



## MICROGARD™ LIQUID FILTERS

*UPE and nylon liquid filters delivering superior cleanliness and high retention capabilities and eliminating potential sources of contamination in bulk chemical systems*

### Overview

Microgard™ filters deliver high-purity solutions for bulk chemicals and bulk chemical distribution systems, and eliminate potential sources of contamination by removing particles and gels at the start of the process. Manufactured in a world-class cleanroom environment, Microgard filters ensure better initial cleanliness, lower contaminant extractables than polypropylene (PP), and higher chemical compatibility in solvents than polysulfone (PS) or polyethersulfone (PES) membranes.

#### Choice of UPE or Nylon Membranes

Microgard filters are constructed of ultra-high molecular weight polyethylene (UPE) or nylon membranes, depending on the filter. The UPE membrane, utilized in Microgard Plus, Microgard Plus LE, Microgard UPE and Microgard UPX, promotes high-purity photochemical filtration with an excellent retention rating. With retention ratings as low as 3 nm, Microgard filters take advantage of some of the tightest membrane technologies available in the market. The asymmetric UPE membrane increases flow and reduces pressure drop, resulting in reduced defects and increased throughput.

The nylon membrane, utilized in Microgard LE Nylon, promotes maximum flow and provides high retention capabilities with its nonsieving retention capabilities. With retention ratings to 10 nm and at twice the thickness of standard nylon filters, Microgard LE Nylon returns twice the performance and ensures low defectivity in advance chemicals. The hydrophilic nylon membrane eliminates prewetting, resulting in reduced chemical usage and less system downtime during filter changeouts.

#### Optimized for a Variety of Chemical Applications

Microgard filters are optimized for filtration of a variety of chemical applications. Microgard Plus, Microgard Plus LE, Microgard PI, Microgard UPE and Microgard UPX filters are available in an all-polyethylene construction, while the Microgard LE Nylon filter is constructed of a nylon 6 membrane.



With either construction, these filters provide low surfactant binding, excellent wettability and superior downstream cleanliness and do not require prewetting, making them ideal for solvent-based chemicals.

Microgard PI filters have been optimized for filtration of polyimide and other high-viscosity chemicals. Additional downstream supports ensure ultimate durability in the most demanding applications.

The following table summarizes the Microgard filter attributes.

## Filter Attributes

Filter Type		Retention	Membrane	Construction	Applications
Microgard	Plus LE	3 nm 5 nm 10 nm	Hydrophobic UPE	Asymmetric	Solvent-based chemicals
	LE Nylon	10 nm 20 nm	Polyamide (nylon 6)	Asymmetric	Aqueous and solvent-based chemicals
	Plus	10 nm 20 nm 0.03 µm 0.05 µm 0.1 µm 0.2 µm	Hydrophobic UPE	Symmetric	Solvent-based chemicals
Microgard UPE/UPX		0.05 µm 0.1 µm 0.2 µm	Hydrophobic UPE	Symmetric	Solvent-based chemicals
Microgard PI		0.2 µm 0.5 µm 1.0 µm	Hydrophobic UPE	Symmetric	Polyimide and other high-viscosity chemicals

## Features and Benefits

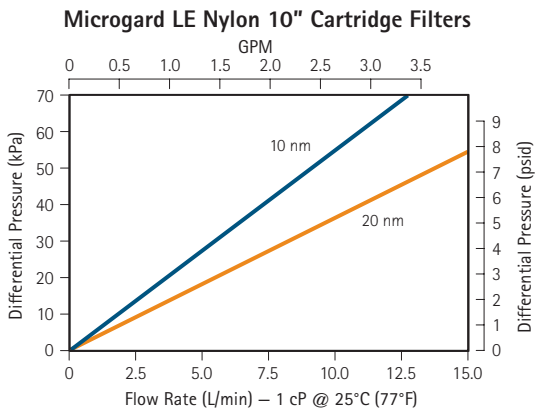
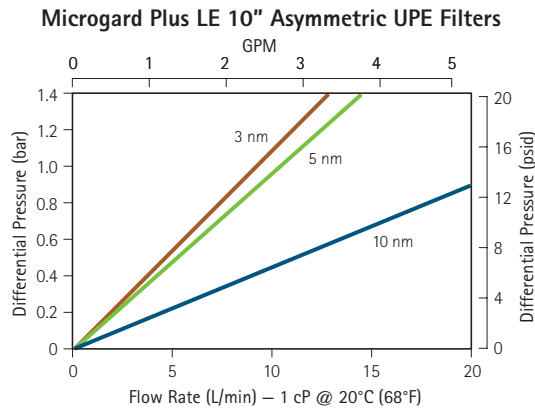
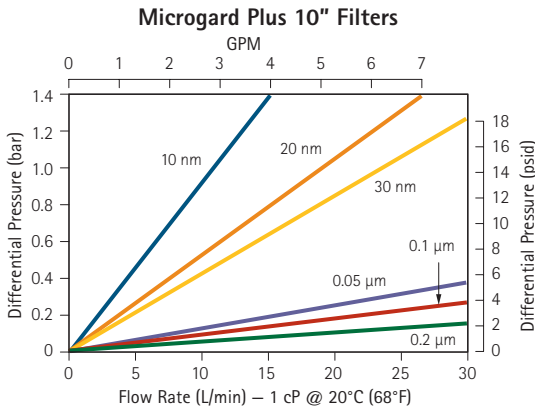
Features	Benefits	
	UPE Filtration	Nylon Filtration
Asymmetric and sub 10 nm membrane technology	The asymmetric membrane with retention ratings to 3 nm enables Microgard Plus and Plus LE to increase flow and reduce pressure drop, resulting in reduced defects and increased throughput.	The nylon 6 membrane with retention ratings to 10 nm and at twice the thickness of standard nylon filters enables Microgard LE Nylon to return twice the performance and ensure low defectivity in advance chemicals.
Lower cost of ownership	Microgard filters do not require prewetting with solvent-based photochemicals, resulting in lower operational costs and a more consistent, reliable process.	Microgard LE Nylon eliminates prewetting, resulting in reduced chemical usage while minimizing system downtime during filter changeouts.
Reduced particle contamination	The all-polyethylene UPE construction lowers metallic and ionic contamination that can leach from other materials.	The proprietary cleaning technology of the Microgard LE Nylon filter delivers the lowest levels of organic, metal extractables and particle shedding.
Optimized for a variety of chemical applications	The Microgard Plus, Microgard Plus LE, Microgard PI, Microgard UPE and Microgard UPX filters provide low surfactant binding, excellent wettability and superior downstream cleanliness and do not require prewetting, making them ideal for solvent-based chemicals.  Microgard PI has been optimized for filtration of polyimide and other high-viscosity chemicals.	Microgard LE Nylon offers superior wettability, making it ideal for aqueous and solvent-based chemicals.

# Microgard Plus, Plus LE and LE Nylon Filters

## Specifications

		Plus/Plus LE	LE Nylon	
Materials:	Membrane	Hydrophobic UPE	Polyamide (nylon 6)	
	Surface area	4" UPX	10 nm 9200 cm <sup>2</sup> (9.9 ft <sup>2</sup> ) Others 8000 cm <sup>2</sup> (8.6 ft <sup>2</sup> )	
		10"	10 nm 13,200 cm <sup>2</sup> (14.21 ft <sup>2</sup> ) 20 nm 12,000 cm <sup>2</sup> (12.9 ft <sup>2</sup> ) Others 10,000 cm <sup>2</sup> (10.7 ft <sup>2</sup> )	10" 7000 cm <sup>2</sup> (7.5 ft <sup>2</sup> )
		20"	20 nm 24,000 cm <sup>2</sup> (25.8 ft <sup>2</sup> ) Others 20,000 cm <sup>2</sup> (21.5 ft <sup>2</sup> )	20" 14,000 cm <sup>2</sup> (15.1 ft <sup>2</sup> )
		30"	30,000 cm <sup>2</sup> (32.3 ft <sup>2</sup> )	
		10" asym.	11,600 cm <sup>2</sup> (12.5 ft <sup>2</sup> )	
		20" asym.	23,200 cm <sup>2</sup> (25 ft <sup>2</sup> )	
		Supports, core sleeve	HDPE	HDPE
	O-ring	EPDM and E-FKM	E-FKM	
	Operating conditions:	Maximum forward differential pressure	0.34 MPa (3.4 bar, 50 psid, 3.5 kg/cm <sup>2</sup> ) @ 20°C (68°F)	0.28 MPa (2.8 bar, 41 psid, 2.9 kg/cm <sup>2</sup> ) @ 20°C (68°F)
Maximum reverse differential pressure		0.24 MPa (2.4 bar 35 psid, 2.5 kg/cm <sup>2</sup> ) @ 20°C (68°F)	0.21 MPa (2.1 bar, 31 psid, 2.2 kg/cm <sup>2</sup> ) @ 20°C (68°F)	
Operating temperature		60°C (140°F)	50°C (122°F)	

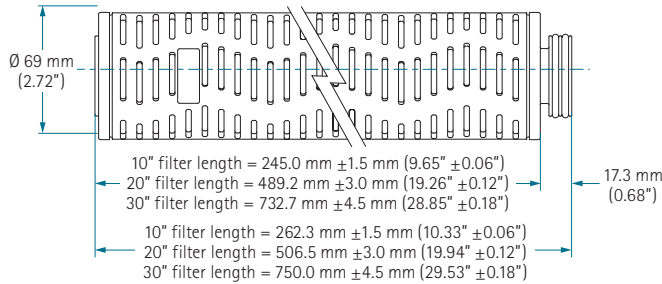
## Performance Data



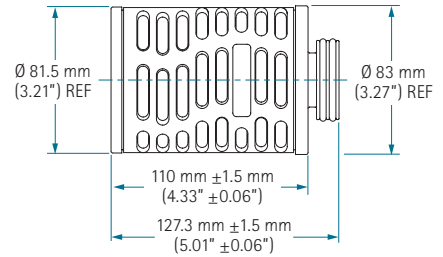
**Dimensions**

**MICROGARD PLUS/PLUS LE/LE NYLON**

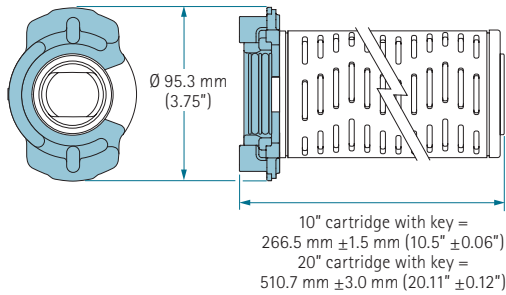
**Code 0**



**Code 0 4" UPX**



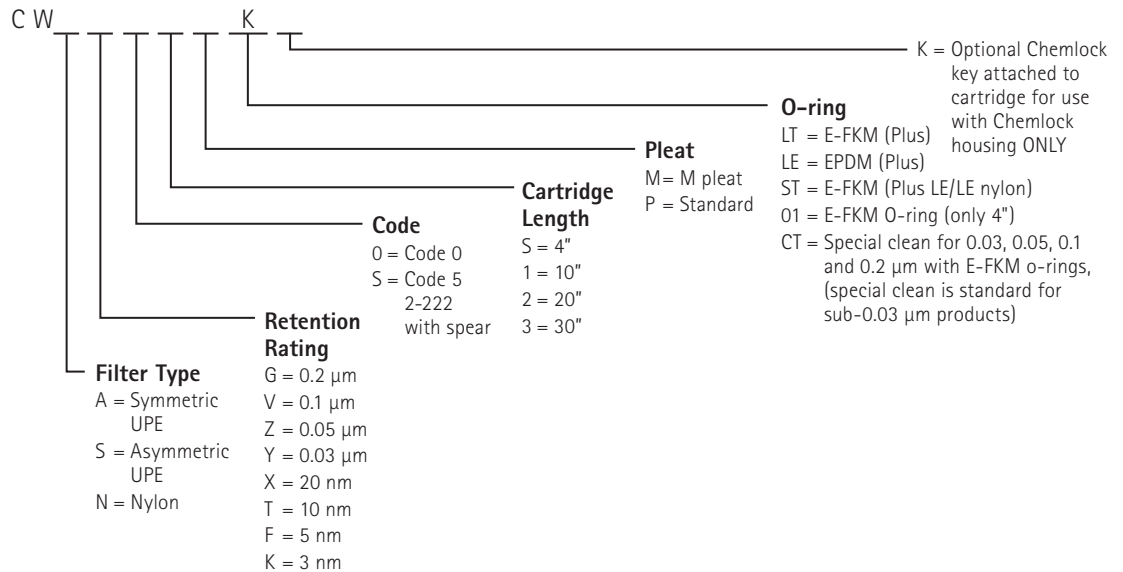
**End View Chemlock® Key on Cartridge**



**Ordering Information\***

**Microgard Plus/Plus LE/LE Nylon Filters**

**Part Number**



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

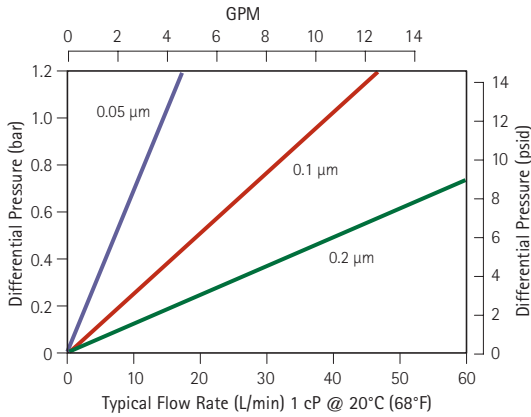
# Microgard UPE/UPX Filters

## Specifications

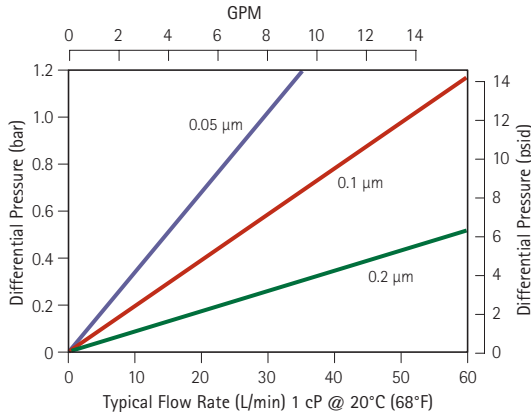
		UPE	UPX
Materials:	Membrane	Hydrophobic UPE	Hydrophobic UPE
	Surface area	10" 8500 cm <sup>2</sup> (9.1 ft <sup>2</sup> )	4" 5000 cm <sup>2</sup> (5.4 ft <sup>2</sup> )
		20" 17,000 cm <sup>2</sup> (18.3 ft <sup>2</sup> )	10" 11,000 cm <sup>2</sup> (11.8 ft <sup>2</sup> )
		30" 25,500 cm <sup>2</sup> (27.4 ft <sup>2</sup> )	
Supports, core sleeve	HDPE	HDPE	
O-ring	E-FKM, EPDM	E-FKM or Kalrez® perfluoroelastomer	
Operating conditions:	Maximum forward differential pressure	0.35 MPa (3.5 bar, 50 psid, 3.5 kg/cm <sup>2</sup> ) @ 25°C (77°F)	
	Maximum reverse differential pressure	0.27 MPa (2.7 bar, 40 psid, 2.8 kg/cm <sup>2</sup> ) @ 20°C (68°F)	
	Operating temperature	60°C (140°F)	

## Performance Data

Microgard UPE Cartridge Filters



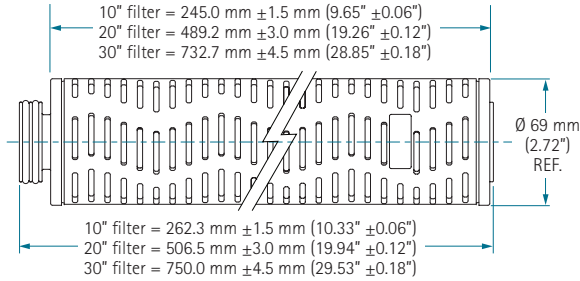
Microgard UPX Cartridge Filters



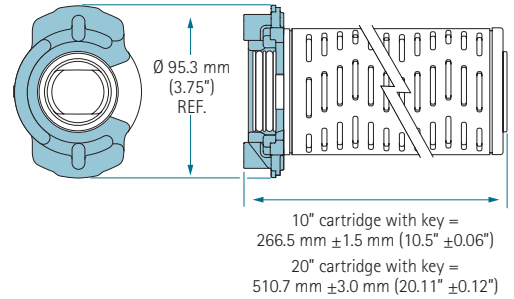
**Dimensions**

**MICROGARD UPE**

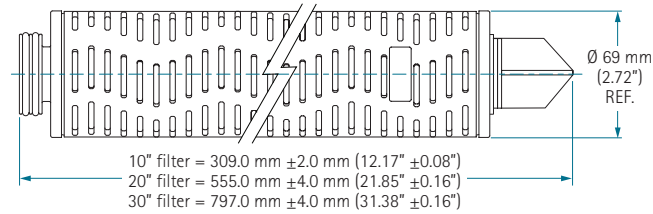
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**End View Chemlock Key on Cartridge**

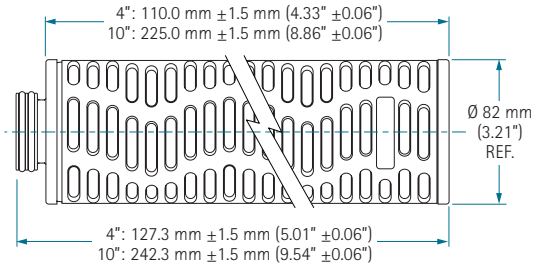


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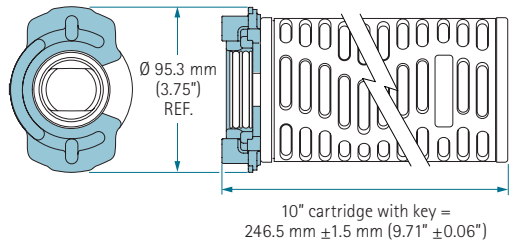


**MICROGARD UPX**

**Code 0**



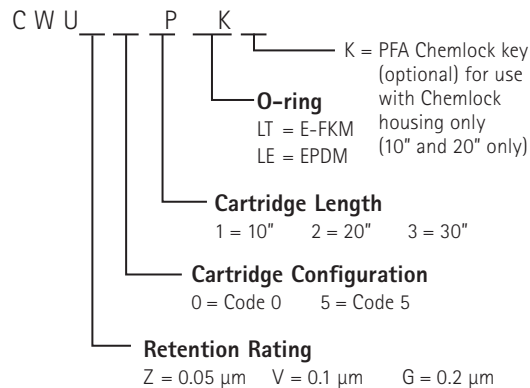
**End View Chemlock Key on Cartridge**



**Ordering Information\***

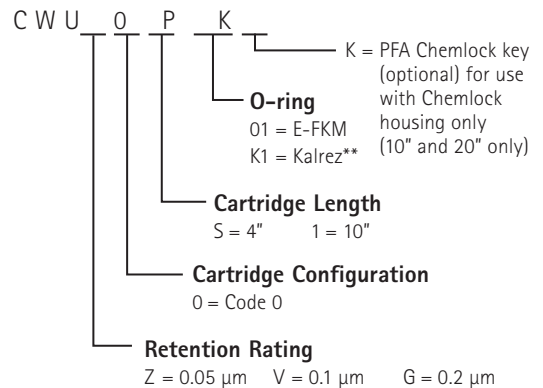
**Microgard UPE Cartridge Filters**

**Part Number**



**Microgard UPX Cartridge Filters**

**Part Number**



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

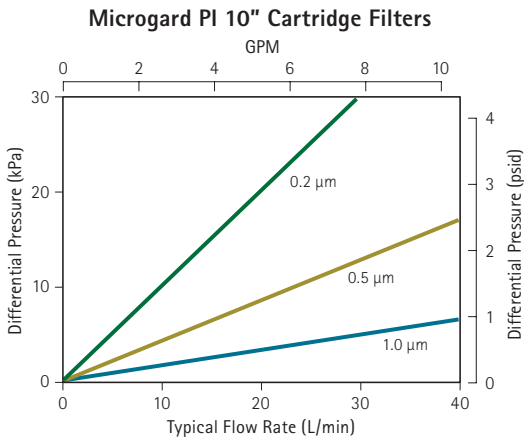
\*\*Kalrez o-ring available in 10" configuration only.

# Microgard PI Filters

## Specifications

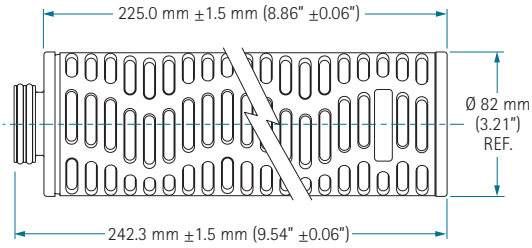
Materials:	Membrane	Hydrophobic UPE	
	Surface area	20 nm	8800 cm <sup>2</sup> (9.47 ft <sup>2</sup> )
		0.5 nm, 1.0 μm	8000 cm <sup>2</sup> (8.6 ft <sup>2</sup> )
	Supports, core sleeve	HDPE	
O-ring	E-FKM		
Operating conditions:	Maximum forward differential pressure	0.39 MPa (3.9 bar, 56.6 psid, 4 kg/cm <sup>2</sup> ) @ 25°C (77°F)	
	Maximum reverse differential pressure	0.255 MPa (2.55 bar, 39.3 psid, 2.8 kg/cm <sup>2</sup> ) @ 25°C (77°F)	
	Operating temperature	60°C (140°F)	

## Performance Data

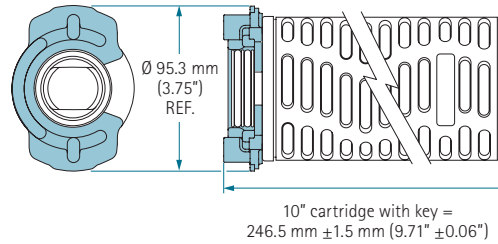


## Dimensions

### MICROGARD PI



### End View Chemlock Key on Cartridge



## Ordering Information\*

### Microgard PI Cartridge Filters

#### Part Number

P I A 01P01 K

#### Retention Rating

G = 0.2 μm  
H = 0.5 μm  
A = 1.0 μm

K = Optional Chemlock key attached to cartridge for use with Chemlock housing ONLY

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

## For More Information

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