ThermoFisher SCIENTIFIC



Industrial filtration

High Flow HFR filter cartridges

thermo scientific

High Flow HFR filter cartridges

Thermo Scientific™ High Flow HFR Filter Cartridges are high flow capacity, high efficiency, inside to outside flow direction, liquid filtration cartridges designed for the applications listed below with large flow requirements.

High Flow HFR filter cartridges fit into the standard Pall Ultipleat® High Flow HFU Filter Housings and similar competitive housings.

The large diameter, pleated depth media filter design permits flow rates of up to 440 gpm (100 m^3/hr) in a single 60 in (1524 mm) length filter. This results in significantly fewer required filters for a given flow as compared to standard 2.5 in (63.5 mm) diameter filters.

The Thermo Fisher Scientific, Inc. developed polypropylene microfiber forms the basis of the filtration media utilized in the High Flow HFR filter cartridges. The manufacturing processes allow for tightly controlled specifications resulting in a filter media with absolute rated particle retention characteristics.

The High Flow HFR filter cartridges help to remove particles and other contaminants from water, compatible industrial chemicals, and liquid food & beverage fluids with an absolute retention rating.

The High Flow HFR filter cartridges microfiber filter media is optimized for use in process water applications containing organic contaminants, as well as particulate. The lofted media design helps prevent premature blinding of the filter surface, promoting fuller utilization of the media, resulting in an optimum combination of particle removal efficiency and contaminant holding capability.



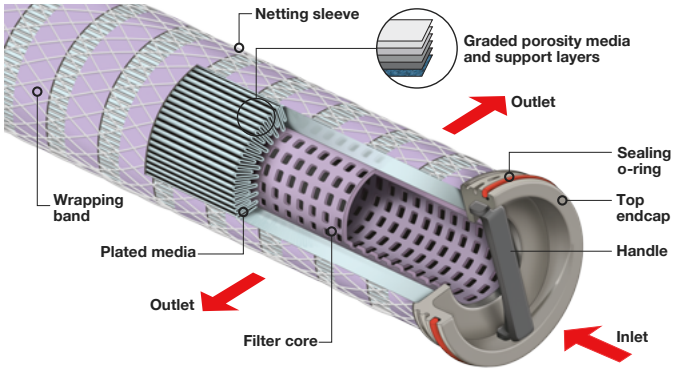
Features and benefits

Features	Benefits
Faster flow rates compared to conventional 2.5 in (63.5 mm) filters	• Fewer filters required at a given flow rate • Reduced filter handling • Fewer filter seal points reducing chance of fluid bypass
Solventum lofted microfiber filtration media	• High particle removal efficiencies throughout filter life • High contaminant capacity • Extended service life, especially for fluids with a mixture of particles and deformables
Advanced Pleat Technology (APT)	• Increased usable filtration area • Helps to limit blinding effect of the filter media
Food and beverage compliance	Certain High Flow HFR filter cartridge products are compliant with: • US FDA 21 CFR • EU Food Contact Regulation (EC) 1935/2004 • EU Food Contact Regulation 10/2011 • China Food Safety Law • Japan MHLW – Food Sanitization Act Contact your Thermo Fisher representative for detailed declaration of compliance information for food contact applications

Applications

- Pre-RO water
- Condensing water filtration
- Process waters
- Injection and produced waters
- Ground/reclaimed/waste waters
- Refining (amine sweetening, final product)
- Coolants
- Utility water
- Part washing
- Beverage grade water and fluids

Figure 1. Filter design



Absolute retention ratings

The consistency of reproducible contaminant reduction can be provided by the use of absolute-rated filters. High Flow HFR filter cartridges are absolute rated to Beta 1000 (99.9% efficiency at its rating) and are available in six distinct ratings from 5 to 100 µm. This provides a choice of ratings to meet the filtration requirements for the critical applications.

Advanced Pleat Technology (APT)

The service life of a pleated filter is often dictated by the accessible surface area. Conventional pleated filters may offer a large gross surface area, but when the media is packed too tightly into the filter, only part of the surface area is usable. This can result in both flow restrictions and limited contaminant holding capacity.

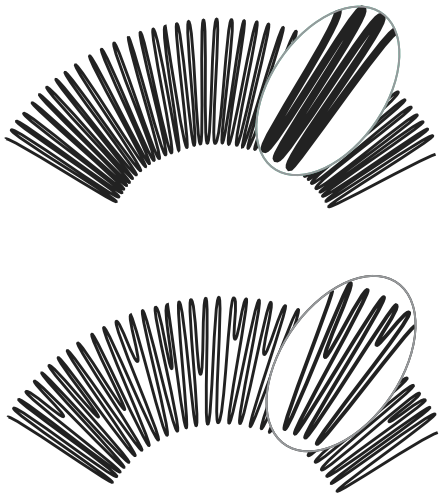
The High Flow HFR filter cartridges feature Advanced Pleat Technology, a staggered pleat arrangement, that results in more open space between the pleats. This design increases the usable filtration area and helps to limit blinding effect of the filter media.

Table 1. High Flow HFR filter cartridges

Grade	Absolute rating (µm)*
A05	5
A10	10
A20	20
A40	40
A70	70**
A100	100

*Tested at ambient temperature.
**Also rated at 5 µm nominal.

Figure 2. Conventional pleat design vs. Advanced Pleat Technology

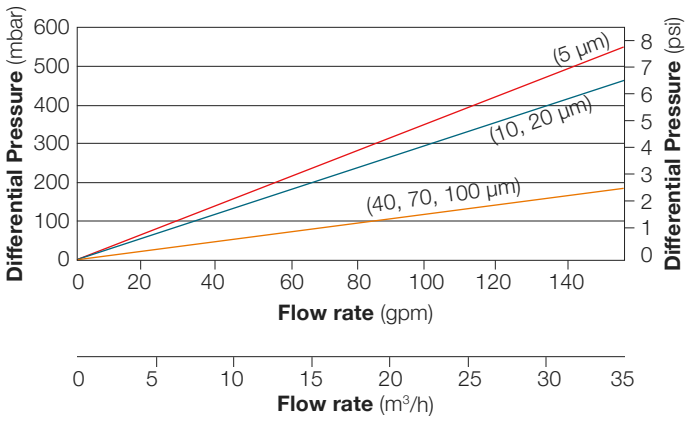


Conventional pleat designs, with full-depth densely packed pleats, fill the upstream pleat surface with contaminant that quickly constrict flow at the pleat's inside diameter.

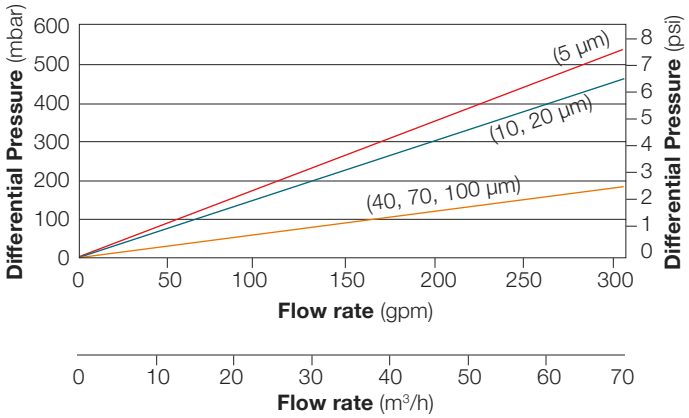
High Flow HFR filter cartridges Advanced Pleat Technology utilizes a special configuration to increase the accessible surface area for greater filter media utilization.

High Flow HFR filter cartridges flow rates

Graph 1. 20 in (508 mm)



Graph 2. 40 in (1016mm)



Graph 3. 60 in (1524 mm)

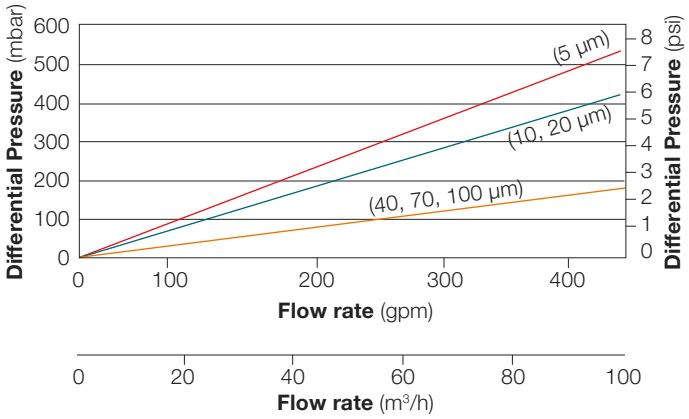


Table 1. High Flow HFR filter cartridges

Material of construction	
Filter media, support materials, core and end caps	Polypropylene
Outer sleeve	Polyethylene
Outer wrap band	Polyethylene and polypropylene
Handle	Polyphenylene ether and polystyrene blend with glass fiber
O-ring	Nitrile, silicone or EPR
Operating conditions	
Flow direction	Inside-outside flow path
Maximum flow rate	20 in (508 mm) - 150 gpm (35 m³/hr) 40 in (1016 mm) - 310 gpm (70 m³/hr) 60 in (1524 mm) - 440 gpm (100 m³/hr)
Maximum operating temperature	160ºF (70ºC)
Maximum forward differential pressure	15 psid @ 175ºF (1 bar @ 80ºC) 20 psid @ 160ºF (1.5 bar @ 70ºC) 50 psid @ 68ºC (3.5 bar @ 20ºC)
Recommended change-out differential pressure	35 psid @ 68ºF (2.5 bar @ 20ºC)
Nominal cartridge dimensions	
Outside diameter	6.3 in (160mm)
Cartridge length	20 in (508 mm) 40 in (1016 mm) 60 in (1524 mm)

Chemical compatibility

The High Flow HFR filter cartridge is primarily composed of polypropylene and polyethylene materials of construction, which offer broad chemical compatibility. Note that compatibility is always a function of time, operating temperature and chemical concentration. Consult your local Thermo Fisher representative for more information.

Ordering Guide

High Flow HFR filter cartridges ordering guide

Filter designation	Length (inches)	Material (media)	Absolute removal rating	O-Ring
HFR	20 / 20 in 40 / 40 in 60 / 60 in	PP - Polypropylene	A05 - 5 µm A10 - 10 µm A20 - 20 µm A40 - 40 µm A70 - 70 µm A100 - 100 µm	A - Silicone C - EPR D - Nitrile

Please note: The ordering guide above is for reference only. Not all combinations are available.

Please consult with your Thermo Fisher representative to determine the appropriate part number for your application.

Intended Use: High Flow HFR 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 High Flow HFR 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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