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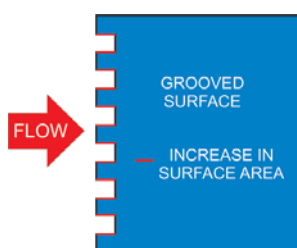
Micro-Klean™ RC Series Depth Filter Cartridges

Micro-Klean™ RC filter cartridges Filtration of completion and workover fluids

Micro-Klean RC Filter Construction

The Micro-Klean RC, formerly named PolyKlean CSW, manufacturing process combines a superior process control with a quality assurance enabled by the ISO 9001:2008 certified quality system. The 3M Purification manufacturing process provides a high degree of fibre-to-fibre thermal bonding, without the use of binders, to produce a rigid and coreless 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 stringwound 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.

Features and Benefits

Rigid depth filter construction

- Eliminates unloading at high differential pressure
- Efficient removal of deformable materials
- Consistent particle removal throughout filter life and at high flow rates (flux)

Enhanced contaminant holding capacity

- Fewer filter change-outs
- Long filter life

Grooved cartridge with extended surface area

- Promotes fuller utilisation of the depth-matrix
- Long filter life

All polypropylene construction

- Compatibility in a wide range of applications and operating conditions
- No adhesives, binders, surfactants, lubricants

Coreless filter structure

- Ease of disposal via incineration or shredding



Applications

Micro-Klean RC Series filter cartridges are ideally suited for filtration of brine fluids in well completion and workover applications. It is critical to minimise the level of total suspended solids in the completion/workover fluid before it enters the wellbore to minimise formation damage from particulates. 3M Purification's 2 micron Micro-Klean RC filter cartridge downstream of the appropriate pre-treatment equipment, usually diatomaceous earth (DE) filters, provides reliable and cost effective well protection.

3M

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.

Table 1: Operating Conditions

Maximum Operating Temperature	80 °C
Maximum Differential Pressure	1.0 bar at 80 °C - 1.7 bar at 60 °C - 4.1 bar at 20 °C
Recommended Change-out Differential Pressure	2.4 bar at 20 °C

Micro-Klean RC Filter System Sizing

To size a system of Micro-Klean RC filter cartridges, flow vs. differential pressure data is provided in the table 2.

Table 2: Micro-Klean RC Filter Cartridge Specific Pressure Drop (SPD)

Nominal Rating	Specific Pressure Drop per 10" Filter (mbar/lpm - cP)
2 µm	1.330

$$\text{psid [mbar]}_{\text{clean}} = \frac{\left(\frac{\text{Total system}}{\text{lpm}} \right) \left(\frac{\text{Viscosity in}}{\text{cP}} \right) \left(\frac{\text{SPD Value}}{\text{from Table 2}} \right)}{\left(\frac{\text{Equivalent number of 10"}{\text{Cartridges in housing}} \right)}$$

To calculate filter's clean pressure drop for Newtonian fluids, use the formula above 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 Micro-Klean RC filtration systems. Select a filter housing that will accept at least the required number of 10" filter elements and ensure that the total system flow does not exceed the maximum housing flow rating.

Micro-Klean™ RC filter cartridges - Ordering guide

Cartridge Type	Length	Grade	Surface	Packaging	Ring Support	End Modification	Gasket/ O-ring
RT - Micro-Klean	30 - 30" 40 - 40"	CSW - 2 µm	G - Grooved	2 - Bulk	0 - None	F - 222 O-ring & flat cap N - None	A - Silicone N - None

NOTE: Micro-Klean™ RC is the new name of PolyKlean CSW.

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For more contact addresses visit our website www.3M.eu/filtration or www.3Mpurification.com/international.

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Micro-Klean RC series

- Micro-Klean RC 30 CSW G
- Micro-Klean RC 40 CSW G