Membrane Solutions



SEMICONDUCTOR

Filtration Product

Membrane Solutions LLC

INTRODUCTION

Membrane Solutions is an enterprise focusing on polymer microporous membrane filtration technology. It independently develops and produces PTFE, PES, Nylon, UPE, PVDF microporous membrane (Membrane removal rating include from 5nm to 10μm). We specialize in the design and manufacture of various kinds of folded membrane filters, disposable filters and small capsule filters. We provide omnidirectional filtration, separation and purification solutions for global semiconductor customers, including wafer clean process, wet etch process, photo process, CMP and special gas filtration.



ALL-PTFE FILTER CHEMICAL TOLERANCE

Chemical	Condition	Flow Rate	Integrity	Retention	Chemical Compatibility
SC1	80 °C	√	√	√	◎
SC2	80 °C	√	√	√	◎
HCl	37 %, 20 °C	√	√	√	◎
CHF	49 %, 20 °C	√	√	√	◎
DHF	10 %, 20 °C	√	√	√	◎
TMAH	20 °C	√	√	√	◎
NH_4OH	10 %, 20 °C	√	√	√	◎
IPA	20 °C	√	√	√	◎
H_2O_2	30 %, 20 °C	√	√	√	◎
NH_4F	40 %, 20 °C	√	√	√	◎
BOE	20 °C	√	√	√	◎
O_3	20 °C	√	√	√	◎
H_2SO_4	98 %, 20 °C	√	√	√	◎
HNO_3	70 %, 20 °C	√	√	√	◎
SPM	H_2SO_4:H_2O_2 = 5:1, 125 °C	√	√	√	◎
H_3PO_4	20 °C	√	√	√	◎
HN	HNO_3:HF = 6:1, 20 °C	√	√	√	◎

Notice: ◎ - Good Chemical Compatibility; △ - Limited Comdition Use; x - Attacked or Dissolved

PES FILTER CHEMICAL TOLERANCE

Chemical	Condition	Flow Rate	Integrity	Retention	Chemical Compatibility
SC1	20 °C	√	√	√	◎
SC2	60 °C	√	√	√	◎
HCl	37 %, 20 °C	√	√	√	◎
H_3PO_4	100 %, 60 °C	√	√	√	◎
CHF	49 %, 20 °C	↑	↓	↓	△
DHF	10 %, 20 °C	√	√	√	◎
BOE	20 °C	√	√	√	◎
TMAH	20 °C	√	√	√	◎
IPA	20 °C	↓	↑	↑	△
H_2O_2	5 %, 20 °C	↑↑	↓↓	↓↓	x
BEOL Cleaning	20 °C	↓	↑	↑	△
HN	HNO_3:HF = 6:1	↑↑	↓↓	↓↓	x
NE111	20 °C	↑↑	↓↓	↓↓	x
ST250	40 °C	√	√	√	◎
SPM	H_2SO_4:H_2O_2 = 5:1, 125 °C	↑↑	↓↓	↓↓	x
$CuSO_4$	20 °C	√	√	√	◎
DIW	20 °C	√	√	√	◎

Notice: ◎ - Good Chemical Compatibility; △ - Limited Comdition Use; x - Attacked or Dissolved ↑ - This Index Increase; ↓ - This Index Decrease

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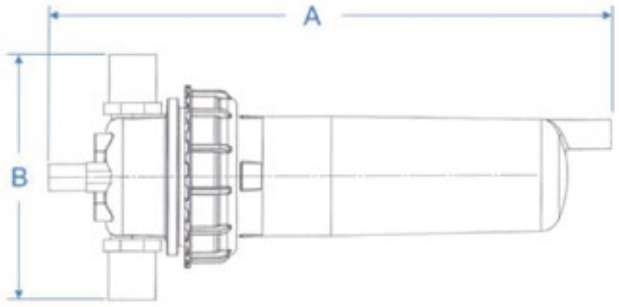
AFSLOCK PFA HOUSING

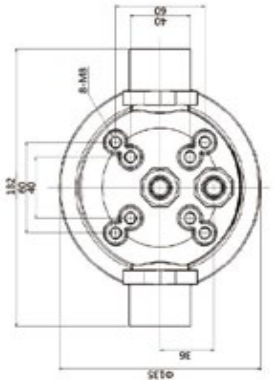
AfsLock PFA Cartridge Housing offers excellent space-saving solution. This housing locks the cartridge into the bowl, allowing the bowl and cartridge to be installed or removed as a single unit. Contamination and chemical contact are minimized.



- Ultra Clean ppt Grade
- Easy and Fool-Proof Filter Installation/Changeout
- No-Touch Cartridge Changeout
- Universal Filter Cartridge Compatibility
- Tremendous Tool Space Savings

DIMENSIONS





Inlet/Outlet	Vent/Drain	Dimensions				
		A (5")	A (10")	A (20")	A (30")	B
1" Flaretek	1/2" Flaretek	351 mm	481 mm	710 mm	957 mm	202 mm
3/4" Flaretek	1/2" Flaretek	192 mm	481 mm	710 mm	710 mm	192 mm
3/4" Super Pillar	1/2" Super Pillar	180 mm	458 mm	687 mm	934 mm	180 mm
S300	S300	182 mm	459 mm	688 mm	935 mm	182 mm

SPECIFICATIONS

Materials	Housing Head	PFA
	Housing Bowl	PFA
	O-Ring	E-FKM/FFKM
	Mounting Hardware – Nuts and Bolts	PVDF/PFA Coated Stainless Steel
	Lock Ring (Nonwetted part)	PVDF/PP
Connections	Cartridge Connections	2-222 O-Rings
	Inflow/Outlet Connections	See Order Information
Max. Operating Conditions	Max. Operating Pressure	0.75 MPa (108 psi) @ 25 °C (77 °F) 0.3 MPa (43 psi) @ 100 °C (202 °F)
	Max. Operating Temperature	100 °C (212 °F)

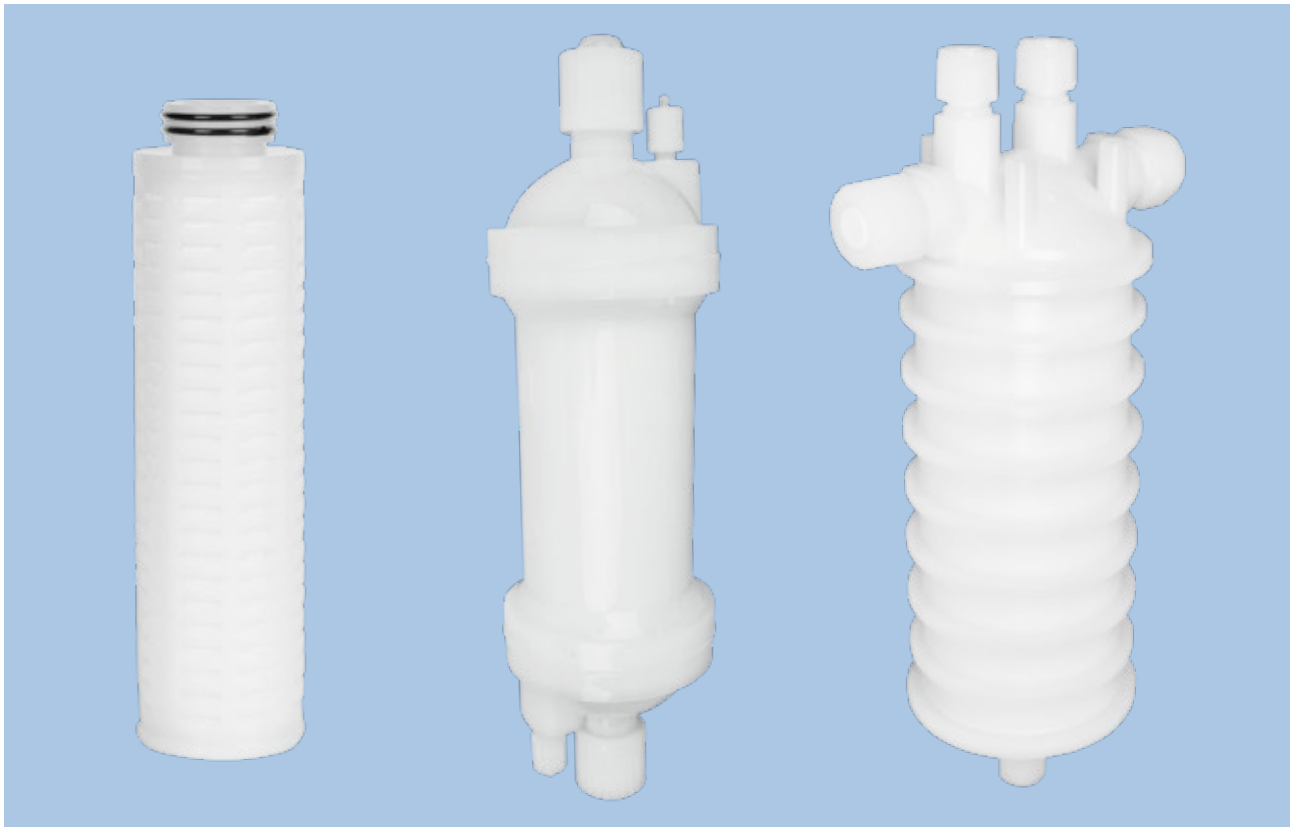
ORDERING INFORMATION

YYAL

- **Length**
  - A = 5″
  - 1= 10″
  - 2 = 20″
  - 3 = 30″
- **Inlet/Outlet**
  - FL16 = 1″ Flaretek
  - FL12 = 3/4″ Flaretek
  - PL12 = 3/4″ Super Pillar
  - S300 = S300
- **Vent/Drain**
  - FL08 = 1/2″ Flaretek
  - PL08 = 1/2″ Pillar
  - S300 = S300
- **O-ring**
  - K = FFKM
  - T = E-FKM
- **Locking Ring**
  - V = PVDF
  - P = PP
- **Union Nuts**
  - N = with union nuts

WET-FLUORIDE ALL-PTFE CHEMICAL FILTER

Membrane Solutions Wet-Fluoride series filters are All-PTFE structure. The filters use high flow rate PTFE membranes. This kind of filters is especially designed for chemicals including SC1, SC2, 49HF, HNO3, EKC and NMP in SEMI-WEC application.



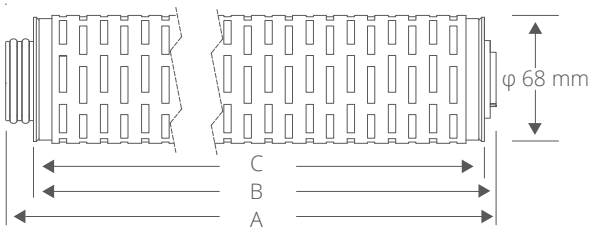
Excellent filter design could ensure low pressure drop across the filter and good particle removal performance. The fluoropolymer material possesses low concentration of extractables and other contaminants that may be deterimental to the proceess, and provides high retention performance in the application at the same time.

- Excellent flow performance and longer lifetime
- Excellent chemical and temperature resistance
- All fluoropolymer construction and very low extractables
- Pre-wet option for convenience
- 100% Integrity tested

SPECIFICATIONS

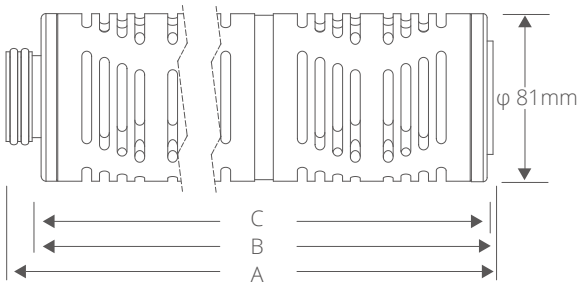
Materials	Membrane	PTFE
	Support, Core and Cage	PFA
	Cartridge O-ring	TEV/FFKM
	Disposable Shell	PFA
Removal Rating	10nm, 20nm, 30nm, 50nm, 0.1μm, 0.2μm	
Membrane Area	SX (φ68mm)	1.2 m^2/10″
	MX (φ81mm)	1.8 m^2/10″
	MY (φ81mm)	2.2 m^2/10″
	MZ (φ81mm)	2.8 m^2/10″
Max. Operating Conditions	Max. Forward Differential Pressure	0.5 MPa (72 psi) @ 25 °C (77 °F) 0.2 MPa (29 psi) @ 100 °C (212 °F)
	Max. Reverse Differential Pressu	0.35 MPa (50 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	Cartridge 100 °C (212 °F) ; Disposable 180 °C (356 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS



Wet-Fluoride φ68mm Cartridge (SX)

Nominal Size	A	B	C
4″	122.0±2mm	108.0±2mm	98.5±2mm
10″	263.0±2mm	249.0±2mm	239.5±2mm
20″	511.0±2mm	497.0±2mm	487.5±2mm

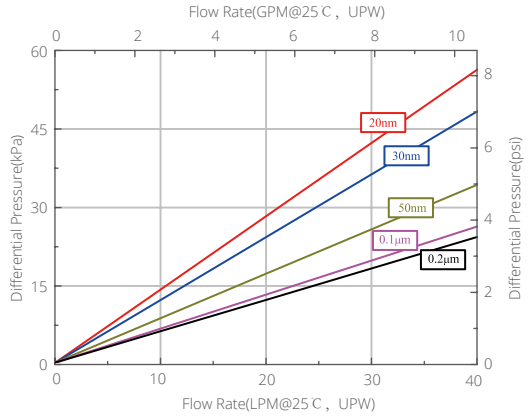


Wet-Fluoride φ81mm Cartridge (MX, MY, MZ)

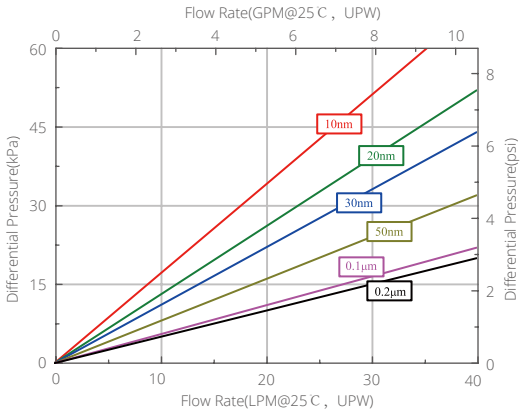
Nominal Size	A	B	C
4″	125.0±2mm	107.0±2mm	105.0±2mm
10″	245.0±2mm	227.0±2mm	225.0±2mm
20″	471.0±2mm	453.0±2mm	451.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

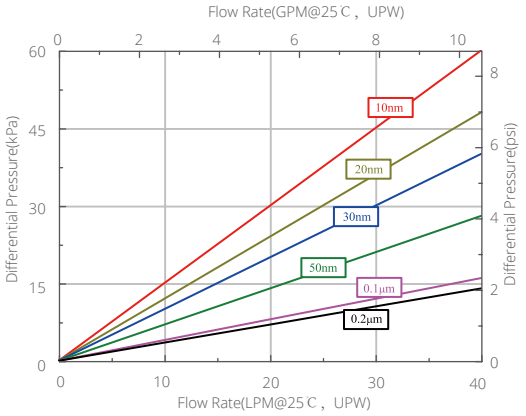
Wet- Fluoride SX 10" Cartridge Filter



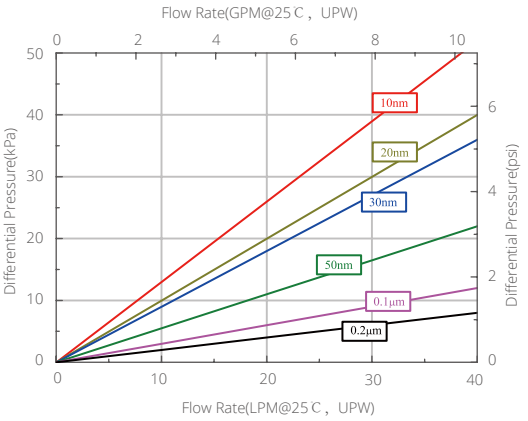
Wet- Fluoride MX 10" Cartridge Filter



Wet- Fluoride MY 10" Cartridge Filter



Wet- Fluoride MZ 10" Cartridge Filter



ORDERING INFORMATION

WFC

Removal Ratings
E (10nm) G (50nm)
A (20nm) B (0.1μm)
C (30nm) J (0.2μm)

Diameter
SX (φ68mm, 0.9m²) MY (φ81mm, 2.2m²)
MX (φ81mm, 1.8m²) MZ (φ81mm, 2.8m²)

End Cap
N (222 Plat)
K (222 Plat with Lock-key)

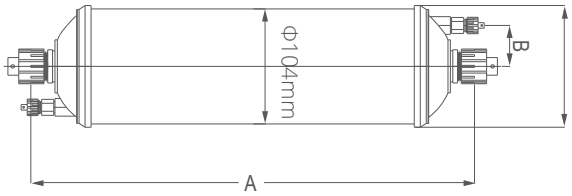
Length
04 (4″)
10 (10″)
20 (20″)

O-ring
T (TEV)
K (FFKM)

Metal Cleanliness
U (<3ug/device) R (<25ug/device)
Q (<10ug/device) E (Electronic)

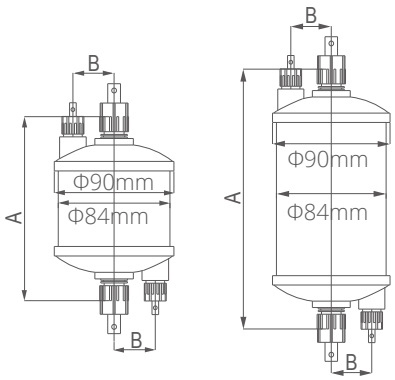
Package
D (Dry)
W (UPW Prewet)

DIMENSIONS



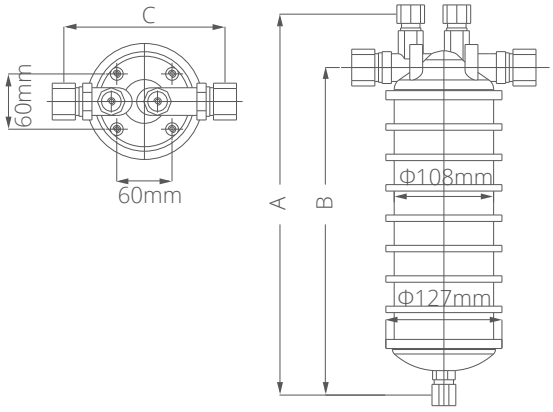
Wet-Fluoride N-line Disposable

Inlet/ Outlet	Vent/ Drain	Dimensions	
		A	B
Flaretek Fittings			
3/8″	1/4″	344 mm	35 mm
1/2″	1/4″	357 mm	35 mm
3/4″	1/4″	360 mm	35 mm
1″	1/4″	369 mm	35 mm
Super 300 Type Pillar Fittings			
3/4″	1/4″	350 mm	35 mm
1″	1/4″	384 mm	35 mm



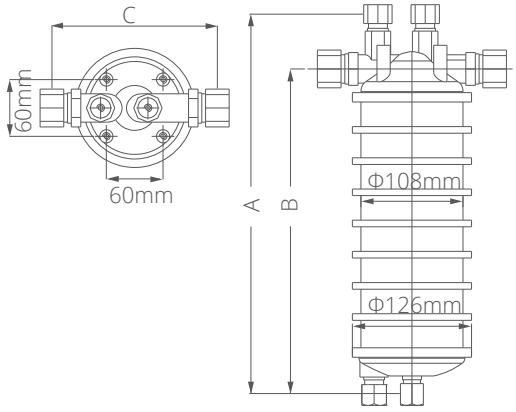
Wet-Fluoride X-line Disposable

Inlet/ Outlet	Vent/ Drain	Dimensions		
		A (4″)	A (2″)	B
Flaretek Fittings				
3/8″	1/4″	220 mm	166 mm	30 mm
1/2″	1/4″	233 mm	/	30 mm
Super 300 Type Pillar Fittings				
3/8″	1/4″	195 mm	136 mm	30 mm
1/2″	1/4″	200 mm	/	30 mm



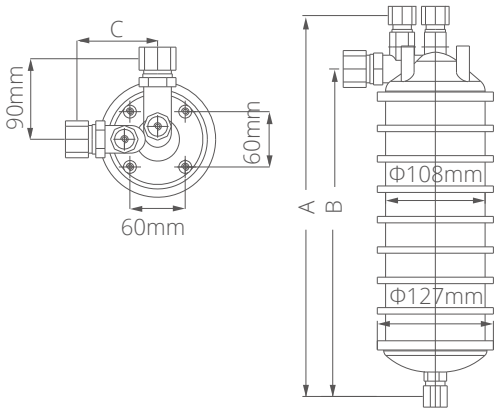
Wet-Fluoride T-line Disposable

Inlet/ Outlet	Vent/ Drain	Dimensions		
		A	B	C
Flaretek Fittings				
3/4″	1/2″	389 mm	328 mm	181 mm
1″	1/2″	395 mm	334 mm	189 mm
Super 300 Type Pillar Fittings				
3/4″	1/2″	384 mm	325 mm	189 mm
1″	1/2″	396 mm	330 mm	196 mm



Wet-Fluoride TV-line Disposable

Inlet/ Outlet	Vent/ Drain	Dimensions		
		A	B	C
Flaretek Fittings				
3/4″	1/2″	389 mm	328 mm	181 mm
1″	1/2″	395 mm	334 mm	189 mm
Super 300 Type Pillar Fittings				
3/4″	1/2″	384 mm	325 mm	189 mm
1″	1/2″	396 mm	330 mm	196 mm

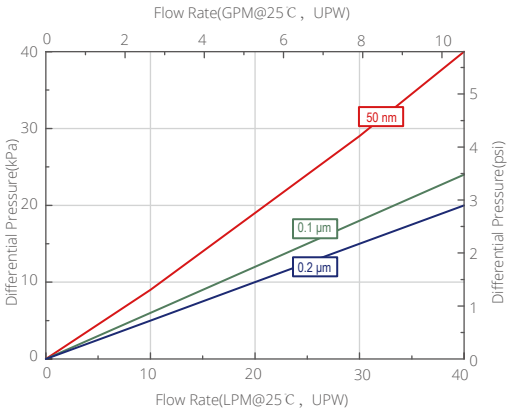


Wet-Fluoride L-line Disposable

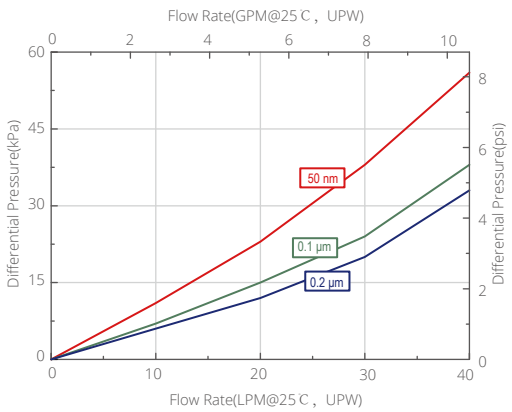
Inlet/ Outlet	Vent/ Drain	Dimensions		
		A	B	C
Super Type Pillar Fittings				
3/4"	1/2"	389 mm	327 mm	90 mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

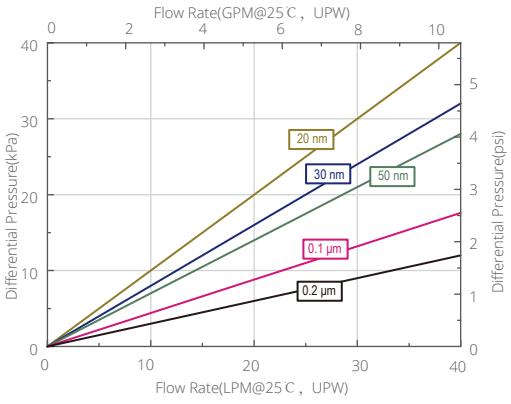
Wet-Fluoride MX 10" Disposable Filter with 1" Fitting



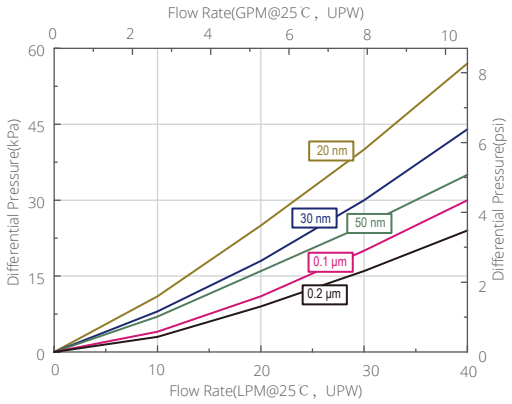
Wet-Fluoride MX 10" Disposable Filter with 3/4" Fitting



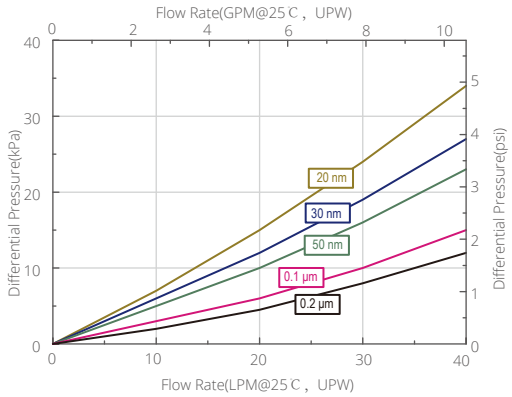
Wet-Fluoride MY 10" Disposable Filter with 1" Fitting



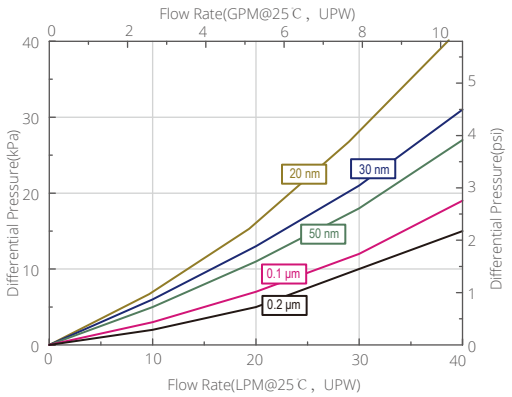
Wet-Fluoride MY 10" Disposable Filter with 3/4" Fitting



Wet-Fluoride MZ 10" Disposable Filter with 1" Fitting



Wet-Fluoride MZ 10" Disposable Filter with 3/4" Fitting



ORDERING INFORMATION

WFD

Removal Ratings
E (10nm) G (50nm)
A (20nm) B (0.1μm)
C (30nm) J (0.2μm)

Diameter
SX (φ68mm, 0.9m²) MY (φ81mm, 2.2m²)
MX (φ81mm, 1.8m²) MZ (φ81mm, 2.8m²)

Length
02 (2″)
04 (4″)
10 (10″)

Fitting configuration
NF32 NS62 XF32
NF42 NS82 XF42
NF62 XS32
NF82 XS42
TP64 VP64 LP64
TP84 VP84
TS64 VS64
TS84 VS84

Metal Cleanliness
U (<3ug/device)
Q (<10ug/device)
R (<25ug/device)
E (Electronic)

Package
D (Dry)
W (UPW Prewet)

Code		Inlet/Outlet	Vent/Drain	Fitting
NF32	In-line	3/8"	1/4"	Flaretek
NF42		1/2"	1/4"	Flaretek
NF62		3/4"	1/4"	Flaretek
NF82		1"	1/4"	Flaretek
NS62		3/4"	1/4"	Super 300 Type Pillar
NS82		1"	1/4"	Super 300 Type Pillar
XF32	X-Line	3/8"	1/4"	Flaretek
XF42		1/2"	1/4"	Flaretek
XS32		3/8"	1/4"	Super 300 Type Pillar
XS42		1/2"	1/4"	Super 300 Type Pillar
TP64	T-line	3/4"	1/2"	Super Type Pillar
TP84		1"	1/2"	Super Type Pillar
TS64		3/4"	1/2"	Super 300 Type Pillar
TS84		1"	1/2"	Super 300 Type Pillar
VP64	T-line with Core Vent	3/4"	1/2"	Super Type Pillar
VP84		1"	1/2"	Super Type Pillar
VS64		3/4"	1/2"	Super 300 Type Pillar
VS84		1"	1/2"	Super 300 Type Pillar
LP64	L-line	3/4"	1/2"	Super Type Pillar

WET-VAST PTFE CHEMICAL FILTER

Membrane Solutions Wet-Vast series filter is a combination of PTFE Membrane and HDPE support/core/-cage. PTFE and HDPE materials possess good chemical compatibility which make it suitable for large range of liquid chemical application. It effectively removes particles from high purity chemicals in SEMI industry. Available in a wide range of retention ratings and pore sizes to meet customer's requirements.

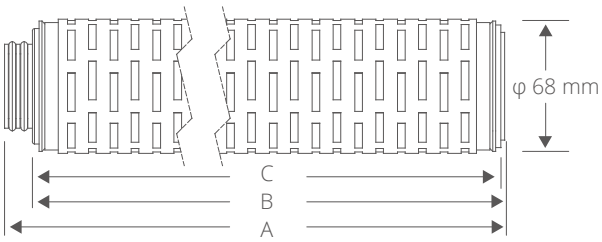


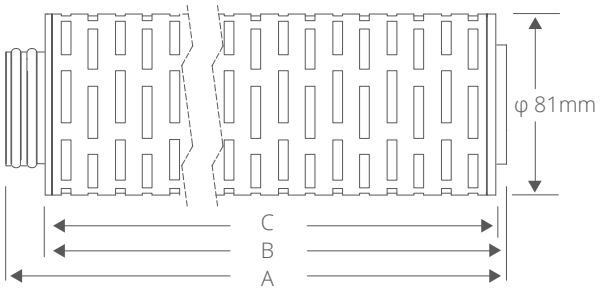
- Wet Etch and Clean
- Suitable for a wide range of chemicals
- High flow rate, low pressure drop and longer lifetime
- Pre-wet option for convenience
- 100% Integrity tested

SPECIFICATIONS

Materials	Membrane	PTFE
	Support, Core and Cage	HDPE
	O-ring (222)	EPDM/TEV
Removal Rating	20nm, 30nm, 50nm, 0.1μm, 0.2μm	
Membrane Area	SX (φ68mm)	1.2 m^2/10"
	MX (φ81mm)	1.8 m^2/10"
	MY (φ81mm)	2.2 m^2/10"
	MZ (φ81mm)	2.8 m^2/10"
Max. Operating Conditions	Max. Forward Differential Pressure	0.4 MPa (58 psi) @ 25 °C (77 °F)
	Max. Reverse Differential Pressure	0.3 MPa (43 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	40 °C (104 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS





Wet-Vast φ68mm Cartridge (SX)

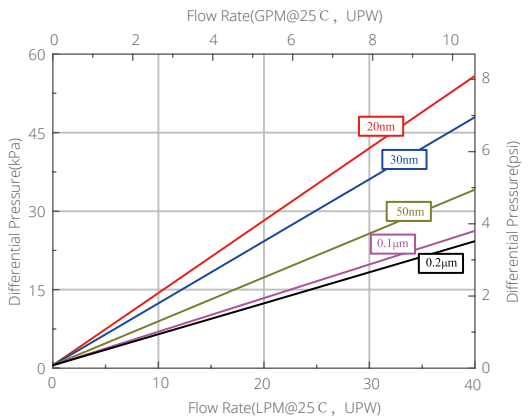
Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

Wet-Vast φ81mm Cartridge (MX, MY, MZ)

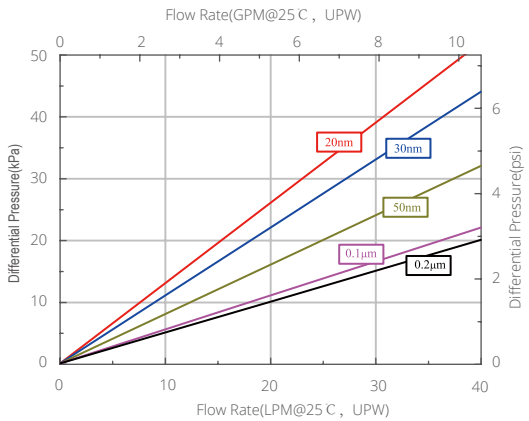
Nominal Size	A	B	C
4″	118.0±2mm	103.0±2mm	101.0±2mm
10″	238.0±2mm	223.0±2mm	221.0±2mm
20″	460.0±2mm	445.0±2mm	443.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

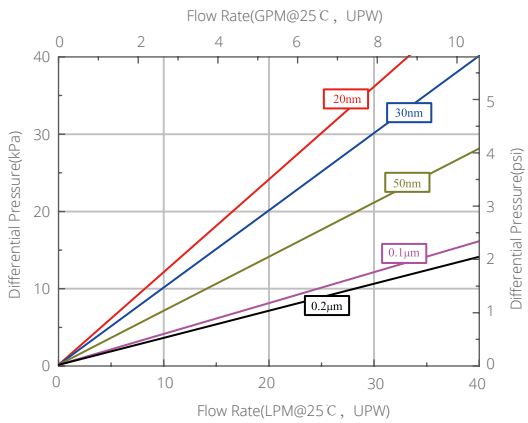
Wet- Vast SX 10" Cartridge Filter



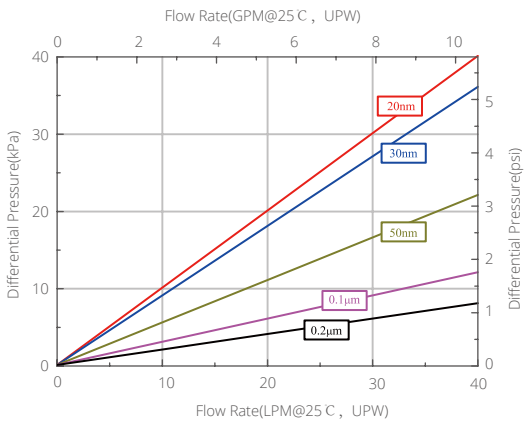
Wet- Vast MX 10" Cartridge Filter



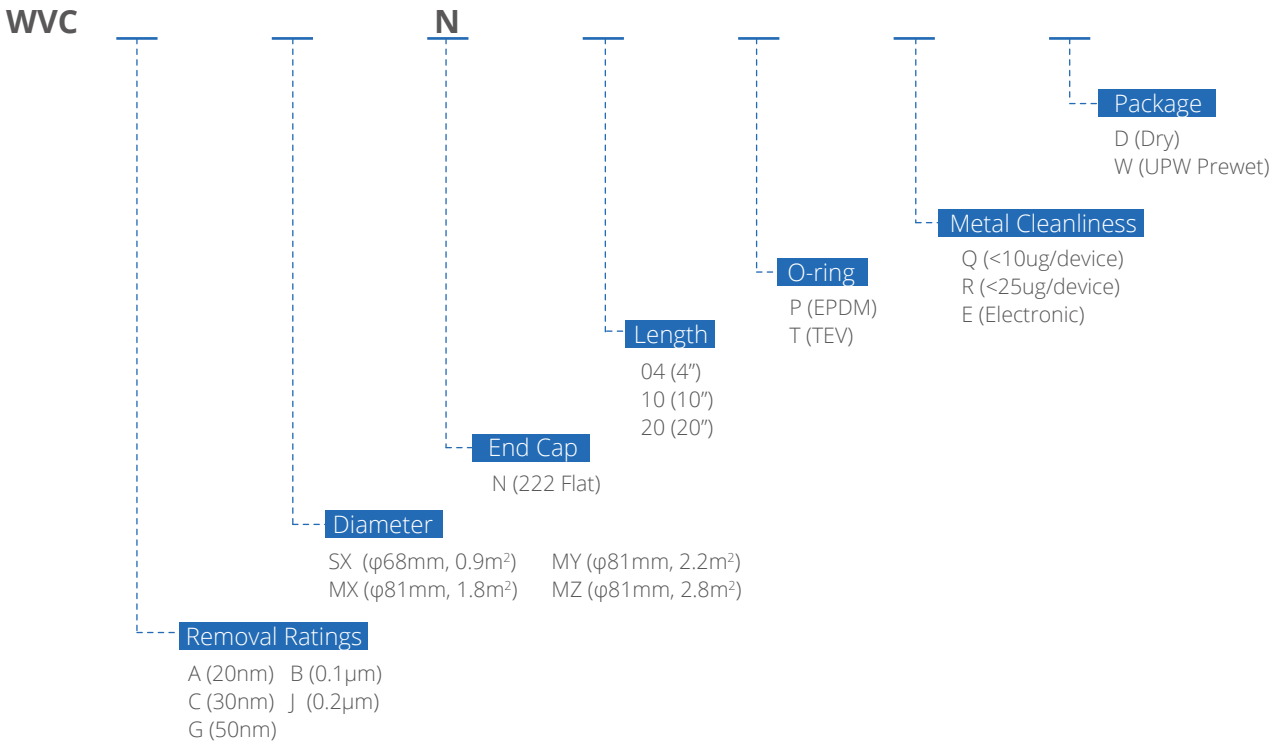
Wet- Vast MY 10" Cartridge Filter



Wet- Vast MZ 10" Cartridge Filter



ORDERING INFORMATION



WET-MEGA PTFE CHEMICAL FILTER

Membrane Solutions Wet-Mega series filter is constructed of a PTFE membrane that provides excellent chemical compatibility and it is inherently hydrophobic. It is specially designed to low metal iron extraction to meet the requirements of chemicals and organic solvents in the electronics industry.

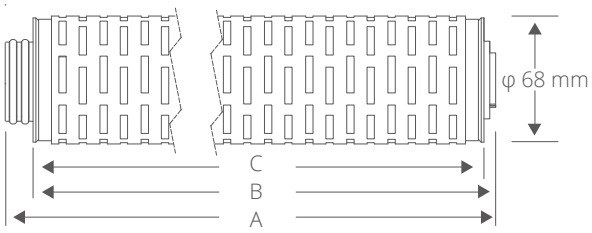


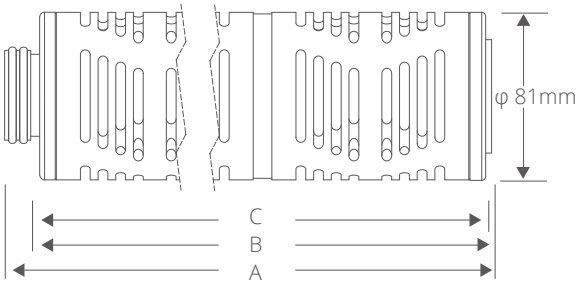
- Excellent flow performance and longer lifetime
- Excellent chemical and temperature resistance
- Low extractables
- Pre-wet option for convenience
- 100% Integrity tested

SPECIFICATIONS

Materials	Membrane	PTFE
	Support, Core and Cage	PP
	O-ring (222)	EPDM/TEV
Removal Rating	20nm, 30nm, 50nm, 0.1μm, 0.2μm	
Membrane Area	SX (φ68mm)	1.2 m^2/10″
	MX (φ81mm)	1.8 m^2/10″
	MY (φ81mm)	2.2 m^2/10″
	MZ (φ81mm)	2.8 m^2/10″
Max. Operating Conditions	Max. Forward Differential Pressure	0.4 MPa (58 psi) @ 25 °C (77 °F) 0.2 MPa (29 psi) @ 70 °C (158 °F)
	Max. Reverse Differential Pressure	0.3 MPa (43 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	70 °C (158 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS





Wet-Mega φ68mm Cartridge (SX)

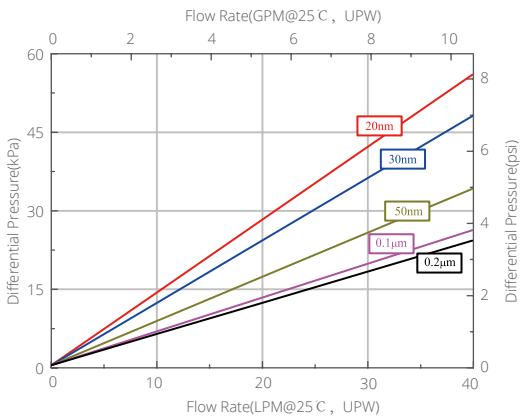
Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

Wet-Fluoride φ81mm Cartridge (MX, MY, MZ)

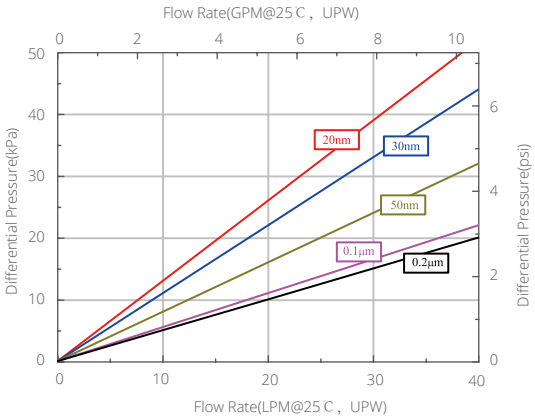
Nominal Size	A	B	C
4″	118.0±2mm	103.0±2mm	101.0±2mm
10″	238.0±2mm	223.0±2mm	221.0±2mm
20″	460.0±2mm	445.0±2mm	443.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

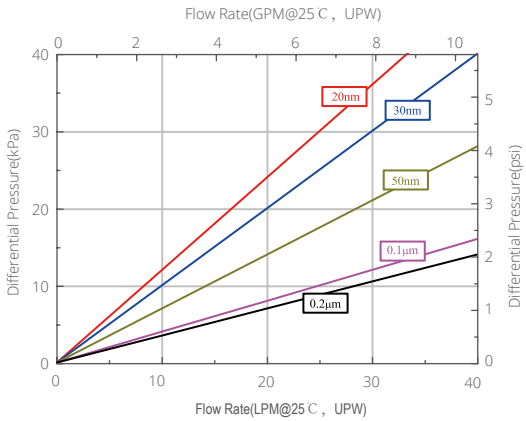
Wet- Mega SX 10" Cartridge Filter



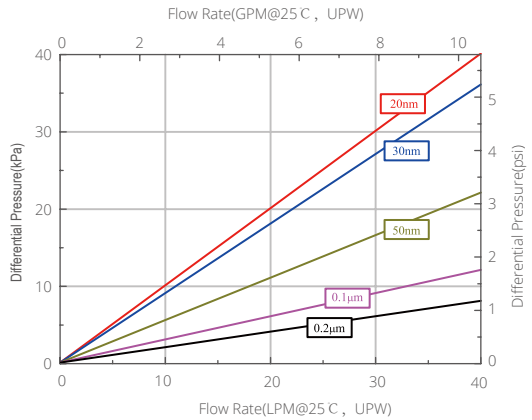
Wet- Mega MX 10" Cartridge Filter



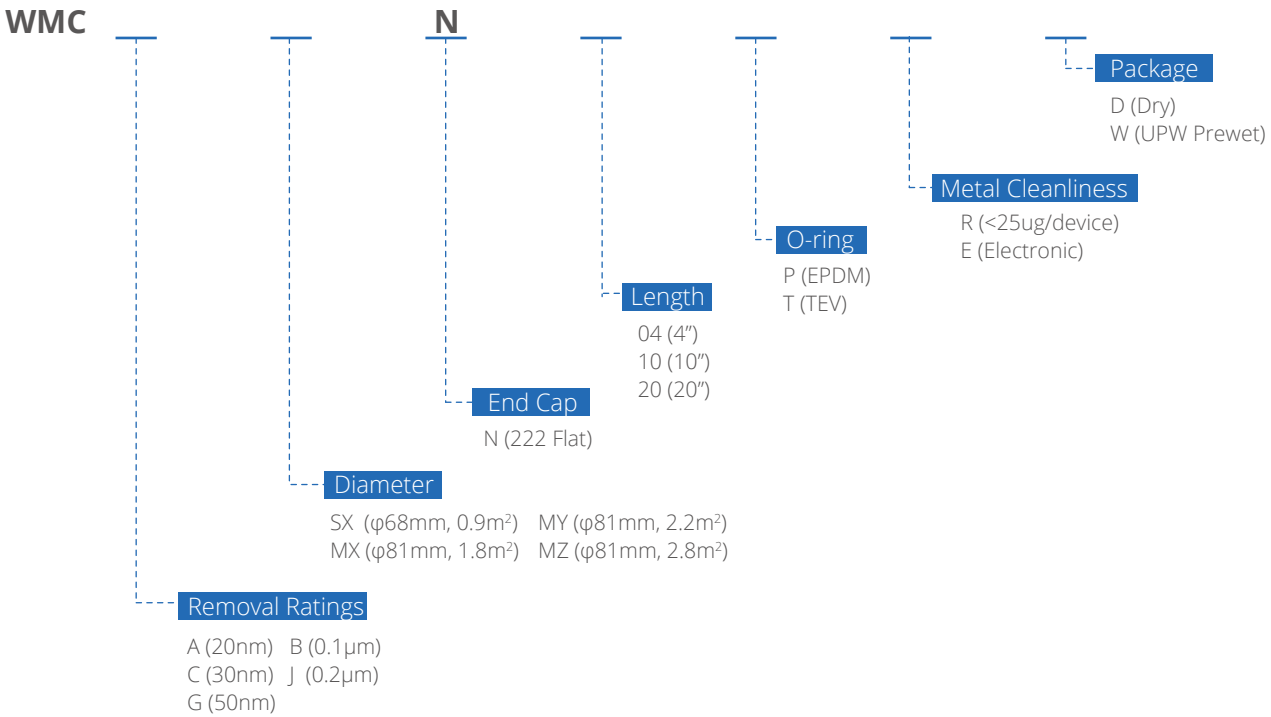
Wet- Mega MY 10" Cartridge Filter



Wet- Mega MZ 10" Cartridge Filter



ORDERING INFORMATION



CLEAN-NOVA PES CHEMICAL FILTER

Membrane Solutions Clean-Nova series filters are high flow rate, longer lifetime product which especially designed for filtration of weak acids, bases and ultra-pure DI water for the electronics industry.

When operated at ambient temperature, the PES filter is compatible with a wide range of wet etch & clean solutions.

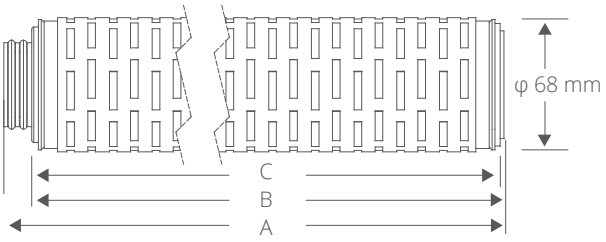
- Excellent flow performance and longer lifetime
- Reduce equipment pre-operation time
- Excellent retention rate performance
- Very low metal extractables
- 100% Integrity tested



SPECIFICATIONS

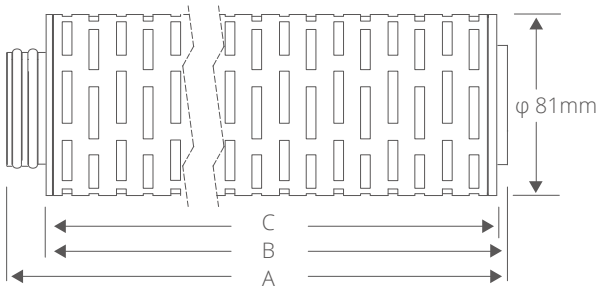
Materials	Membrane		PES
	Support, Core and Cage		HDPE
	O-ring (222)	Cartridge	EPDM/TEV
	Shell	Disposable	PFA
Removal Rating	5nm, 10nm, 20nm, 30nm, 50nm, 0.1μm		
Membrane Area	SX (φ68mm)	0.8 m^2/10"	
	MX (φ81mm)	1.2 m^2/10"	
	MY (φ81mm)	1.8 m^2/10"	
Max. Operating Conditions	Max. Forward Differential Pressure	0.34 MPa (49 psi) @ 25 °C (77 °F) 0.3 MPa (43 psi) @ 40 °C (104 °F)	
	Max. Reverse Differential Pressure	0.3 MPa (43 psi) @ 25 °C (77 °F)	
	Max. Operating Temperature	40 °C (104 °F)	
Package	Dry; Prewet by UPW		

DIMENSIONS



Clean-Nova φ68mm Cartridge (SX)

Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

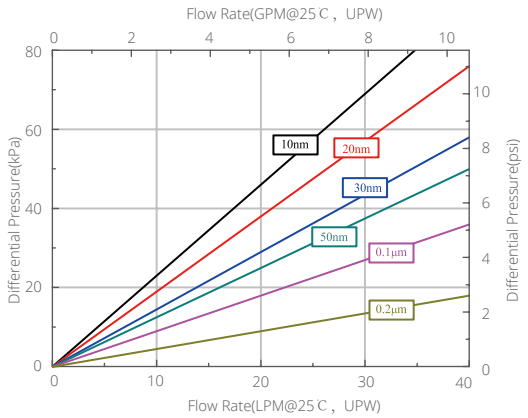


Clean-Nova φ81mm Cartridge (MX, MY)

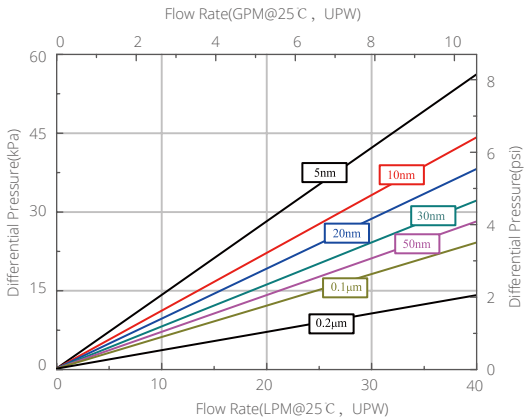
Nominal Size	A	B	C
4″	118.0±2mm	103.0±2mm	101.0±2mm
10″	238.0±2mm	223.0±2mm	221.0±2mm
20″	460.0±2mm	445.0±2mm	443.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

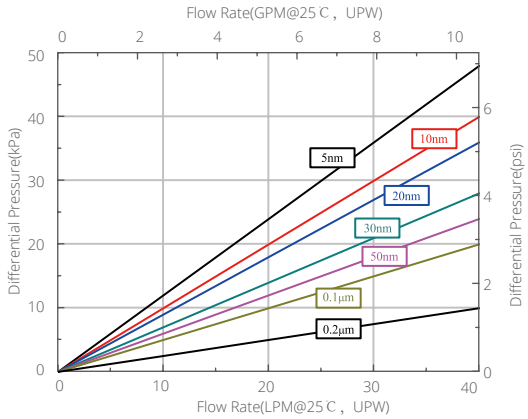
Clean-Nova SX 10" Cartridge Filter



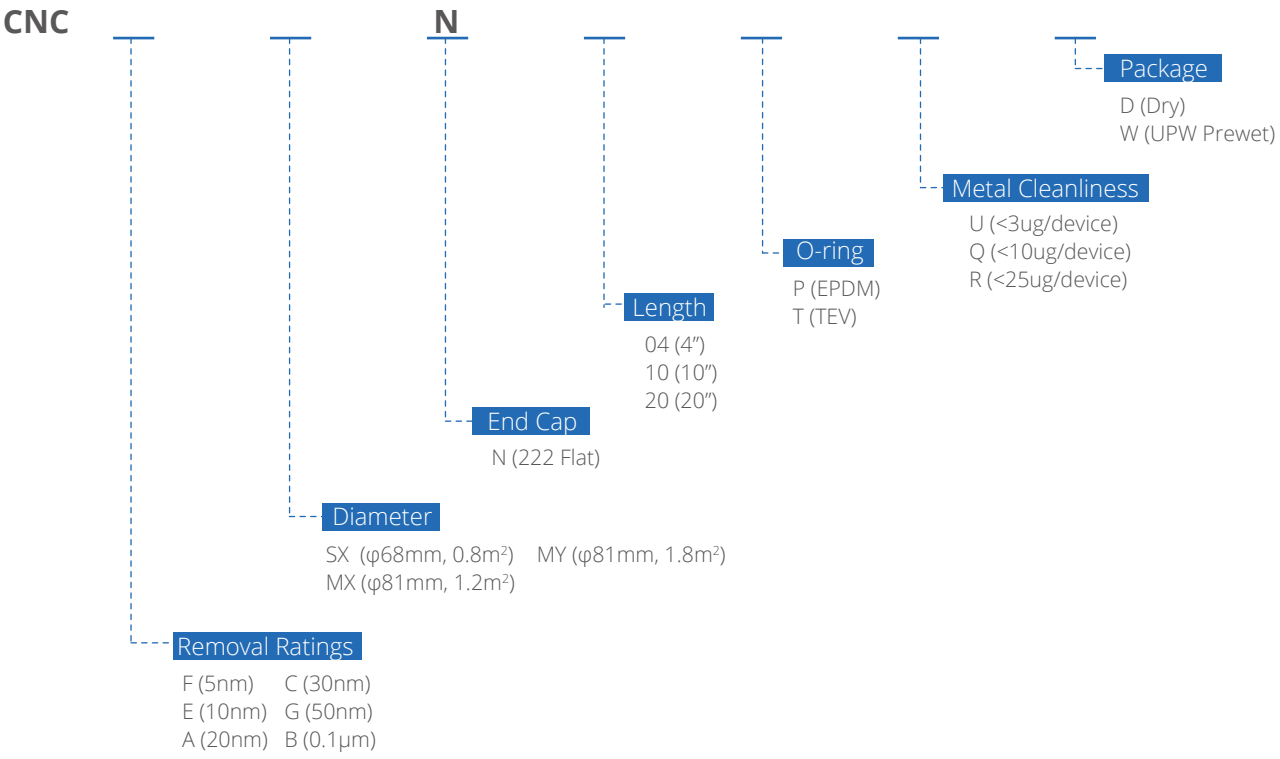
Clean-Nova MX 10" Cartridge Filter



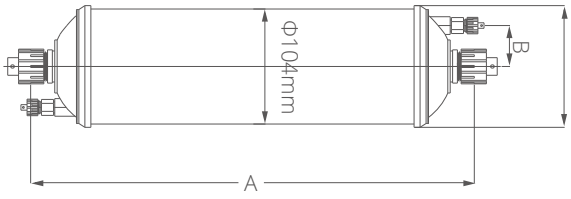
Clean-Nova MY 10" Cartridge Filter

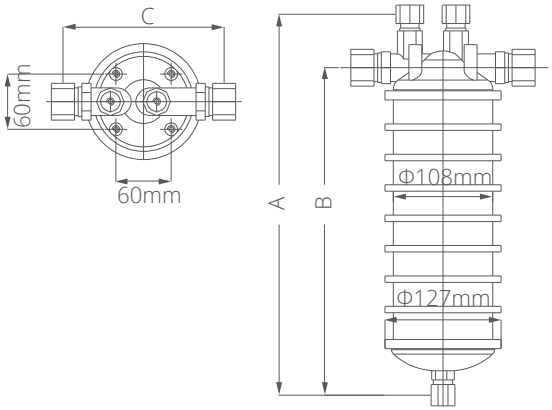


ORDERING INFORMATION



DIMENSIONS





Wet-Fluoride N-line Disposable

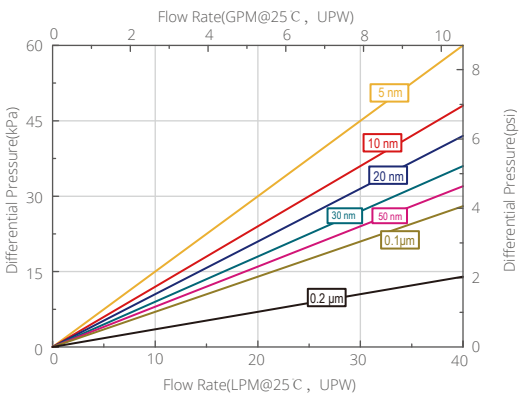
Inlet/ Outlet	Vent/ Drain	Dimensions	
		A	B
Flaretek Fittings			
3/8″	1/4″	344 mm	35 mm
1/2″	1/4″	357 mm	35 mm
3/4″	1/4″	360 mm	35 mm
1″	1/4″	369 mm	35 mm
Super 300 Type Pillar Fittings			
3/4″	1/4″	350 mm	35 mm
1″	1/4″	384 mm	35 mm

Wet-Fluoride T-line Disposable

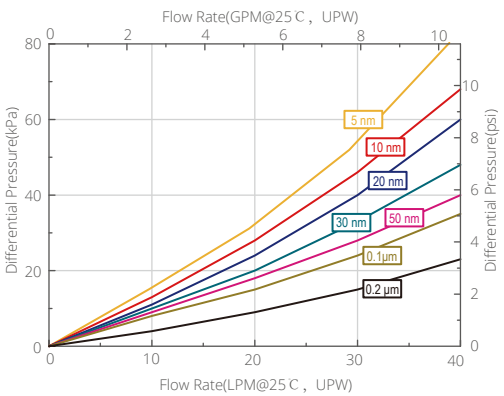
Inlet/ Outlet	Vent/ Drain	Dimensions		
		A	B	C
Flaretek Fittings				
3/4″	1/2″	389 mm	328 mm	181 mm
1″	1/2″	395 mm	334 mm	189 mm
Super 300 Type Pillar Fittings				
3/4″	1/2″	384 mm	325 mm	189 mm
1″	1/2″	396 mm	330 mm	196 mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

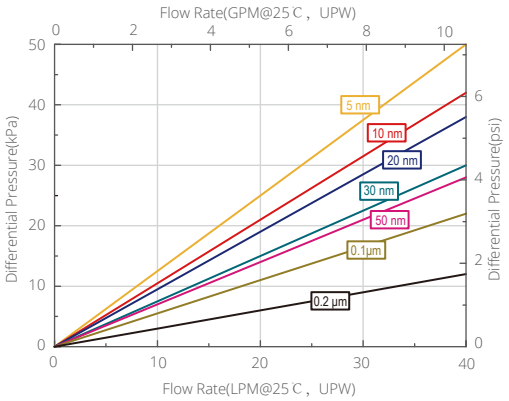
Clean-Nova MX 10" Disposable Filter with 1" Fitting



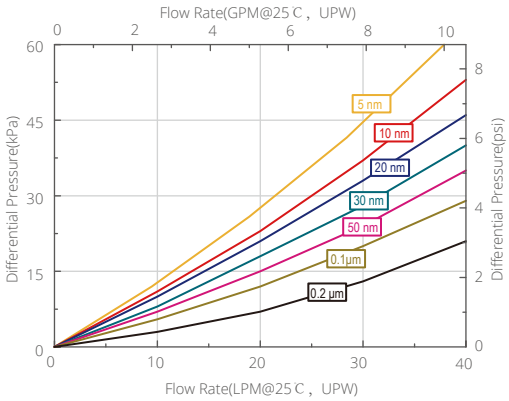
Clean-Nova MX 10" Disposable Filter with 3/4" Fitting



Clean-Nova MY 10" Disposable Filter with 1" Fitting



Clean-Nova MY 10" Disposable Filter with 3/4" Fitting



ORDERING INFORMATION

CND

Removal Ratings
F (5nm) C (30nm)
E (10nm) G (50nm)
A (20nm) B (0.1um)

Diameter
SX (φ68mm, 0.8m²) MY (φ81mm, 1.8m²)
MX (φ81mm, 1.2m²)

Length
04 (4")
10 (10")
20 (20")

Fitting configuration
NF32 NS62 TP64
NF42 NS82 TP84
NF62 TS64
NF82 TS84

Metal Cleanliness
U (<3ug/device)
Q (<10ug/device)
R (<25ug/device)
E (Electronic)

Package
D (Dry)
W (UPW Prewet)

Code		Inlet/Outlet	Vent/Drain	Fitting
NF32	In-line	3/8"	1/4"	Flaretek
NF42		1/2"	1/4"	Flaretek
NF62		3/4"	1/4"	Flaretek
NF82		1"	1/4"	Flaretek
NS62		3/4"	1/4"	Super 300 Type Pillar
NS82		1"	1/4"	Super 300 Type Pillar
TP64	T-line	3/4"	1/2"	Super Type Pillar
TP84		1"	1/2"	Super Type Pillar
TS64		3/4"	1/2"	Super 300 Type Pillar
TS84		1"	1/2"	Super 300 Type Pillar

CLEAN-GARD PES CHEMICAL FILTER

Membrane Solutions Clean-Gard series filters are used for dilute acids and bases and other process chemicals as a cost-effective alternative for wet etch and clean applications.

The PES membrane provides significant characteristics including high flow rates, high dirt holding capacity and longer filter lifetime. In addition, the membrane structure reduces bubbles formation during flow.

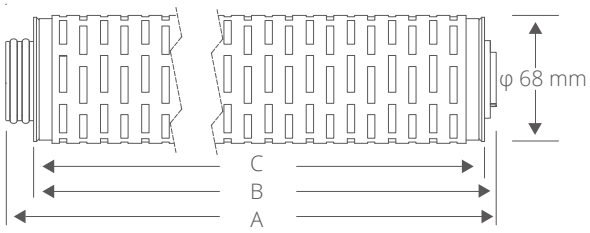


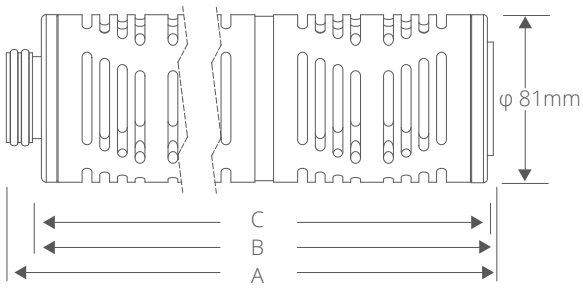
- Very high flow rates and longer lifetime
- Low extractables
- Reduces equipment pre-operation time
- Manufactured in cleanroom
- 100% Integrity tested

SPECIFICATIONS

Materials	Membrane	PES
	Support, Core and Cage	PP
	O-ring (222)	EPDM/TEV
Removal Rating	10nm, 20nm, 30nm, 50nm, 0.1μm	
Membrane Area	SX (φ68mm)	0.8 m^2/10″
	MX (φ81mm)	1.2 m^2/10″
	MY (φ81mm)	1.8 m^2/10″
Max. Operating Conditions	Max. Forward Differential Pressure	0.5 MPa (72 psi) @ 25 °C (77 °F) 0.25 MPa (36 psi) @ 70 °C (158 °F)
	Max. Reverse Differential Pressure	0.3 MPa (43 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	70 °C (158 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS





Wet-Fluoride φ68mm Cartridge (SX)

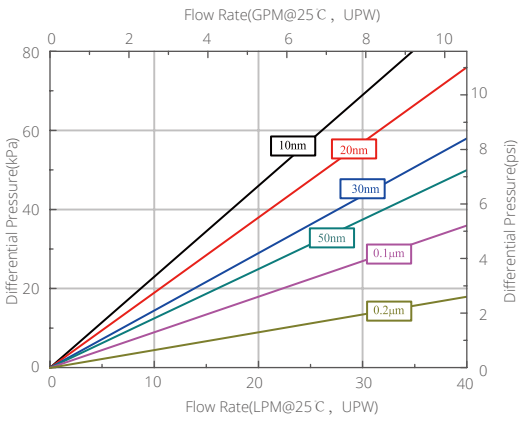
Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

Wet-Fluoride φ81mm Cartridge (MX, MY, MZ)

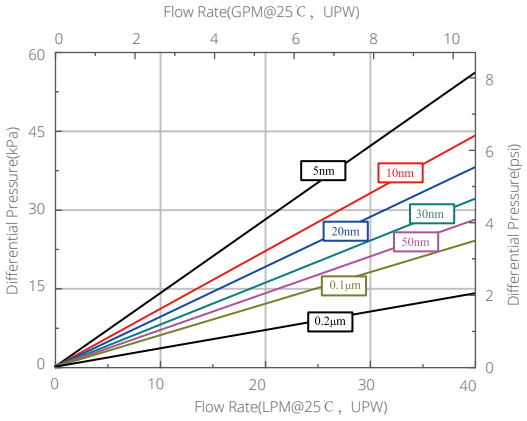
Nominal Size	A	B	C
4″	118.0±2mm	103.0±2mm	101.0±2mm
10″	238.0±2mm	223.0±2mm	221.0±2mm
20″	460.0±2mm	445.0±2mm	443.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

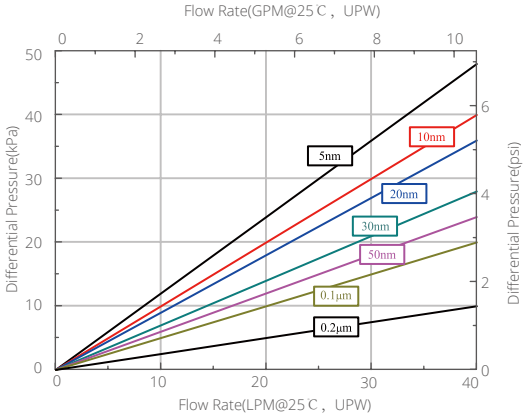
Clean-Gard SX 10" Cartridge Filter



Clean-Gard MX 10" Cartridge Filter



Clean-Gard MY 10" Cartridge Filter



ORDERING INFORMATION

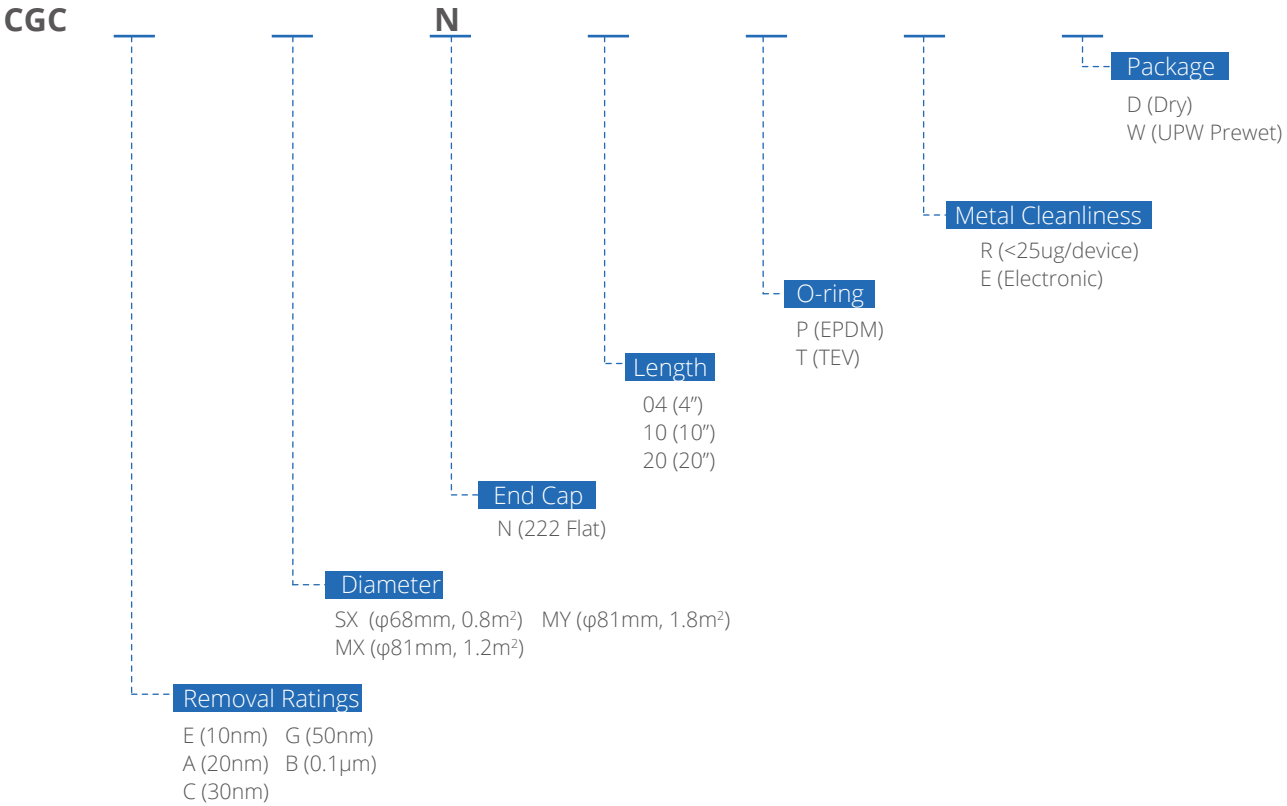


PHOTO-UNIX UPE MEMBRANE FILTER

Membrane Solutions Photo-Unix series UPE filters have a large range removal ratings from 2nm to 0.2μm. Cartridge filters ensure excellent retention capabilities, cleanliness and high chemical compatibility to meet the critical demands in SEMI-Photo processes.

The UPE membrane materials ensues cleanliness, low particle shedding and eliminates contaminants, thereby improving removal efficiency. In addition, the filter's large membrane surface area provides high flow rate and extended service lifetime.

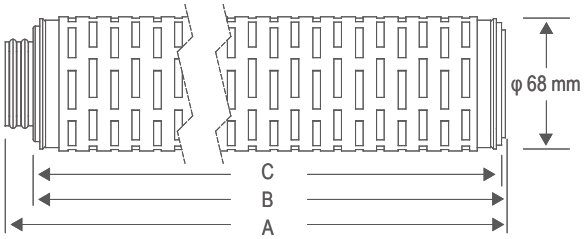


- High Efficiency
- Excellent Chemical Compatibility
- Good Initial Cleanliness
- Low Metal and Organic Extractables
- 100% Integrity tested

SPECIFICATIONS

Materials	Membrane	Hydrophobic UPE
	Support, Core and Cage	HDPE
	O-ring (222)	EPDM/TEV
Removal Rating	2nm, 5nm, 10nm, 20nm, 30nm, 50nm,0.1μm, 0.2μm	
Membrane Area	SX (φ68mm)	1.2 m^2/10"
	MX (φ81mm)	1.8 m^2/10"
Max. Operating Conditions	Max. Forward Differential Pressure	0.34 MPa (49 psi) @ 25 °C(77 °F)
	Max. Reverse Differential Pressure	0.24 MPa (34 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	40 °C (104 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS



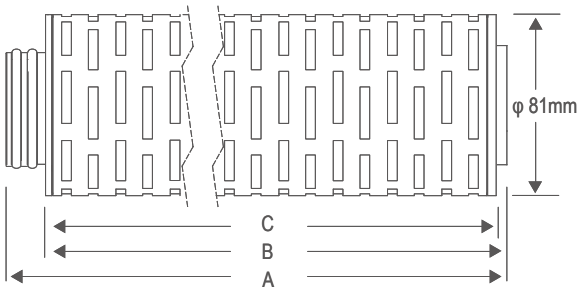


Photo-Unix φ68mm Cartridge (SX)

Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

Photo-Unix φ81mm Cartridge (MX)

Nominal Size	A	B	C
4″	118.0±2mm	103.0±2mm	101.0±2mm
10″	238.0±2mm	223.0±2mm	221.0±2mm
20″	460.0±2mm	445.0±2mm	443.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

Photo-Unix SX 10" Cartridge Filter

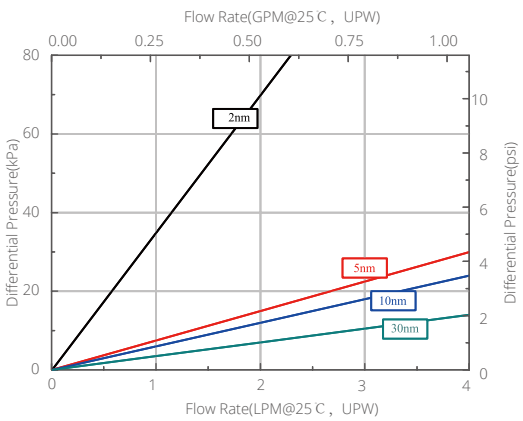


Photo-Unix SX 10" Cartridge Filter

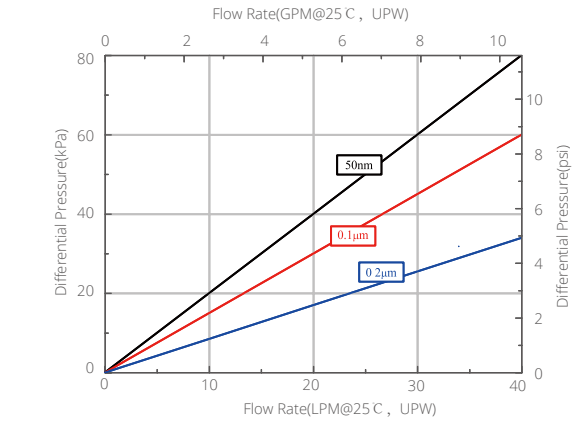


Photo-Unix MX 10" Cartridge Filter

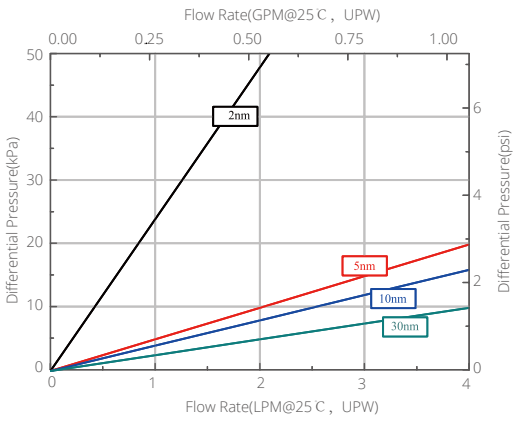
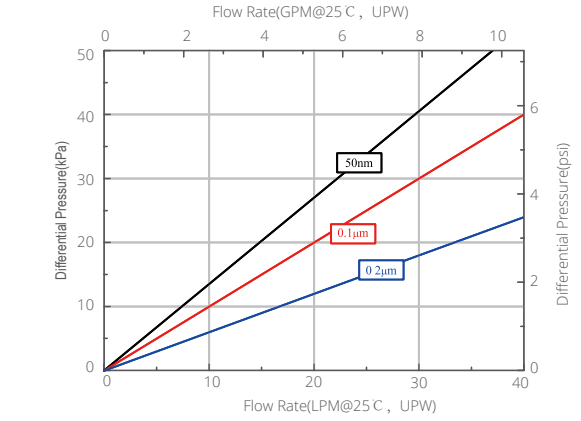


Photo-Unix MX 10" Cartridge Filter



ORDERING INFORMATION

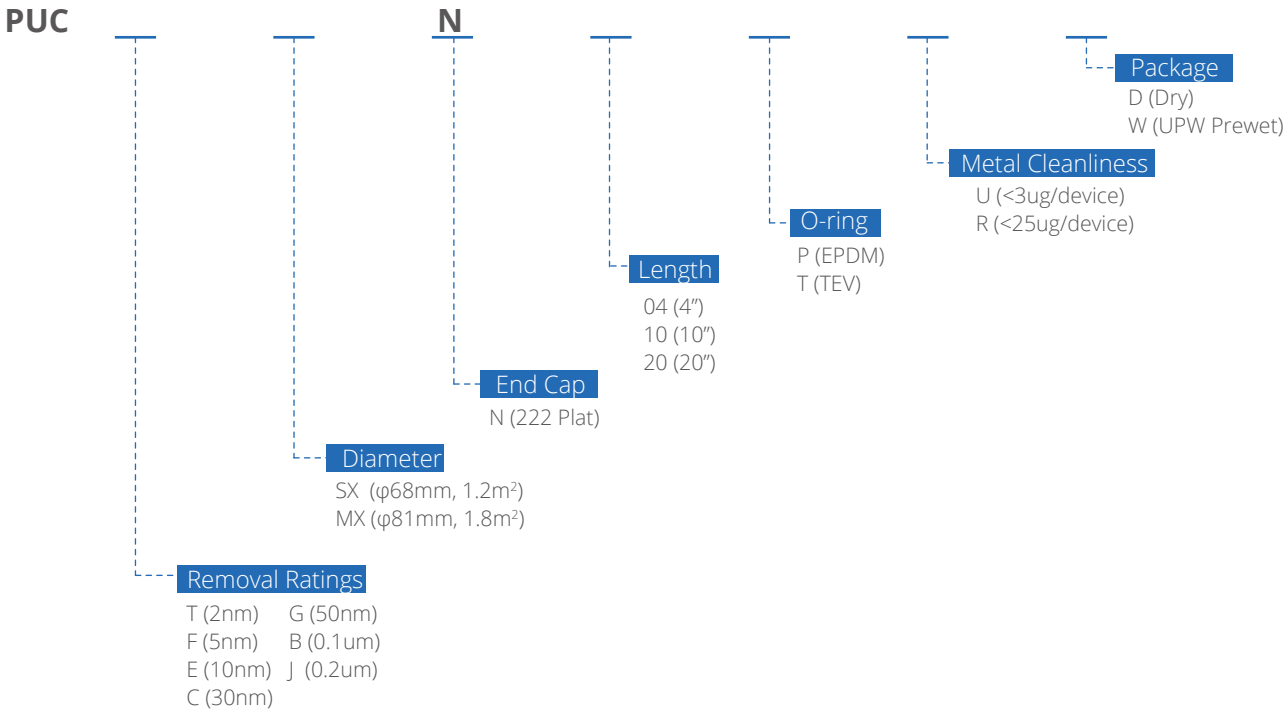


PHOTO-NOVEL NYLON CHEMICAL FILTER

Membrane Solutions Photo-Novel series Nylon filters have high flow rate performance, good retention rate and excellent organic cleanliness. It is especially designed for photoresists, solvent and other chemicals in SEMI-Photo processes.

The Nylon membrane used in Photo-Unix series filters is naturally hydrophilic nylon materials. It possesses low metal and particle cleanliness, and most important is the very low level of organic extraction.



- High Efficiency
- Naturally Hydrophilic
- Excellent organic extraction cleanliness
- Manufactured in cleanroom
- 100% Integrity tested

SPECIFICATIONS

Materials	Membrane	Nylon 66
	Support, Core and Cage	HDPE/PP
	O-ring (222)	EPDM/TEV
Removal Rating	2nm, 5nm, 10nm, 20nm, 30nm, 50nm, 0.1μm	
Membrane Area	SX (φ68mm)	0.7 m^2/10″
	SY (φ68mm)	1.3 m^2/10″
Max. Operating Conditions	Max. Forward Differential Pressure	0.34 MPa (49 psi) @ 25 °C(77 °F)
	Max. Reverse Differential Pressure	0.24 MPa (34 psi) @ 25 °C (77 °F)
	Max. Operating Temperature	40 °C (104 °F)
Package	Dry; Prewet by UPW	

DIMENSIONS

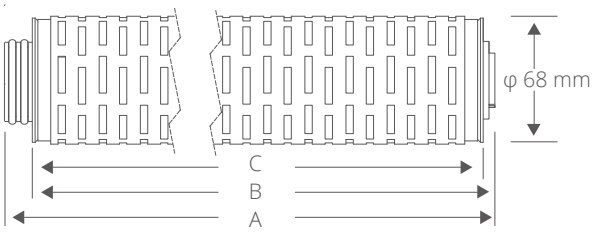


Photo-Unix φ68mm Cartridge (SX, SY)

Nominal Size	A	B	C
4″	131.5±2mm	117.0±2mm	115.0±2mm
10″	249.5±2mm	235.0±2mm	233.0±2mm
20″	488.5±2mm	474.0±2mm	432.0±2mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

Photo-Novel SX 10" Cartridge Filter

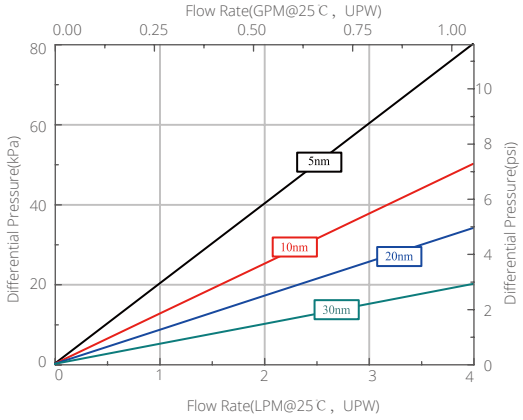


Photo-Novel SX 10" Cartridge Filter

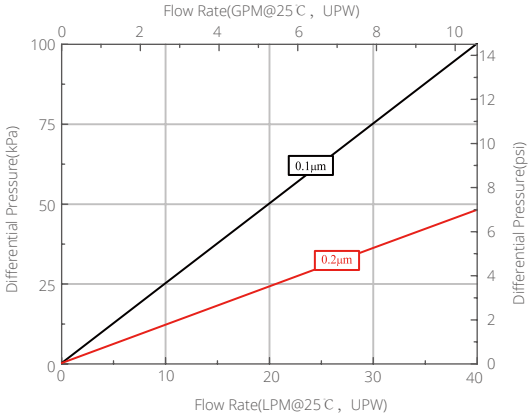


Photo-Novel SY 10" Cartridge Filter

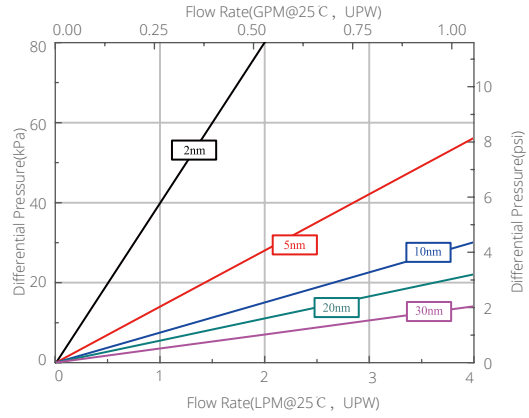
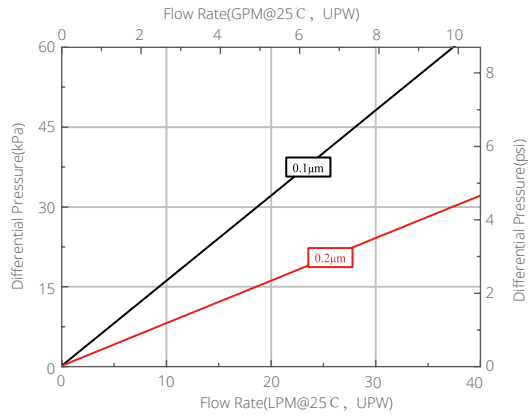
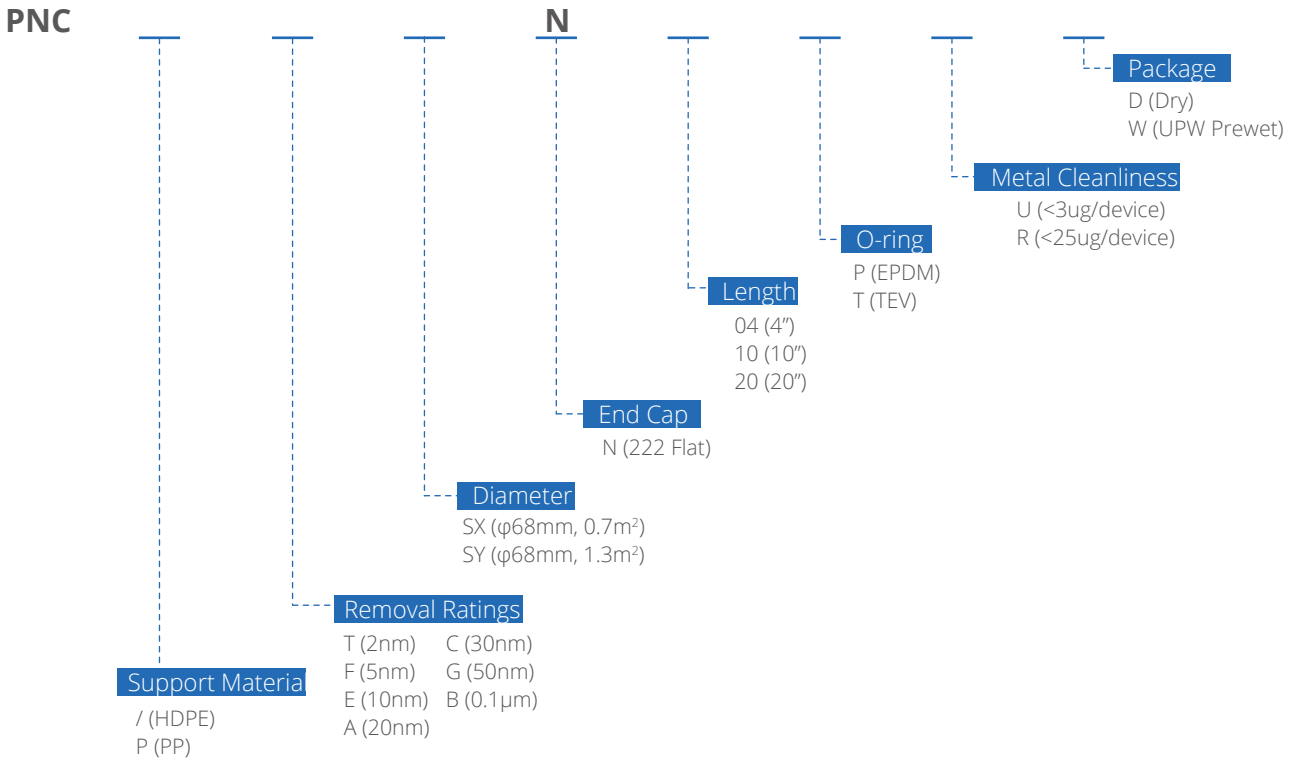


Photo-Novel SY 10" Cartridge Filter



ORDERING INFORMATION



CMPRO-D SERIES POLYPROPYLEN DEPTH FILTER FOR ADVANCED CMP APPLICATION

Membrane Solutions CMPro-D series depth filter has been developed to effectively remove agglomerated particles and gels in all kinds of chemical mechanical polishing(CMP) slurry, while keeping valid abrasive remained and particle distribution unchanged. Unique 3D composite structure has been utilized to manufacture graded depth polypropylene medium with tapered pores. The outer section(upstream) is consisted of continuous melt blown media that maximize contaminant holding capacity, contributes to long service life and effectively lower cost. The inner section(downstream) is consisted of nano fiber wrapped media that provide excellent removal efficiency and reliable filtration.

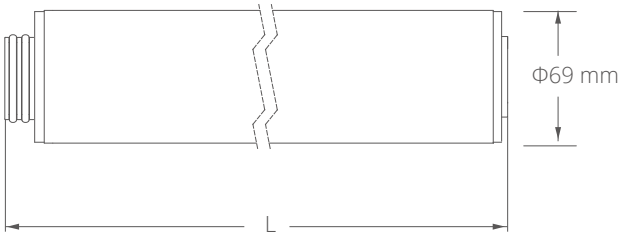


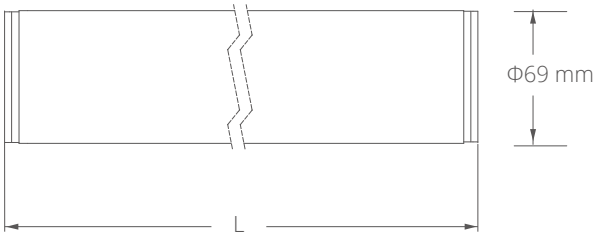
- The large gradient design can ensure filtration efficiency and maximize service life of the filter.
- The ultra-fine fiber of the inner layer provides excellent retention of defect-causing particles while allowing desired abrasives to pass through.
- Longer service life can effectively lower the cost.
- All polypropylene construction, using no surfactants or binders to ensure low level of precipitation.

SPECIFICATIONS

Materials	Filter Layers/Support	Polypropylene
	Core/End Cap	Polypropylene
	O-ring	
Removal Rating	70nm, 0.1μm, 0.2μm, 0.3μm, 0.5μm, 0.7μm, 1.0μm	
Dimensions	Outer Diameter	69mm
	Lengths	10inch, 20inch
Max. Operating Conditions	Max. Forward Differential Pressure	0.52 MPa (75 psi) @ 25 ˚C (77 ˚F) 0.19 MPa (27 psi) @ 82 ˚C (179 ˚F)
	Max. Reverse Differential Pressure	0.21 MPa (30 psi) @ 25 ˚C (77 ˚F)
	Max. Operating Temperature	80 ˚C (176 ˚F)

DIMENSIONS





Code N Filters

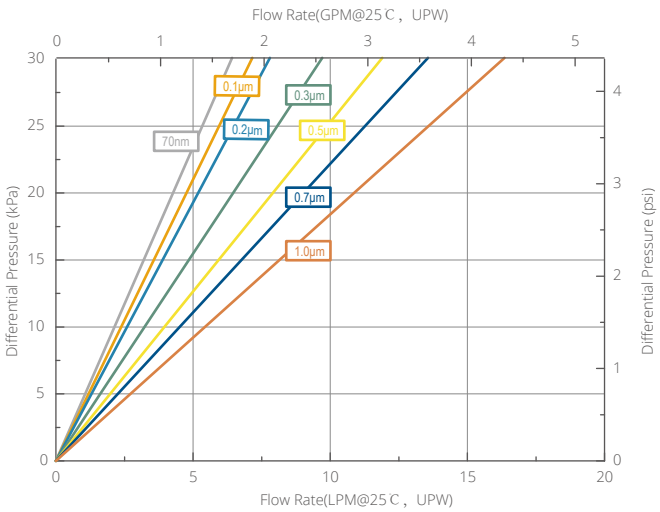
Nominal Size	L
10″	264±1mm
20″	512±1mm

Code F Filters

Nominal Size	L
10″	254±2mm
20″	508±2mm

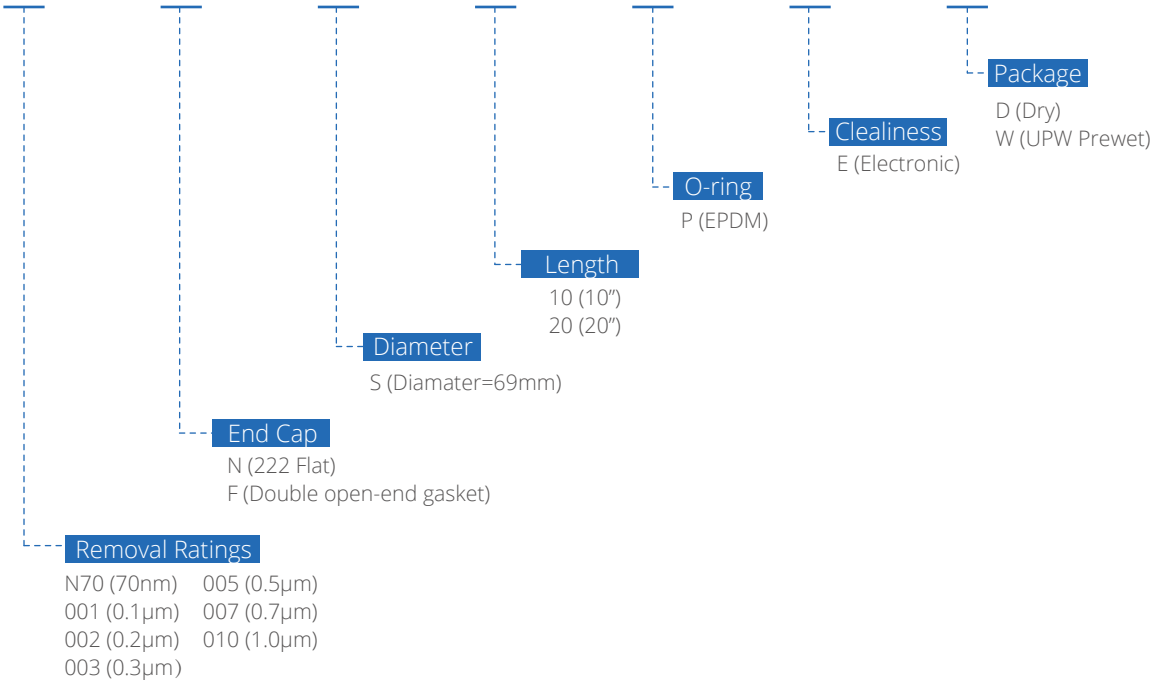
FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

CMPro-D 10" Cartridge Filters



ORDERING INFORMATION

CMPD



CMPRO-M SERIES POLYPROPYLENE DEPTH FILTER FOR BULK CMP FILTRATION

Membrane Solutions CMPro-M series depth filters are specially designed for bulk slurry filtration for SDS(slurry delivery system). Manufactured by composite structure polypropylene media with a unique graded-density design that enables it to address CMP filtration challenges. By tapered pores, CMPro-M accomplishes a great balance between excellent retention efficiency of agglomerates and high contaminant capacity. It can effectively remove only disruptive particles from the CMP slurry and the particle size distribution(PSD) of the valid slurry particles does not changed after filtration. CMPro-M can meet various CMP applications in different situations, including Oxide CMP, STI CMP and Metal CMP.

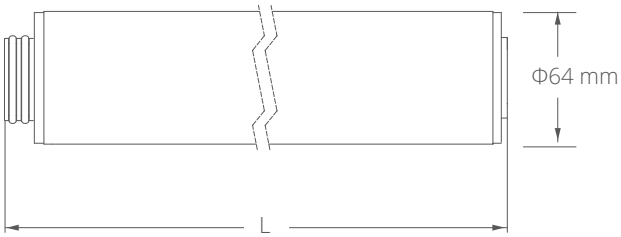


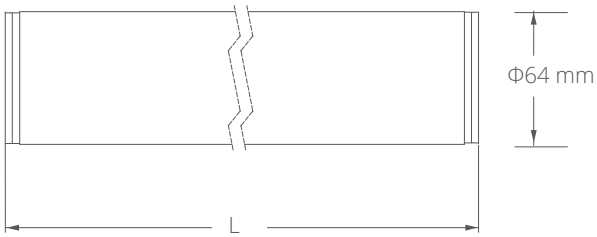
- Graded filter structure ensures high filtration efficiency.
- Steep efficiency curves can significantly improve the filtration rate of oversized particles while minimizing the filtration of valid particles.
- Optimized Life Time and lower cost.
- Low extractables due to free of surfactants and binders.

SPECIFICATIONS

Materials	Filter Layers/Support	Polypropylene
	Core/End Cap	Polypropylene
	O-ring	
Removal Rating	3.0μm, 5.0μm, 7.0μm, 9.0μm, 11.0μm	
Dimensions	Outer Diameter	64mm
	Lengths	10inch, 20inch
Max. Operating Conditions	Max. Forward Differential Pressure	0.52 MPa (75 psi) @ 25 ˚C (77 ˚F) 0.19 MPa (27 psi) @ 82 ˚C (179 ˚F)
	Max. Reverse Differential Pressure	0.21 MPa (30 psi) @ 25 ˚C (77 ˚F)
	Max. Operating Temperature	80 ˚C (176 ˚F)

DIMENSIONS





Code N Filters

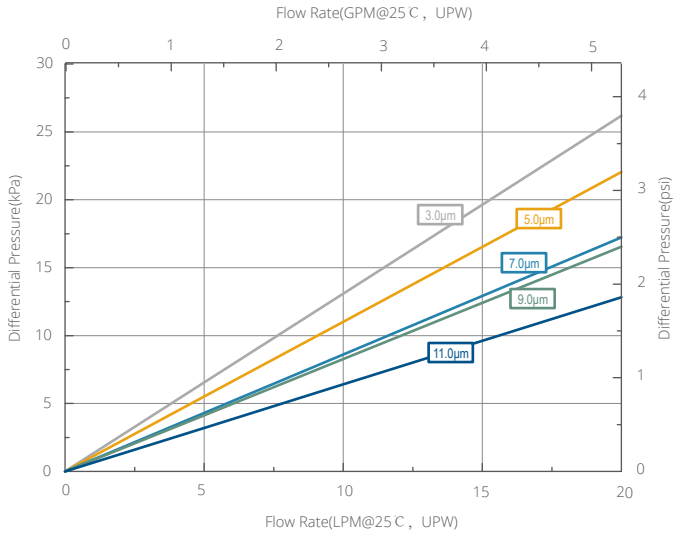
Nominal Size	L
10″	264±1mm
20″	512±1mm

Code F Filters

Nominal Size	L
10″	254±2mm
20″	508±2mm

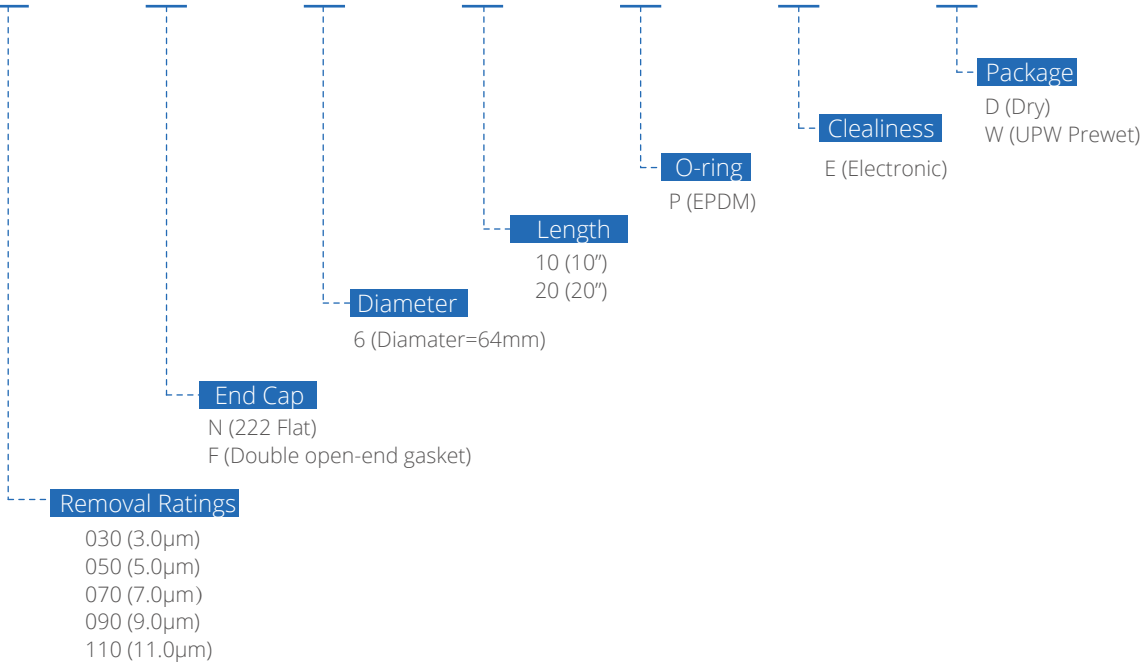
FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

CMPro-M 10" Cartridge Filters



ORDERING INFORMATION

CMPM



CMPRO-P SERIES POLYPROPYLENE MEMBRANE PLEATED DEPTH FILTER

Membrane Solutions CMPro-P series filter consists of pleated multi-layer graded polypropylene (PP) membrane and all PP skeleton. The series is ideally suited for the removal of agglomerated particles and gels in chemical mechanical polishing (CMP) slurry, especially for oxide, tungsten and copper slurries with relatively low solid content. Moreover, the relatively deep and wide pleats of CMPro-P filters greatly improves the filtration area and dirt holding capacity, contributing to ultra-low differential pressure and longer service life.

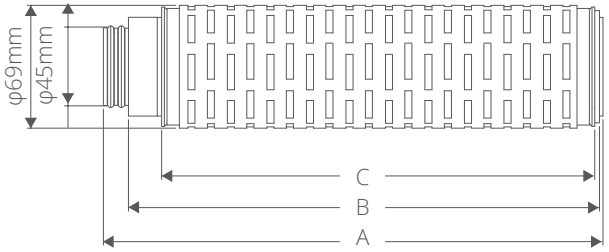


- ◎ Deep and wide pleats contributing to ultra-low differential pressure and longer service life.
- ◎ Large filtration area, combined with continuously tapered pore minimizes shear pressure.
- ◎ Tapered pore structure achieves interception of l arge particles and release of valid abrasives.
- ◎ Manufactured, tested and packaged in a clean room to ensure product cleanliness.
- ◎ Applying hot melt welding technology to ensure no pollution.

SPECIFICATIONS

Materials	Filter Layers/Support	Polypropylene
	Cage/Core/End Cap	Polypropylene
	O-ring	EPDM
Removal Rating	0.8μm, 1.0μm, 1.5μm, 3.0μm, 5.0μm, 10.0μm, 15.0μm	
Dimensions	Outer Diameter	69mm
	Lengths	10inch, 20inch
Max. Operating Conditions	Max. Forward Differential Pressure	0.52 MPa (75 psi) @ 25 ˚C (77 ˚F) 0.19 MPa (27 psi) @ 82 ˚C (179 ˚F)
	Max. Reverse Differential Pressure	0.21 MPa (30 psi) @ 25 ˚C (77 ˚F)
	Max. Operating Temperature	80 ˚C (176 ˚F)

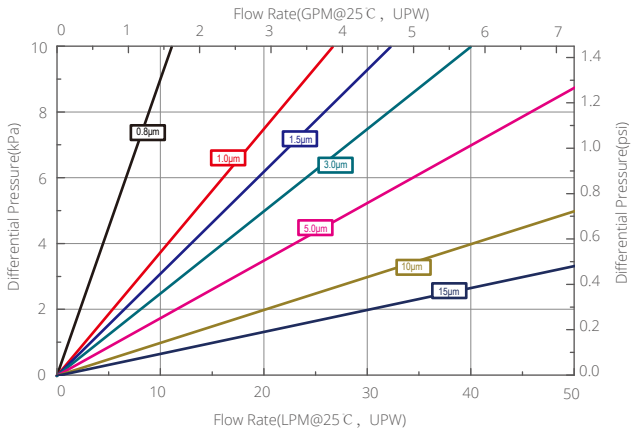
DIMENSIONS



Code F Filters			
Nominal Size	**A**	**B**	**C**
10″	274.0±1mm	257.0±1mm	238.5±1mm

FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

CMPro-P 10" Cartridge Filters



ORDERING INFORMATION

CMPP

- **Removal Ratings**
  - 008 (0.8μm)
  - 010 (1.0μm)
  - 015 (1.5μm)
  - 030 (3.0μm)
  - 050 (5.0μm)
  - 100 (10μm)
  - 150 (15μm)
- **End Cap**
  - N (222 Flat)
  - F (Double open-end gasket)
- **Diameter**
  - S (Diamater=69mm)
- **Length**
  - 10 (10″)
  - 20 (20″)
- **O-ring**
  - P (EPDM)
- **Clealiness**
  - E (Electronic)
- **Package**
  - D (Dry)
  - W (UPW Prewet)

POLICAP POINT-OF-USE(POU) COMPACT CMP CAPSULES

Membrane Solutions PoliCap point-of-use(POU) capsule is specially designed for advanced CMP application in space-limited situation. The feature of all polypropylene construction, compact design and completely disposable result in low cost and easy change-out. In terms of performance, contained melt-blown or depth-pleated filter media can effectively intercept defect-causing particles and gels in CMP slurry while retaining valid abrasive and keeping particle size distribution(PSD) unchanged. The unique construction of filter media ensures relatively low differential pressure, excellent removal efficiency and long service life.



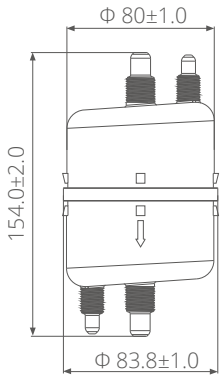
- All-polypropylene construction for low cost.
- Hot melt welding with O-ring free.
- Disposable design for easy change-outs and minimizes exposures to the slurries.
- Available in different lengths and diameters, meeting various installation requirements.
- Available for depth or depth-pleated filter media, meeting a variety of application requirements.
- Low pressure drop and excellent removal efficiency.

SPECIFICATIONS

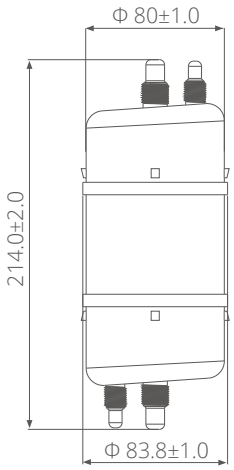
Materials	Filter Layers/Support	Polypropylene
	Cage/Core/End Cap	Polypropylene
Removal Rating	Depth Type: 0.1μm, 0.2μm, 0.3μm, 0.5μm, 0.7μm, 1.0μm	
	Pleated Type: 1.5μm, 3.0μm, 5.0μm	
Dimensions	Outer Diameter	Depth Type: 83.8mm Pleated Type: 71mm
	Inner Filter Diameter	Depth Type: 69mm Pleated Type: 56mm
	Lengths	2.5inch，5inch
Max. Operating Conditions	Max. Operating Pressure	0.5 MPa (73 psi) @ 25 ˚C (77 ˚F)
	Max. Forward Differential Pressure	0.5 MPa (75 psi) @ 25 ˚C (77 ˚F) 0.19 MPa (27 psi) @ 82˚C (179 ˚F)
	Max. Reverse Differential Pressure	0.21 MPa (45 psi) @ 25 ˚C (77 ˚F)
	Max. Operating Temperature	80 ˚C (176 ˚F)

DIMENSIONS

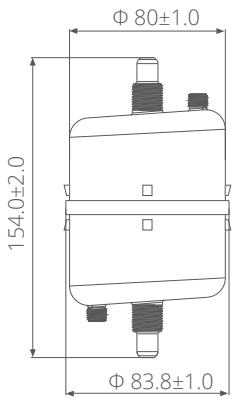
Depth Type	I/O 3/8" Flaretek
2.5"	V/D 1/4" Flaretek



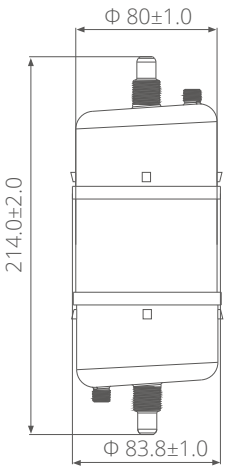
Depth Type	I/O 3/8" Flaretek
5"	V/D 1/4" Flaretek



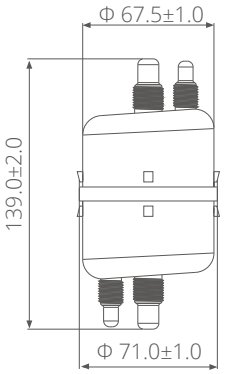
Depth Type	I/O 3/8" Flaretek
2.5"	V/D 1/1/8" NPT



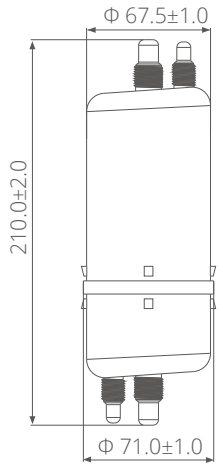
Depth Type	I/O 3/8" Flaretek
5"	V/D 1/8" NPT



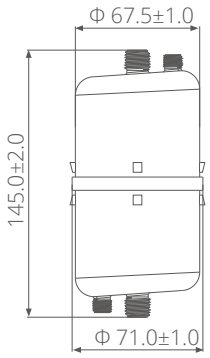
Pleated Type	I/O 3/8" Flaretek
2.5"	V/D 1/4" Flaretek



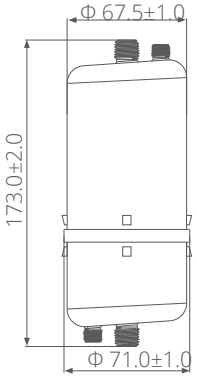
Pleated Type	I/O 3/8" Flaretek
5"	V/D 1/4" Flaretek



Pleated Type I/O 1/4" NPT
2.5" V/D 1/8" NPT

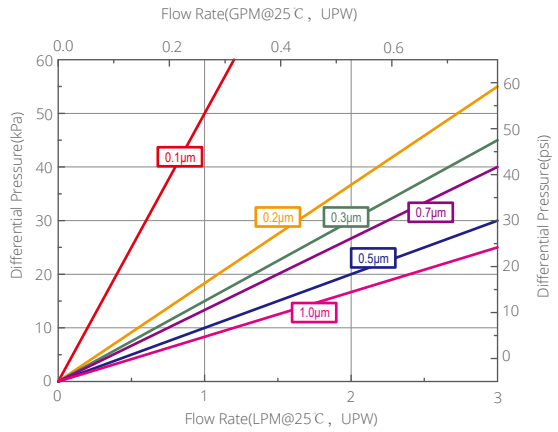


Pleated Type I/O 1/4" NPT
5" V/D 1/8" NPT

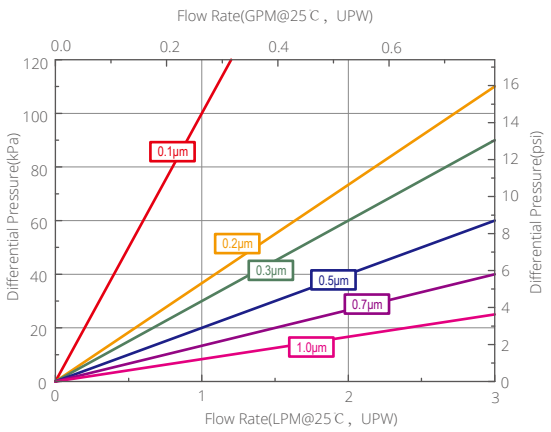


FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

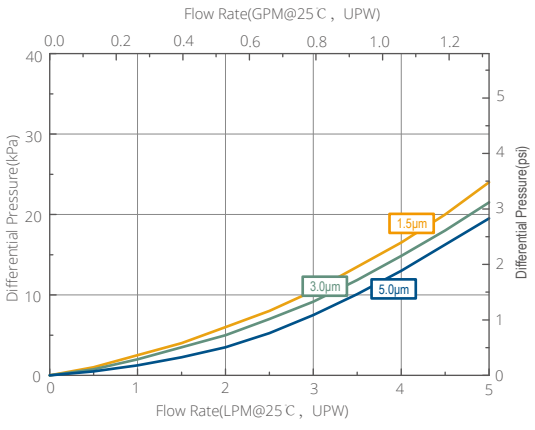
PoliCap Capsule L=214.0mm with depth filter



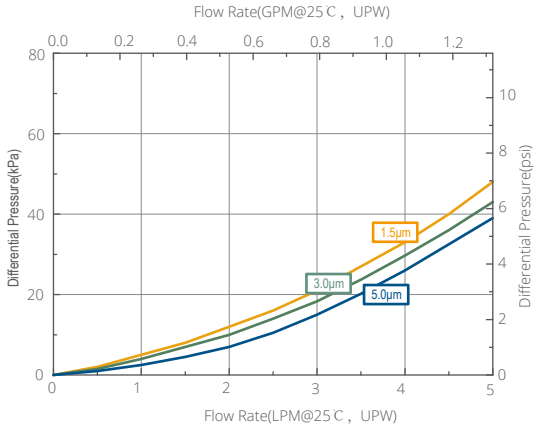
PoliCap Capsule L=154.0mm with depth filter



PoliCap Capsule L=210.0mm with depth filter

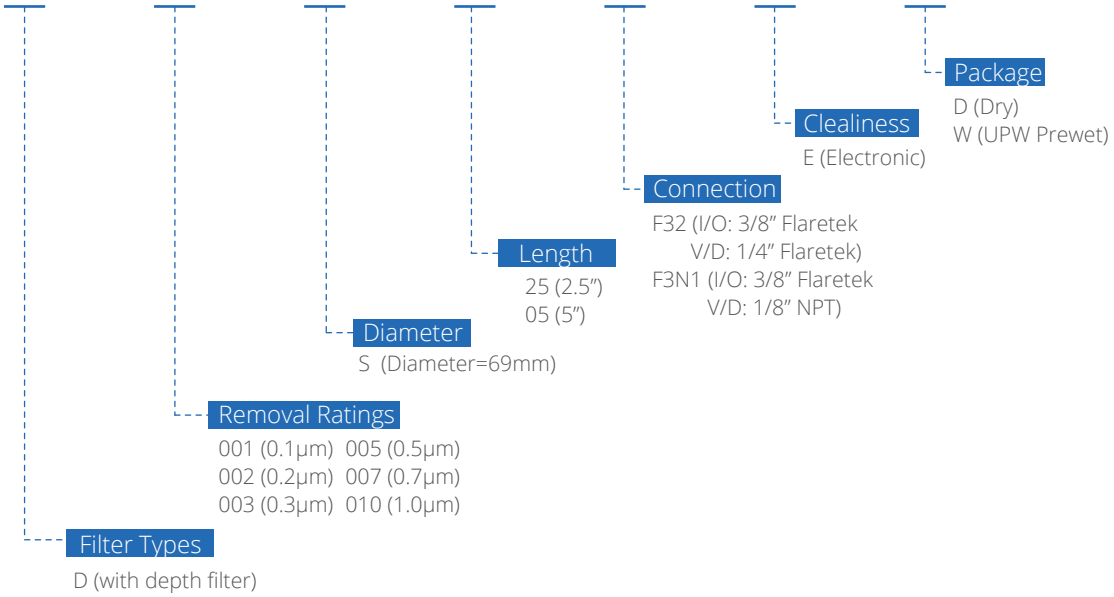


PoliCap Capsule L=139.0mm with depth filter

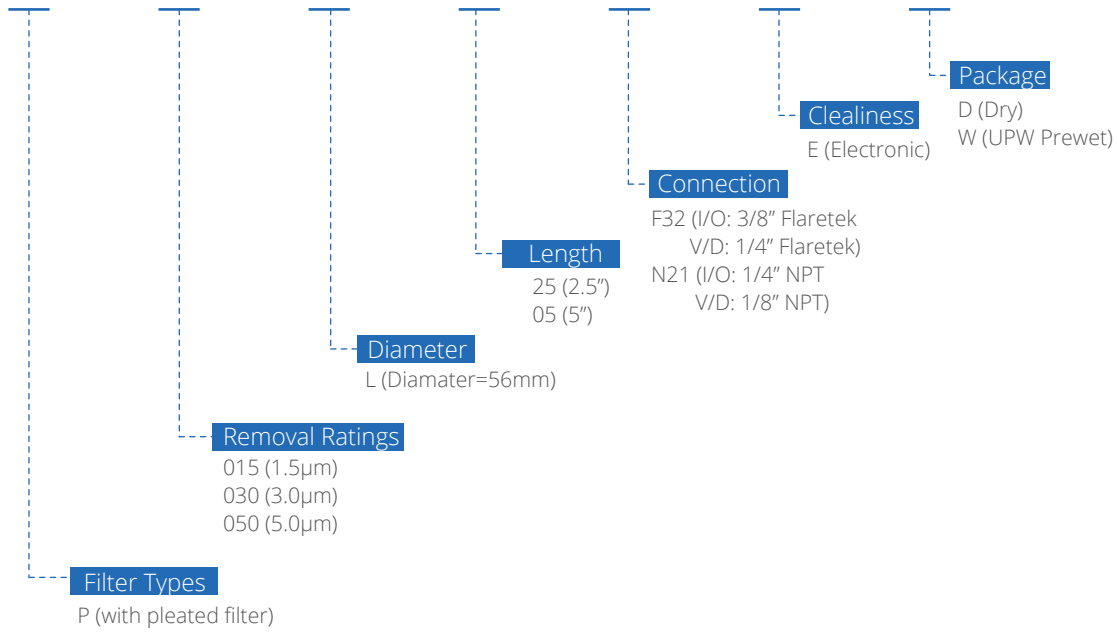


ORDERING INFORMATION

PCN



PCN



POLICAP-PLUS POINT-OF-USE(POU) CMP FILTER CAPSULES

Membrane Solutions PoliCap-Plus point-of-use(POU) capsule is specially designed for advanced CMP applications, especially optimized for colloidal silica, ceria, and very fine alumina-based slurries. Structurally, the convenient disposable design allows for quick installation, minimizes exposures to the slurries and reduces waste. PoliCap-Plus capsules are available with melt-blown or membrane-rolled filter media, meanwhile, available with flexibility connector options.



- All-polypropylene construction for low cost.
- Disposable design for easy change-outs and minimizes exposures to the slurries.
- Low hold-up volume, to reduce slurry waste and prevent deposition.
- Flexibility in connector options.
- Low pressure drop and excellent removal efficiency.
- High contaminant holding capacity and long service life.

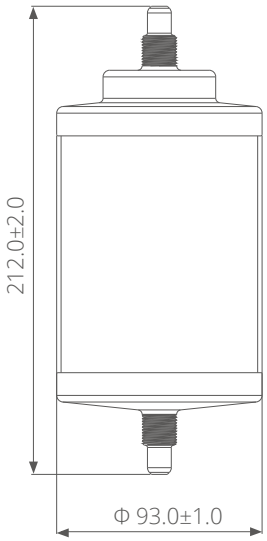
SPECIFICATIONS

Materials	Filter Layers/Support	polypropylene
	Cage/Core/End Cap	polypropylene
	O-ring	EPDM
Removal Rating	70nm, 0.1μm, 0.2μm, 0.3μm, 0.5μm, 0.7μm, 1.0μm	
	Inlet/outlet	3/8" Flaretek[1] Easy-touch
	Vent/drain	/
Dimensions	Outer Diameter	93mm
	Inner Filter Diameter	69mm
	Lengths	5inch
Max. Operating Conditions	Max. Operating Pressure	0.34 MPa (50 psi) @ 25 ˚C (77 ˚F)
	Max. Forward Differential Pressure	0.24 MPa (35 psi) @ 21 ˚C (70 ˚F) 0.40 MPa (58 psi) @ 82 ˚C (176 ˚F)
	Max. Reverse Differential Pressure	0.21 MPa (30 psi) @ 25 ˚C (77 ˚F)
	Max. Operating Temperature	80 ˚C (176 ˚F)

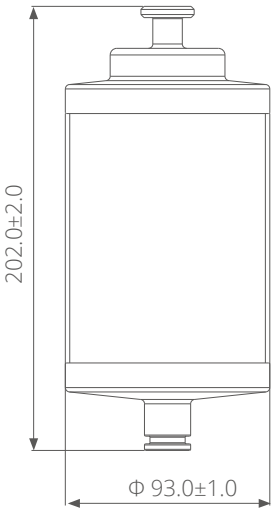
[1] Flaretek is a trademark of Entegris, Inc.

DIMENSIONS

Code F3 I/O 3/8" Flaretek no V/D

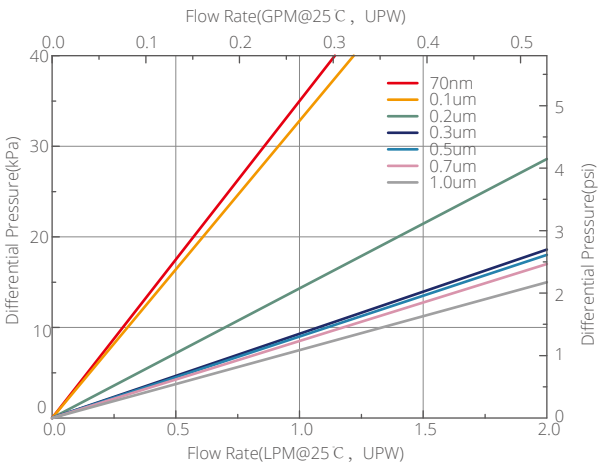


Code E0 I/O Easy-touch no V/D



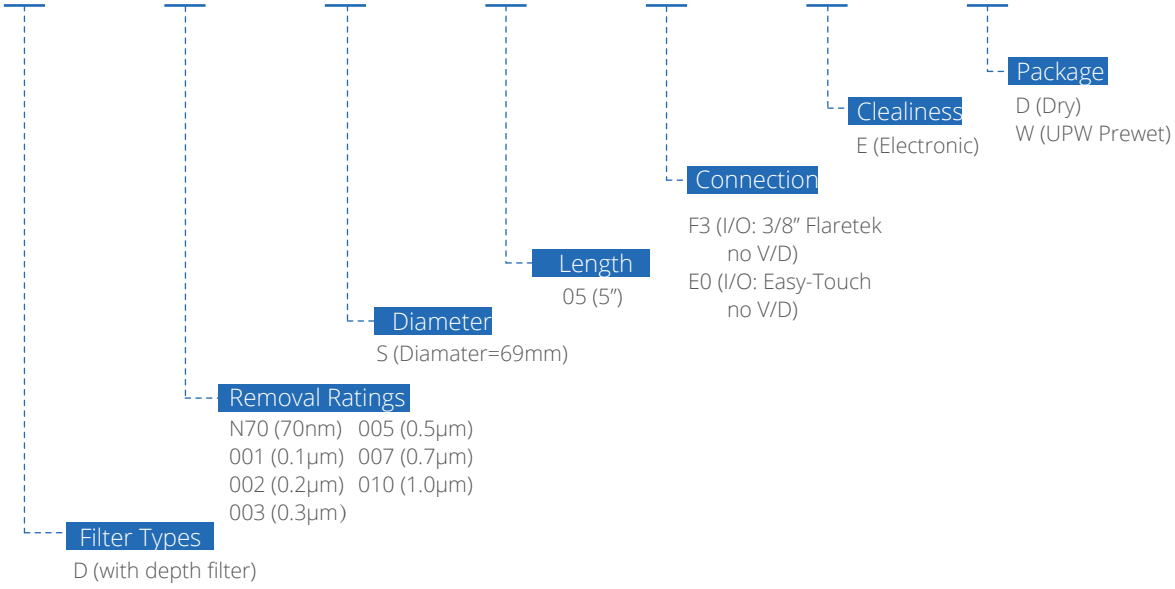
FLOW RATE VS. DIFFERENTIAL PRESSURE PERFORMANCE

PoliCap-Plus Depth Capsule



ORDERING INFORMATION

PCP



SEMICONDUCTOR

Filtration Product



Membrane Solutions

USA

Toll free: 1-866-528-4572
Fax: 1-732-412-4040
Address: 3320 W Valley D108, Auburn, WA 98001 USA
Email: info@membrane-solutions.com
Web: www.membrane-solutions.com

CHINA

Toll free: 400-820-0293
Fax: 86-21-51687551
Email: cn@membrane-solutions.com
Address: 2202, No.1759 North Zhongshan Road,
Shanghai 200061