the field.

Bypass valve

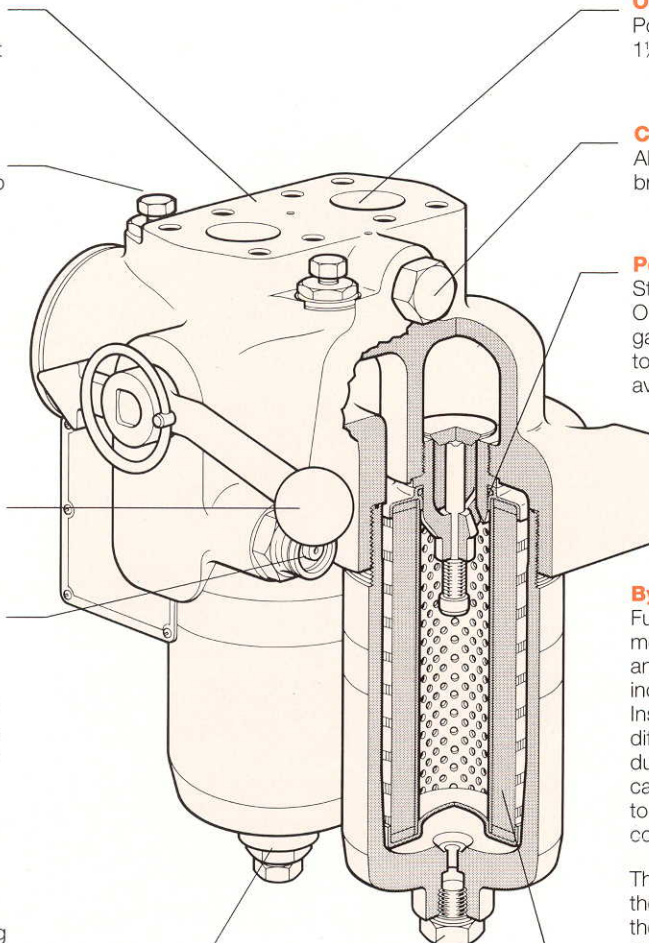
Full flow low inertia bypass valve mounted in the filter head between inlet and outlet port. Operation is independent of clogging indicator. Instantaneously responds to limit the differential pressure across the element during cold starts and flow surges, and can handle full flow if element is blocked to minimise the possibility of element collapse and fatigue.

The bypass flow path design ensures the fluid does not impinge or pass over the element in bypass mode. This prevents contamination being washed off the dirty element during bypass.

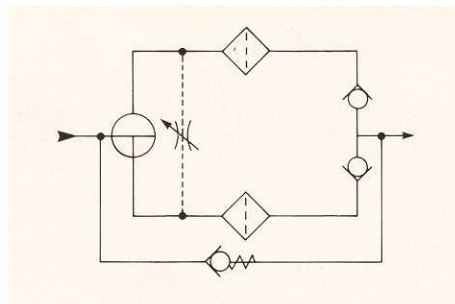
Ultipor III elements

Ultipor III filter medium is a unique 'composite' structure with a fixed, graded pore construction of inert, inorganic fibres impregnated and bonded with specifically formulated proprietary resins for unsurpassed service life. Removal ratings at ($\beta_x \geq 200$) <1, 3, 6, 12 and 25 micrometres.

Ultipor III filters have upstream and downstream support to resist cold start, flow fatigue and pleat bunching or lay over.



Hydraulic schematic



Specifications

Filter assembly data

Installation:	Refer to service instructions PIHL-SI-867.
Temperature range:	Nitrile seals: -43°C to +120°C. Fluorocarbon seals: -29°C to +120°C.

Housing data

Materials:	Head, grey cast iron; bowl, extruded steel.
Seals:	Nitrile or fluorocarbon standard O-rings.
Pressure rating:	Operating pressure: 80 bar. (Except YA54 variant: 40 bar maximum). Burst pressure (typical): 380 bar.
Bypass valve settings:	8670 Series: 3.4 ± 0.3 bar diff. cracking pressure.
Ports:	Inlet and outlet: 1" or 1 1/4" BSP female thread, or 1 1/4" SAE split flange for metric holding bolts.
Finish:	Paint on a phosphate base.
Dry Weight:	See table on page 4.

Differential pressure devices

ΔP switch and indicator setting:	2.4 ± 0.3 bar.
Electrical switch ratings:	110VAC = 4A (inductive), 4A (resistive). 220VAC = 4A (inductive), 4A (resistive). 28VDC = 3A (inductive), 5A (resistive). 48VDC = 1A (inductive), 1.5A (resistive). 125VDC = 0.25A (inductive), 0.5A (resistive).

Disposable filter element data

Filter element hardware:	Corrosion-protected carbon steel end caps and core.
Filter medium:	Ultipor III filter elements are a 'composite' structure with inert, inorganic fibres, in a graded pore construction, impregnated and bonded with resins.
Removal ratings per ISO4572, BS6275:	See table on page 2. Ask for Pall multi-pass brochure PIHL-MP.
Element collapse pressure ratings per ISO2941:	9600 Series: 20 bar minimum.
Flow fatigue resistance per ISO3724:	Contact Pall: filter medium is fully supported up and downstream to achieve maximum fatigue cycle life.
Fluid compatibility per ISO2943:	Compatible with petroleum oils, water-glycols, water-oil emulsions, and those synthetic hydraulic fluids rated for use with fluorocarbon seals.
Fabrication integrity test per ISO2942:	Bubble point in isopropyl alcohol (propan-z-ol).

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Because of developments in technology these data or procedures may be subject to change. Consequently we advise users to review their continuing validity annually.

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