



**GUARDIAN™ ECD
CARTRIDGE FILTERS**

*Hydrophilic, high-flow polysulfone membrane
with excellent particle removal for wet etch &
clean and copper plating applications*



hydrophilic, high-flow membrane with excellent particle removal

Overview

The ideal solution for Etch-Clean and Deposition

The Guardian™ ECD filter cartridge is a dual-purpose filter that uses a hydrophilic, high-flow polysulfone membrane and is constructed of high-density polyethylene materials, which further ensure its inert properties. Recommended for dilute and low temperature acids and bases used in WEC processes, the Guardian is also highly effective in copper plating applications. The filter's proprietary noninteractive polysulfone membrane ensures that plating chemistry is not affected, enabling the highest purity and consistency in Cu- and Ni- plating processes.

30 nm Retention Rating – With High-flow Retention Filtration

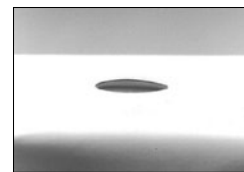
Guardian ECD uses a membrane design featuring asymmetric pores optimized in conjunction with the flow properties of the cartridge to provide the highest possible particle retention properties at the lowest pressure drop. This design ensures high bath turnover to deliver rapid particle removal which will minimize process start-up time. Because the cartridge contains a high-filter area, Guardian ECD has a longer service life while maintaining optimal bath filtration properties.

Defect Minimizing Design

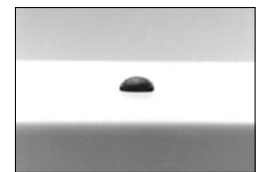
Particles represent only one source of defects in wafer processing. Microbubble generation can also negatively impact the bath, causing streaks and other types of defects. The Guardian ECD filter's highly hydrophilic surfaces reduce the potential for microbubble formation, thereby minimizing the potential for bubbles at start-up and throughout the wafer processing.

Lowest Cost of Ownership

Guardian ECD cartridges are compatible with most housings, are quick to install, and do not require any prewetting procedures to deliver quick start-ups. Replacement frequency is minimized by a large filter surface area and optimized flow design.



Aqueous chemistries wet hydrophilic PES/PSF membrane



Hydrophobic UPE/PTFE membranes resist instantaneous wetting in aqueous chemistries

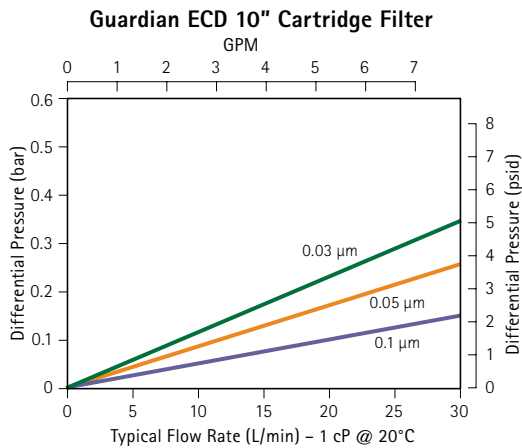
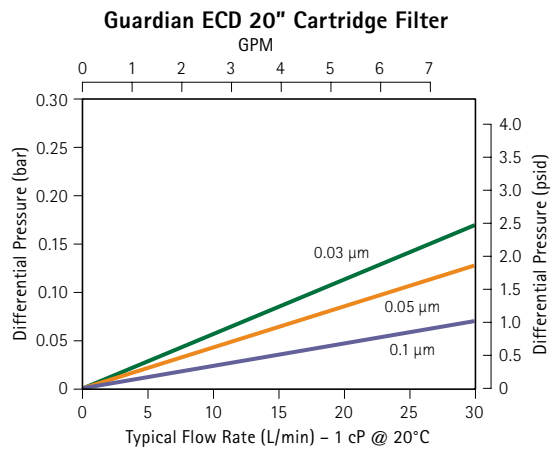
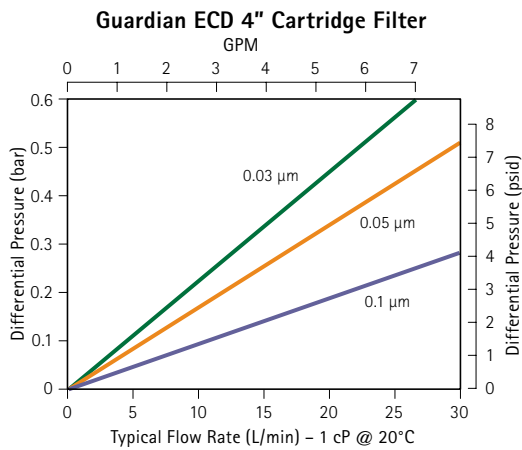
Features	Advantages	Benefits
30 nm retention rating with high-flow hydrophilic membrane technology	High-bath turnover rate and rapid particle removal Excellent retention of small particles and gels Reduction in microbubble-related defects	Increased yields
Hydrophilic membrane	No prewetting or flushing is required	Reduced tool downtime
Inert to typical plating chemistry additives	Stable additives concentration	Enhanced metal plating process consistency

Specifications

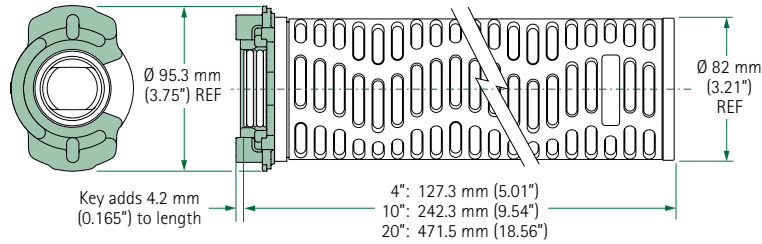
Materials:	Membrane	Hydrophilic polyethersulfone (PES) or polysulfone (PSF)
	Supports, core and sleeve	High-density polyethylene (HDPE)
	Code 0 double 2-222 o-rings	Teflon® encapsulated Viton (TEV) or Kalrez® 4079
Membrane area:	PEX 0.1 and 0.05 µm	1.0 m ² (10.8 ft ²)
	PEM 0.03 µm	1.2 m ² (13.3 ft ²)
Operating conditions:	Maximum forward/reverse differential pressure	0.34 MPa (3.4 bar; 49 psid) @ 25°C (77°F)
	Maximum operating temperature	60°C (140°F)
Compatibility:	Electrochemical deposition processes, as well as various wet etch and clean (WEC) dilute low temperature chemicals*	

*Please consult with your Entegris applications specialist concerning your specific application.

Performance Data



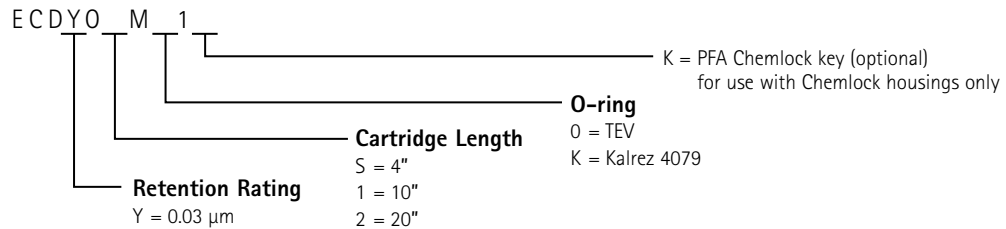
Dimensions



Ordering Information

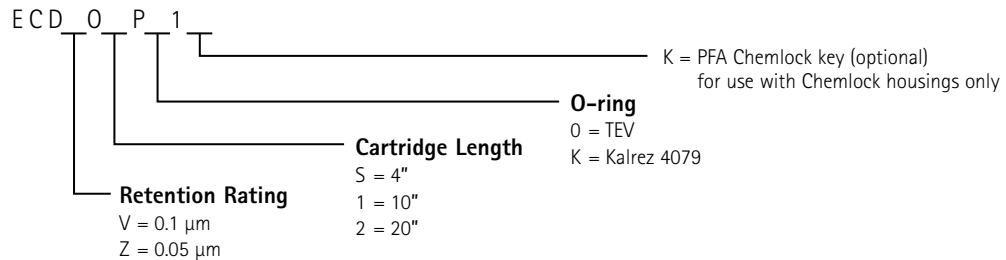
Guardian ECD PEX Cartridge Filters

Part Number



Guardian ECD PEM Cartridge Filters

Part Number



For More Information

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit www.entegris.com and select the Customer Service link for the center nearest you.

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