

Guardian™ ECD UC Liquid Filters

Advanced, ultraclean, hydrophilic filtration for critical dilute cleaning applications

Guardian™ ECD Ultra Clean (UC) liquid filters enable advanced filtration for low-temperature acids and bases in wet etch and clean processes at sub 20 nm technology nodes. Utilizing both sieving and nonsieving capabilities at a 5 nm retention rating, the advanced membrane technology maintains consistently high flow rates and ultraclean performance for low metals, chlorides and particle cleanliness. The hydrophilic membrane prevents sudden flow loss caused by membrane dewetting and eliminates the need for prewetting.

Available in various configurations, the Guardian ECD UC filter family also includes small disposable formats (P1500 and P3000) providing yield-enabling filtration for point-of-use applications.



FEATURES & BENEFITS

<p>5 nm retention rating</p>	<p>Provides advanced filtration for low temperature, critical, dilute, aqueous and low-high pH cleaning applications at sub-2x nm technology nodes:</p> <ul style="list-style-type: none"> • Improves single-pass retention efficiency • Reduces on-wafer defects • Enables higher yield
<p>Advanced membrane technology</p>	<p>Sieving and nonsieving retention mechanisms</p> <p>Asymmetric membrane ensures tighter particle retention while maintaining high flow rates</p> <p>Hydrophilic membrane — no prewetting or flushing required:</p> <ul style="list-style-type: none"> • Increases process uptime • Prevents risk of chemical interactions • Minimizes risk of dewetting (and loss of flow)
<p>Ultraclean filtration</p>	<p>Low metals, low chlorides and improved particle cleanliness</p> <p>Innovative cleaning process enabling:</p> <ul style="list-style-type: none"> • Less contamination • Faster system flush up • Extended tool uptime • Higher yield
<p>Available in different formats</p>	<p>M-pleat membrane area enables increased flow rates for critical applications</p> <p>Cartridges support various filter sizes</p> <p>Disposables require minimal handling which reduces the risk of contamination and chemical exposure</p> <p>Small disposables (P1500 and P3000) provide yield-enabling filtration for point-of-use applications</p>

APPLICATIONS

- Weak, acid-based process chemicals such as BOE and DHF
- Weak, basic process chemicals such as NH_4OH and TMAH
- DI water
- Bulk and point of use
- Low-temperature processes (<70°C)

SPECIFICATIONS

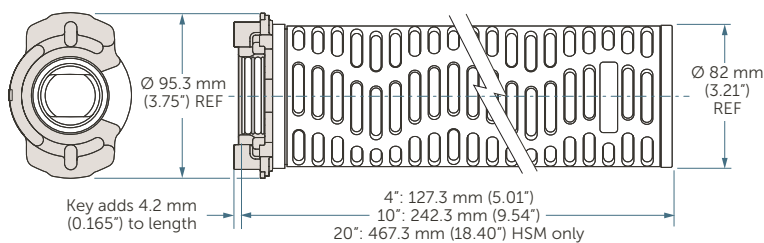
HSM Type

Materials	Membrane	Hydrophilic polysulfone (PS)
	Supports, sleeve, core, end caps	Nonwoven high-density polyethylene (HDPE)
	Code 0 double 2-222 o-rings	Encapsulated fluoropolymer (E-FKM) or Kalrez® 6375
	Chem-Line™ II disposable outer shell	Polypropylene and PFA
	Chem-Line I disposable outer shell	PFA
	P1500 and P3000 disposable outer shell	PFA
Retention rating	5 nm	
Membrane surface area	4":	0.6 m ² (6.46 ft ²)
	10":	1.2 m ² (12.92 ft ²)
	20":	2.4 m ² (25.83 ft ²)
	P1500:	0.13 m ² (1.40 ft ²)
	P3000:	0.3 m ² (3.23 ft ²)
Maximum operating conditions	Maximum forward differential pressure: 0.34 MPa (3.4 bar; 50 psid) @ 25°C (77°F)	
	Maximum reverse pressure: 0.21 MPa (2.1 bar; 30 psi) @ 25°C (77°F)	
	Maximum operating temperature: 70°C (158°F) @ 23 psi	

Guardian ECD UC Cartridge Filters

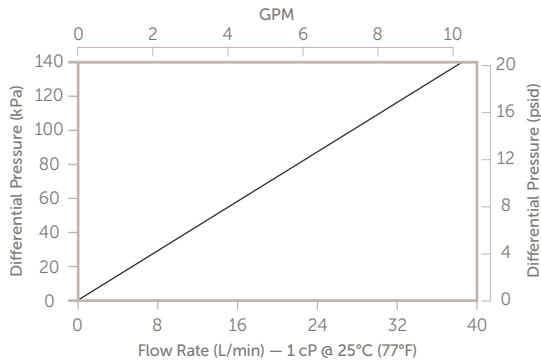
DIMENSIONS

Guardian ECD UC HSM Cartridge Filters

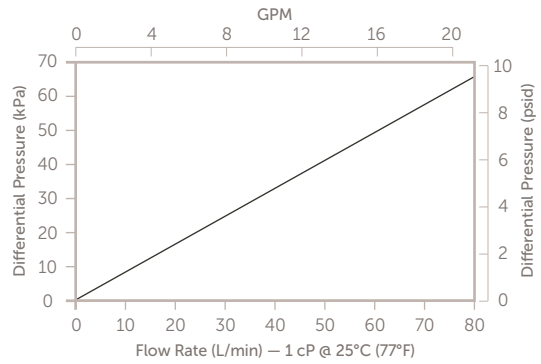


PERFORMANCE DATA

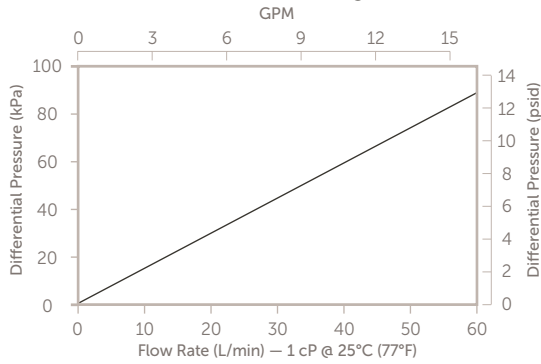
Guardian ECD UC 5 nm 4" Cartridges



Guardian ECD UC 5 nm 20" Cartridges



Guardian ECD UC 5 nm 10" Cartridges

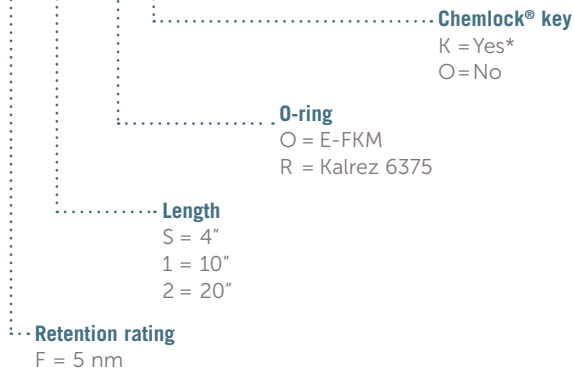


ORDERING INFORMATION

This information serves as a guide. Please contact your local representative to confirm part numbers.

Guardian ECD UC HSM Cartridge Filters: part number

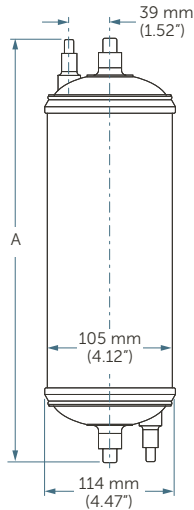
ECCFM CO D



Guardian ECD UC Chem-Line Disposable Filters

DIMENSIONS

Chem-Line II (PP) Disposable Filters



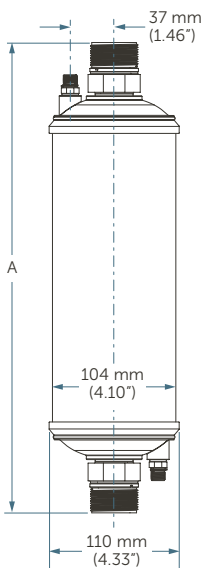
DIMENSION A

Inlet/outlet size	4" disposable filter with Flaretek® fittings	10" disposable filter with Flaretek fittings
3/8"	237 mm (9.32")	350 mm (13.77")
1/2"	247 mm (9.72")	360 mm (14.17")
3/4"	247 mm (9.72")	360 mm (14.17")
1"	257 mm (10.12")	370 mm (14.57")

Vent/drain all versions: 1/4"

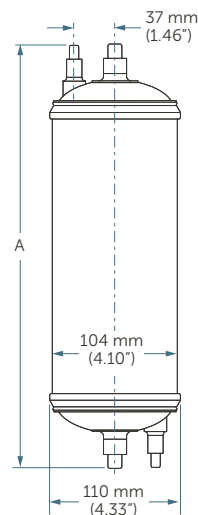
Chem-Line II (PFA) Disposable Filters

Super 300 Type Pillar® Fittings



Chem-Line II (PFA) Disposable Filters

Flaretek Fittings



DIMENSION A

Inlet/outlet size	10" filter
1/2"	355 mm (13.96")
3/4"	364 mm (14.31")
1"	397 mm (16.62")

Vent/drain all versions: 1/4"

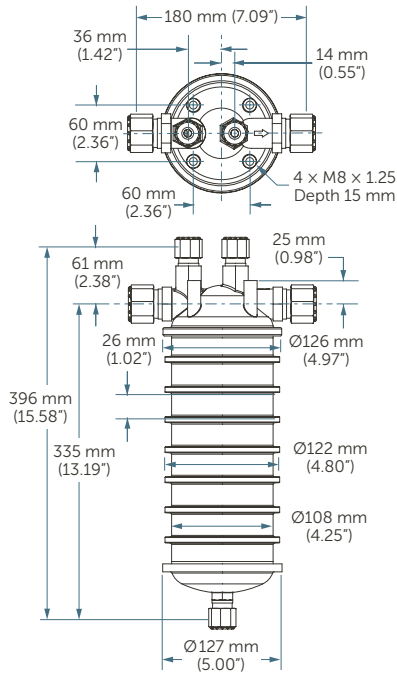
DIMENSION A

Inlet/outlet size	10" filter
1/2"	370 mm (14.58")
3/4"	373 mm (14.68")
1"	382 mm (15.02")

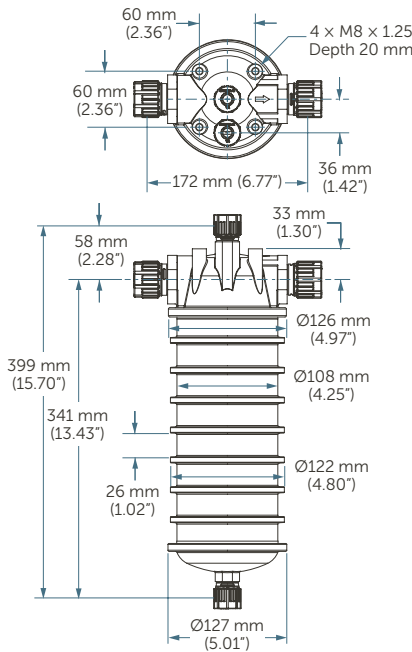
Vent/drain all versions: 1/4"

Chem-Line I (PFA) Disposable Filters

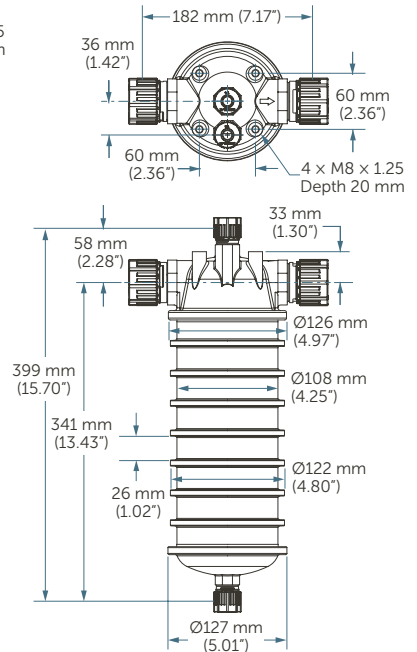
T02H: T-line 3/4" Super Type Pillar Fittings



902S: T-line 3/4" Super 300 Type Pillar Fittings

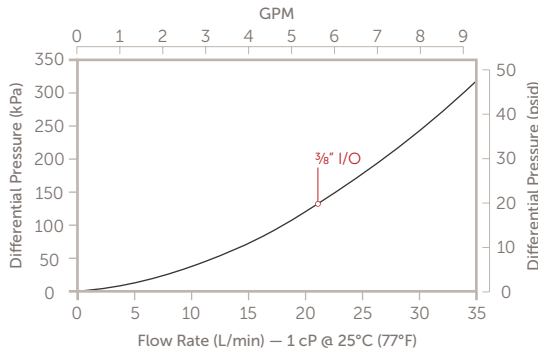


942S: T-line 1" Super 300 Type Pillar Fittings

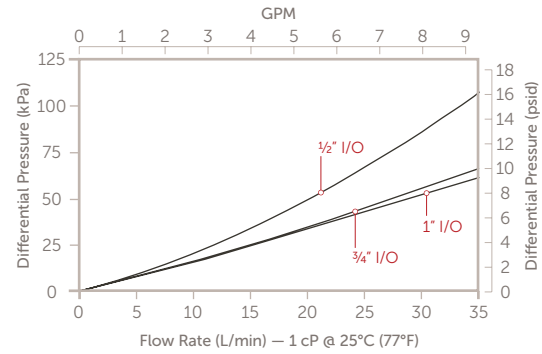


PERFORMANCE DATA

Guardian ECD 5 nm 10" Disposable Filter



Guardian ECD 5 nm 10" Disposable Filters

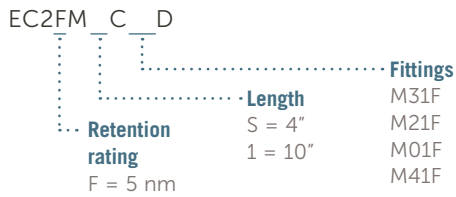


ORDERING INFORMATION

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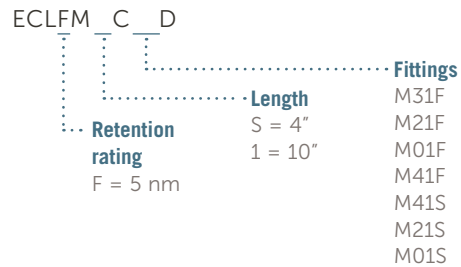
Guardian ECD UC Chem-Line II (PP)

Disposable Filters: part number



Guardian ECD UC Chem-Line II (PFA)

Disposable Filters: part number

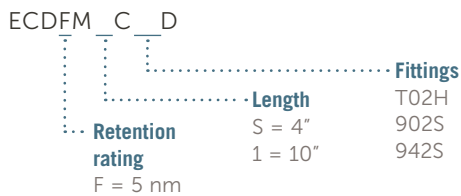


Fitting key:

Key	Configuration	Inlet/outlet	Vent/drain	Fitting
M01F	In-line	3/4"	1/4"	Flaretek
M21F	In-line	1/2"	1/4"	Flaretek
M31F	In-line	3/8"	1/4"	Flaretek
M41F	In-line	1"	1/4"	Flaretek
M01S	In-line	3/4"	1/4"	Super 300 Type Pillar
M21S	In-line	1/2"	1/4"	Super 300 Type Pillar
M41S	In-line	1"	1/4"	Super 300 Type Pillar

Guardian ECD UC Chem-Line I (PFA)

Disposable Filters: part number



Fitting key:

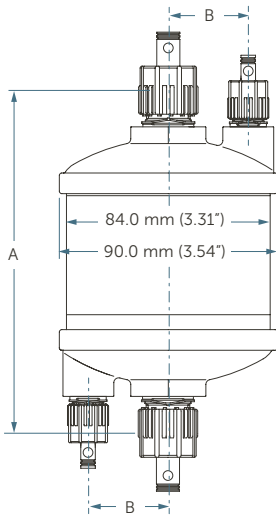
Key	Configuration	Inlet/outlet	Vent/drain	Fitting
T02H	T-Line	3/4"	1/2"	Super Type Pillar
902S	T-Line	3/4"	1/2"	Super 300 Type Pillar
942S	T-Line	1"	1/2"	Super 300 Type Pillar

Guardian ECD UC Small Disposable Filters

DIMENSIONS

These drawings represent the small disposable filters (P1500 and P3000). Refer to the accompanying tables for specific dimensional information.

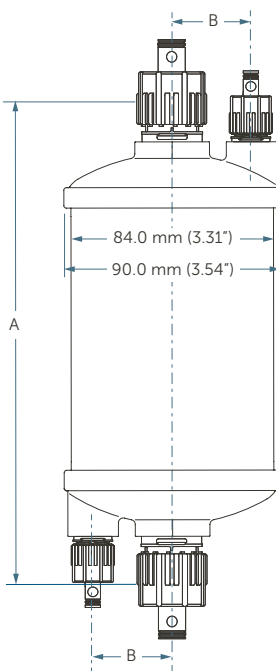
Guardian ECD UC P1500
Small Disposable Filters



NOMINAL DIMENSIONS – SMALL DISPOSABLES P1500

Fitting type	A	B
8 mm Super Type Pillar	140 mm (5.50")	32 mm (1.26")
8 mm Super 300 Type Pillar	135 mm (5.32")	31 mm (1.22")
3/8" Super 300 Type Pillar	141 mm (5.55")	31 mm (1.22")
3/8" Flaretek compatible	165 mm (6.50")	32 mm (1.26")

Guardian ECD UC P3000
Small Disposable Filters

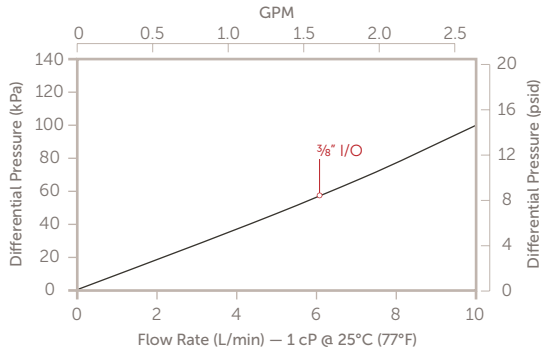


NOMINAL DIMENSIONS – SMALL DISPOSABLES P3000

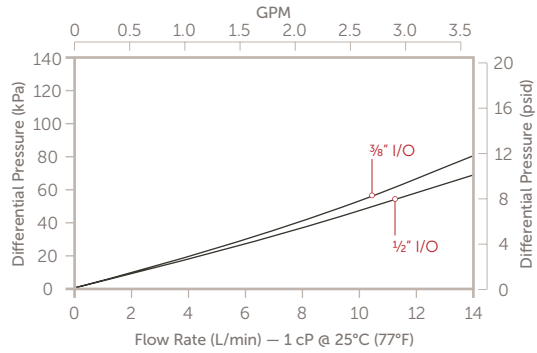
Fitting type	A	B
8 mm Super Type Pillar	194 mm (7.64")	32 mm (1.26")
1/2" Super Type Pillar	204 mm (8.03")	32 mm (1.26")
8 mm Super 300 Type Pillar	189 mm (7.44")	31 mm (1.22")
3/8" Super 300 Type Pillar	194 mm (7.64")	31 mm (1.22")
1/2" Super 300 Type Pillar	199 mm (7.84")	31 mm (1.22")
3/8" Flaretek compatible	220 mm (8.66")	32 mm (1.26")

PERFORMANCE DATA

Guardian ECD UC 5 nm P1500 Disposable Filter



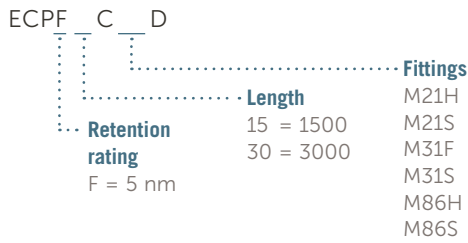
Guardian ECD UC 5 nm P3000 Disposable Filter



ORDERING INFORMATION

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Guardian ECD UC Small Disposable Filters: part number



Fitting key:

Key	Inlet/outlet	Vent/drain	Fitting
M21H	1/2"	1/4"	Super Type Pillar
M21S	1/2"	1/4"	Super 300 Type Pillar
M31F	3/8"	1/4"	Flaretek
M31S	3/8"	1/4"	Super 300 Type Pillar
M86H	8 mm	6 mm	Super Type Pillar
M86S	8 mm	6 mm	Super 300 Type Pillar

FOR MORE INFORMATION

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