Pall Corporation

PSS® Series Filter Elements

Description

The PSS® Series filter medium is composed of 316 low-carbon stainless steel powder sintered together in an inert environment. The resulting fixed pore structure medium provides quantitative particle removal efficiency without media migration or particle unloading. The inherently high void volume of this medium offers low resistance to flow and high dirt holding capacity. These filters offer broad temperature and chemical compatibility with the added economy of being repeatedly cleanable. PSS filters are used in many applications within the chemical process industry, in many aggressive environments, where critical filtration levels are required. Such applications include industrial gases (cryogenic and high temperature), steam, solvent, heat transfer fluids, polymers, chemical intermediates, food and beverages. PSS Series filter media have high chemical stability and do not impart taste, odor or extractables to the effluent. Designs are available for temperatures up to 1250°F with appropriate alloy selection.

Figure 1. Standard PSS Series Filter Elements

Operating Characteristics

Standard 316 stainless steel cartridges are capable of withstanding a minimum collapse differential pressure of 50 psid in the forward flow (outside-in) direction to 600°F† and 50 psid in the reverse flow direction.

† *Threaded connector series only. Due to seal limitations, 1000 Series suitable for applications up to 450°F.*

Sizes

Standard PSS filters are available in three styles. Industrial (1000 style) cartridges are 2 ⅜-inch diameter double open-ended modules in incremental lengths of 10 inches; sanitary design (AB style) are closed on one end with an O-ring piston seal on the other end; and cylindrical elements, which are 1 ½-inches or 2 ⅜-inches in diameter, closed on one end with a threaded fitting connection on the other.

Table 1. PSS Elements And Their Characteristics

Filter Grade	Removal Ratings						Clean Pressure Drop		Recommended Flow Density	
	Liquid Service(1)				Gaseous Service(2)		Liquid Service	Gaseous Service		
	Rating in µm at % Efficiency									
	50%*	90%	99%	100%	Weight % Removal	100% Removal µm	Aqueous Pressure Drop(3) psi/gpm/ft²	Air Pressure Drop(4) psi/acfm/ft²	Aqueous gpm/ft²	Air acfm/ft²
PO5	0.5	2	3	5	99.99	0.4	0.85	0.091	0.5 - 2	5 - 10
PO9	2	4	7	9	99.98	0.8	0.27	0.030	0.75 - 3	10 - 30
H	5	7	9	13	99.97	1.3	0.23	0.024	1 - 4	15 - 40
F	8	12	15	20	99.94	2.8	0.052	0.0054	2 - 6	15 - 50
E	15	22	25	35	99.80	11.0	0.019	0.0013	2 - 7	20 - 60
D	20	28	40	55	99.50	20.0	0.0068	0.0007	3 - 10	25 - 80

* *These removal ratings should be used when comparing PSS to competitive grades.*

(1) *Liquid removal efficiency ratings are based on a modified F2 test method and actual particle count data.*

(2) *Weight percent removal data based on AC Fine Test Dust in air. Absolute retention ratings based on actual particle count.*

(3) *Pressure drop in psi obtained by multiplying value shown by actual flow desired in gpm, viscosity of liquid in centipoise (if other than 1 cp), all divided by total filtration area (ft²) selected. See Table 2 for area.*

(4) *Pressure drop in psi obtained by multiplying value shown by actual gaseous flow rate desired (acfm), ratio of viscosities* $\frac{\text{Actual viscosity of gas (in cp)}}{\text{0.018 (viscosity of air)}}$ *all divided by total filtration area (ft²) selected. See Table 2 for area.*

Part Numbers/Ordering Information

Table 2. Standard Configuration of PSS Elements

100% Removal Rating	PSS Series Element Part Number			
	100 Series	AB Series	Cylinder Series	
			2 ⅜" Diameter Elements With 1" or 1 ½" NPT[5]	1 ½" Diameter Elements With ¼" NPT[5]
5	MBS100 ■ PO5 ▲	AB ■ PO57 ▲	C-23-● ◆ PO5	C-14-★ ◆ PO5
9	MBS100 ■ PO9 ▲	AB ■ PO97 ▲	C-23-● ◆ PO9	C-14-★ ◆ PO9
13	MBS100 ■ PH ▲	AB ■ PH7 ▲	C-23-● ◆ PH	C-14-★ ◆ PH
20	MBS100 ■ PF ▲	AB ■ PF7 ▲	C-23-● ◆ PF	C-14-★ ◆ PF
35	MBS100 ■ PE ▲	AB ■ PE7 ▲	C-23-● ◆ PE	C-14-★ ◆ PE
55	MBS100 ■ PD ▲	AB ■ PD7 ▲	C-23-● ◆ PD	C-14-★ ◆ PD

Code ▲	Gasket Option
H13	Nitrile (Std.)
H	Fluorocarbon Elastomer
J	Ethylene Propylene
J7	Ethylene Propylene for Steam Service

Code ■	Nominal Length (in)	Area (ft²)
1	10	0.5
2	20	1.0
3	30	1.5

Code ◆	Connection
1	¼" NPT
4	1" NPT
6	1 ½" NPT

Code ●	Nominal Length (in)	Area (ft²)
06	6	0.31
09	9	0.47
18	18	0.9
19	19[5]	0.98

Code ★	Nominal Length (in)	Area (ft²)
06	6	0.2
09	9	0.29
18	18	0.59

[5] C-23-19 has connection Code 6. Other C-23 part numbers have Code 4. All C-14 part numbers have Code 1.

Housing Information

A full selection of standard Pall industrial housings are available for use with PSS elements. Custom designed housings for specific applications are also available. Contact your Pall representative for more information.

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