



**FLUOROGARD® ALL-PTFE
HIGH-RETENTION FILTERS**

*All-PTFE filtration solutions for advanced
WEC processes ensuring broad chemical
compatibility, high flow and superior cleanliness*



filtration solutions for advanced WEC processes

Overview

Fluorogard® all-PTFE liquid filters offer cost-effective filtration solutions for advanced wet etch and clean (WEC) processes and elevated temperature applications. Ideal for medium to high-flow extended lifetime applications, these high-retention filters remove particles from a wide range of acids, bases and other process chemicals.

Fluorogard filters reduce setup time and increase system uptime, keeping operational costs at a minimum. The hydrophobic PTFE membrane increases surface area, improves flow, and minimizes pressure drop without compromising performance or particle removal capabilities. The all-PTFE fluoropolymer materials and thermally

bonded construction minimize chloride and metals extractables and other contaminants that can impact yield and throughput.

Fluorogard filters are available in several configurations and options. Fluorogard prewet cartridge filters ship “waterwet” to allow for rapid startup in aqueous chemicals while avoiding alcohol-chemical interactions. The prewet format eliminates potential contamination sources along with the inconvenience of hazardous waste disposal of isopropyl alcohol (IPA). The ultra clean metals (UCM) option of Fluorogard ATE and AT3 is targeted to critical organic solvent delivery systems.

Features and Benefits

Features	Benefits
Superior retention	<ul style="list-style-type: none"> Utilizes retention ratings from 10 µm to 15 nm Removes particles from a wide range of acids, bases and other process chemicals Requires minimal setup time, promoting a lower COO in advanced WEC processes Ideal for medium to high-flow extended lifetime applications
Rugged materials of construction	<ul style="list-style-type: none"> Hydrophobic PTFE membrane <ul style="list-style-type: none"> Increases surface area Improves flow Minimizes pressure drop All-PTFE fluoropolymer materials and thermally bonded construction <ul style="list-style-type: none"> Ensure excellent chemical compatibility Minimize chloride and metals extractables that can impact process performance Enable low particle shedding to increase yield and throughput
Cost-effective filter options	<ul style="list-style-type: none"> Ultra clean metals option (ATE and AT3) <ul style="list-style-type: none"> 15 nm and 20 nm retention ratings Specially designed for critical organic solvent delivery systems Prewet cartridge filter ships “waterwet” (ATE) <ul style="list-style-type: none"> Allows for rapid startup in aqueous chemicals Prevents alcohol-chemical interactions Avoids potential contamination sources and the inconvenience of hazardous waste

Specifications

		AT	ATX	ATE	AT3
Materials:	Membrane	Hydrophobic PTFE			
	Supports, sleeve, end caps, core	PFA			
	Cartridge o-ring options	E-FKM, E-ETP, Chemraz®, Kalrez®, FER			
Retention rating (See Note 1):	0.05, 0.1, 0.2, 0.5, 1.0, 5.0, 10.0 µm (See Note 2)		15, 20 nm 0.03, 0.05, 0.1 µm UCM option: 15, 20 nm See Note 2		UCM option: 15 nm
Membrane surface area:	4" 0.36 m ² (3.88 ft ²)	4" 0.5 m ² (5.38 ft ²)	10" 2.2 m ² (23.86 ft ²)	10" 2.8 m ² (30.14 ft ²)	
	10" 0.9 m ² (9.68 ft ²)	10" 1.3 m ² (13.99 ft ²)	10" (15 nm/20 nm) 2.1 m ² (22.6 ft ²)		
	20" 1.8 m ² (19.38 ft ²)	20" 2.6 m ² (27.99 ft ²)	20" 4.4 m ² (47.36 ft ²)		
	30" 2.7 m ² (29.06 ft ²)				
Particle cleanliness:	≤50 particles/10 mL (≥0.05 µm/10 mL) after 5 minutes flushing at 3–5 L/min				
Metallic extractables	Cartridge	Standard		<40 µg per device	
		UCM		<10 µg per device	
	Disposable	Standard		<10 µg per device	
		UCM		<3 µg per device	
Operating conditions:	Maximum operating pressure	Cartridge	Disposable	Disposable (Tube Type)	
		0.58 MPa (5.8 bar, 84 psi @ 25°C (77°F))	0.58 MPa (5.8 bar, 84 psi @ 25°C (77°F))	0.58 MPa (5.8 bar, 84 psi @ 25°C (77°F))	
	Maximum forward differential pressure	0.44 MPa (4.4 bar, 64 psi @ 25°C (77°F))	0.44 MPa (4.4 bar, 64 psi @ 25°C (77°F))	0.44 MPa (4.4 bar, 64 psi @ 25°C (77°F))	
		0.05 MPa (0.5 bar, 7.5 psi @ 180°C (356°F))	0.05 MPa (0.5 bar, 7.5 psi @ 180°C (356°F))	0.05 MPa (0.5 bar, 7.5 psi @ 150°C (302°F))	
	Maximum reverse pressure	0.34 MPa (3.4 bar; 50 psi @ 25°C (77°F))	0.34 MPa (3.4 bar; 50 psi @ 25°C (77°F))	0.34 MPa (3.4 bar; 50 psi @ 25°C (77°F))	
Maximum operating temperature	180°C (356°F)	180°C (356°F)	150°C (302°F)		
		Flowell™ 60 Series disposable – 100°C (212°F)			

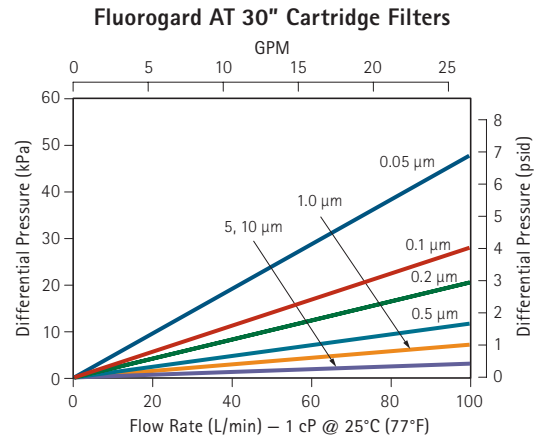
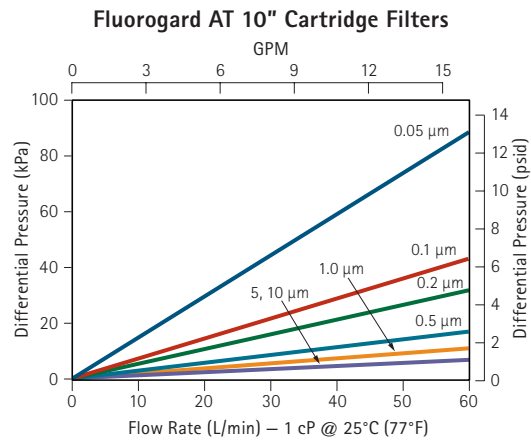
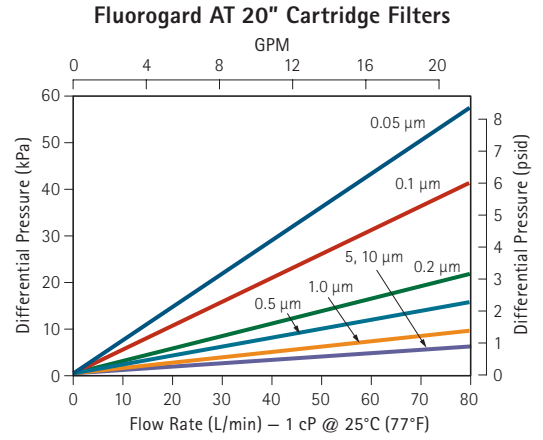
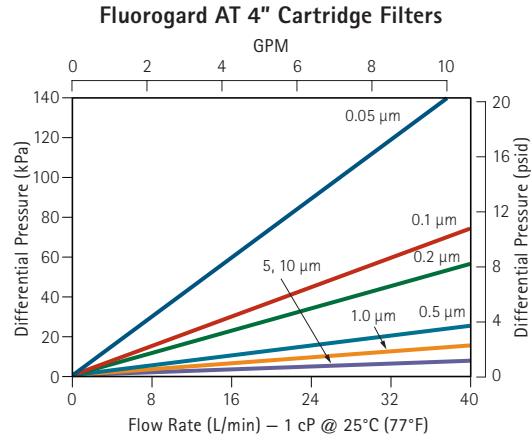
Note 1: Retention ratings of 0.03 µm, 15 nm and 20 nm are used in solvent filtration as a UCM product – no prewet option.

Note 2: Prewet options are available between 0.05 µm and 1 µm. Contact your local Entegris representative for your specific product requirements.

Fluorogard Cartridge Filters

Fluorogard AT Cartridge Filters

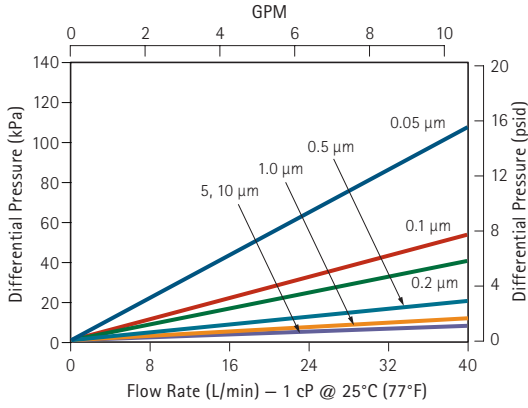
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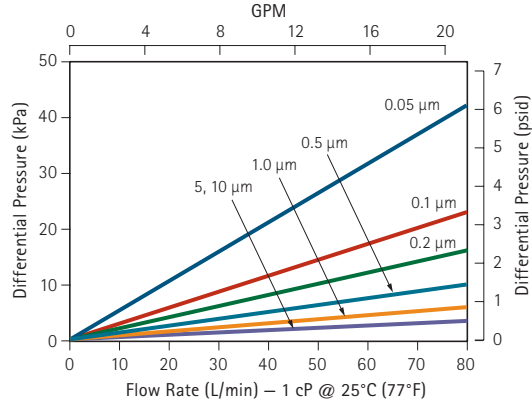
Fluorogard ATX Cartridge Filters

Performance Data

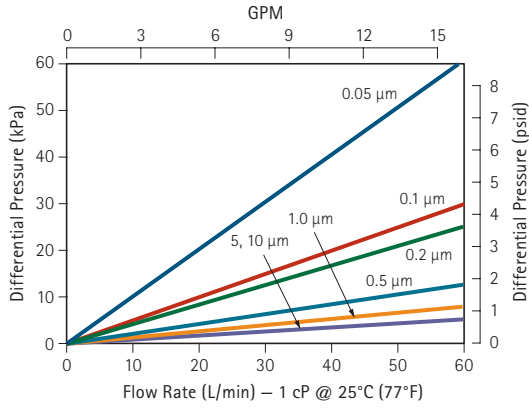
Fluorogard ATX 4" Cartridge Filters



Fluorogard ATX 20" Cartridge Filters

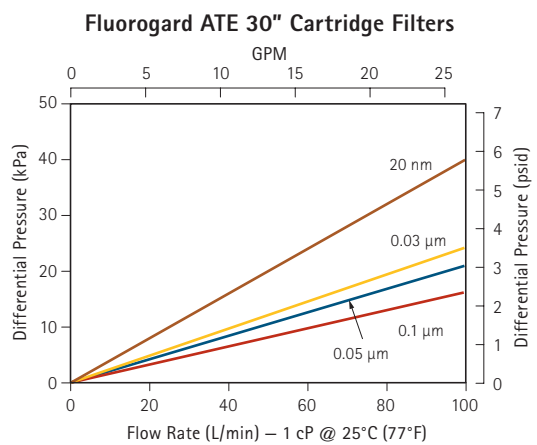
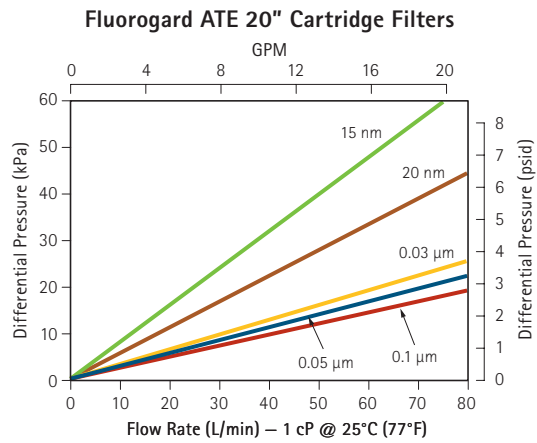
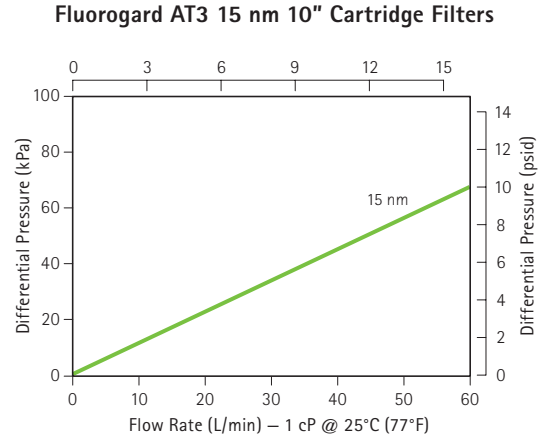
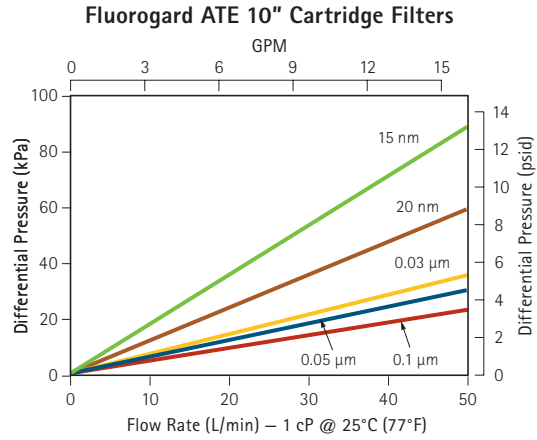


Fluorogard ATX 10" Cartridge Filters



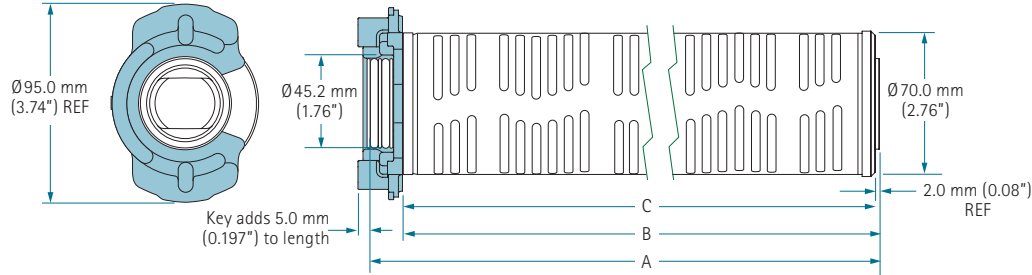
Fluorogard ATE/AT3 Cartridge Filters

Performance Data



Fluorogard AT Cartridge Filter

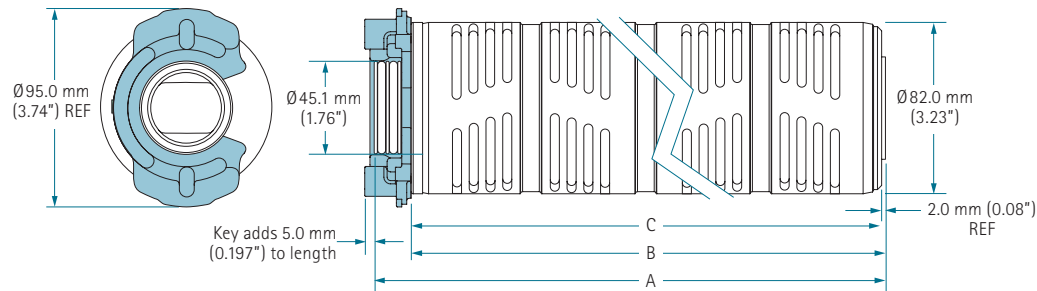
Dimensions



Length	A (Overall)	B (Control)	C (Shoulder)
4"	132.3 mm (5.21")	115.0 mm (4.53")	113.0 mm (4.45")
10"	262.3 mm (10.33")	245.0 mm (9.65")	243.0 mm (9.57")
20"	498.3 mm (19.62")	481.0 mm (18.94")	479.0 mm (18.86")
30"	738.3 mm (29.07")	721.0 mm (28.39")	719.0 mm (28.31")

Fluorogard ATX/ATE/AT3 Cartridge Filters

Dimensions



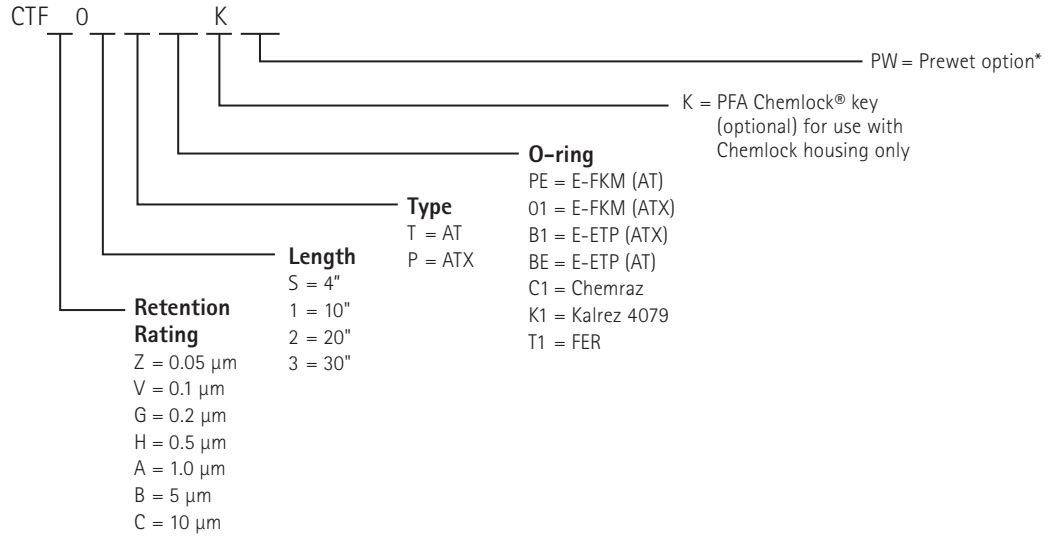
Length	A (Overall)	B (Control)	C (Shoulder)
4"	127.3 mm (5.01")	110.0 mm (4.33")	108.5 mm (4.27")
10"	244.0 mm (9.61")	227.0 mm (8.94")	225.0 mm (8.86")
20"	471.0 mm (18.54")	454.0 mm (17.87")	452.0 mm (17.80")

Ordering Information

This information serves as a guide. Please contact your local representative to confirm part numbers. Retention ratings vary depending on the filter. Refer to Specifications for more information.

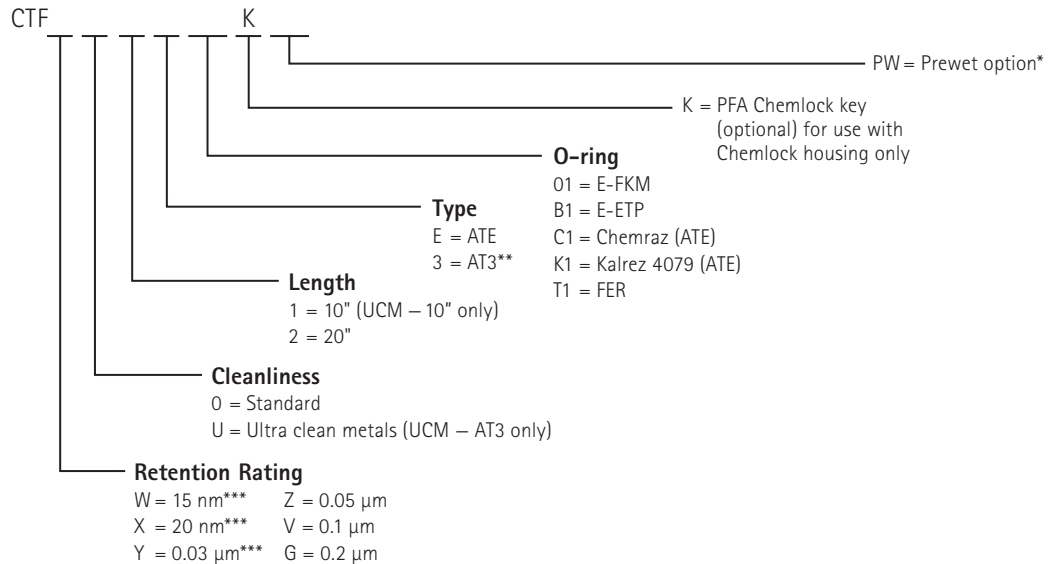
Fluorogard AT/ATX Cartridge Filters

Part Number



Fluorogard ATE/AT3 Cartridge Filters

Part Number



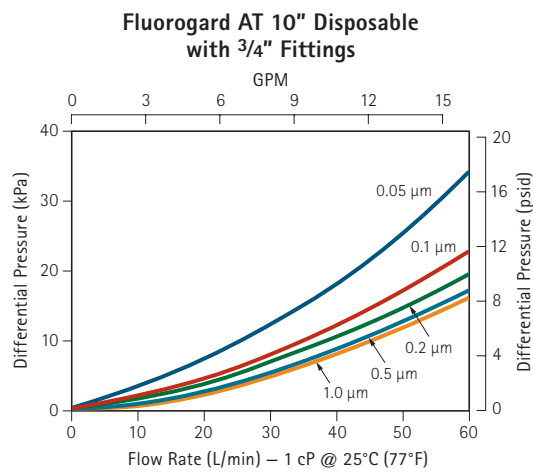
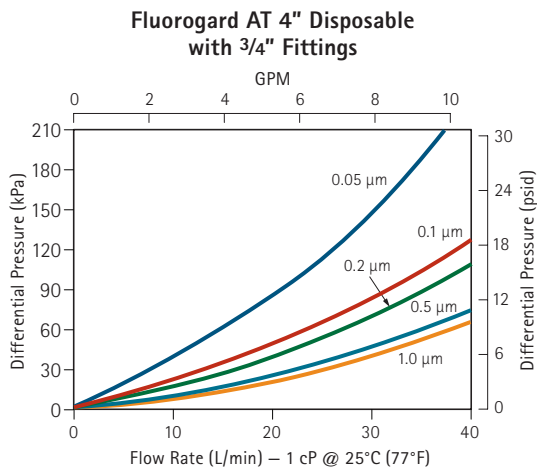
* Prewet options between 0.05 μm and 1.0 μm are available. Contact your local Entegris representative for your specific product requirements.

** AT3 available in 15 nm only.

*** Available in dry configuration only.

Fluorogard Chem-Line™ I and II Disposable Filters

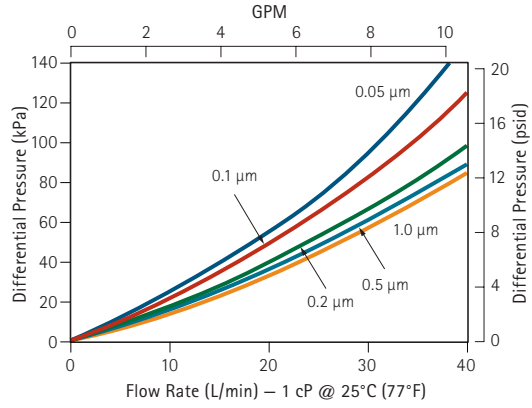
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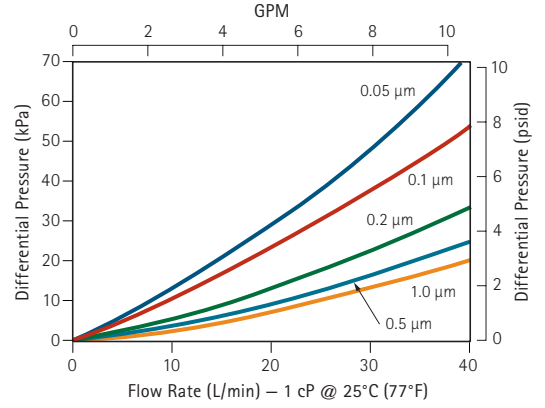
Fluorogard ATX Disposable Filters

Performance Data

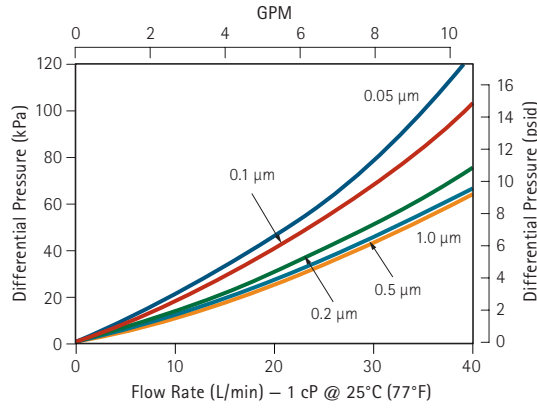
Fluorogard ATX 4" Disposable with 3/8" Fittings



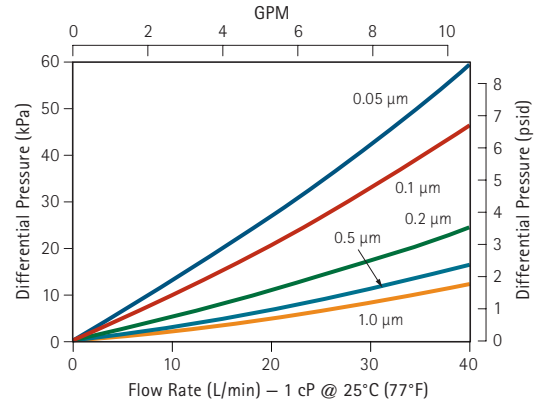
Fluorogard ATX 4" Disposable with 3/4" Fittings



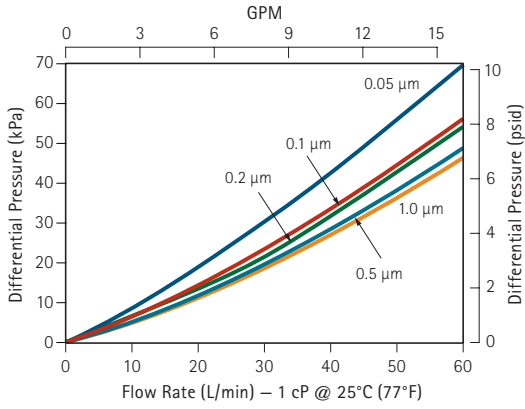
Fluorogard ATX 4" Disposable with 1/2" Fittings



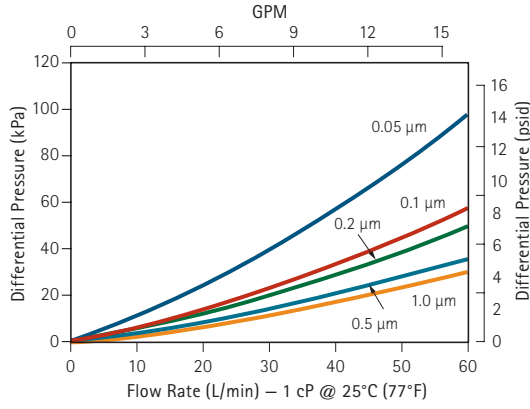
Fluorogard ATX 4" Disposable with 1" Fittings



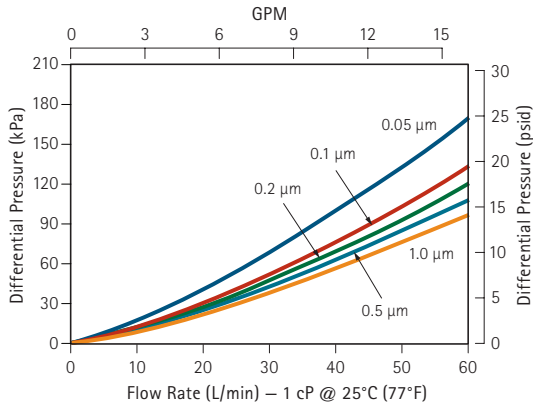
Fluorogard ATX 10" Disposable with 3/8" Fittings



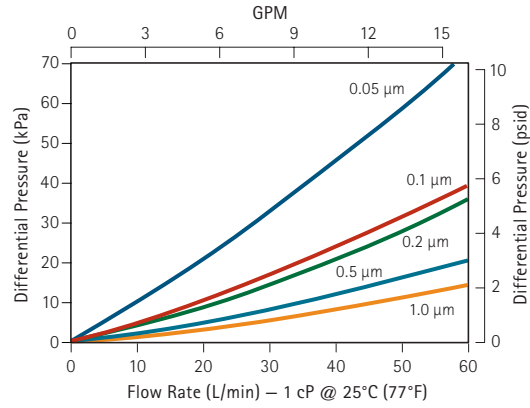
Fluorogard ATX 10" Disposable with 3/4" Fittings



Fluorogard ATX 10" Disposable with 1/2" Fittings



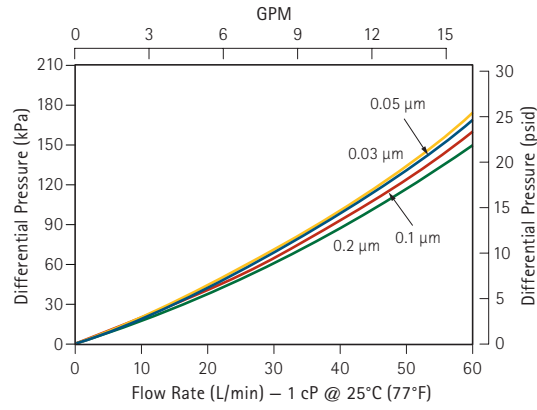
Fluorogard ATX 10" Disposable with 1" Fittings



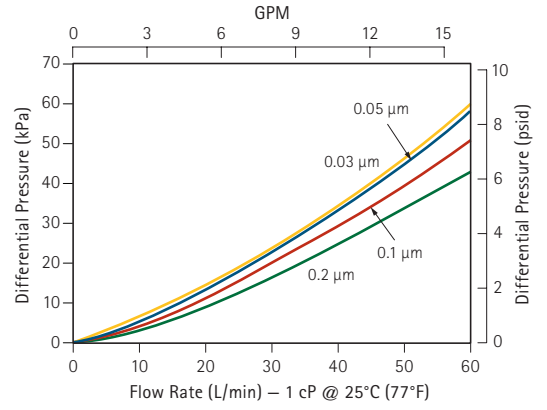
Fluorogard ATE Disposable Filters

Performance Data

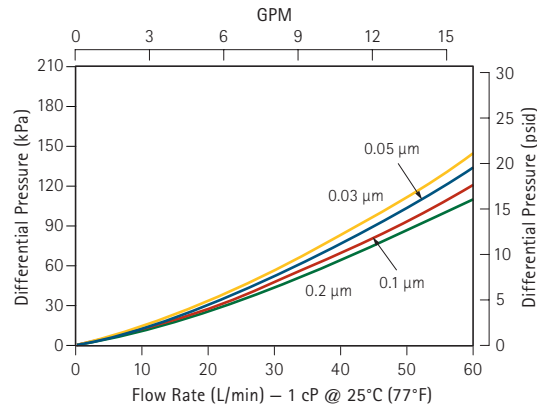
Fluorogard ATE 10" Disposable with 3/8" Fittings



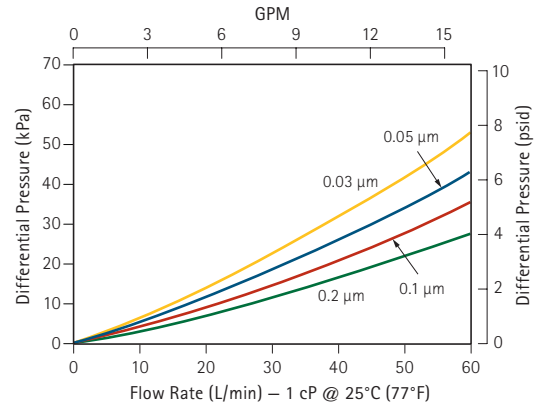
Fluorogard ATE 10" Disposable with 3/4" Fittings



Fluorogard ATE 10" Disposable with 1/2" Fittings



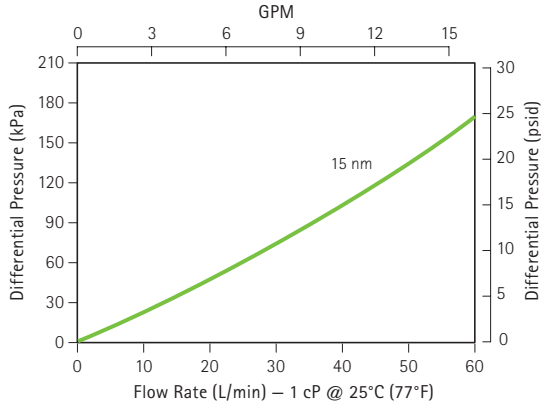
Fluorogard ATE 10" Disposable with 1" Fittings



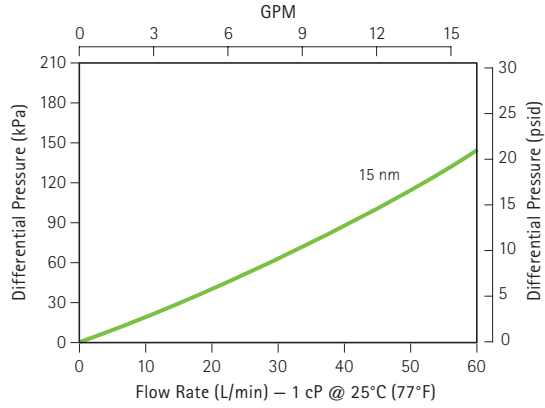
Fluorogard AT3 Disposable Filters

Performance Data

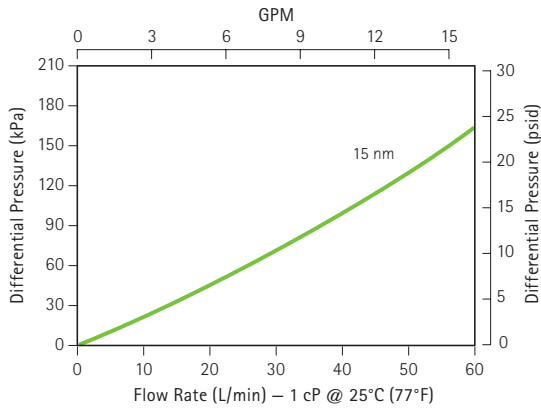
Fluorogard AT3 Disposable with 1/2" Fittings



Fluorogard AT3 Disposable with 1" Fittings



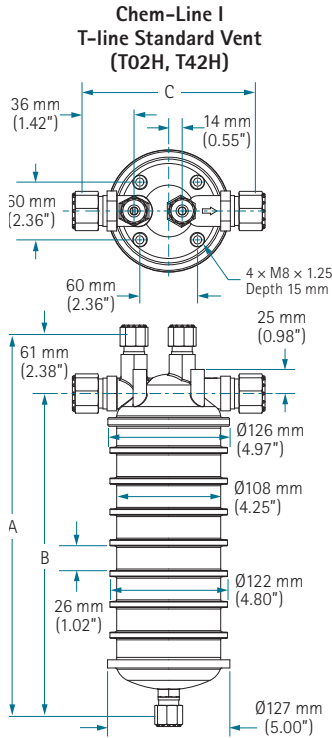
Fluorogard AT3 Disposable with 3/4" Fittings



Chem-Line I and Chem-Line II Disposable Filters

Dimensions

The following drawings represent the broad range of Fluorogard Chem-Line I and Chem-Line II filter categories. Refer to the accompanying tables for dimensional information pertaining to each disposable type.

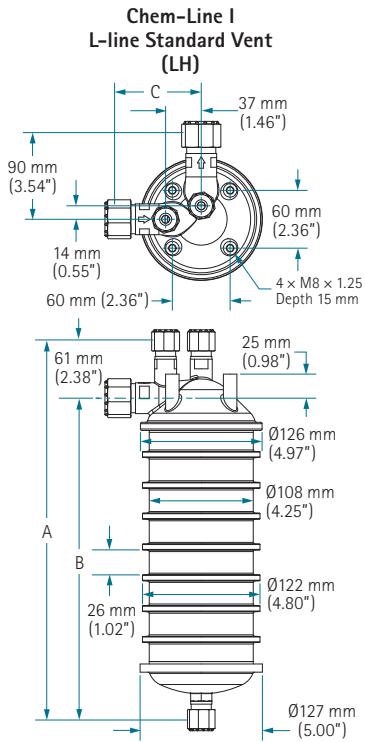


NOMINAL DIMENSIONS FOR CHEM-LINE I T-LINE STANDARD VENT (FLUOROGARD ATX, ATE, AT3)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
T-line:	TH: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar® fittings	10"	396 mm (15.58")	335 mm (13.19")	180 mm (7.09")
	4H: 1" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	402 mm (15.82")	341 mm (13.43")	188 mm (7.40")

NOMINAL DIMENSIONS FOR CHEM-LINE I T-LINE STANDARD VENT (FLUOROGARD AT)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
T-line:	TH: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	412 mm (16.21")	351 mm (13.82")	180 mm (7.09")

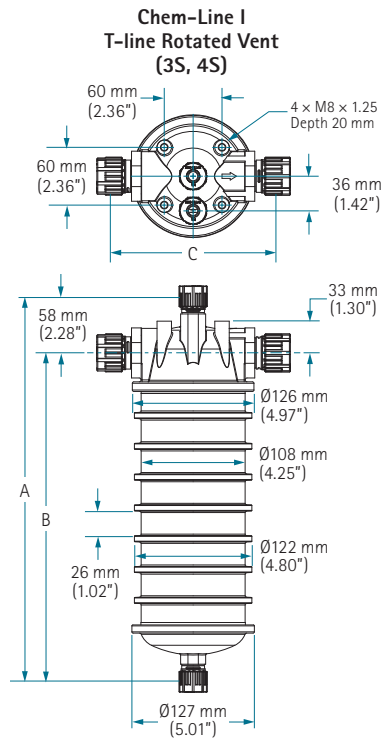


NOMINAL DIMENSIONS FOR CHEM-LINE I L-LINE STANDARD VENT (FLUOROGARD ATX, ATE, AT3)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
L-line:	LH: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	412 mm (16.21")	351 mm (13.82")	90 mm (3.54")

NOMINAL DIMENSIONS FOR CHEM-LINE I L-LINE STANDARD VENT (FLUOROGARD AT)

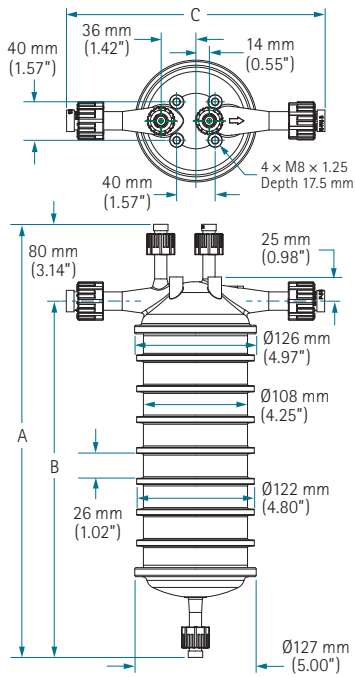
Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
L-line:	LH: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	412 mm (16.21")	351 mm (13.82")	90 mm (3.54")



NOMINAL DIMENSIONS FOR CHEM-LINE I T-LINE ROTATED VENT (FLUOROGARD ATX, ATE, AT3)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
T-line:	3S: 3/4" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	399 mm (15.70")	341 mm (13.43")	172 mm (6.77")
	4S: 1" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	399 mm (15.70")	341 mm (13.43")	182 mm (7.17")

**Chem-Line I
T-tube Standard Vent
(TT, TP, T3, TW, TF, TF6, TFW, TFP, TF3, TFF)**



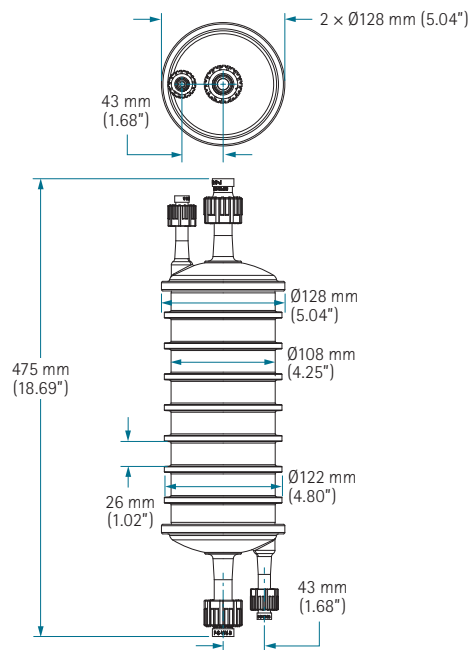
NOMINAL DIMENSIONS FOR CHEM-LINE I T-TUBE FITTINGS (FLUOROGARD ATX, ATE, AT3)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
T-tube:	TT: 3/4" inlet/outlet, 1/2" vent/drain, tube	10"	436 mm (17.17")	–	–
		4"	320 mm (12.60")	–	–
	TP: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	450 mm (17.71")	370 mm (14.57")	272 mm (10.69")
		4"	334 mm (13.14")	254 mm (10.00")	272 mm (10.69")
	T3: 3/4" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	449 mm (17.69")	369 mm (14.53")	268 mm (10.55")
	TW: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 20 Series fittings	10"	436 mm (17.17")	363 mm (14.29")	252 mm (9.92")
	TF: 3/4" inlet/outlet, 1/2" vent/drain, FlareLock® II fittings	10"	436 mm (17.17")	363 mm (14.29")	252 mm (9.92")

NOMINAL DIMENSIONS FOR CHEM-LINE I T-TUBE FITTINGS (FLUOROGARD AT)

Category	Disposable Type	Length	A (Overall Height)	B (Height: Bottom Fitting to Centerline Inlet Fitting)	C (Inlet to Outlet)
T-tube:	TF: 3/4" inlet/outlet, 1/2" vent/drain, tube	10"	453 mm (17.81")	–	–
		4"	327 mm (12.85")	–	–
	TF6: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 60 Series fittings	4"	327 mm (12.85")	254 mm (10.00")	252 mm (9.92")
	TFW: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 20 Series fittings	10"	453 mm (17.81")	380 mm (14.96")	252 mm (9.92")
		4"	327 mm (12.85")	254 mm (10.00")	252 mm (9.92")
	TFP: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	466 mm (18.36")	386 mm (15.20")	272 mm (10.69")
		4"	340 mm (13.40")	260 mm (10.25")	272 mm (10.69")
	TF3: 3/4" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	466 mm (18.34")	386 mm (15.20")	268 mm (10.55")
		4"	340 mm (13.40")	260 mm (10.25")	268 mm (10.55")
	TFF: 3/4" inlet/outlet, 1/2" vent/drain, FlareLock II fittings	10"	453 mm (17.81")	380 mm (14.96")	252 mm (9.92")
		4"	327 mm (12.85")	254 mm (10.00")	252 mm (9.92")

**Chem-Line I
S-tube Standard Vent
(ST, STW, STP, ST3, STF, SF, SF3, SF6, SFF, SFW, SFP)**



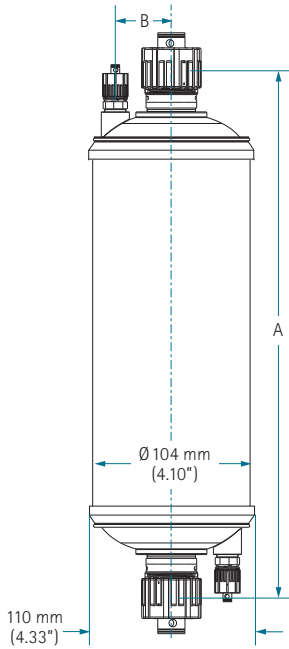
NOMINAL DIMENSIONS FOR CHEM-LINE I S-TUBE FITTINGS (FLUOROGARD ATX, ATE, AT3)

Category	Disposable Type	Length	A (Overall Height)
S-tube:	ST: 3/4" inlet/outlet, 1/2" vent/drain, tube	10"	459 mm (18.06")
		4"	343 mm (13.50")
	STW: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 20 Series fittings	10"	459 mm (18.06")
		4"	336 mm (13.21")
	STP: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	478 mm (18.82")
		4"	362 mm (14.26")
	ST3: 3/4" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	475 mm (18.69")
		4"	359 mm (14.13")
	STF: 3/4" inlet/outlet, 1/2" vent/drain, FlareLock II fittings	10"	459 mm (18.06")
		4"	343 mm (13.50")

NOMINAL DIMENSIONS FOR CHEM-LINE I S-TUBE FITTINGS (FLUOROGARD AT)

Category	Disposable Type	Length	A (Overall Height)
S-tube:	SF: 3/4" inlet/outlet, 1/2" vent/drain, tube	10"	475 mm (18.71")
		4"	349 mm (13.75")
	SF3: 3/4" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings	10"	491 mm (19.34")
		4"	365 mm (14.35")
	SF6: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 60 Series fittings	4"	349 mm (13.75")
		SFF: 3/4" inlet/outlet, 1/2" vent/drain, FlareLock II fittings	10"
	4"		344 mm (13.56")
	SFW: 3/4" inlet/outlet, 1/2" vent/drain, Flowell 20 Series fittings	10"	476 mm (18.75")
		4"	349 mm (13.75")
	SFP: 3/4" inlet/outlet, 1/2" vent/drain, Super Type Pillar fittings	10"	495 mm (19.48")
		4"	369 mm (14.52")

Chem-Line II
(Flaretek®, Flowell 60 Series,
Super 300 Type Pillar)



NOMINAL DIMENSIONS FOR CHEM-LINE II

Fittings		Flaretek		Flowell 60 Series		Super 300 Type Pillar (Male)			
Inlet/ Outlet	Vent/ Drain	B	A	A	A	A	B	A	A
		4"	10"	4"	10"	4"		10"	
3/8"	1/4"	37 mm (1.46")	230 mm (9.06")	343 mm (13.51")	—	—	—	—	—
1/2"	1/4"	37 mm (1.46")	243 mm (9.58")	356 mm (14.03")	—	—	41 mm (1.63")	228 mm (9.96")	341 mm (13.41")
3/4"	1/4"	37 mm (1.46")	246 mm (9.68")	359 mm (14.13")	248 mm (9.77")	361 mm (14.22")	37 mm (1.46")	237 mm (9.32")	350 mm (13.77")
3/4"	1/2"	41 mm (1.63")	250 mm (9.85")	363 mm (14.30")	241 mm (9.49")	354 mm (13.94")	41 mm (1.63")	236 mm (9.29")	349 mm (13.74")
1"	1/4"	37 mm (1.46")	255 mm (10.02")	368 mm (14.47")	258 mm (10.16")	371 mm (14.61")	37 mm (1.46")	270 mm (10.62")	383 mm (15.07")
1"	1/2"	41 mm (1.63")	263 mm (10.37")	376 mm (14.82")	253 mm (9.96")	366 mm (14.41")	41 mm (1.63")	267 mm (10.53")	380 mm (14.97")

Ordering Information

This information serves as a guide. Please contact your local representative to confirm part numbers. Retention ratings vary depending on the filter. Refer to Specifications for more information.

Fluorogard AT Chem-Line I Disposable Filters

Part Number

CTF O P



Length
S = 4"
1 = 10"

Retention Rating
Z = 0.05 µm H = 0.5 µm
V = 0.1 µm A = 1.0 µm
G = 0.2 µm

Fitting
TF = 3/4" T-tube (prewet N/A)
TFP = 3/4" T-tube + Super Type Pillar fitting
TF3 = 3/4" T-tube + Super 300 Type Pillar fitting
TFF = 3/4" T-tube + FlareLock II fitting
TFW = 3/4" T-tube + Flowell 20 Series fitting
TF6 = 3/4" T-tube + Flowell 60 Series fitting
SF = 3/4" S-tube (prewet N/A)
SFP = 3/4" S-tube + Super Type Pillar fitting
SF3 = 3/4" S-tube + Super 300 Type Pillar fitting
SFF = 3/4" S-tube + FlareLock II fitting
SFW = 3/4" S-tube + Flowell 20 Series fitting
SF6 = 3/4" S-tube + Flowell 60 Series fitting
LH = 3/4" L Super Type Pillar fitting
TH = 3/4" T Super Type Pillar fitting

Fluorogard ATX/ATE/AT3 Chem-Line I Disposable Filters

Part Number

CTD AT



Length
S = ATX 4"
X = ATX 10"
E = ATE 10"
3 = AT3 10"

Retention Rating
W = 15 nm** G = 0.2 µm
Y = 0.03 µm H = 0.5 µm
Z = 0.05 µm A = 1.0 µm
V = 0.1 µm

Fitting
ST = 3/4" S-tube (prewet N/A)
ST3 = 3/4" S-tube + Super 300 Type Pillar fitting
STF = 3/4" S-tube + FlareLock II fitting
STW = 3/4" S-tube + Flowell 20 Series fitting
STP = 3/4" S-tube + Super Type Pillar fitting
T3 = 3/4" T-tube + Super 300 Type Pillar fitting
TF = 3/4" T-tube + FlareLock II fitting
TH = 3/4" T Super Type Pillar fitting
TP = 3/4" T-tube + Super Type Pillar fitting
TT = 3/4" T-tube (prewet N/A)
TW = 3/4" T-tube + Flowell 20 Series fitting
LH = 3/4" L Super Type Pillar fitting
3S = 3/4" T Super 300 Type Pillar fitting
4S = 1" T Super 300 Type Pillar fitting
4H = 1" T Super Type Pillar fitting

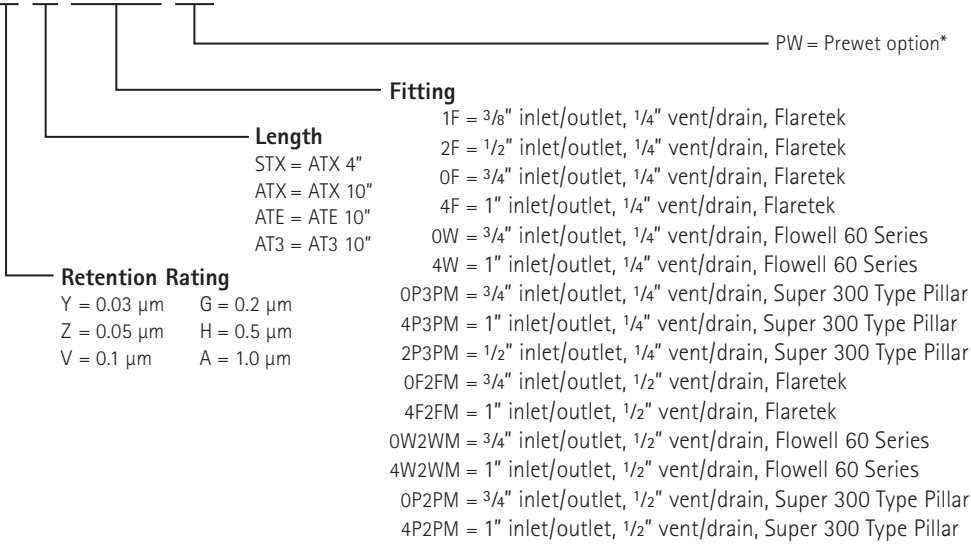
* Prewet options between 0.05 µm and 1.0 µm are available. Contact your local Entegris representative for your specific product requirements.

** AT3 only.

Fluorogard ATX/ATE/AT3 Chem-Line II Disposable Filters

Part Number

WDF

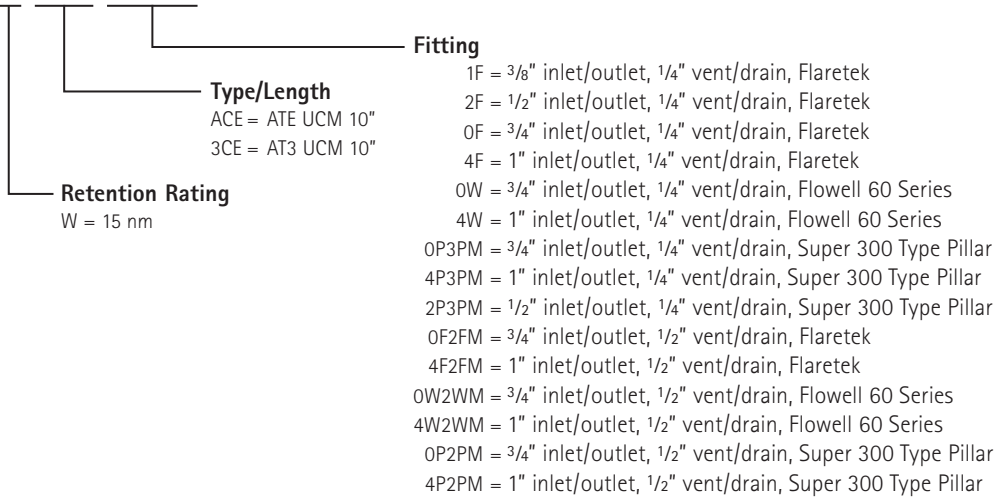


*Prewet options between 0.05 μm and 1.0 μm are available. Contact your local Entegris representative for your specific product requirements.

Fluorogard ATE/AT3 Chem-Line II UCM Disposable Filters

Part Number

WDFW



For More Information

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