ThermoFisher SCIENTIFIC



Industrial filtration

Micro-Klean RT filter cartridges

thermo scientific

All-polypropylene rigid thermal bonded filters



Advancing depth filtration through technological innovation

Thermo Scientific™ Micro-Klean™ RT Filter Cartridges, manufactured using the Thermo Fisher Scientific Inc. rigid extrusion bonded technology, are all-polypropylene depth filter cartridges offering premium features.

Features and benefits

Features	Benefits
Rigid depth filter construction	• Reduces unloading at high differential pressure • Efficient removal of deformable materials • Consistently superior particle removal throughout filter life and at high flow rates (flux) • Low initial pressure drop for enhanced flown
Enhanced contaminant holding capacity	• Fewer filter change outs • Long filter life
Grooved cartridge with increased surface area	• Promotes fuller utilization 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
Food and beverage compliance	Certain Micro-Klean RT filter cartridges products are compliant with: • US FDA 21 CFR • EU food contact regulation (EC) 1935/2004 • Other food contact regulations Contact your Thermo Fisher representative for detailed declaration of compliance information for food contact applications
Core-less filter structure	• Ease of disposal via incineration or shredding
Continuous integral length filter element up to 40 in (1016 mm)	• No bond joints to break • Easy to install

Micro-Klean RT filter cartridges

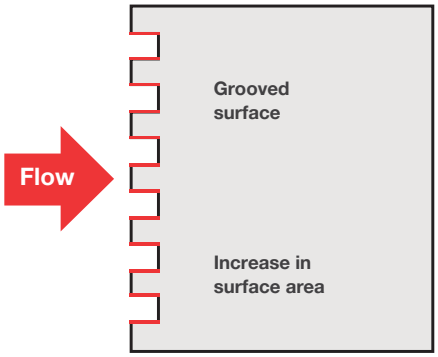
The Micro-Klean RT filter cartridge is manufactured using a proprietary process that combines precise process control with the quality assurance of an ISO 9001-certified system. This ensures consistent, reliable product performance. Thermo Fisher's exclusive technology creates extensive fiber-to-fiber thermal bonding—without binders—resulting in a rigid, coreless filter structure with several key performance advantages:

- Structural integrity under pressure: The rigid matrix resists compression as differential pressure increases, maintaining stable pore structure and filtration efficiency
- No contaminant unloading: Captured particles remain securely retained within the depth matrix, even at higher differential pressures
- High contaminant holding capacity: The depth-style construction enables effective particle capture throughout the filter, not just on the surface
- Low pressure drop: Optimized structure provides high flow rates at a given micron rating
- Increased surface area: Precision-machined grooves more than double the effective filtration area, improving dirt loading and reducing premature surface blinding

Conventional meltblown and string-wound filters rely on flexible structures that can deform under pressure, leading to pore collapse, reduced flow, and shorter service life. In contrast, the Micro-Klean RT cartridge maintains consistent porosity, supporting stable filtration performance across varying process conditions. The self-supporting design eliminates the need for a core while enabling full utilization of the depth matrix. The grooved outer surface improves contaminant distribution, allowing larger particles and gels to be captured without prematurely blocking the filter surface.

Result: longer service life, fewer change-outs, improved process efficiency, and lower total filtration costs.





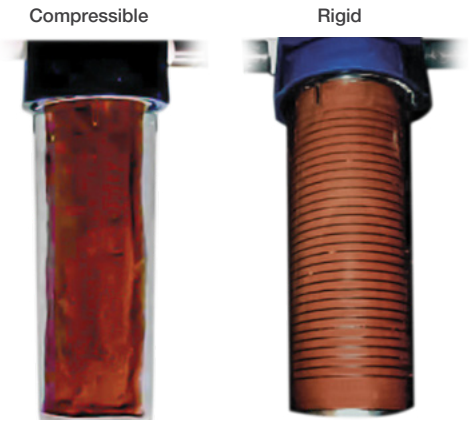


Photo 1. Compressible vs rigid structures @ 35 psid (2.4 bar)

Table 1. Thermo Scientific™ Micro-Klean™ RT Filter Cartridges Specific Pressure Drop (SPD)

Nominal rating (µm)	Specific pressure drop per 10-inch filter (psid/gmp-Cp)	Specific pressure drop per 10-inch filter (mbar/lmp-Cp)
1	0.073	1.330
5	0.042	0.765
10	0.025	0.455
25	0.015	0.273
50	0.010	0.182
75	0.006	0.109



Micro-Klean RT filter cartridge system sizing

To size a system of Micro-Klean RT filter cartridges, flow vs. differential pressure data is provided in Table 1.

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 Micro-Klean RT filter cartridge filtration systems. Select a filter housing that will accept at least the required number of 10 inch filter elements, and verify that the total system flow does not exceed the maximum housing flow rating.

$$\text{psid [mbar] clean} = \frac{\left(\text{total system gpm [lpm]}\right)\left(\text{viscosity in Cp}\right)\left(\text{SPD value from Table 1}\right)}{\left(\text{Equivalent number of 10-inch cartridges in housing}\right)}$$

Applications

- **Industrial**—Beverage can coolants, plating, desalination plants, pulp and paper, additives, process cooling water, parts washing, peroxide
- **Coatings**—Resin manufacturers (water and solvent), trade and architectural paint, ink
- **Food and beverage**—Bottled water, ready-to-drink beverages, soft drinks, juice
- **Oil and gas**—Amine and glycol, prefiltration in waterflood, process cooling water, completion fluid
- **Chemical**—PE-PP, intermediate grade chemicals, PVC-VCM, herbicides, pesticides
- **Electronics**—Printed circuit boards, electronic capacitors, Pre-RO

Micro-Klean RT filter cartridges specifications

Table 2. Thermo Scientific™ Micro-Klean™ RT Filter Cartridges specifications

Construction	
Filter media, end connector	Polypropylene
Gaskets and O-ring options (see ordering guide)	Silicone, fluorocarbon, EPR, nitrile, and polyethylene
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 differential pressure	35 psid @ 68°F (2.4 bar @ 20°C)
Cartridge dimensions	
Inside diameter (nominal)	1.1 in (28 mm)
Outside diameter (nominal)	2.6 in (66 mm)
Length (nominal) see ordering guide	9.75 - 40 in (248 - 1016 mm)

Chemical compatibility

The 100% polypropylene construction provides excellent chemical compatibility in many demanding process fluid applications. Compatibility is influenced by process operating conditions. Micro-Klean RT filter cartridges should be tested under actual conditions to determine compatibility.

Table 3. Fluid compatibility

Chemical	Temperature	Chemical	Temperature	Chemical	Temperature
Acetic acid 20%	160°F (71°C)	Hydrogen peroxide	100°F (38°C)	Sodium carbonate	160°F (71°C)
Alkanolamines	140°F (60°C)	Methyl ethyl ketone	70°F (21°C)	Sodium hydroxide 70%	160°F (71°C)
Ammonium hydroxide 10%	160°F (71°C)	Mineral oil	70°F (21°C)	Sulfuric acid 20%	160°F (71°C)
Bleach 5.5%	120°F (49°C)	Nitric acid 20%	120°F (49°C)	Sulfuric acid (70%)	160°F (71°C)
Ethylene glycol	160°F (71°C)	Potassium hydroxide	140°F (60°C)	Urea	160°F (71°C)

Application engineering

Thermo Fisher has a global team of market-focused scientists and engineers who excel in supporting and collaborating with end-users. Our technical teams are skilled in performing on-site bench-scale or in-house tests, and relating results to full scale manufacturing operations and optimizing cost of purification. When unique processing problems are encountered, our product and application specialists are equipped to identify solutions using either Thermo Fisher's broad array of existing products or potentially develop a custom solution for your application.



Filter housings

Thermo Fisher can provide housings to meet global applications and specifications and is supported by Thermo Fisher's global engineering team. For more information consult your local Thermo Fisher representative.

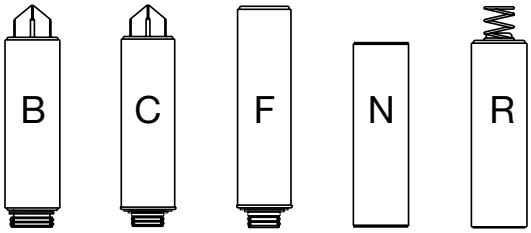
Ordering guide

Micro-Klean RT filter cartridges ordering guide

Cartridge type	Length (inches)	Grade	Material	Surface	Packaging	Ring support	End modification	Gasket/O-ring
Micro-Klean RT filter cartridge	09 / 9.75 in* 10 / 10 in 19 / 19.5 in* 20 / 20 in 29 / 29.25 in* 30 / 30 in 39 / 39 in 40 / 40 in	Y - 1 µm B - 5 µm C - 10 µm F - 25 µm L - 50 µm Q - 75 µm	16 - Polypropylene	G - Grooved	2 - Bulk	0 - None	B - 226 O-ring & spear C - 222 O-ring & spear F - 222 O-ring & flat cap N - None R - Cap with spring	A - Silicone B - Fluorocarbon C - EPR D - Nitrile G - Polyethylene** N - None

*Available with N (None), P, Q, and R end modifications only.
**Available with N (none) and R end modifications only.

Certain Micro-Klean RT filter cartridges have been tested and certified against NSF/ANSI/CAN 61. Contact your Thermo Fisher representative for additional information. For full product listing visit www.wqa.org



Cold water only:
Install this product in accordance with the instructions provided by the housing manufacturer.

Please note: The order guide above is for reference only. Not all combinations are available. Please consult with your representative to determine the appropriate part number for your application.

Intended Use: Micro-Klean RT filter cartridge products are intended for use in industrial, chemical, electronics and food and beverage filtration applications of aqueous and non-aqueous fluids in accordance with the product instructions, specifications and where materials of construction are compatible.

Certain Micro-Klean RT filter cartridge products are compliant for use in Food and Beverage applications. For specific details regarding use or limitations for food contact applications please contact your Thermo Fisher Scientific Inc. representative for more information.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Thermo Scientific product is suitable and appropriate for the user's specific application, including user risk assessments and evaluation of the Thermo Scientific product in the user's application.

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