

## DFA Compact Capsule Filters for the Microelectronics Industry

### Description

The DFA filter assembly is a handy, easy-to-use and cost-effective capsule filter designed for relatively low flow rates and small volume batch processes.

Flexibility in filter media and connector options allow for a wide range of general industry applications.

### Features and Benefits

- Wide variety of media materials (PTFE, nylon 6,6, hydrophilic PVDF, HDPE, polypropylene)
- Broad range of connector options (Swagelok<sup>1</sup>, Pillarfitting<sup>2</sup>, NPT, flare style)
- All-polymeric construction
- O-ring free design
- Allows for easy customization of filtration systems to accommodate various flow rates and removal rating requirements
- Able to vent and drain quickly and easily
- Low hold-up volume

<sup>1</sup> Trademark of Swagelok Co.

<sup>2</sup> Trademark of Nippon Pillar Packing Co., Ltd.



DFA1



DFA4201

DFA6402

### Specifications

		Emflon®	Ultipor® N66	Ultipleat® P-Nylon	Fluorodyne®
Materials	Filter Medium	PTFE (hydrophobic)	Nylon 6,6 (hydrophilic)	Nylon 6,6 (hydrophilic)	PVDF (hydrophilic)
	Other Components	Polypropylene	Polyester, Polypropylene	HDPE, Polypropylene	Polypropylene
Removal Ratings		0.05 µm, 0.1 µm, 0.2 µm, 0.45 µm	0.1 µm, 0.2 µm	10 nm, 20 nm, 40 nm, 0.15 µm	0.1 µm, 0.2 µm
Maximum operating temperature		38 °C / 100 °F	38 °C / 100 °F	38 °C / 100 °F	38 °C / 100 °F
Maximum operating pressure (38 °C / 100 °F)	Liquid	0.49 MPaG	0.49 MPaG	0.49 MPaG	0.49 MPaG
	Gas	0.34 MPaG	0.34 MPaG	0.34 MPaG	0.34 MPaG
Maximum differential pressure (38 °C / 100 °F)		0.34 MPa	0.34 MPa	0.34 MPa	0.34 MPa
Main applications		Vent air Process gas Organic solvents	Photoresist Developer DI Water	Photoresist Developer DI Water	Ultrapure DI Water Aqueous chemicals
Minimum order quantity		6 pcs	6 pcs	6 pcs	6 pcs

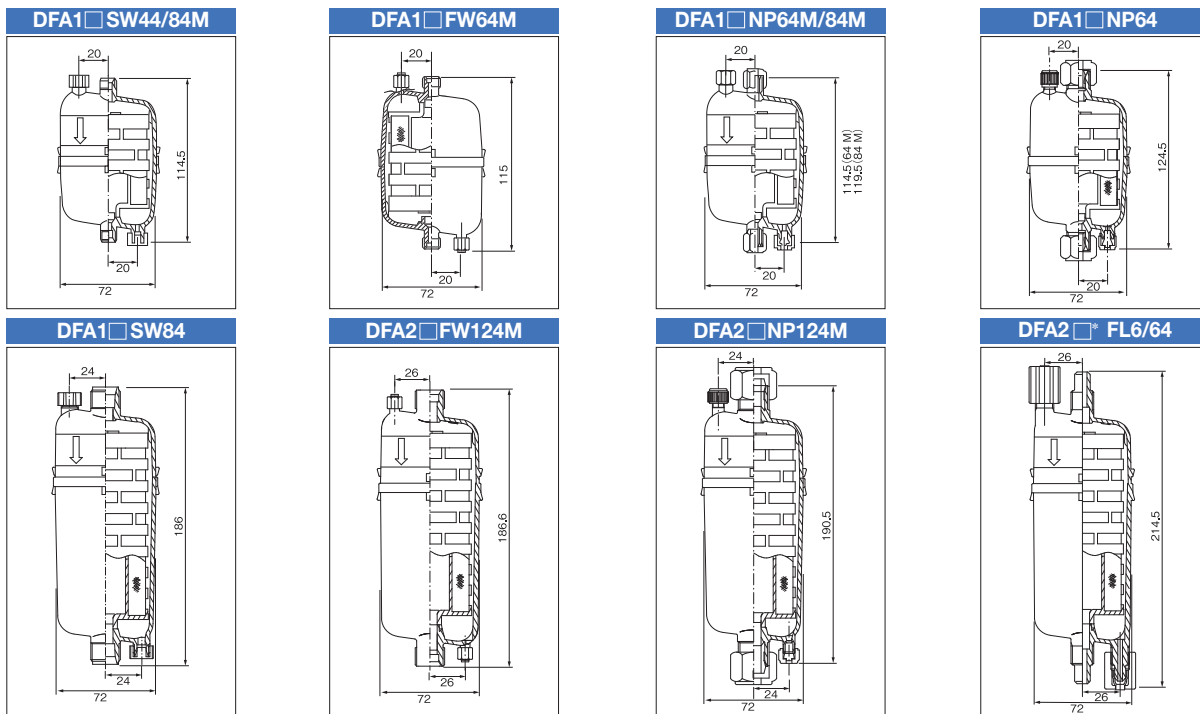
# Specifications

		P Emflon®	PE-Kleen	HDC® II	Profile® Star
Materials	Filter Medium	PTFE (hydrophobic)	HDPE	Polypropylene	Polypropylene
	Other Components	HDPE, Polypropylene	HDPE, Polypropylene	Polypropylene	Polypropylene
Removal Ratings		0.05 µm, 0.1 µm, 0.2 µm	5 nm <sup>3</sup> , 10 nm, 30 nm 0.05 µm, 1 µm	0.6 µm, 1.2 µm, 2.5 µm, 4.5 µm 6 µm, 10 µm, 20 µm, 40 µm, 70 µm	0.8 µm, 1 µm 1.5 µm, 3 µm, 5 µm
Maximum operating temperature		38 °C / 100 °F	38 °C / 100 °F	38 °C / 100 °F	38 °C / 100 °F
Maximum operating pressure (38 °C / 100 °F)	Liquid	0.49 MPaG	0.49 MPaG	0.49 MPaG	0.49 MPaG
	Gas	0.34 MPaG	0.34 MPaG	0.34 MPaG	0.34 MPaG
Maximum differential pressure (38 °C / 100 °F)		0.34 MPa	0.34 MPa	0.34 MPa	0.34 MPa
Main applications		Photoresist Organic solvents Chemicals	Photoresist Organic solvents Chemicals	Acids, bases DI Water Solvents	Suspensions High viscosity fluids Coatings
Minimum order quantity		6 pcs	6 pcs	6 pcs	6 pcs

<sup>3</sup> 5 nm is available for DFA1, DFA2 and DFA6402.

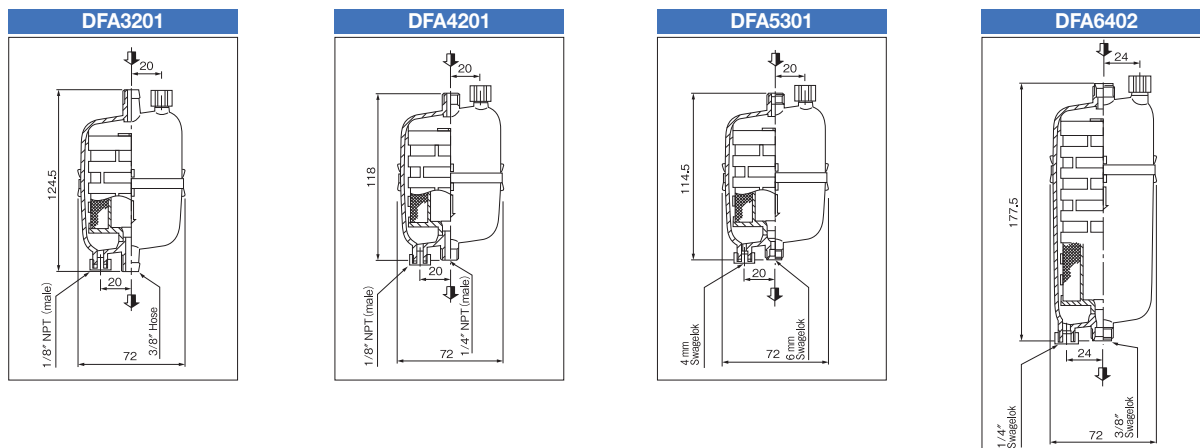
# Configuration and Dimensions

## DFA1, 2 Series



\* Without vent / drain.

## DFA3201, 4201, 5301, 6402 Series



## Part Numbers / Ordering Information (DFA1, 2 Series)

DFA 1 2 3

**Table 1 : Configurations**

1	for low flow rates
2	for medium flow rates

**Table 3 : Connector options**

	Code	Inlet / Outlet		Vent / Drain	
		Size	Connections	Size	Connections
DFA1	SW44	1/4"	Swagelok	1/4"	Swagelok
DFA1	SW84M	8 mm	Swagelok	4 mm	Swagelok
DFA1	FW64M	6 mm	Flowell 20 (series)	4 mm	Flowell 20 (series)
DFA1	NP64	3/8"	Pillarfitting	4 mm	Pillarfitting
DFA1	NP64M	6 mm	Pillarfitting	4 mm	Pillarfitting
DFA1	NP64MR <sup>4</sup>	6 mm	Pillarfitting	4 mm	Pillarfitting
DFA1	NP84M	8 mm	Pillarfitting	4 mm	Pillarfitting
DFA1	NP84MR <sup>4</sup>	8 mm	Pillarfitting	4 mm	Pillarfitting
DFA2	FL6	3/8"	Flare style	nil	nil
DFA2	FL64	3/8"	Flare style	1/4"	Flare style
DFA2	F6N4	3/8"	Flare style	1/4"	NPT
DFA2	FW124M	12 mm	Flowell 20 (series)	4 mm	Flowell 20 (series)
DFA2	NP64	3/8"	Pillarfitting	1/4"	Pillarfitting
DFA2	NP84M	8 mm	Pillarfitting	4 mm	Pillarfitting
DFA2	NP124M	12 mm	Pillarfitting	4 mm	Pillarfitting
DFA2	NP124MR <sup>4</sup>	12 mm	Pillarfitting	4 mm	Pillarfitting
DFA2	SW84	1/2"	Swagelok	1/4"	Swagelok

<sup>4</sup> R option is for repeat order products without sleeves and nuts on inlet/outlet.

<sup>5</sup> Contact Pall for other fitting options.

**Table 2 : Options for filter media and removal ratings<sup>6</sup>**

Emflon <sup>8</sup>		Ultipor N <sub>66</sub>		Ultipleat P-Nylon		Fluorodyne		P Emflon		PE-Kleen		HDC II <sup>7</sup>		Profile Star <sup>7</sup>	
Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings
FDE□ <sup>8</sup>	0.05 µm	NIEY	0.1 µm	AN01E	10 nm	V001EY	0.1 µm	UFDE	0.05 µm	UG5E	5 nm	J006□ <sup>7</sup>	0.6 µm	A008□ <sup>7</sup>	0.8 µm
FTE□ <sup>8</sup>	0.1 µm	NAEY	0.2 µm	ANME	20 nm	V002EY	0.2 µm	UFTE	0.1 µm	UG001E	10 nm	J012□ <sup>7</sup>	1.2 µm	A010□ <sup>7</sup>	1 µm
FRE□ <sup>8</sup>	0.2 µm			ANDE	40 nm			UFRE	0.2 µm	UG003E	30 nm	J025□ <sup>7</sup>	2.5 µm	A015□ <sup>7</sup>	1.5 µm
				AN15E	0.15 µm					UG005E	0.05 µm	J045□ <sup>7</sup>	4.5 µm	A030□ <sup>7</sup>	3 µm
										UG100E	1 µm	J060□ <sup>7</sup>	6 µm	A050□ <sup>7</sup>	5 µm
												J100□ <sup>7</sup>	10 µm		
												J200□ <sup>7</sup>	20 µm		
												J400□ <sup>7</sup>	40 µm		
												J700□ <sup>7</sup>	70 µm		

<sup>6</sup> The E in the the part number stands for an electronic grade product.

<sup>7</sup> Extra rinsing option (F) is available for HDC II and Profile Star filters.

<sup>8</sup> S-grade option is treated to have very low initial extractables.

< notes > Part numbers in combination with all codes are not always available. Please contact Pall for part number availability.

Minimum order quantity and packaging unit 6 pcs

### Representative example part numbers

DFA1FRESSW44	DFA1UNIENP64M	DFA1NAEYSW44
DFA1FTESNP64M	DFA1UNIENP84M	DFA1NIEYNP64M
DFA1FTESNP84M	DFA2UNIEFL64	DFA1NIEYNP84M
DFA1FDESNP64M	DFA1UNDENP64M	DFA1NIEYSW44
DFA1FDESNP84M	DFA1UNDNP84M	DFA1V001EYSW44
DFA1ANDENP64M	DFA2UNDEFL64	DFA2UG001EFL64
DFA2ANDEFL64	DFA2UNDENP64R	
DFA2ANDENP64R	DFA2UNDENP84M	
DFA1ANMENP64M	DFA2UNMENP84M	
DFA2ANMENP64R	DFA2UNMENP64R	
	DFA2NUMEFL64	

## Part Numbers / Ordering Information (DFA3201, 4201, 5301, 6402 Series)

DFA 4 5

**Table 4 : Connector options**

Fittings Code	Inlet / Outlet		Vent / Drain	
	Size	Connections	Size	Connections
3201	3/8"	Hose	1/8"	NPT male
4201	1/4"	NPT male	1/8"	NPT male
5301	6 mm	Swagelok	4 mm	Swagelok
6402	3/8"	Swagelok	1/4"	Swagelok

**Table 5 : Options for filter media and removal ratings<sup>9</sup>**

Emflon <sup>11</sup>		Ultipor N <sub>66</sub>		Ultraleat P-Nylon		Fluorodyne		P Emflon		PE-Kleen		HDC II <sup>10</sup>		Profile Star <sup>10</sup>	
Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings	Code	Removal ratings
FDE □ <sup>11</sup>	0.05 µm	NIEY	0.1 µm	AN01E	10 nm	V001EY	0.1 µm	UFDE	0.05 µm	UG5E	5 nm	J006 □ <sup>10</sup>	0.6 µm	A008 □ <sup>10</sup>	0.8 µm
FTE □ <sup>11</sup>	0.1 µm	NAEY	0.2 µm	ANME	20 nm	V002EY	0.2 µm	UFTE	0.1 µm	UG001E	10 nm	J012 □ <sup>10</sup>	1.2 µm	A010 □ <sup>10</sup>	1 µm
FRE □ <sup>11</sup>	0.2 µm			ANDE	40 nm			UFRE	0.2 µm	UG003E	30 nm	J025 □ <sup>10</sup>	2.5 µm	A015 □ <sup>10</sup>	1.5 µm
FXE □ <sup>11</sup>	0.45 µm			AN15E	0.15 µm					UG005E	0.05 µm	J045 □ <sup>10</sup>	4.5 µm	A030 □ <sup>10</sup>	3 µm
										UG100E	1 µm	J060 □ <sup>10</sup>	6 µm	A050 □ <sup>10</sup>	5 µm
												J100 □ <sup>10</sup>	10 µm		
												J200 □ <sup>10</sup>	20 µm		
												J400 □ <sup>10</sup>	40 µm		
												J700 □ <sup>10</sup>	70 µm		

<sup>9</sup> The E in the part number stands for an electronic grade product.

<sup>10</sup> Extra rinsing option (F) is available for HDC II and Profile Star.

<sup>11</sup> S-grade option is treated to have very low initial extractable.

<sup>12</sup> There will be an indication as P in □ for 4201J012, 4201J025 and DFA3201, however the performance is unchanged.

< notes > Part numbers in combination with all codes are not always available. Please contact Pall for the part number availability.

Minimum order quantity and packaging unit 6 pcs

### Representative example part numbers

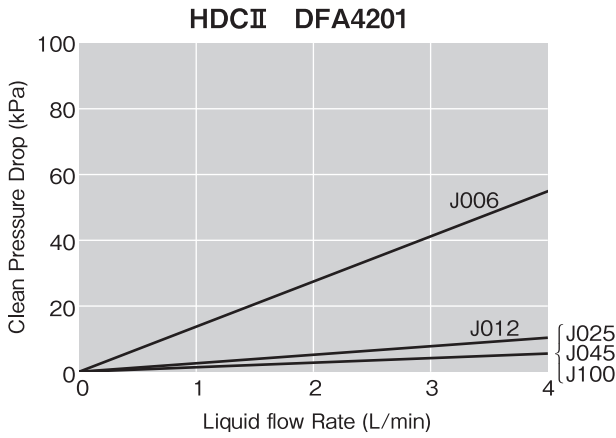
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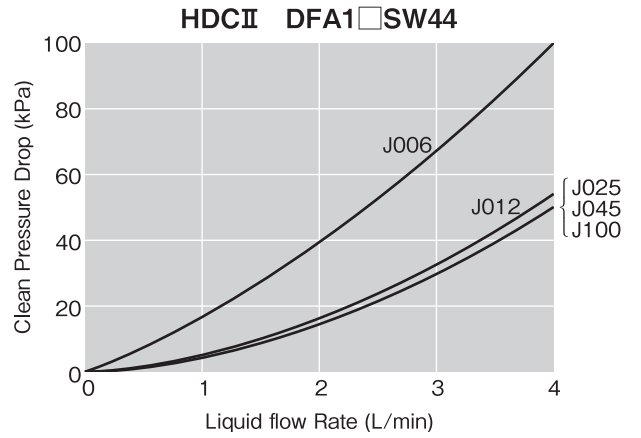
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Pressure Drop vs. Liquid Flow Rate<sup>13</sup> (Water [1mPa·s] at 20 °C)

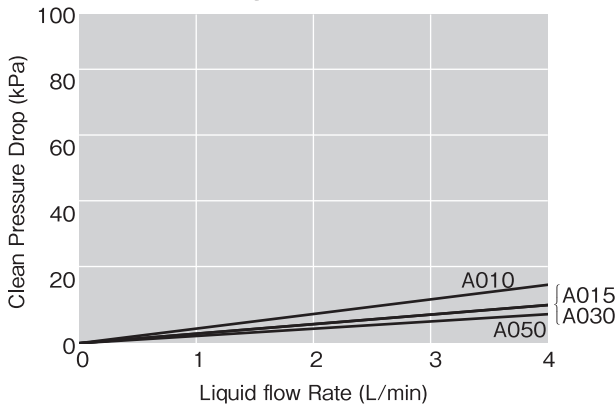
DFA4201



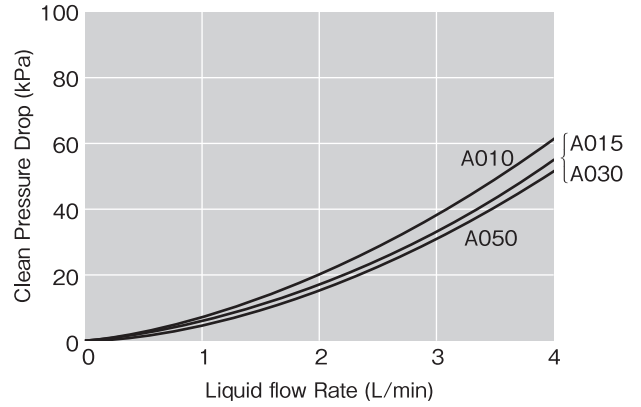
DFA1 SW44



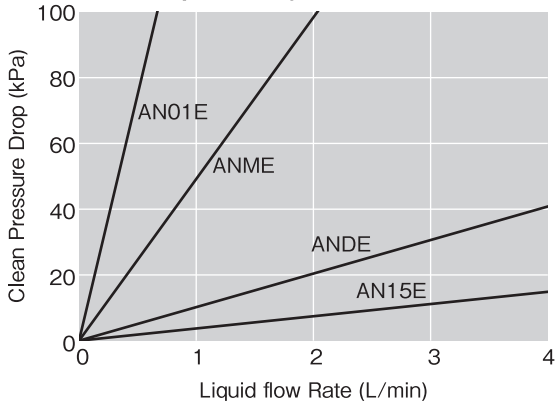
Profile Star DFA4201



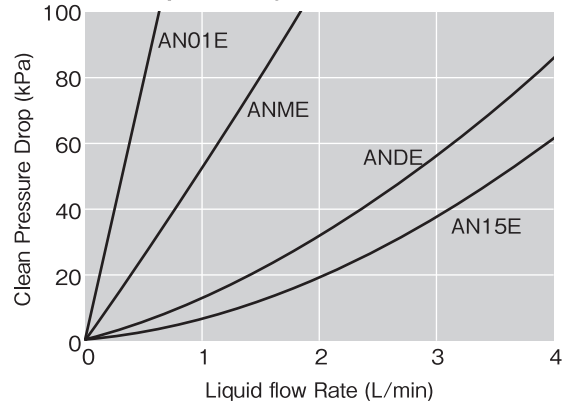
Profile Star DFA1 SW44



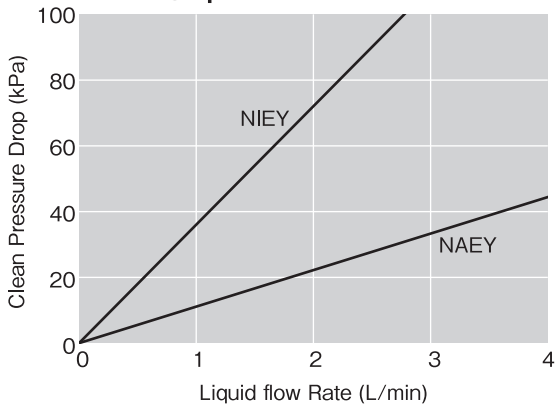
Ultiplet P-Nylon DFA4201



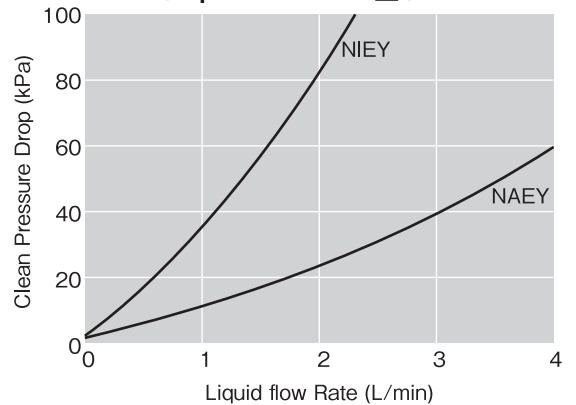
Ultiplet P-Nylon DFA1 SW44



Ultipor N<sub>66</sub> DFA4201



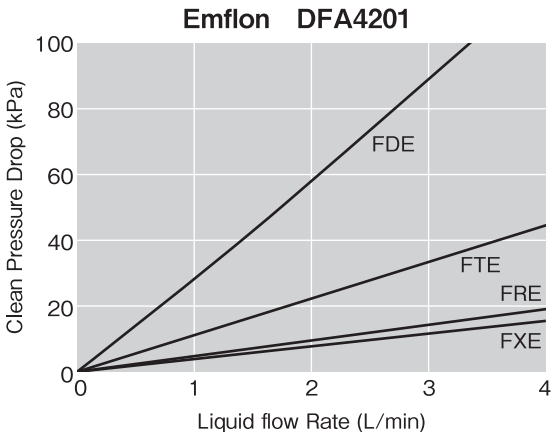
UltiporN<sub>66</sub> DFA1 SW44



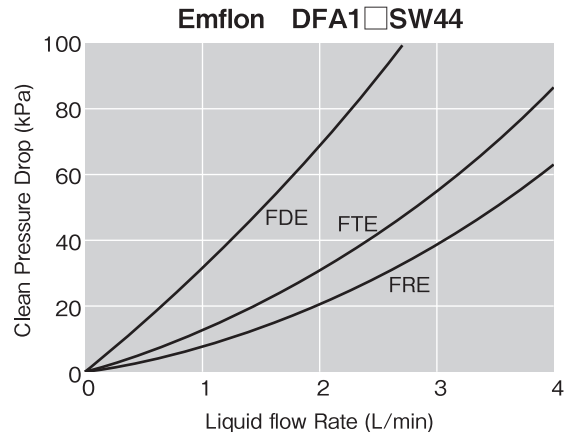
<sup>13</sup> For liquids with viscosity differing from water, multiply the pressure drop by the viscosity in mPa·s.

Pressure Drop vs. Liquid Flow Rate<sup>13</sup> (Water [1mPa·s] at 20 °C)

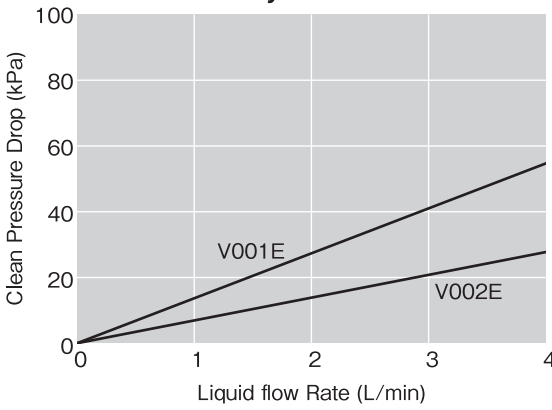
DFA4201



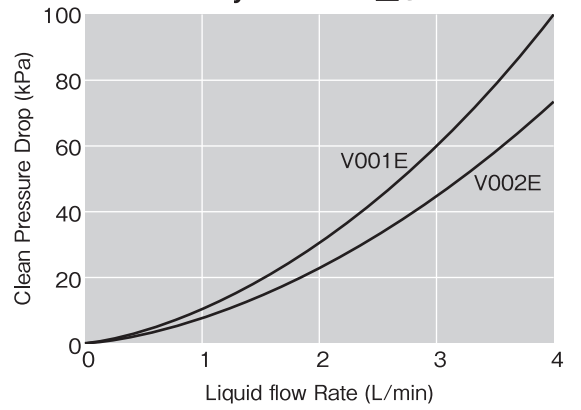
DFA1 SW44



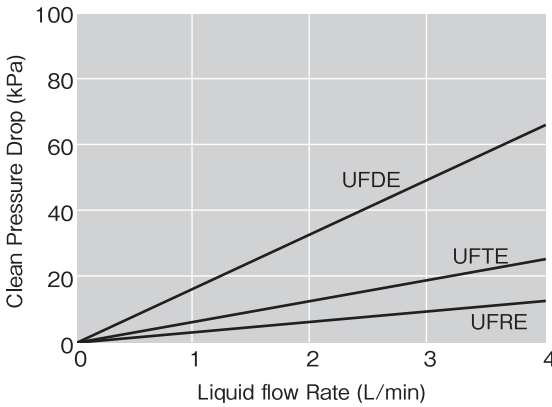
Fluorodyne DFA4201



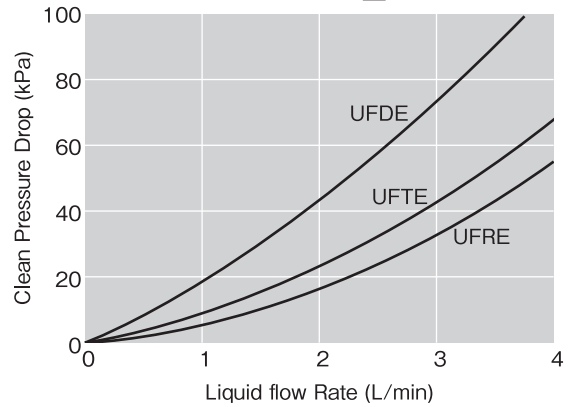
Fluorodyne DFA1 SW44



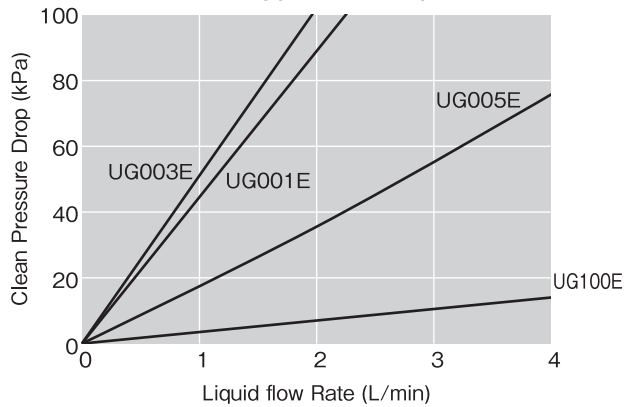
P Emflon DFA4201



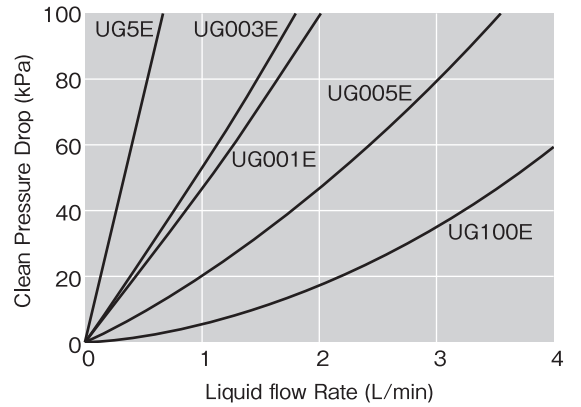
P Emflon DFA1 SW44



PE-Kleen DFA4201



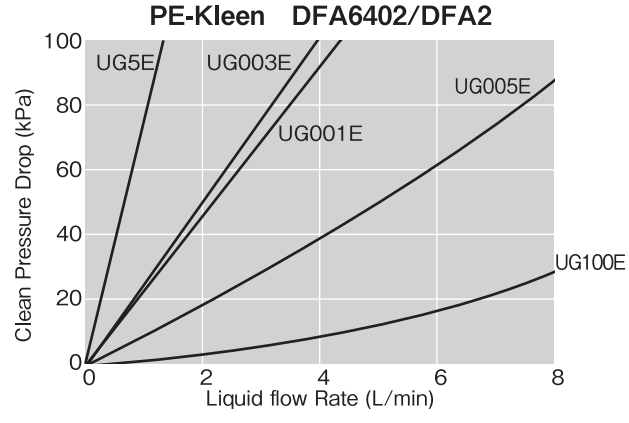
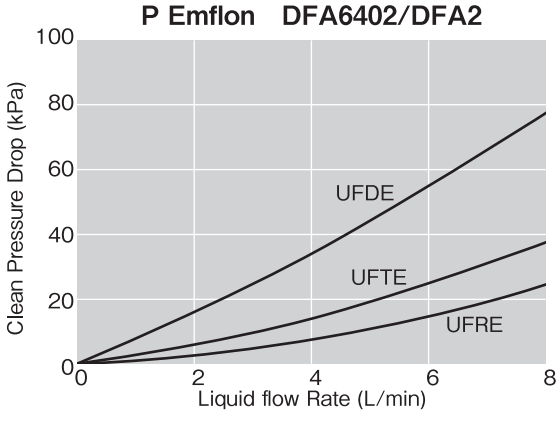
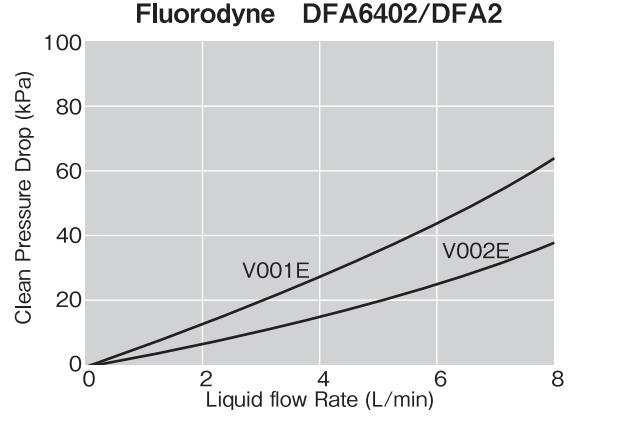
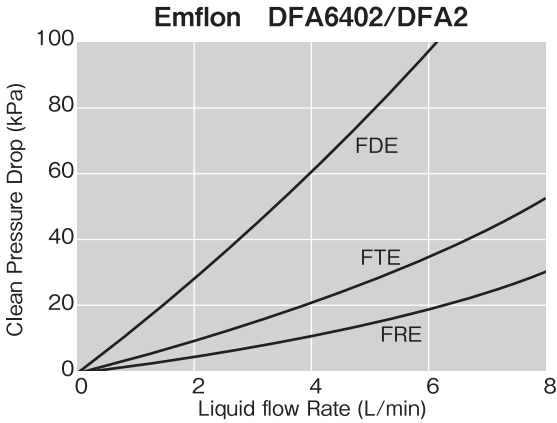
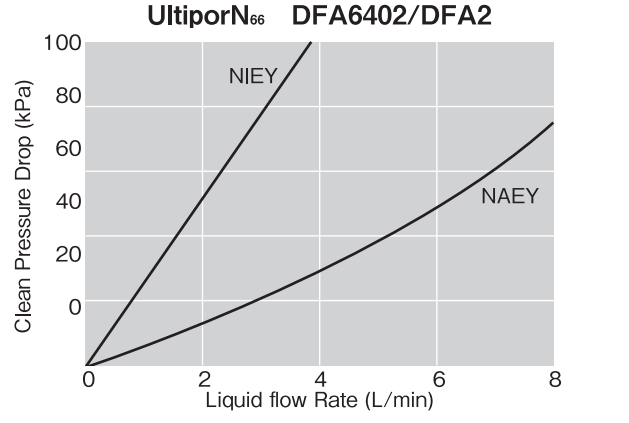
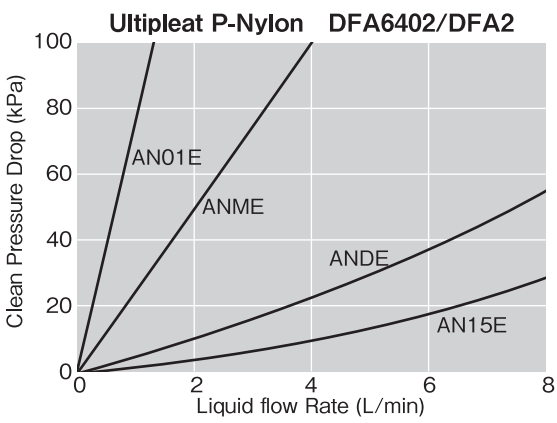
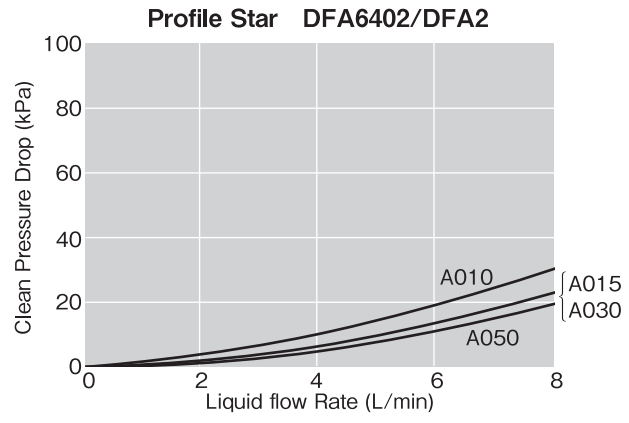
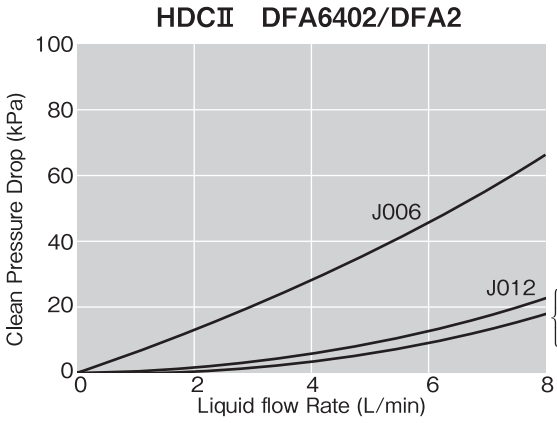
PE-Kleen DFA1 SW44



<sup>13</sup> For liquids with viscosity differing from water, multiply the pressure drop by the viscosity in mPa·s.

# Pressure Drop vs. Liquid Flow Rate<sup>13</sup> (Water [1mPa·s] at 20 °C)

## DFA6402, DFA2



<sup>13</sup> For liquids with viscosity differing from water, multiply the pressure drop by the viscosity in mPa·s.



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