

Protego[®] Plus DI Water Purifiers

All-in-one purifier/filter devices that deliver ultimate protection from metal ion contamination in critical DI water cleaning applications at low and high temperatures

Protego[®] Plus DI water, advanced clean purifier/filter devices enable superior flow rate performance and contaminant retention capabilities in critical cleaning DI water applications. The ultraclean product design promotes fast startups and high yields at both low (LT series) and high (HT series) temperature ranges.

Protego Plus DI water devices enable superior removal rates of multiple metallic cation contamination in single-pass or recirculation DI water applications. The high-ion exchange capability delivers proven particles performance and low metals extractables with fewer particles on wafer, and the metal ion removal technology minimizes system downtime.

APPLICATIONS

- Cartridges
 - Bulk
 - Point-of-tool purification
- Disposables
 - Point-of-use
 - Lab-scale



FEATURES & BENEFITS

Ultraclean purifier/filter design

Enables superior flow rate performance and contaminant retention capabilities in critical cleaning DI water applications

Promotes fast startups and high yields at low (LT series) and high (HT series) temperatures

High-ion exchange capability

Proven particles performance and low metals extractables with fewer particles on wafer

Metal ion removal technology minimizing system downtime

Superior removal rates of multiple metallic cation contamination in single-pass or recirculation DI water applications

SPECIFICATIONS

		LT SERIES (LOW TEMPERATURE)		HT SERIES (HIGH TEMPERATURE)	
Materials	Membrane	20 nm	Hydrophilic polysulfone	7 nm	Hydrophilic polysulfone
		0.1, 0.05 µm	Hydrophilic ultra-high molecular weight polyethylene		
	Ion exchange media	Polyethylene		Polyethylene	
	Supports, core/sleeve	High-density polyethylene		Polypropylene	
	Shell*	Polypropylene		—	
	O-rings**	Fluoropolymer encapsulated fluoroelastomer (E-FKM) E-EPT Kalrez® 6375UP		Fluoropolymer encapsulated fluoroelastomer (E-FKM) Kalrez 6375UP	
	Chemlock® key**	PFA		Polypropylene	
Connections	Cartridges	Code 0 (2-222 o-rings)		Code 0 (2-222 o-rings) Code 7 (2-226 o-rings/spear) for 30" HT	
	Disposables	LT (short type) — Super Type Pillar® and Compression seal fittings LTL (long type) — Super Type Pillar and Flaretek® fittings		—	
Operating conditions	Maximum inlet 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)	
	Maximum forward differential pressure	0.27 MPa (2.7 bar, 40 psid) @ 25°C (77°F)		0.27 MPa (2.7 bar, 40 psid) @ 25°C (77°F)	
		0.05 MPa (0.5 bar, 7 psid) @ 60°C (140°F)		0.05 MPa (0.5 bar, 7 psid) @ 80°C (176°F)	
	Maximum reverse pressure	0.27 MPa (2.7 bar, 40 psi) @ 25°C (77°F)		0.27 MPa (2.7 bar, 40 psi) @ 25°C (77°F)	
Maximum operating temperature	60°C (140°F) at the above conditions		80°C (176°F) at the above conditions		
Membrane surface area	10" cartridge	LT	0.54 m ² (5.81 ft ²)	HT	0.52 m ² (5.60 ft ²)
		LTX	0.68 m ² (7.32 ft ²)	HTX	0.93 m ² (10.01 ft ²)
	20" cartridge	LT	1.08 m ² (11.63 ft ²)	HT	1.04 m ² (11.19 ft ²)
		LTX	1.38 m ² (14.85 ft ²)	HTX	1.67 m ² (17.98 ft ²)
	30" cartridge	—	—	HT	1.56 m ² (16.79 ft ²)
	Short disposable	LT	0.12 m ² (1.29 ft ²)	—	
Long disposable	LTL	0.22 m ² (2.37 ft ²)	—		
Ion exchange capacity	10" cartridge	LT	≥82 meq/unit	HT	≥74 meq/unit
		LTX	≥105 meq/unit	HTX	≥110 meq/unit
	20" cartridge	LT	≥164 meq/unit	HT	≥148 meq/unit
		LTX	≥210 meq/unit	HTX	≥220 meq/unit
	30" cartridge	LT	≥246 meq/unit	HT	≥222 meq/unit
	Short disposable	LT	≥16 meq/unit	—	
Long disposable	LTL	≥30 meq/unit	—		

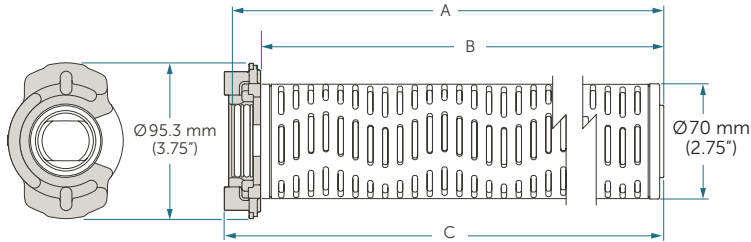
*Disposable filters only **Cartridge filters only
Please refer to Ordering Information for configuration details.

Protego Plus DI Water LT (Low-Temperature) Series Filters

DIMENSIONS

LT 10" and 20" Cartridges

Code 0 – with Chemlock Key

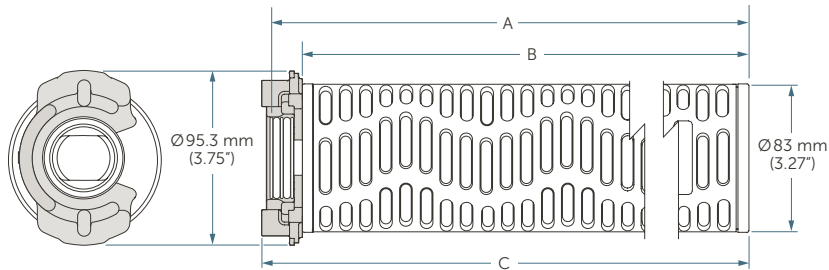


DIMENSIONS

	A	B	C
10" cartridge	262 mm (10.31")	245 mm (9.65")	264.6 mm (10.42")
20" cartridge	506 mm (19.92")	489 mm (19.25")	508.6 mm (20.02")

LTX 10" and 20" Cartridges

Code 0 – with Chemlock Key

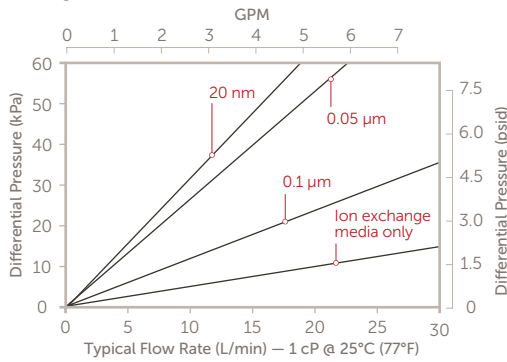


DIMENSIONS

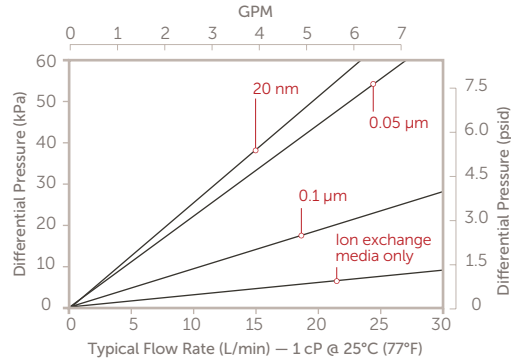
	A	B	C
10" cartridge	242 mm (9.53")	225 mm (8.86")	244.6 mm (9.63")
20" cartridge	471 mm (18.54")	454 mm (17.87")	473.6 mm (18.65")

PERFORMANCE DATA

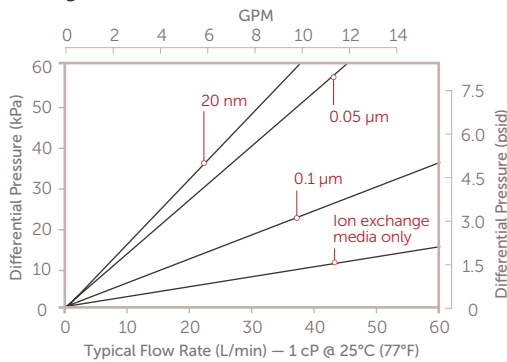
Protego Plus LT 10" Filters



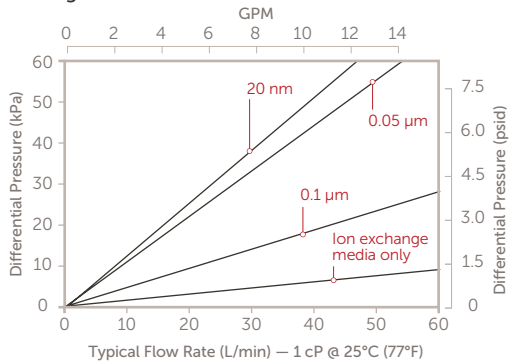
Protego Plus LTX 10" Filters



Protego Plus LT 20" Filters



Protego Plus LTX 20" Filters



ORDERING INFORMATION

Protego Plus LT/LTX Cartridge Filters: part number

PRL 0 P

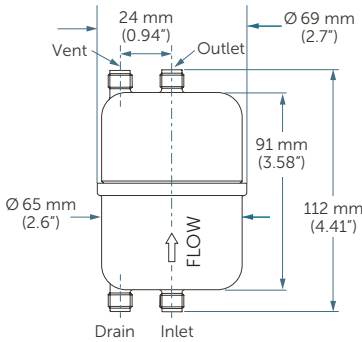
- **Chemlock key**
K = Optional Chemlock PFA key
Blank = Without Chemlock key
- **Type**
LQ = LT with EKFM o-ring
Q1 = LTX with EKFM o-ring
LR = LT with Kalrez 6375UP o-ring
R1 = LTX with Kalrez 6375UP o-ring
- **Length**
1 = 10"
2 = 20"
- **Retention rating/type**
X = 20 nm
Z = 0.05 µm
V = 0.1 µm
0 = Ion exchange media only

Protego Plus LT/LTL Disposable Filters

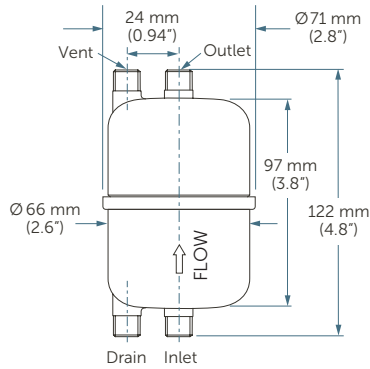
DIMENSIONS

LT Disposable (Short Type)

In/out 1/4", Vent/Drain 1/4" Compression Seal Fitting

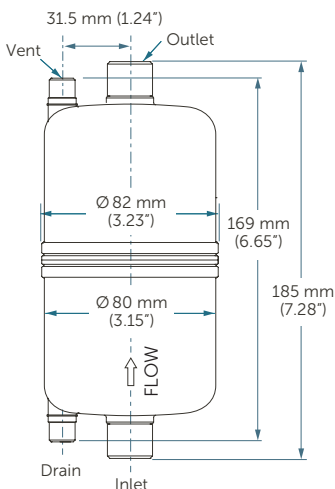


In/out 1/4", Vent/Drain 1/4" Super Type Pillar Fitting

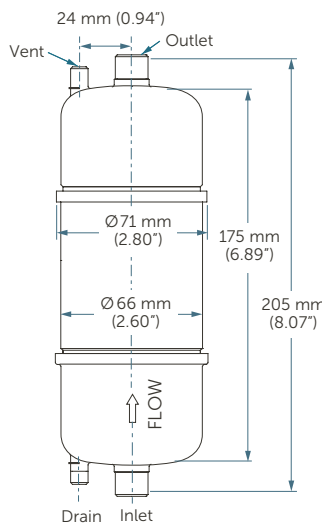


LTL Disposable (Long Type)

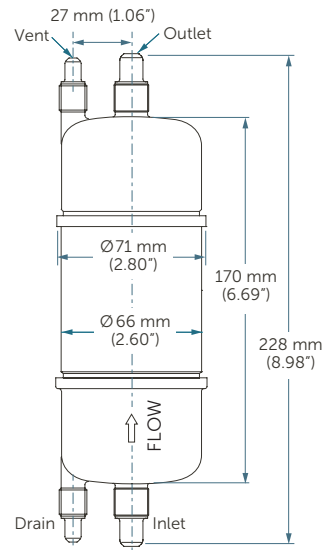
In/out 1/2", Vent/Drain 1/4" Super Type Pillar Fitting



In/out 8 mm, Vent/Drain 4 mm Super Type Pillar Fitting

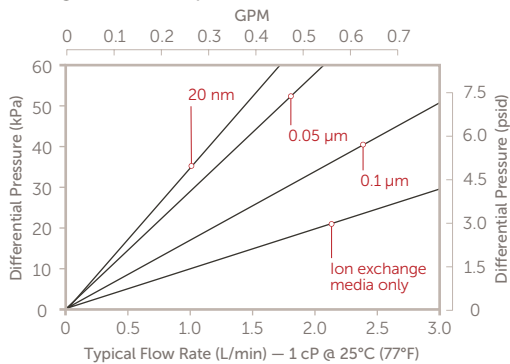


In/out 3/8", Vent/Drain 1/4" Flaretek Fitting

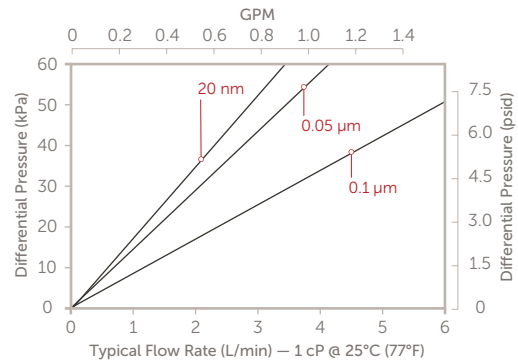


PERFORMANCE DATA

Protego Plus LT Disposable



Protego Plus LTL Disposable



ORDERING INFORMATION

Protego Plus LT Short Disposable Filters: part number

PRL 0 1
 Quantity
 1 = 1/pk
 Fitting
 S1S = PE shell; ¼" compression seal fittings
 SOP = PP shell; ¼" Super Type Pillar fittings
 SOS = PP shell; ¼" compression seal fittings
 Retention rating/type
 X = 20 nm
 Z = 0.05 µm
 V = 0.1 µm
 0 = Ion exchange media only*

*Compression seal fitting type only

**0.1 and 0.05 µm only

***20 nm only

Protego Plus LTL Long Disposable Filters: part number

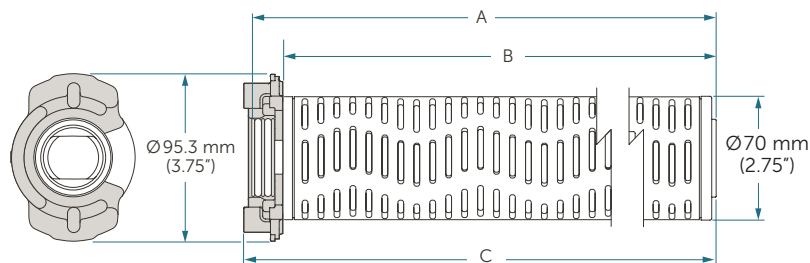
PRL 1
 Quantity
 1 = 1/pk
 Fitting
 2LOP = PP shell; ½" Super Type Pillar fittings**
 3LOF = PP shell; ⅜" Flaretek fittings***
 8LOP = PP shell; 8 mm Super Type Pillar fittings***
 Retention rating/type
 X = 20 nm
 Z = 0.05 µm
 V = 0.1 µm

Protego Plus DI Water HT (High-Temperature) Series Filters

DIMENSIONS

HT 10" and 20" Cartridges

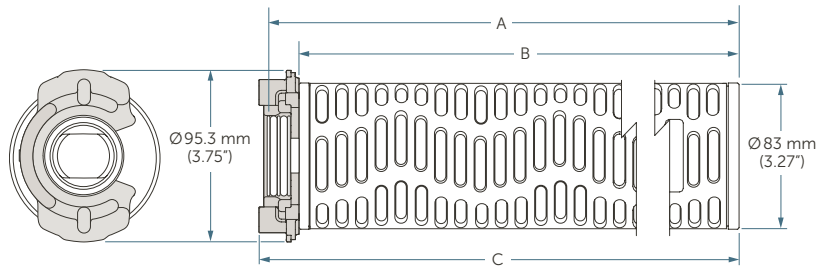
Code 0 – with Chemlock Key



	DIMENSIONS		
	A	B	C
10" cartridge	262 mm (10.31")	245 mm (9.65")	264.6 mm (10.42")
20" cartridge	506 mm (19.92")	489 mm (19.25")	508.6 mm (20.02")

HTX 10" and 20" Cartridges

Code 0 – with Chemlock Key

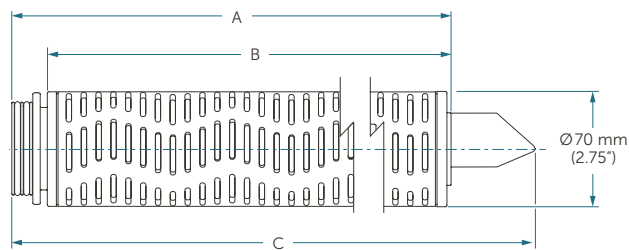


DIMENSIONS

	A	B	C
10" cartridge	242 mm (9.53")	225 mm (8.86")	244.6 mm (9.63")
20" cartridge	471 mm (18.54")	454 mm (17.87")	473.6 mm (18.65")

HT 30" Cartridge

Code 7

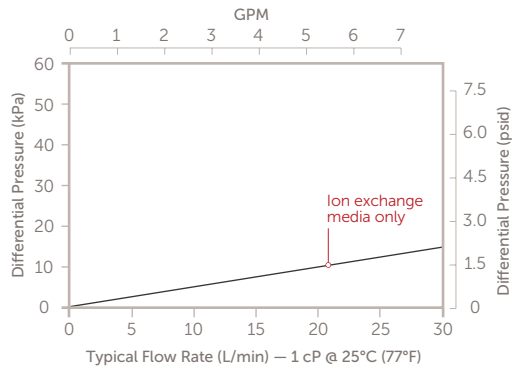


DIMENSIONS

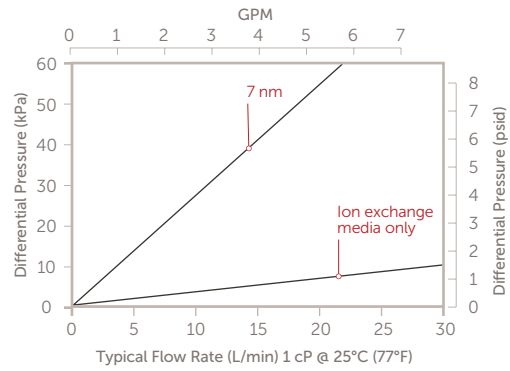
	A	B	C
30" cartridge	752.6 mm (29.63")	731 mm (28.78")	804 mm (31.65")

PERFORMANCE DATA

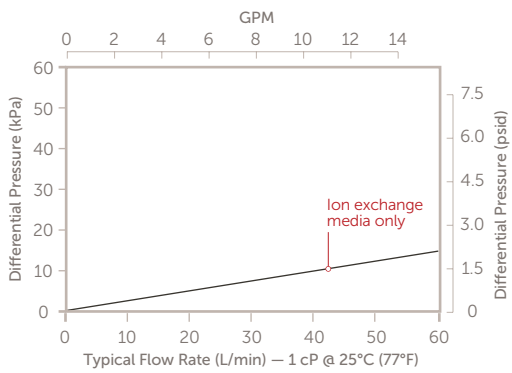
Protego Plus HT 10" Filters



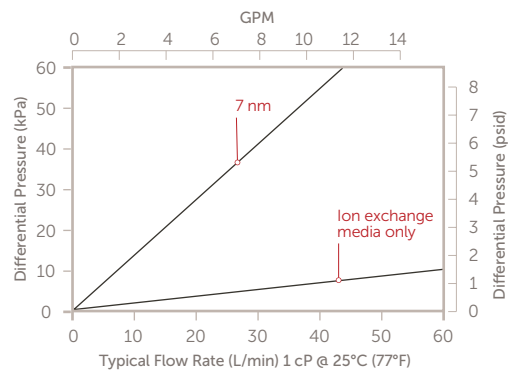
Protego Plus HTX 10" Filters



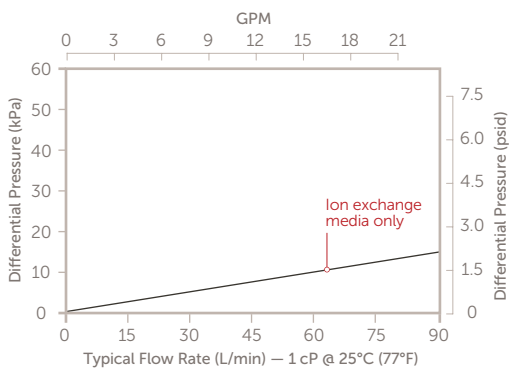
Protego Plus HT 20" Filters



Protego Plus HTX 20" Filters

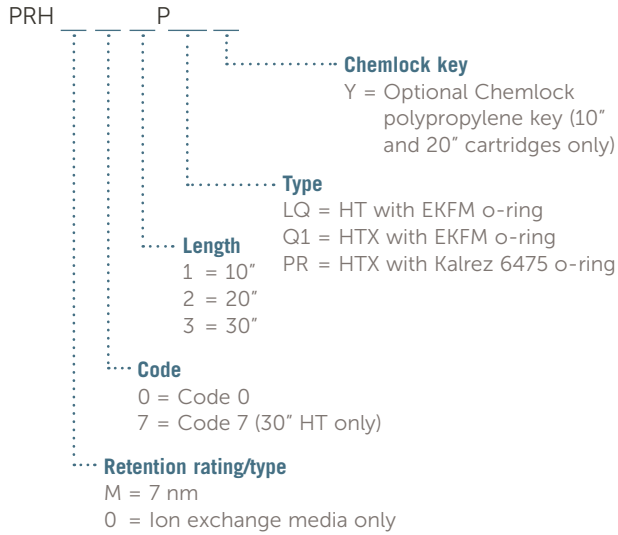


Protego Plus HT 30" Filters



ORDERING INFORMATION

Protego Plus HT/HTX Cartridge Filters: part number



FOR MORE INFORMATION

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