



PROTEGO® PLUS IPA PURIFIERS

Advanced purifying filters providing superior metals and particle removal for critical clean IPA applications at the most demanding technology nodes

Overview

Protego® Plus IPA purifiers provide superior metals and particle removal in the most demanding technology nodes. Integrated device manufacturers (IDMs) require the lowest parts-per-trillion (ppt) levels of metal ion and particle contamination in critical clean applications. Such processes call for the greatest degree of cleanliness, significantly fewer on-wafer defect counts and increased yields for sub-28 nm device manufacturing. Protego Plus IPA purifiers extend the strong technology performance of the Protego Plus DIW product line by delivering superior performance, the cleanest materials of construction and high ion-exchange (IEX) capacity for isopropyl alcohol (IPA) cleaning applications.

Superior Performance

Engineered for the highest possible metals removal capacity, Protego Plus IPA purifiers are also innovative in achieving maximum cleanliness and with tight retention. In critical clean applications at the most advanced technology nodes, Protego Plus IPA purifiers reliably remove metals and particles in IPA at the device level in point-of-use, single wafer spray processes. Despite increasingly stringent device specifications, Protego Plus IPA purifiers meet the demands of rigorous production environments. Unlike existing IPA filters in the marketplace, Protego Plus IPA purifiers cause far less particle shedding with low non-volatile residue (NVR) while also reducing metals in an all-in-one purifying filter.

Cleanest Device for Advanced IPA Processes

To meet the strict cleanliness requirements for advanced technology nodes, Protego Plus IPA purifiers are manufactured entirely from the cleanest PFA materials of construction and 15 nm PTFE membrane, resulting in the cleanest device possible. These materials have high thermal stability with operating temperatures to 70°C, coupled with an advanced cleaning process that leads to extremely low NVR and particle shedding.



High IEX Capacity and Tight PTFE Retention

With a high IEX capacity and 15 nm PTFE membrane, Protego Plus IPA purifiers efficiently capture trace metal ions in IPA while reducing particles to very low levels required for higher yields. These distinguishing features generate fewer filter changeouts and less on-wafer defects. As a result, system downtime is noticeably reduced, and the filter lifetime is significantly increased.

Features and Benefits

Features	Benefits
Superior performance	<p>Protego Plus IPA purifiers are innovative in achieving maximum cleanliness and retention:</p> <ul style="list-style-type: none"> • Engineered for the highest possible metals removal capacity • In critical clean applications at the most advanced technology nodes, reliably removes metals and particles in IPA at the device level in point-of-use, single wafer spray processes • Despite increasingly stringent device specifications, meets the demands of rigorous production environments • Unlike existing IPA filters in the marketplace, causes far less particle shedding with low NVR, while also reducing metals in an all-in-one purifying filter
Cleanest device for advanced IPA processes	<p>Protego Plus IPA purifiers are manufactured entirely from the cleanest available PFA materials of construction and PTFE membranes:</p> <ul style="list-style-type: none"> • Meets strict cleanliness requirements for advanced technology nodes • Removes metallic contamination prior to the wafer surface • Reduces particles and defect counts • Increases production yields • Disposables require minimal handling which reduces the risk of contamination and chemical exposure
High ion-exchange (IEX) capacity	<p>Combining high IEX with clean PTFE membranes, Protego Plus IPA purifiers efficiently capture traces of metal ions in IPA while reducing particles:</p> <ul style="list-style-type: none"> • Generates fewer filter changeouts and less on-wafer defects • Reduces system downtime • Increases filter lifetime

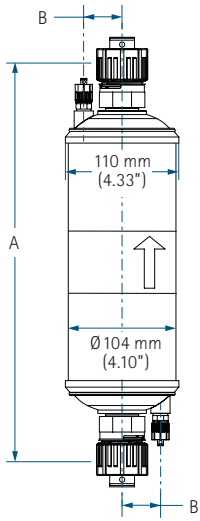
Specifications

	Chem-Line II ATE 10" Disposable	P3000 Disposable	P1500 Disposable
Materials:	Membrane	PTFE	
	Supports, shell	PFA	
Purification capable:		Metal removal	
Purification capacity:	4.30 meq	1.18 meq	0.48 meq
Retention rating:		15 nm	
NVR extractables:	≤1.1 mg/device (80°C IPA)	≤0.4 mg/device (80°C IPA)	<0.2 mg/device (25°C IPA)
		<0.2 mg/device (25°C IPA)	
Metals extractables:		<3 µg/device	
Filtration area:	1.77 m ² (19.05 ft ²)	0.49 m ² (5.27 ft ²)	0.20 m ² (2.15 ft ²)
Flow resistance with 2 L/min IPA @ 1.96 cP (25°C):	11.5 kPa	39 kPa	99 kPa
Flow resistance with 2 L/min IPA @ 0.97 cP (approximately 50°C):	9.2 kPa	19 kPa	49 kPa
Operating conditions:	Temperature rating	70°C (158°F)	
	Maximum operating pressure	0.58 MPa @ 25°C (77°F)	0.44 MPa @ 25°C (77°F)
	Maximum forward differential pressure	0.44 MPa @ 25°C (77°F)	0.39 MPa @ 25°C (77°F)
	Maximum reverse pressure	0.34 MPa @ 25°C (77°F)	0.26 MPa @ 25°C (77°F)

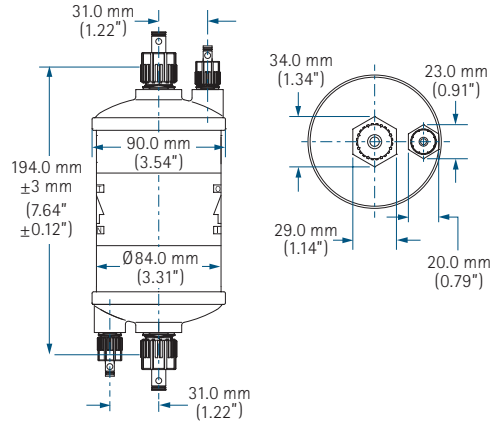
* Please contact Regional Product Sales for more information.

Dimensions

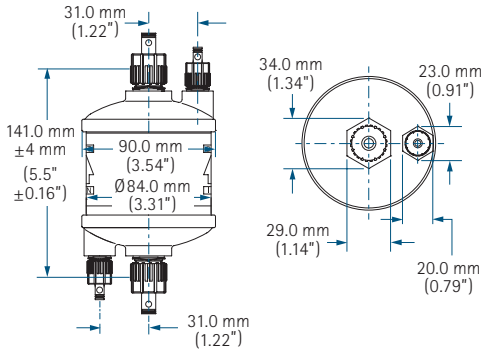
**Protego IPA Chem-Line™ II
15 nm Super 300 Type Pillar®**



**Protego IPA 3000 UCM 15 nm
3/8" Super 300 Type Pillar**



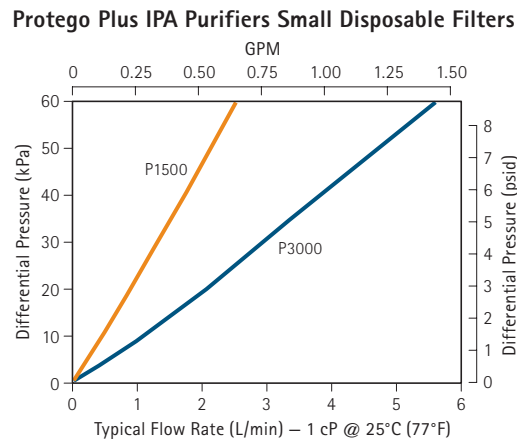
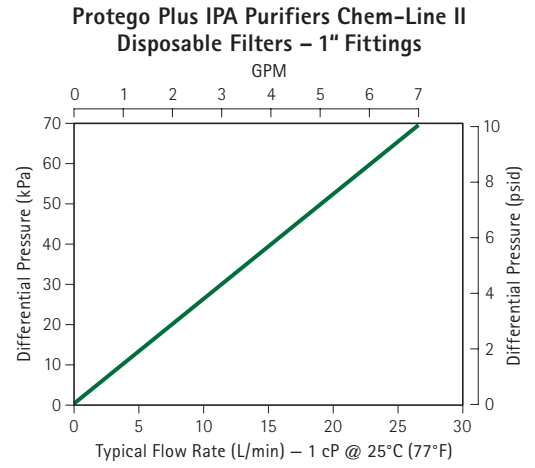
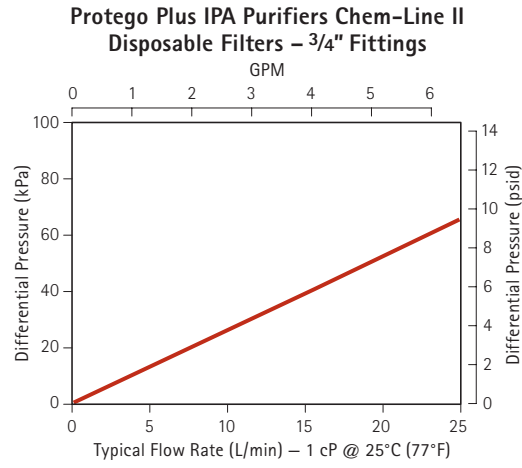
**Protego IPA 1500 UCM 15 nm
3/8" Super 300 Type Pillar**



Nominal Dimensions for Chem-Line II

Fittings		Super 300 Type Pillar Fittings		Flaretek® Fittings	
Inlet/Outlet	Vent/Drain	B	A	B	A
3/4"	1/4"	37 mm (1.46")	350 mm (13.76")	—	—
3/4"	1/2"	—	—	41 mm (1.63")	363 mm (14.30")
1"	1/4"	37 mm (1.46")	383 mm (15.07")	—	—
1"	1/2"	41 mm (1.63")	380 mm (14.97")	—	—

Performance Data

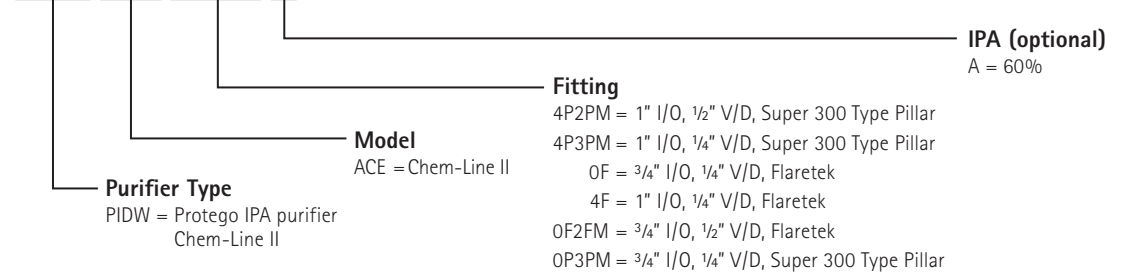


Ordering Information

Protego Plus IPA Purifiers 10" Disposable Filters

Part Number

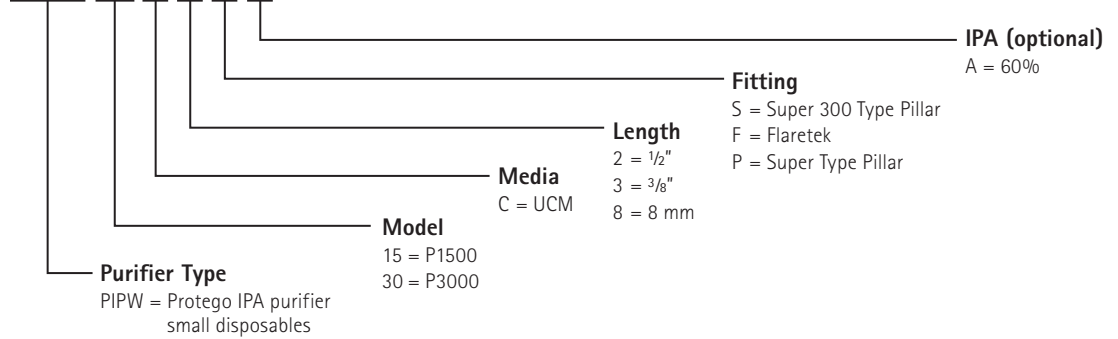
P I D W A C E



Protego Plus IPA Purifiers Small Disposable Filters

Part Number

P I P W C



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