

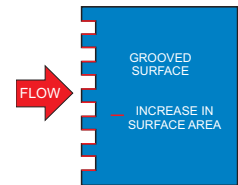
PolyKLEAN® CSW Filter Cartridges Filtration of Completion and Workover Fluids



PolyKLEAN CSW Filter Construction

The PolyKLEAN CSW filter manufacturing process combines the superior process control with the quality assurance enabled by an ISO 9001:2000 certified quality system. The CUNO exclusive manufacturing process provides a high degree of fiber-to-fiber thermal bonding, without the use of binders, to produce a rigid, core-less, filter structure with the following properties:

- does not unload contaminants with increasing differential pressure like typical meltblown filters,
- allows grooves to be machined into the upstream surface, without tearing or melting the filter structure, providing more than double the effective surface area, and
- exhibits exceptionally low differential pressure for a given filter rating.



Consistent filtration throughout the service life of a depth-style filter depends on how well the filter's structure tolerates fluctuations in operating conditions - including contaminant loading and differential pressure. Flexible structures, such as those found in typical meltblown and string-wound filters, tend to compress and change porosity with increased pressure, while rigid structures do not. Media compression can result in short filter life because the pores collapse and ultimately close.

Application

PolyKLEAN CSW filters are ideally suited for filtration of brine fluids in well completion and workover applications. It is critical to minimize the level of total suspended solids in the completion/workover fluid before it enters the wellbore to minimize formation damage from particulates. CUNO's 2 micron PolyKLEAN filter downstream of the appropriate pretreatment equipment, usually diatomaceous earth (DE) filters, provides reliable and cost effective well protection.

Feature	Benefit
<ul style="list-style-type: none"> ■ Rigid depth filter construction 	<ul style="list-style-type: none"> ■ Eliminates unloading at high differential pressure ■ Efficient removal of deformable materials ■ Consistent particle removal throughout filter life and at high flow rates (flux)
<ul style="list-style-type: none"> ■ Enhanced contaminant holding capacity 	<ul style="list-style-type: none"> ■ Fewer filter change-outs ■ Long filter life
<ul style="list-style-type: none"> ■ Grooved cartridge with extended surface area 	<ul style="list-style-type: none"> ■ Promotes fuller utilization of the depth matrix ■ Long filter life
<ul style="list-style-type: none"> ■ All polypropylene construction 	<ul style="list-style-type: none"> ■ Compatibility in a wide range of applicants and operating conditions ■ No adhesives, binders, surfactants, lubricants
<ul style="list-style-type: none"> ■ Core-less filter structure 	<ul style="list-style-type: none"> ■ Ease of disposal via incineration or shredding

Materials Of Construction

Rigid extrusion bonded, all polypropylene construction provides enhanced flow characteristics, efficient particle removal, and chemical compatibility across a wide range of brine fluids.

No adhesives, binders, surfactants, or lubricants are used in the manufacturing process.

OPERATING CONDITIONS	
Maximum Operating Temperature	176°F (80°C)
Maximum Differential Pressure	15 psid @ 176°F (1.0 bar @ 80°C)
	25 psid @ 140°F (1.7 bar @ 60°C) 60 psid @ 68°F (4.1 bar @ 20°C)
Recommended Change-out Pressure	35 psid @ 68°F (2.4 bar @ 20°C)

PolyKLEAN Filter System Sizing

To size a system of PolyKLEAN filters, flow vs. differential pressure data is provided in the following table.

PolyKLEAN Filter Specific Pressure Drop (SPD)		
Nominal Rating (µm)	Specific Pressure Drop per 10" filter (psid/gpm-Cp)	Specific Pressure Drop per 10" filter (mbar/lpm-Cp)
2	0.073	1.330

To calculate filter's clean pressure drop for Newtonian fluids, use the following formula in conjunction with the Specific Pressure Drop Values. The Specific Pressure Drop values may be effectively used when three of the four variables (Viscosity, Flow, Differential Pressure, and Cartridge Grade) are set. Care must be taken when sizing PolyKLEAN filtration systems. Select a filter housing that will accept at least the required number of 10 inch filter elements, and ensure that the total system flow does not exceed the maximum housing flow rating.

$$\text{psid clean} = \frac{\left(\frac{\text{Total system gpm [lpm]}}{\text{Equivalent number of 10 inch Cartridges in housing}} \right) \left(\frac{\text{Viscosity in Cp}}{\text{Cp}} \right) (0.073)}{1}$$

PolyKLEAN CSW Filter Cartridge Ordering Guide

Cartridge Type	Length	Grade	Surface	Packaging	Ring Support	End Modification	O-Ring
RT - PolyKLEAN	30 – 30 inches 40 – 40 inches	CSW - 2 µm	G – Grooved	2 – Bulk	0 – None	F - 222 O-Ring & Flat Cap N - None	A - Silicone N - None

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