

## Duo-Fine® E Series Filter Cartridges

### High Capacity Pleated Filter Cartridges With Microfiberglass Media

- Unique microfiberglass media provides exceptional dirt-holding capacity for longer service life
- 304 stainless steel center core and end caps available for high temperature applications
- Small diameter fibers ensure high flow rates at low pressure drops
- Economical alternative to stringwound cartridges
- Available in retention ratings of 0.2 to 50 microns ( $\mu\text{m}$ )
- Protective netting is color-coded for easy identification of micron ratings
- End configurations to fit most housings
- Core material options for different temperature compatibility

### Performance Specifications

#### Filter grades

0.2, 0.45, 1, 3, 10, 30, 50  $\mu\text{m}$

#### Recommended change-out differential pressure<sup>1</sup>

2.4 bard (35 psid)

#### Maximum differential pressure

Polypropylene hardware

4.8 bard (70 psid) @ 20°C (68°F)

2.8 bard (40 psid) @ 65°C (150°F)

304 stainless steel hardware

5.2 bard (75 psid) @ 121°C (250°F)

#### Sterilization

All Duo-Fine E Series cartridges may be autoclaved for 30 minutes at 121°C (250°F) under no end load conditions. Cartridges with 304 stainless steel core and end caps may be steamed in-line at 121°C (250°F) for up to one hour. Do not reverse flow under steam conditions, damage to the filter may occur.

<sup>1</sup> Provided that the maximum differential pressure is not exceeded based on temperature limits defined above.

<sup>2</sup> 304 stainless steel end caps are epoxy bonded.



### Product Specifications

#### Materials of construction

Filter media:

50  $\mu\text{m}$ : Spunbonded polyester

All other grades: Borosilicate microfiberglass with acrylic binder

Support material: Spunbonded polyester

Netting: Polypropylene

Hardware: Polypropylene or 304 stainless steel<sup>2</sup>

Sealing: Thermal bond

Gaskets/O-rings: Silicone elastomer, nitrile, fluorocarbon elastomer, hydrocarbon rubber, FEP encapsulated silicone, expanded PTFE, white nitrile, white silicone

#### Dimensions (nominal)

Outside Diameter: 6.6 cm (2.6 in)

Lengths: 10.2 cm (4 in), 24.8 cm (9.75 in), 25.4 cm (10 in), 49.5 cm (19.5 in), 50.8 cm (20 in), 74.3 cm (29.25 in), 76.2 cm (30 in), 99.1 cm (39 in), 101.6 cm (40 in)

## Color Code Chart For Duo-Fine E Series

Netting Color	Micron Rating
Green	0.2
Yellow	0.45
White	1
Blue	3
Red	10
Purple	30
Orange	50

## Particle Retention ( $\mu\text{m}$ )

Cartridge Designation	Liquid Service (by ASTM F-795 Test)		Gas Service
	90% Efficiency	>99.9% Efficiency	Removal Efficiency by DOP Test
DFN 0.2	0.2	1.0	99.999%
DFN 0.45	0.45	2.0	99.998%
DFN 1	1.0	4.0	96%
DFN 3	3.0	10.0	_____
DFN 10	10.0	18.0	_____
DFN 30	30.0	45.0	_____
DFN 50	50.0	75.0	_____

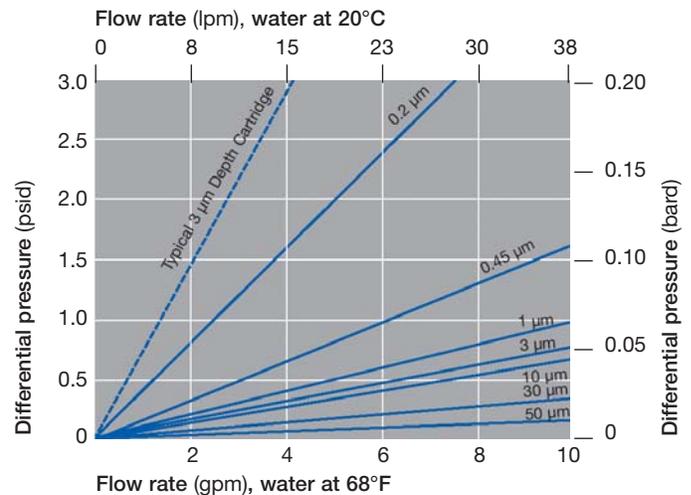
Duo-Fine E Series filter cartridges have been extensively laboratory and field tested to determine removal efficiencies in the most stringent of operating conditions.

The removal rating of any filtration device will depend on, to some extent, the conditions under which it is used or tested. The test results will be influenced by the nature of the fluid, its viscosity, the flow rate, the type of contaminant, and the temperature.

The ratings given represent the diameter of the largest hard spherical particle that will pass through the filter during standard test. Contact Pall for a complete description of Pall's test procedures.

The DOP test measures the ability of the filter to capture fine droplets in air or gas. The retention ratings given represent the removal efficiencies with respect to an aerosol dispersion of 0.3  $\mu\text{m}$  Dioctyl Phthalate (DOP) particles.

## Typical Flow vs. Differential Pressure for Application Sizing



Unit conversion: 1 bar = 100 kPa

Flow rate is for a 25.4 cm (10 in) cartridge. For liquids other than water, multiply differential pressure by fluid viscosity (cP).

## Ordering Information

Pall Part Number = DFN 1 - 2 3 4 - 5 6 7

Table 1

Code	Filter grades (µm)
0.2	0.2
0.45	0.45
1	1
3	3
10	10
30	30
50	50

Table 2

Code	Cartridge lengths (cm/in) nominal
4	10.2/4
9.75	24.8/9.75
10	25.4/10
19.5	49.5/19.5
20	50.8/20
29.25	74.3/29.25
30	76.2/30
39	99.1/39
40	101.6/40

Table 3

Code	Core materials
U	Polypropylene
A	304 stainless steel

Table 4

Code	Gasket/O-ring materials
S	Silicone
N	Nitrile
E	Hydrocarbon rubber
V	Fluorocarbon elastomer
T	FEP encapsulated silicone (O-rings)
M	White silicone
W	White nitrile (gaskets)
X	No O-ring required (M2 style only)
T	Expanded PTFE (gaskets)

<sup>3</sup> For details, contact Pall Corporation.

Table 5

Code	End configurations
Blank	DOE with elastomer gasket seals & end caps
1X	DOE, 2.54 cm (1 in) extended core
M2	SOE flat closed end, fits housings with 020 O-ring post <b>(polypropylene hardware only)</b>
M3	SOE flat closed end, external 222 O-rings (retrofits other manufacturers' Code 0) <sup>3</sup> <b>(polypropylene hardware only)</b>
M5	DOE internal 120 O-rings (retrofits 213 O-ring style) <sup>3</sup> <b>(polypropylene hardware only)</b>
M6	SOE flat closed end, external 226 O-rings (retrofits other manufacturers' Code 6) <sup>3</sup> <b>(polypropylene hardware only)</b>
M7	SOE fin end, external 226 O-rings (retrofits other manufacturers' Code 7) <sup>3</sup> <b>(polypropylene hardware only)</b>
M8	SOE fin end, external 222 O-rings (retrofits other manufacturers' Code 5) <sup>3</sup> <b>(polypropylene hardware only)</b>
M10	DOE internal O-rings (fits other manufacturers' housings) <sup>3</sup> <b>(polypropylene hardware only)</b>
M11	SOE flat closed end, internal 120 O-ring (retrofits other manufacturers' X style) <sup>3</sup> <b>(polypropylene hardware only)</b>

Table 6

Code	Bubble test option
Blank	Sample bubble tested
B	100% bubble test

Table 7

Code	Packaging
Blank	Standard packaging
-BLK	Bulk packaging <sup>3</sup>



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