

3M™ Micro-Klean™ D Series Blanket Media Filter Cartridges

The 3M™ Micro-Klean™ D series filter cartridge combines an internal media blanket and an enhanced open matrix to provide excellent flow rates and filtration efficiency.

3M Micro-Klean D series is a blanket media cartridge offering true graded density, with more open filtration on the outside of the filter and fine, more efficient filtration, on the inner layer of the cartridge. With this construction, blinding of the filtration surface by large particles is minimized, and therefore the cartridge life is extended, resulting in lower filter replacement costs.

3M Micro-Klean D series filter cartridges, with nominal ratings from 0.5 to 350 microns, are available with various media, matrix, and core materials to ensure compatibility with your process. Standard materials include cotton yarn/cotton media blanket for use in applications involving water, alcohol, and other polar liquids.

The polypropylene yarn/polypropylene media blanket configuration is excellent for use with acids, alkalis, strong oxidizing and reducing agents, and other chemicals in aqueous solutions.



Features & Benefits

Applications

- Suitable for a wide range of general industrial, source and waste water, micro-electronics, and food and beverage applications**

Graded density construction

- Very low pressure drop and high flow rates
- Long filter life and cost effective filtration
- High filtration efficiency

Low extractable levels

Length options: 9-7/8" (250 mm), 19-1/2" (500 mm), 29-1/4" (750 mm), and 39" (1000 mm)

- Reduces joints that cause blinding or by-pass

Choice of construction materials

- Ensures process and system compatibility
- Polypropylene media and core for a wide range of applications
- Cotton media and a stainless steel core for higher temperature applications

High dirt holding capacity

- Reduces filter change-outs

Food and Beverage Certifications

- Meets USA FDA 21 CFR compliance for all sizes and Japan Food sanitation Act for 1, 2, and 3-high versions. See details below*

*The wetted component materials, when used in accordance with 3M product intended uses and instructions, have been evaluated and found to comply to USA FDA 21 CFR Sections 170-186 for Indirect Food Contact Compliance.

**See intended and restricted use details at the bottom of the data sheet

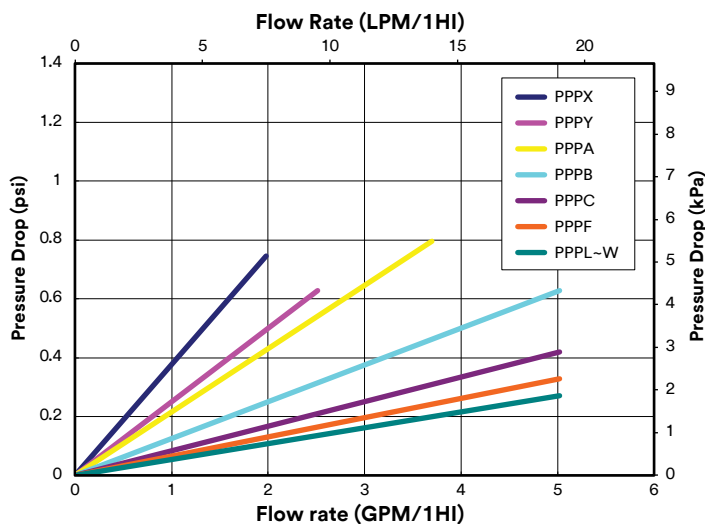
3M™ Micro-Klean™ D Series Blanket Media Filter Cartridges

Table 1: Cartridge Comparisons

Nominal Rating (µm)	Polypropylene Core	High Pressure Polypropylene Core	304 Stainless Steel
	Polypropylene Media	Cotton Media	Cotton Media
	140°F (60°C)	175°F (80°C)	250°F (121°C)
	Recommended Change-out Differential Pressure: 20-30 psid (0.14-0.21 MPa)		
	Maximum (Forward) Differential Pressure: 80 psid at 77°F (0.55 MPa at 25°C)		
0.5	D-PPPX	-	D-CCSX
1	D-PPPY	D-CCHPY	D-CCSY
3	D-PPPA	D-CCHPA	D-CCSA
5	D-PPPB	D-CCHPB	D-CCSB
10	D-PPPC	D-CCHPC	D-CCSC
25	D-PPPF	D-CCHPF	D-CCSF
50	D-PPPL	D-CCHPL	D-CCSL
75	D-PPPQ	D-CCHPQ	D-CCSQ
100	D-PPPV	D-CCHPV	D-CCSV
350/Coarse	D-PPPW	D-CCHPW	D-CCSW

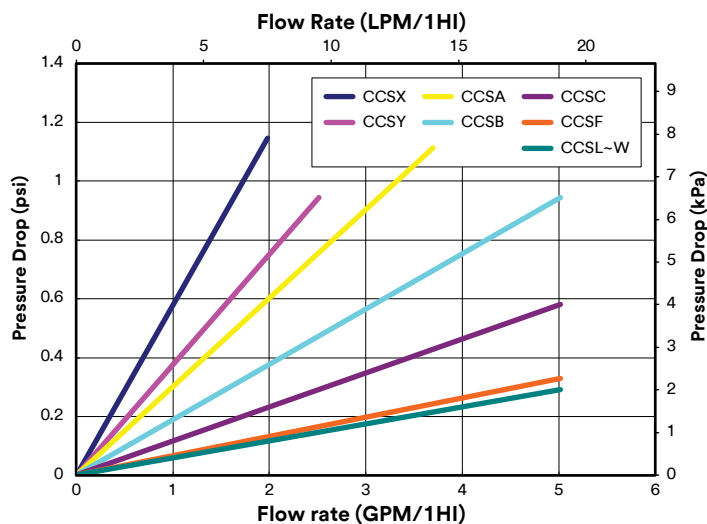
*No Filter grade X(0.5 mm) for D-CCHP series

Water Flow vs. Pressure Drop for Polypropylene Filter



Graph 1: Polypropylene Filter Flow Comparison

Water Flow vs. Pressure Drop for Cotton Filter



Graph 2: Cotton Filter Flow Comparison

Cartridge Disposal

3M Micro-Klean D series cartridges can be incinerated or shredded when configured with polypropylene cores. Metal cores can be crushed by high pressure techniques after media incineration. Other methods may be more economical when using metal cores.

Configurations

Cartridges can be configured with polypropylene, High performance polypropylene, and 304 stainless steel cores. The use of various core materials provide an advanced range of compatibility.

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Flow Table

Non Aqueous Flow Rates — Calculate using the formula in conjunction with the values shown in Table 2. The specific pressure drop values may be effectively used when three of the four variables (Viscosity, Flow, Differential Pressure, and Cartridge Grade) are set.

$$\text{Clean } \Delta p \text{ kPa} = \frac{\left(\frac{\text{total system}}{\text{LPM}/9-7/8" (250 \text{ mm}) \text{ ctg}} \right) \left(\text{viscosity mPa} \cdot \text{s} \right) \left(\text{value from table} \right)}{\left(\text{Number of Equivalent Single Length} \right) \left(\text{Cartridges in housing} \right)}$$

Table 2: 3M Micro-Klean D Series Flow Rates

Filter Grade	Nominal Rating (µm)	Pressure Drop per 10" cartridge			
		Polypropylene media		Cotton media	
		(psid/gpm/cP)	(kPa/LPM/mPa · s)	(psid/gpm/cP)	(kPa/LPM/mPa · s)
X	0.5	0.38	0.69	0.58	1.05
Y	1	0.25	0.46	0.38	0.69
A	3	0.21	0.39	0.30	0.55
B	5	0.13	0.23	0.19	0.34
C	10	0.08	0.15	0.12	0.21
F	25	0.07	0.12	0.07	0.12
L	50	0.05	0.1	0.06	0.11
Q	75	0.05	0.1	0.06	0.11
V	100	0.05	0.1	0.06	0.11
W	350/Coarse	0.05	0.1	0.05	0.1

* Specific pressure drop at ambient temperature for a single length equivalent (9-7/8" (250mm)) cartridge. Table values are shown for liquids with kinematic viscosity equal to 1.0. Kinematic viscosity mPa · s can be calculated by dividing the viscosity in centipoise by the specific gravity of the fluid. For multiple cartridge lengths, divide the total flow by the number of equivalent lengths.

* Viscosity
3M Micro-Klean D series may cause problems such as yarn loss at highly viscous liquid filtration with a high flow rate. The recommended maximum viscosity is shown below, please check the actual operating conditions before use.
X,Y,A,B,C,F grade: 220 mPa · s
L,Q,V,W grades: 130 mPa · s

Table 3: Recommended Flow Rate

Filter Grade	Nominal Rating (µm)	Pressure Drop per 10" cartridge					
		Water		32cP (32mPa · s)		65cP (65mPa · s)	
		(gallon/min)	(L/min)	(gallon/min)	(L/min)	(gallon/min)	(L/min)
X	0.5	1.6	6	0.3	1	0.1	0.5
Y	1	1.8	6.8	0.3	1.2	0.2	0.6
A	3	3.7	14	1.0	3.6	0.5	1.8
B	5	5.0	19	1.7	6.4	0.8	3.2
C	10	5.0	19	2.3	8.7	1.1	4.3
F	25	5.0	19	5.0	19	2.0	7.5
L	50	5.0	19	5.0	19	4.2	16
Q	75	5.0	19	5.0	19	5.0	19
V	100	5.0	19	5.0	19	5.0	19
W	350/Coarse	5.0	19	5.0	19	5.0	19

3M™ Micro-Klean™ D Series Ordering Guide

Core Product	Media Blanket and Matrix and Core	Nominal Rating Grade Designation	Nominal Cartridge Length - Code
D-	PPP - Polypropylene Media and Core CCHP - Cotton media and Polypropylene Core CCS -Cotton and 304 S.S. Core	X: 0.5µm* Y: 1µm A: 3µm B: 5µm C: 10µm F: 25µm L: 50µm Q: 75µm V: 100µm W: 350µm/Coarse	(blank): 9 7/8" (250mm)** -2-A: 19 1/2" (500mm)** -3-A: 29 1/4" (750mm)**
D	PPP - Polypropylene Media and Core CCS -Cotton and 304 S.S. Core		4: 39" (1000mm)***

*No X (0.5um) filter grade for CCHP versions, **COO Japan, ***COO Brazil

PLEASE NOTE: The Ordering Guide above is for reference only. Not all combinations are available. Please consult with your 3M Representative to determine the appropriate part number for your application.

Intended Use and Product Selection: 3M Micro-Klean D series filters are intended for use in industrial, high purity chemical, or food and beverage filtration applications of aqueous fluids in accordance with the applicable product instructions and specifications.

3M Micro-Klean D series filter products are also intended for use with non-aqueous fluids where materials of construction are compatible.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the 3M product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the 3M product in user's application.

Restrictions on Use: 3M advises against the use of these 3M products in any application other than the stated intended use(s), since other applications have not been evaluated by 3M and may result in an unsafe or unintended condition. Do not use in any manner whereby the 3M product, or any extractable or leachable from the 3M product, may become part of or remains in a medical device, drug, cosmetic, supplement, infant formula; or in applications involving life-sustaining medical applications or prolonged contact with internal bodily fluids or tissues.

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