

C-1000

Fulflo® Honeycomb™ Filter Cartridges

Multipurpose Filtration Solutions With Parker's Wound Depth Cartridges

Parker Process Filtration has been a leader in filter media innovation and performance since we first invented the Honeycomb™ Filter Tube over 65 years ago. Parker has the world's largest manufacturing capacity for wound cartridges, offering superior quality along with technical, engineering and marketing support.

Effective removal ratings at nominal 90% efficiency from 0.5µm to 150µm range.

Benefits

- A broad range of media provide excellent compatibility with a variety of organic solvents, animal, petroleum and vegetable oils
- Optional core covers and end treatments assure fiber migration control
- Multiple length cartridges minimize changeout time, eliminate spacers and are available to fit competitive filter vessels
- FDA grade polypropylene (DOE only) cartridges certified to ANSI/NSF61 standard for contact with drinking water components
- Continuous strand winding geometry provides performance consistency



- One-piece metal extended center core option eliminates the need for cartridge guides in all competitive and Fulflo® multicartridge vessels
- A special snap-in extender is available for polypropylene cores
- Cotton, rayon, polypropylene, nylon and polyester materials are FDA listed as acceptable for potable and edible liquid contact according to CFR Title 21
- Various O-ring and end cap options are available

Applications

- Oxidizing Agents
- Concentrated Alkalies
- Potable Liquids
- Dilute Acids & Alkalies
- Mineral Acids
- Organic Acids & Solvents
- Petroleum Oils
- Photo Solutions
- Amines
- Water
- Prefilter for Membranes



ENGINEERING YOUR SUCCESS.

Fulflo® Honeycomb™ Cartridges

Wound Depth Cartridge Design and Function

Wound cartridges provide true depth filtration utilizing hundreds of tapered filtering passages of controlled size and shape. Each layer of roving contributes to true depth filtration by trapping its

share of particles. Wound cartridges offer a gradual pressure increase during cartridge life versus surface-type media that have an abrupt flow cutoff when loaded. In addition, the irregular outer layer reduces surface blinding, assuring both longer cartridge life and full cartridge utilization.

Ultrafine Wound Depth Cartridges for Critical Filtration Applications

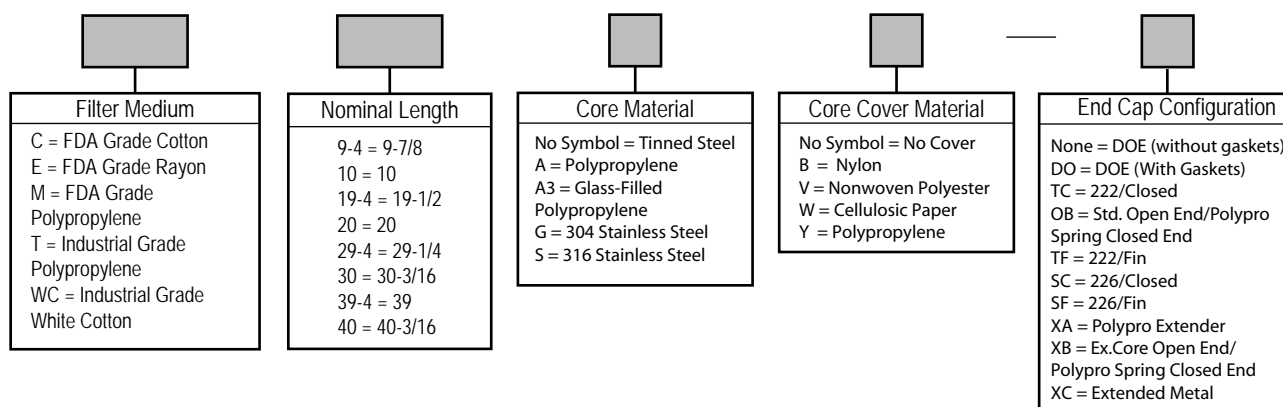
Ultrafine cartridges are a unique member of the Honeycomb™ wound depth cartridge family. They are specifically designed for critical filtration applications in the 0.5µm range. When absolute 0.5µm filtration is required,

the nominal Ultrafine cartridge can be used as a prefilter, thereby significantly extending membrane life. Ultrafine cartridges remove 90% of particles larger than 0.5µm in size. This type of filtration provides excellent protection for equipment or processes that must be protected from fine particles.

Applications include:

- Prefilter for membranes
- Rinse water in semiconductor manufacturing
- Fine filtration for ultrasonic parts, washer solvents and other high-purity solvents
- Prefilter for industrial reverse osmosis equipment

Ultrafine Ordering Information



Fulflo[®] Honeycomb[™] Cartridges

Specifications

■ Wound Cartridge Flow Factors for Aqueous (Water Based) Fluids (psid/gpm @ 1 cks)

| Rating (μm) | Polypropylene Polyester Nylon | Cotton Rayon | Glass |
|-------------|-------------------------------|--------------|--------|
| 0.5 | 0.9924 | 2.6590 | 0.5000 |
| 1 | 0.7463 | 2.0000 | 0.4211 |
| 3 | 0.3330 | 0.6250 | 0.3478 |
| 5 | 0.2381 | 0.3636 | 0.1951 |
| 10 | 0.1429 | 0.1931 | 0.1430 |
| 20 | 0.0898 | 0.1075 | 0.1096 |
| 30 | 0.0704 | 0.0855 | 0.0816 |
| 50 | 0.0595 | 0.0709 | 0.0678 |
| 75 | 0.0538 | 0.0645 | 0.0611 |
| 100 | 0.0500 | 0.0624 | 0.0590 |

■ Wound Cartridge Flow Factors for Nonaqueous (Solvent or Oil Based) Fluids (psid/gpm @ 1 cks)

| Rating (μm) | Polypropylene Polyester Nylon | Cotton Rayon | Glass |
|-------------|-------------------------------|--------------|--------|
| 0.5 | 1.8350 | 1.3800 | 0.5000 |
| 1 | 1.0000 | 0.7519 | 0.4211 |
| 3 | 0.5800 | 0.3003 | 0.3478 |
| 5 | 0.3003 | 0.1949 | 0.1951 |
| 10 | 0.1299 | 0.1000 | 0.1430 |
| 20 | 0.0560 | 0.0350 | 0.1096 |
| 30 | 0.0200 | 0.0175 | 0.0816 |
| 50 | 0.0141 | 0.0130 | 0.0678 |
| 75 | 0.0120 | 0.0100 | 0.0611 |
| 100 | 0.0080 | 0.0065 | 0.0590 |

■ Wound Cartridge Length Factors

| Length (in) | Length Factor |
|-------------|---------------|
| 10 | 1.0 |
| 20 | 2.0 |
| 30 | 3.0 |
| 40 | 4.0 |
| 50 | 5.0 |

Flow Rate and Pressure Drop Formulae:

$$\text{Flow Rate (gpm)} = \frac{\text{Clean } \Delta P \times \text{Length Factor}}{\text{Viscosity} \times \text{Flow Factor}}$$

$$\text{Clean } \Delta P = \frac{\text{Flow Rate} \times \text{Viscosity} \times \text{Flow Factor}}{\text{Length Factor}}$$

Notes:

1. **Clean ΔP** is PSI differential at start.
2. **Viscosity** is centistokes.
Use Conversion Tables for other units.
3. **Flow Factor** is ΔP/GPM at 1 cks for 10 in (or single).
4. **Length Factors** convert flow or ΔP from 10 in (single length) to required cartridge length.

■ Wound Cartridge Nominal Micrometer Ratings

| Cartridge Designation | Rating (μm) | Compressed Air and Gas Micron Rating |
|--|-------------|--------------------------------------|
| 8R, E8R, N8R, U8R, S8R, M8R, R8R, T8R, WC8R | 100 | 15 |
| 10R, E10R, N10R, U10R, S10R, R10R, T10R, M10R, WC10R | 75 | 13 |
| 11R, E11R, N11R, U11R, S11R, M11R, R11R, T11R, WC11R | 50 | 12 |
| 12R, E12R, N12R, U12R, S12R, M12R, R12R, T12R, WC12R | 40 | — |
| 13R, E13R, N13R, U13R, S13R, M13R, R13R, T13R, WC13R | 30 | 10 |
| 15R, E15R, N15R, U15R, S15R, M15R, R15R, T15R, WC15R | 20 | 7 |
| 17R, E17R, N17R, U17R, S17R, M17R, R17R, T17R, WC17R | 15 | 5 |
| 19R, E19R, N19R, U19R, S19R, M19R, R19R, T19R, WC19R | 10 | 3 |
| 21R, E21R, N21R, U21R, S21R, M21R, R21R, T21R, WC21R | 7 | — |
| 23R, E23R, N23R, U23R, S23R, M23R, R23R, T23R, WC23R | 5 | 2 |
| 27R, E27R, N27R, U27R, S27R, M27R, R27R, T27R, WC27R | 3 | 1 |
| 39R, E39R, N39R, U39R, S39R, M39R, R39R, T39R, WC39R | 1 | Less than 1 |
| Ultrafine (C, E, M, T, WC) | 0.5 | Less than 0.5 |



ENGINEERING YOUR SUCCESS.

Fulflo® Honeycomb™ Cartridges

Specifications

Nominal Removal Ratings:

- @ 90% efficiency from 0.5µm to 150µm

Maximum Recommended Operating Conditions:

- Change Out ΔP: 30 psi (2.1 bar)
- ΔP @ Ambient Temperature: 60 psi (4.1 bar)
- Flow Rate: 10 gpm (38 lpm) per 10 in length
- Temperature (See table below)

Dimensions:

- 1 in ID x 2-7/16 OD
- 3 in to 50 in lengths

■ Wound Cartridge Glass Fiber Nominal Micrometer Ratings

| Cartridge Designation | Liquids | Compressed Air and Gases |
|-----------------------|-----------|--------------------------|
| K5B | 100 - 150 | 100+ |
| K5R | 75 - 100 | 10 |
| K6R | 40 | 7 |
| K8R | 30 | 5 |
| K10R | 20 | 3 |
| K12R | 15 | 1 |
| K15R | 10 | <1 |
| K19R | 5 | <1 |
| K23R | 3 | <1 |
| K27R | 1 | <1 |
| K39R | 0.5 | <1 |

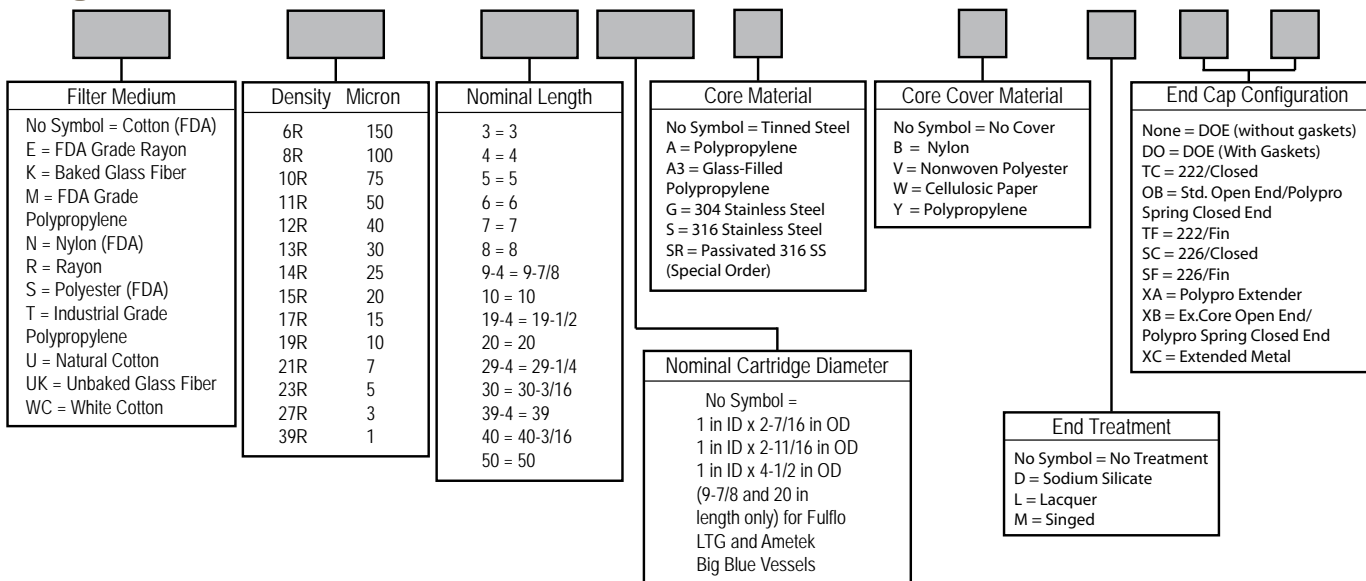
Note: All glass cartridges have standard glass core cover.

■ Maximum Operating Temperature @ 35 psid

| Cartridge Material | Metal Core | Polypropylene Core | Glass-Filled Polypropylene |
|--------------------|---------------|--------------------|----------------------------|
| Cotton | 250°F (121°C) | 120°F (49°C) | — |
| Glass | 750°F (402°C) | — | — |
| Nylon | 275°F (135°C) | 120°F (49°C) | — |
| Polypropylene | 200°F (93°C) | 120°F (49°C)† | 200°F (93°C) |
| Polyester | 275°F (135°C) | 120°F (49°C) | — |
| Rayon | 250°F (121°C) | 120°F (49°C) | — |

Note: Refer Material Selection Guide for additional compatibility information.

Ordering Information



Specifications are subject to change without notification.
*Viton is a registered trademark of E.I. DuPont de Nemours & Co., Inc.

© 2007 Parker Hannifin
Process Advanced Filtration Inc.
All Rights Reserved
SPEC-C1000-Rev. A 01/08



ENGINEERING YOUR SUCCESS.