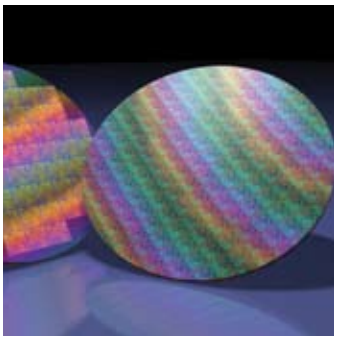


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Microfiltration Products

For the Microelectronics Industry

Parker

ENGINEERING YOUR SUCCESS.

Process Advanced Filtration Division
2340 Eastman Avenue
Oxnard, California, USA 93030
Toll Free: +1 877 784 2234
Phone: +1 805 604 3400
Fax: +1 805 604 3401
PAFsales@parker.com
www.parker.com

CAT-510-08 Rev 06/08

INDEX

Parker Hannifin

Leader in process filtration, separation and purification

With sales offices in 26 countries, distribution channels active in 63 countries, and manufacturing operations in 6 countries, Parker specializes in providing filtration and separation products to a wide variety of markets including the microelectronics, pharmaceutical, food and beverage, manufacturing, automotive, oil and gas, and defense industries.

Manufacturing Excellence

Parker Hannifin Corporation is committed to manufacturing excellence.

Our state-of-the-art manufacturing facility features:

- A fully equipped laboratory and testing center
- Certified controlled cleanroom environments

Quality Management and ISO 9001

Quality is of paramount importance to Parker Advanced Filtration. All products are manufactured under controlled environmental conditions and are subjected to demanding programs of quality assurance.

Parker Hannifin Corporation Filtration is ISO 9001 certified.

Outline History

1984	All-fluoropolymer filter cartridges
1987	All-polypropylene depth cartridges for economical prefiltration
1994	Hydrophilic polyethersulfone (PES) membrane for liquid filtration applications
1994	Hydrophobic PTFE membrane filters for general purpose gas and solvent purification
1997	PTFE membrane filters with HDPE structure to maintain chemical purity
1998	Encapsulated all-fluoropolymer cartridge for aggressive chemical filtration
2003	SELECT pleat technology: optimizing effective filtration area to provide doubled lifetime
2005	Ultraclean technology: leading the industry in cleanliness offering filtration products with <5ppb metals extractables level
2005	Acquired by Parker Hannifin Corporation
2006	XF technology: provides superior flow rates
2007	XL technology: new standard for flow and lifetime

Microelectronics:

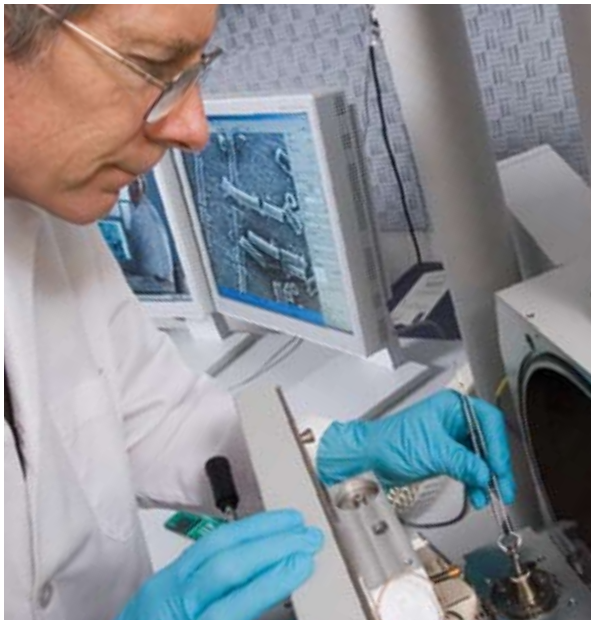
A Core Expertise

The microelectronics industry is a rapidly growing world market that draws upon core areas of our filtration expertise. Included within this market are the broad range of electronics products that require highly effective filtration in their manufacturing processes.

These products include:
- semiconductors
- flat panel displays
- hard disk drives

Through our Technical, R&D and Customer Service teams we offer a wide range of services to ensure total customer satisfaction.

Technical Capabilities
Our Technical Services team is dedicated to the needs of the microelectronics industry. We have an extensive range of state-of-the-art analytical instrumentation and a highly qualified team of scientists and engineers generating innovative solutions to a wide variety of filtration needs. We strive to optimize our customers' filtration applications by offering full technical support that includes:
- process failure analyses
- contamination analyses
- process and cost improvement audits
- on-site testing services



Research and Development
Our R&D teams are constantly working to innovate new products and discover technologies that will enhance the performance of process filtration, and thus keep us at the forefront of process filtration technology.

Customer Service
An experienced team of professionals dedicated to respond quickly and comprehensively to orders - both for standard and customized products – and ensure their on-time delivery worldwide.

Microelectronics:

Applications

In the microelectronics Industry, filter process fall into three categories:

Chemical Filtration

- Etching
  - Si etch (HF/$HN0_3$/ Acetic Acid)
  - SiO_2 etch (BOE/BHF-HF/NH_4F)
  - Si_3N_4 etch (Hot H_3PO_4 up to 180°C)
  - Al etch (H_3PO_4/HNO_3/Acetic Acid)
- Stripping
  - Hydroxy/amino based
  - Glycol/NH_4F based
  - DMSO/amino based
- Cleaning
  - Piranha (hot H_2SO_4/H_2O_2 up to 150°C)
  - SC1 (NH_4OH/H_20_2/H_2O up to 90°C)
  - SC2 (HCL/H_2O_2/H_2O up to 90°C)
- Bulk chemical distribution

Photochemical Filtration

- Photoresist applications I-line, g-line and DUV 248/193nm)
- Anit-reflective coating applications (BARC/TARC)
- Solvent/Developing (<3% TMAH 97%H20)

Chemical Mechanical Planarization (CMP)

- Oxide
- Metal

Moore's Law

40 years ago, Intel co-founder Gordon Moore issued a famous analysis that proposed the number of transistors on an integrated circuit (IC) doubled every 18 months. This analysis (often referred to as Moore's law) still holds true today. The number of transistors per chip now runs into the billions with line-widths <100 nanometers.

The Microelectronics Market

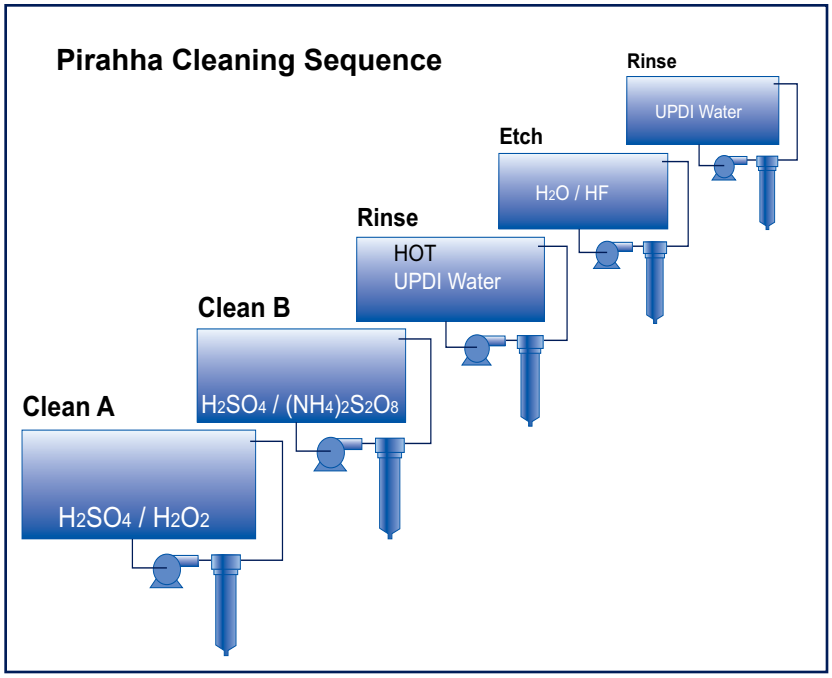
Microelectronics are found everywhere from consumer electronics to satellites, from corporate data centers to microwave ovens. The Microelectronics market is fast-paced and cyclical, driven by the constant demand to supply new products that are ever faster, with higher capacities and smaller footprints. The manufacturing of the newest generations of IC chips would not be possible without effective filtration.

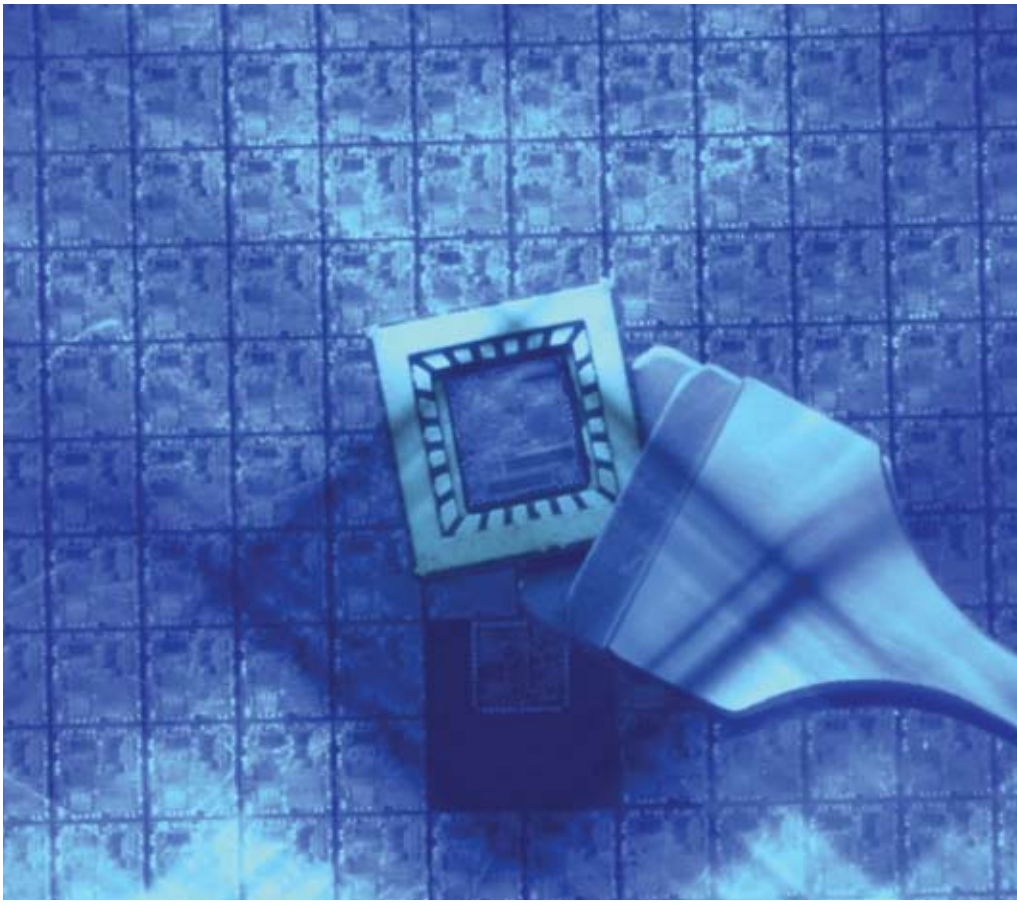
Semiconductors:

The filters used in semiconductor production processes need to provide the lowest possible levels of metals extractables and high particle retention efficiencies. However, since these processes combine the use of aggressive chemicals and high process temperatures, we have developed a wide range of fluoropolymer filters that possess high chemical and thermal resistance and are suited for all processes in the manufacturing of semiconductors.

Our fluoropolymer filters are available with the following options:

- XL: New standard for lifetime and flow rate
- XF: Dramatic flow rate advantages
- SELECT - high surface area and flow rates
- Ultraclean - <5ppb metals extractables
- Wet-packed
- Capsules
- High particle retention efficiencies





Hard Disk Media

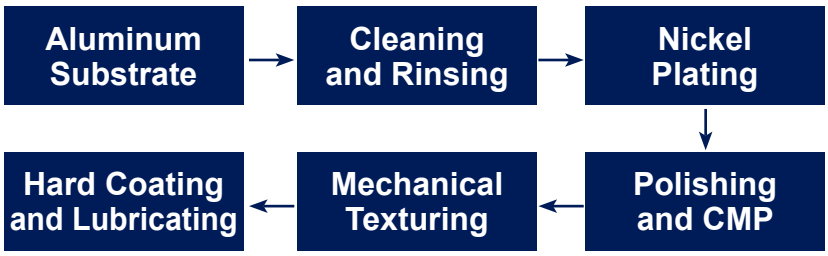
Crucial to the manufacture of disk media is the nickel-plating of the disks. This process is highly sensitive to both chemistry changes and interactions, and to contamination from high metallic dirt loadings. Understanding the plating requirements in the different parts of this process, we offer various ranges of filters:

Fluoroflow: fluoropolymer filters suitable for the aggressive chemical environment found in the plating process

Fluoroflow SELECT: a high-flow version of Fluoroflow with longer life

Clariflow: polyethersulfone membrane filters that provide extremely high bath recovery rates during disk cleaning

Clariflow SELECT: a high-flow version of Clariflow with longer life. All products enable high product yields and low reject rates, allowing for the lowest CPU (cost per unit).

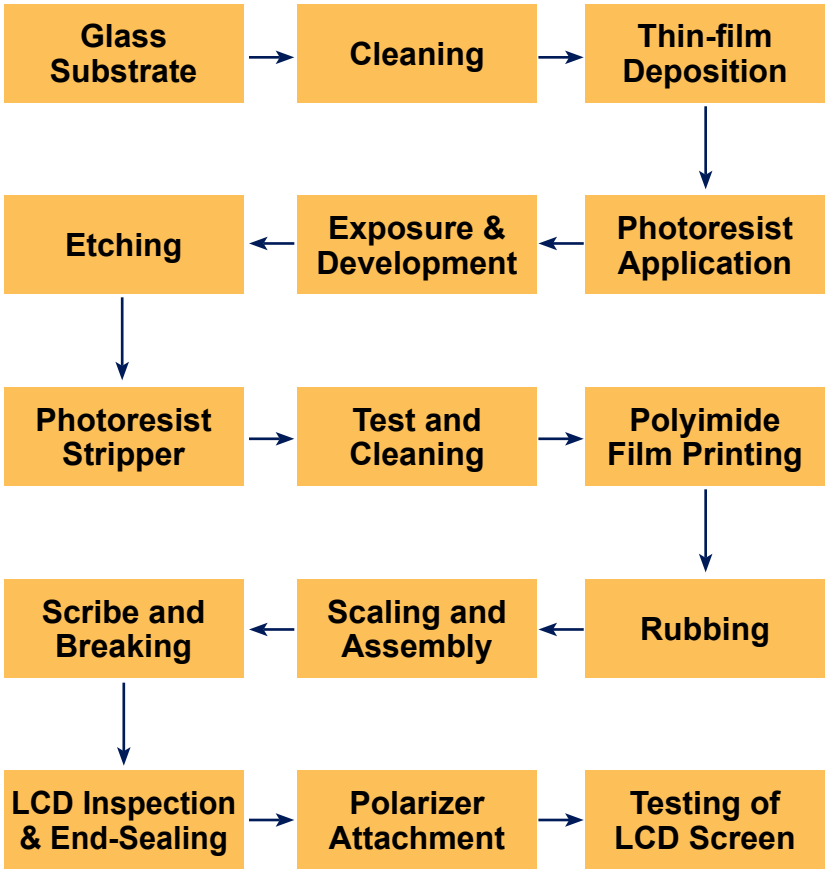


Flat Panel Displays

In the production of flat panel displays, the highest priority is to remove particulate contamination from process chemicals, including a wide variety of photoresists, developers, etchants and other chemical strippers.

To ensure consistent chemistry across all these chemistries, we offer ranges of filters that combine high flow capacities with high particle reduction efficiencies:

Polyflow:
polypropylene depth media
Polyflow membrane:
polypropylene membrane
Proflow: PTFE membrane



Microfiltration Products

Engineered for Microelectronic Applications

At Parker we see every microelectronics application as an opportunity to provide a total filtration solution. We have this capability due to our constant drive to be at the leading edge of filtration technology. Our innovative engineering teams work closely with our dedicated worldwide support network resulting in unparalleled customer satisfaction.

FLUOROFLOW®
100% Fluoropolymer construction

FLUOROCAP®
100% Fluoropolymer capsules

CHEMFLOW® PE
PTFE Membrane / High Density Polyethylene construction

CLARIFLOW®
Polyethersulfone (PES) Membrane / Polypropylene construction

PROFLOW II®
PTFE Membrane / Polypropylene construction

POLYFLOW® MEMBRANE
Polypropylene Membrane / Polypropylene construction

POLYFLOW®
Polypropylene absolute – and nominal-rated depth media Polypropylene structure

A wide variety of housings is available. Contact your Parker Filtration Sales Representative for more details.

Parker offers a wide range of microfiltration products for critical liquid and gas applications, with particle removal ratings from 0.02 to 40 micron.

Our products will consistently meet your exacting performance and compatibility requirements – even in processes using aggressive chemicals. Our products can offer metal extractables <5ppb.

Microfiltration Products

Engineered for Microelectronic Applications

Product line	Available Configurations	Filter Ratings (microns)	SELECT* and Ultraclean	Typical Applications
FLUOROFLOW® 100% Fluoropolymer Construction	Cartridge	0.03, 0.05, 0.1, 0.2, 0.45, 1	S U XF XL	• Critical filtration of aggressive acids, bases, strippers, and solvents • Available for high temperature applications
FLUOROCAP® 100% Fluoropolymer Construction Capsules	Capsule	0.03, 0.05, 0.1, 0.2	S U XF XL	• Encapsulated filter for critical filtration of aggressive chemicals and process fluids under harsh conditions where the introduction of contamination during cartridge change out is a concern • Available for high temperature applications
CHEMFLOW® PE & XF PTFE Membrane / High Density Polyethylene Structure	Cartridge	0.03, 0.05, 0.1, 0.2, 1	S XF	• Purification of photoresists, chemicals and etch baths • Filtration of solvents, cleaning solutions
CLARIFLOW® Polyethersulfone (PES) Membrane / Mini Polypropylene Structure	Cartridge Mini-Capsule Mini-Cartridge	0.02, 0.04, 0.1, 0.2, 0.45, 0.65, 0.8	S	• Aqueous based chemicals; recirculating etch baths; UPW systems
PROFLOW II® PTFE Membrane / Polypropylene / Mini Structure	Cartridge Mini-Capsule Mini-Cartridge	0.03, 0.05, 0.1, 0.2, 0.45, 1	S	• Ultrapure chemicals and gas processing; photochemical processing • Bulk chemical distribution
POLYFLOW® MEMBRANE Polypropylene Nominal Rated Membrane / Polypropylene Structure	Cartridge	0.04, 0.07, 0.1, 0.2	S	• Filtration of photochemicals and ultrapure chemicals • Gas filtration
POLYFLOW® Polypropylene Absolute Rated Depth Media / Polypropylene Structure *Patent pending	Cartridge Mini-Capsule Mini-Cartridge	0.6, 1.2, 2.5, 5, 10, 20, 40		• DI water prefiltration • Solvent and gas prefiltration • General filtration

S *SELECT Technology* U *Ultraclean Technology* XF *XF Technology* XL *XL Technology*

S The revolutionary SELECT technology filter cartridges can improve and lower the costs of wafer processing. Imagine: up to 80% more effective filtration area – with twice the throughput. All of this with a particle retention of >99.99% from a product that is cleanroom manufactured and tested.

U Ultraclean technology leads the microelectronics industry in cleanliness. Ultraclean is a proprietary process applied to electronics grade products. It provides a total metals extractables level of <5ppb. Ultraclean's low level of metals extractables provides users with a highly consistent manufacturing process and very low product reject rates.

XF XF is a revolutionary membrane technology. It provides superior flow over traditional cartridges by utilizing an asymmetric PTFE membrane. XF cartridges offer up to three times the flow rate and throughput at lower differential pressure.

XL XL technology provides maximum flow rate and lifetime. It combines SELECT technology with a larger diameter cartridge (3.25") for the highest flows in the industry.

Parker Hannifin Corporation is committed to provide the highest quality product to our customers. To this end, our ISO 9001:2000 certified Quality System ensures that this occurs. At Parker Hannifin Corporation, we do our best to resolve all quality issues in a quick and timely manner. In addition, we strive to eliminate problems before they are seen. By taking this continuously proactive approach to the quality of all of our products, Parker Hannifin Corporation has the best product on the market at all times.

Wet Etch and Clean

Fluoroflow®

All-fluoropolymer cartridge for aggressive applications

The Fluoroflow® filter cartridge is our standard product for aggressive wet etch and clean applications.
It provides good flow rates and on-stream life at an economical cost. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 150°C. It is available either ozone DI flushed and dried or wet-packed for quick installation.

Benefits

- Economical
- Wet-pack option for quick installation
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®

Specifications

Materials of Construction
100% Fluoropolymer construction

Effective Filtration Area
6.8ft² (0.63m²) per nominal 10" (250mm) cartridge

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward 80psid (5.5bar) @ 75ºF (24ºC)
55psid (3.8bar) @ 167ºF (75ºC)
30psid (2.0bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 300ºF (150ºC)

Reverse 50psid (3.4bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 250ºF (121ºC)

Cleanliness (particle shedding)
Wet-packed <2 particles/ml >0.2µm after 7gal at 1gal/min

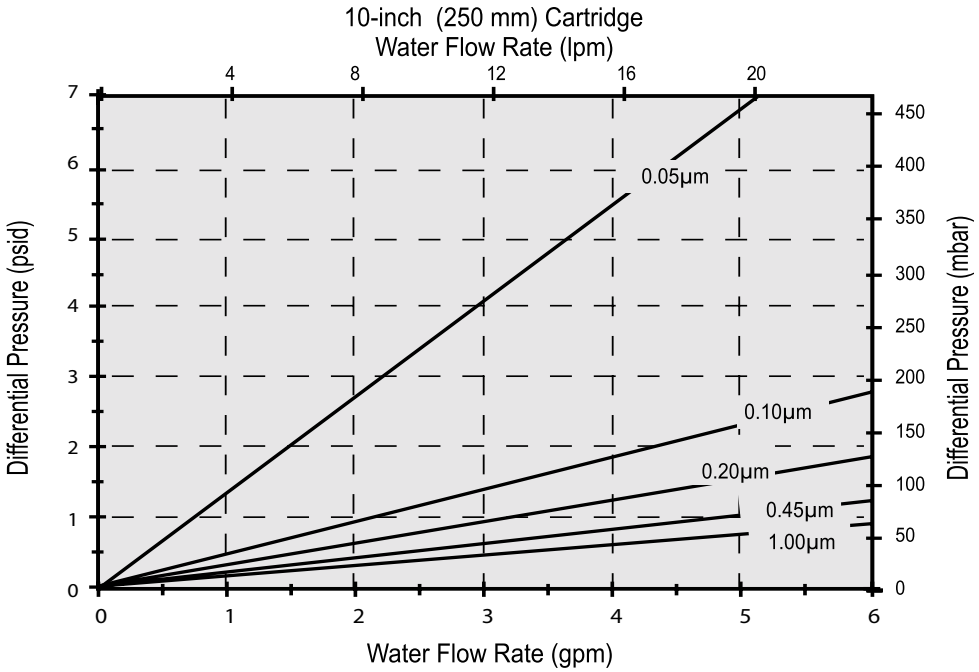
TOC/Resistivity Rinse-up (wet-packed)
TOC recovery within 3-5ppb of feed without additional rinse-up. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.05µm	0.9gpm/psid (4.9lpm/100mbar)
0.10µm	2.3gpm/psid (12.7lpm/100mbar)
0.20µm	3.2gpm/psid (17.6lpm/100mbar)
0.45µm	4.7gpm/psid (25.8lpm/100mbar)
1.00µm	6.7gpm/psid (36.9lpm/100mbar)

*Per 10" (250mm) cartridge equivalent



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

33 – 14 □ □ □ – □ □ □ – □ – E □

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Nominal Length

CODE	LENGTH
04	4" (102mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
925	0.05µm
001	0.1µm
002	0.2µm
004	0.45µm
010	1µm
503	100 (Nominal)

O-Rings

CODE	MATERIAL
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
7	Chemraz®
N	None
K	Kalrez

Options

CODE	TREATMENT
Blank	UPW Flush and Dry
F	Ozone UPW Flush and Dry
W	Wet Packed
U	Ultraclean (pre-wet)

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-HSA

Increased performance all-fluoropolymer cartridge for aggressive applications

The Fluoroflow®-HSA filter cartridge provides good flow rates and on-stream life. The enhanced pleating provides more than 40% more surface area than our standard Fluoroflow®. This results in increased bath turnover and longer filter lifetime demanded by today's fabs. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Increased filtration area for longer life
- Higher flow rates for increased bath turn over
- Wet-pack option for quick installation
- Ultraclean wet-pack option for absolute cleanliness
- All-fluoropolymer for most maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-HSA

Specifications

Materials of Construction

100% Fluoropolymer construction

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

4.8ft² (0.45 m²) 4" (100mm) cartridge
9.8ft² (0.91 m²) 10" (250mm) cartridge

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
55psid (3.8bar) @ 167ºF (75ºC)
30psid (2.0bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 300ºF (150ºC)

Forward
HT option: 100psid (6.8bar) @ 75ºF (24ºC)
75psid (5.1bar) @ 167ºF (75ºC)
50psid (3.4bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 356ºF (180ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 250ºF (121ºC)

Cleanliness (particle shedding)

Wet-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)

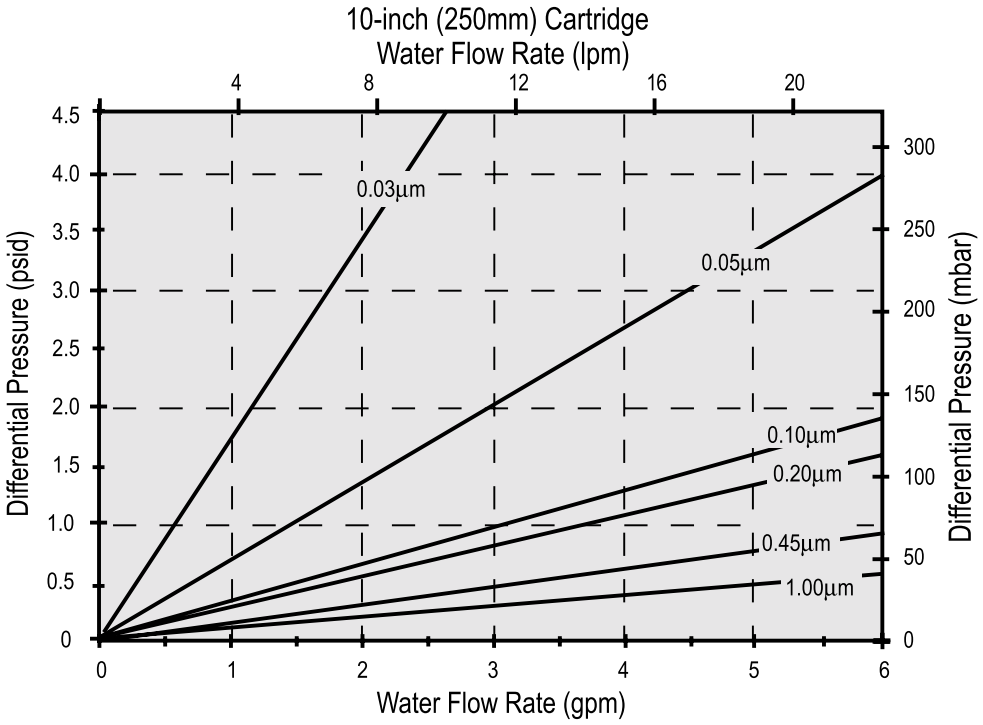
TOC recovery within 3-5ppb of feed without additional rinse-up. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.03µm	0.65gpm/psid (3.6lpm/100 mbar)
0.05µm	1.5gpm/psid (8.2lpm/100 mbar)
0.10µm	3.2gpm/psid (17.6lpm/100 mbar)
0.20µm	3.9gpm/psid (21.5lpm/100 mbar)
0.45µm	7.0gpm/psid (38.5lpm/100 mbar)
1.00µm	10.0gpm/psid (55.0lpm/100 mbar)

*Per 10" (250mm) cartridge equivalent



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

33 – 18 [ ] [ ] [ ] – [ ] [ ] [ ] – [ ] – [ ] [ ]

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Nominal Length

CODE	LENGTH
04	4" (102mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
923	0.03µm
925	0.05µm
001	0.1µm
002	0.2µm
004	0.45µm
010	1µm
503	100 (Nominal)

O-Rings

CODE	MATERIAL
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
7	Chemraz®
N	None
K	Kalrez

Options

CODE	TEMPERATURE
E	Electronic Standard (150˚C Max)
H*	High Temperature (180˚C Max)

* High Temperature is available only in 4", 10" and 20" lengths

Options

CODE	TREATMENT
Blank	UPW Flush and dried
F	Ozone UPW Flush and dried
W	Wet Packed
U	Ultraclean (pre-wet)

Specifications are subject to change without notification.
Flouroflow is a registered trademark of Parker Hannifin Corporation.
Viton and Kalrez are registered trademarks of E.I. DuPont de Nemours & Co., Inc.
Chemraz is a registered trademark of Green, Tweed Inc.

SPEC-33-HSA Rev F 04/08

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-Select

High performance all-fluoropolymer cartridge for aggressive applications

The Fluoroflow®-SELECT filter cartridge provides exceptional flow rates and on-stream life. It utilizes our unique SELECT pleating technology that increases filtration area and flow rate by over 70% versus our standard Fluoroflow®. This results in increased bath turnover and longer filter lifetime demanded by today's fabs. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Large filtration area for longer life
- High flow rates for increased bath turn over
- Wet-pack option for quick installation
- Ultraclean wet-pack option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-Select

Specifications

Materials of Construction

100% Fluoropolymer construction

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

6.0ft² (0.56 m²) 4" (100mm) cartridge
12.2ft² (1.1 m²) 10" (250mm) cartridge

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward 80psid (5.5bar) @ 75ºF (24ºC)
55psid (3.8bar) @ 167ºF (75ºC)
30psid (2.0bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 300ºF (150ºC)

Forward
HT option 100psid (6.8bar) @ 75ºF (24ºC)
75psid (5.1bar) @ 167ºF (75ºC)
50psid (3.4bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 356ºF (180ºC)

Reverse 50psid (3.4bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 250ºF (121ºC)

Cleanliness (particle shedding)

Wet-packed <2 particles/ml >0.2µm after 7gal at 1gal/min

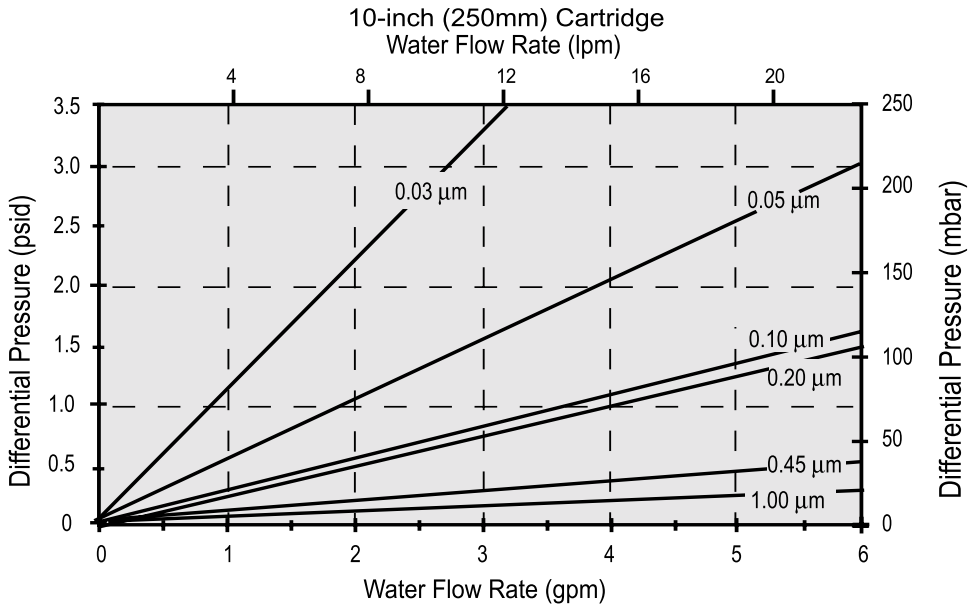
Dry-packed <2 particles/ml >0.2µm after 12gal at 1gal/min

Performance Attributes

Water Flow rates, Typical *

0.03µm 0.85gpm/psid (4.7lpm/100mbar)
0.05µm 2.0gpm/psid (11.0lpm/100mbar)
0.10µm 4.1gpm/psid (22.6lpm/100mbar)
0.20µm 4.6gpm/psid (25.3lpm/100mbar)
0.45µm 10.5gpm/psid (57.6lpm/100mbar)
1.00µm 16.0gpm/psid (87.8lpm/100mbar)

*Per 10" (250mm) cartridge equivalent



TOC/Resistivity Rinse-up (wet-packed)

TOC recovery within 3-5ppb of feed without additional rinse-up.
Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

FS – 18 [ ] [ ] [ ] – [ ] [ ] [ ] – [ ] – [ ] [ ]

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Nominal Length

CODE	LENGTH
04	4" (100mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

O-Rings

CODE	MATERIAL
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
7	Chemraz®
N	None
K	Kalrez

Options

CODE	TEMPERATURE
E	Electronic Standard (150˚C Max)
H*	High Temperature (180˚C Max)

*HT is only available in 4", 10" and 20" lengths

Treatments

CODE	DESCRIPTIONS
Blank	UPW Flush and dried
F	Ozone UPW Flush and dried
W	Wet Packed
U	Ultraclean (pre-wet)

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-XF

Highest-flowing all-fluoropolymer cartridge for the most aggressive applications

The Fluoroflow®-XF filter cartridge uses a superior asymmetric PTFE membrane than provides unmatched flow rates and on-stream life. Customers using the cartridge for viscous fluids like phosphoric acid, have reported flow rates and lifetimes more than twice that of the leading competitor. The advantages of increased bath turnover and longer lifetime improve yields while decreasing filtration costs. In addition, the all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Available dry, wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Highest flow rates in the industry
- Longest lifetime
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Hot phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-XF

Specifications

Materials of Construction

Asymmetric PTFE membrane
All-fluoropolymer support and structure

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

SELECT 11.4 ft² (1.03m²) per nominal 10" (250mm) cartridge

Standard 6.8 ft² (0.61m²) per nominal 10" (250mm) cartridge

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward
SELECT 80psid (5.5bar) @ 75ºF (24ºC)

Standard 60psid (4.1bar) @ 75ºF (24ºC)
HT option 15psid (1.0bar) @ 356°F (180°C)

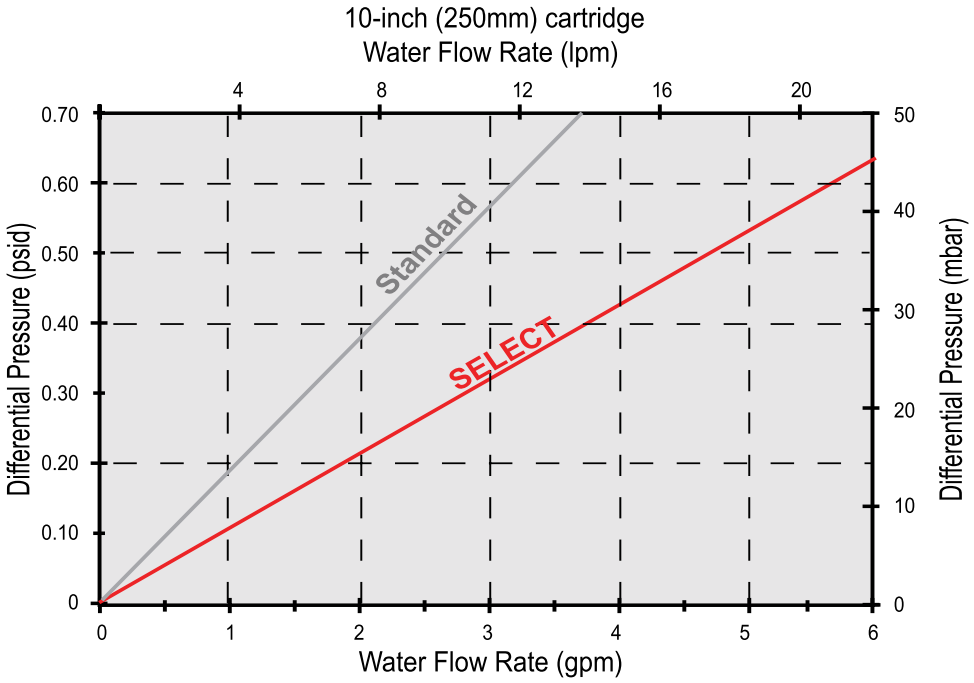
Reverse
SELECT 50psid (3.4bar) @ 75ºF (24ºC)

Standard 40psid (2.8bar) @ 75ºF (24ºC)
HT option 15psid (1.0bar) @ 250°F (121°C)

Performance Attributes

Water Flow rates, Typical *
SELECT 9.5gpm/psid (52.2lpm/100mbar)
Standard 5.7gpm/psid (31.3lpm/100mbar)

*Per 10" (250mm) cartridge equivalent



Cleanliness (particle shedding)

Wet-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

Data is from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

TOC recovery within 5ppb of feed without additional rinse-up
Resistivity recovery within 0.2 megohm-cm of feed after 12gal @ 1gpm.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

		–					–						–		–			
									0	3	1							

Pleat Technology

CODE	DESCRIPTION
FS-18	SELECT
33-14	Standard

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Nominal Length

CODE	LENGTH
04	4" (100mm)
10	10" (250mm)
20	20" (500mm)
30*	30" (750mm)

*HT is not available in 30" length

Filter Rating

CODE	MICRON
031	0.10µm XF

O-Rings

CODE	MATERIAL
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
7	Chemraz®
N	None
K	Kalrez

Options

CODE	TEMPERATURE
E	Electronic Standard (150°C Max)
H	High Temperature (180°C Max)

Treatment

CODE	DESCRIPTION
Blank	Dry Packed (STD)
W	Wet Packed
U	Ultraclean (pre-wet)
F	Ozone Flush and dried

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-XL

Highest-performance all-fluoropolymer cartridge for aggressive applications

The Fluoroflow®-XL filter cartridge is setting the new standard for exceptional flow rates and on-stream life. It utilizes a larger diameter cartridge (3.25”) combined with our unique SELECT pleating technology that increases filtration area and flow rate by over 70%. This results in increased bath turnover and longer filter lifetime demanded by today’s advanced 300mm fabs. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Its integral filter design maximizes up-time with safe and simple change-outs. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Extra large filtration area for longer life
- Highest flow rates for maximum bath turn over
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluoroflow®-XL

Specifications

Materials of Construction

100% Fluoropolymer construct

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area per 10" (250mm) Cartridge

22.5ft² (2.04 m²) 0.03µm
21.5ft² (1.99 m²) 0.05µm
18.5ft² (1.71 m²) 0.10µm

Metals Extractables*

Standard: <30ppb (total)
Ultraclean: <7ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 70psid (5.5bar) @ 75ºF (24°C)
50psid (3.8bar) @ 167ºF (75°C)
30psid (2.0bar) @ 257ºF (125ºC)
15psid (1.0bar) @ 300ºF (150ºC)

Forward
HT option: 15psid (1.0bar) @356ºF (180ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 250ºF (121ºC)

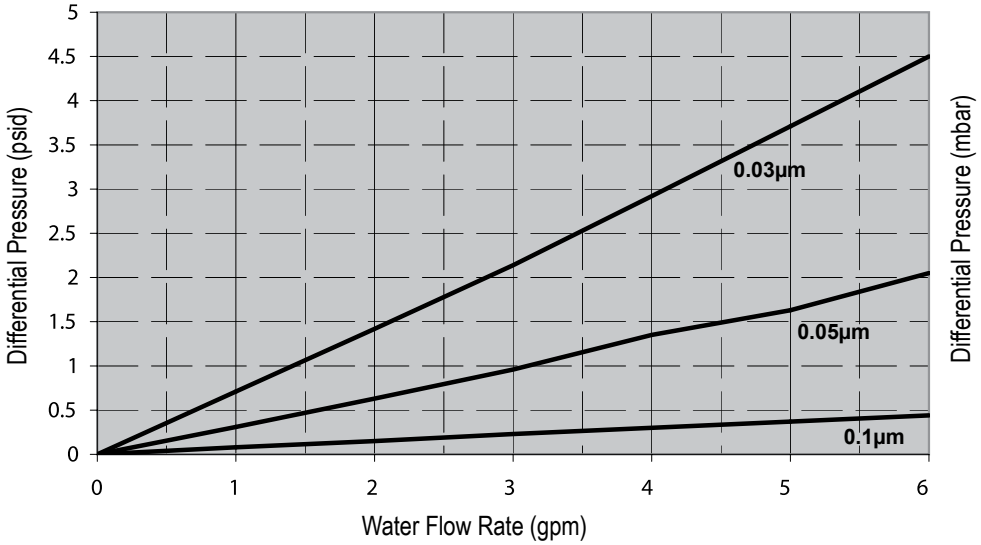
Performance Attributes

Water Flow rates, Typical *

0.03µm 1.4gpm/psid (7.7lpm/100mbar)
0.05µm 3.3gpm/psid (18.2lpm/100mbar)
0.10µm 13.0gpm/psid (71.3lpm/100mbar)

*Per 10" (250mm) cartridge equivalent

10-inch (250mm)
Typical Water Flow Rate (lpm)



Cleanliness (particle shedding)

Wet-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

Dry-packed: <2 particles/ml >0.2µm after 12gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)

TOC recovery within 3-5ppb of feed without additional rinse-up. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

FL – 18 3 □ □ – □ □ □ – □ – □ □

End Fitting

CODE	DESCRIPTION
3	222 Flat

Nominal Length

CODE	LENGTH
04	4" (100mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)

Filter Rating

CODE	MICRON
923	0.03µm
925	0.05µm
031	0.10µm

O-Rings

CODE	MATERIAL
5	FEP-Encapsulated Viton*
7	Chemraz®
K	Kalrez
N	None

Options

CODE	TEMPERATURE
E	Electronic Standard (150°C Max)
H*	High Temperature (180°C Max)

*H is only available in 4", 10" and 20" lengths

Treatments

CODE	DESCRIPTIONS
Blank	UPW Flush and dried
W	Wet Packed
U	Ultraclean (pre-wet)
F	Ozone Flush and dried

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

ENGINEERING **YOUR** SUCCESS.

Fluorocap®

All-fluoropolymer capsule for the most aggressive applications

The Fluorocap® encapsulated filter cartridge is our standard product for aggressive wet etch and clean applications. It provides good flow rates and on-stream life at an economical price. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Its integral filter design maximizes up-time with safe and simple change-outs. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Economical
- Wide range of configurations and ratings
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Hot phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluorocap®

Specifications

Materials of Construction
100% Fluoropolymer construction
All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area
9.8 ft² (0.9m²) per 10" filter length

Metals Extractables*
Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature
Forward: 80psid (5.5bar) @ 75°F (24°C)
Standard: 55psid (3.8bar) @ 167°F (75°C)
30psid (2.0bar) @ 257°F (125°C)
15psid (1.0bar) @ 300°F (150°C)

Forward: 100psid (6.8bar) @ 75°F (24°C)
HT Option: 75psid (5.1bar) @ 167°F (75°C)
50psid (3.4bar) @ 257°F (125°C)
15psid (1.0bar) @ 356°F (180°C)

Reverse: 50psid (3.4bar) @ 75°F (24°C)
15psid (1.0bar) @ 250°F (121°C)

Performance Attributes

Water Flow rates, Typical*
0.03µm 0.65gpm/psid (3.3lpm/100mbar)
0.05µm 1.5gpm/psid (8.2lpm/100mbar)
0.10µm 3.2gpm/psid (17.6lpm/100mbar)
0.20µm 4.1gpm/psid (22.5lpm/100mbar)
0.45µm 6.6gpm/psid (36.2lpm/100mbar)
1.00µm 8.9gpm/psid (49.0lpm/100mbar)

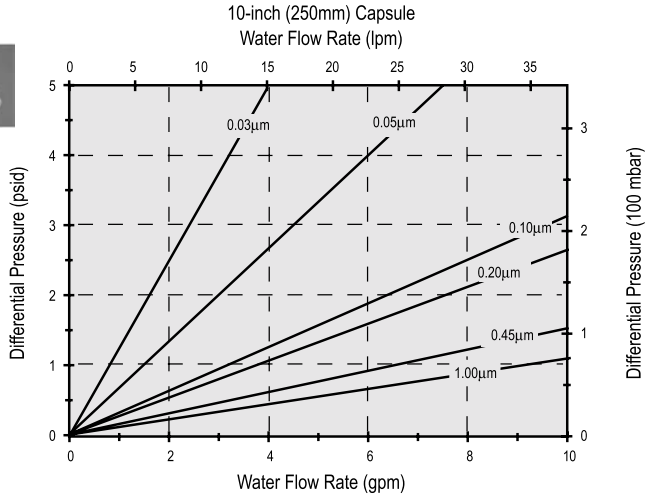
*Flow rates are for in-line Fluorocaps with 3/4" Parflare fittings.

Cleanliness (particle shedding)
Wet-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)
TOC recovery within 3-5ppb of feed after 12gal @ 1gpm. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Flow Direction Options

T L R



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

F [ ] - C [ ] [ ] 1 [ ] [ ] - [ ] [ ] [ ]

Style	
CODE	DESCRIPTION
F	In-Line

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Options	
CODE	TEMPERATURE
C	Flourocap-Standard (150°C max)
H	High Temperature (180°C max)

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)
2	20" (500mm)
3	30" (750mm)
4	10" (250mm) (Short)

Connections*			
CODE	DESCRIPTION	CODE	DESCRIPTION
B	3/4" Buttweld	K	3/4" Pillar 90°
C	3/8" Parflare 90°	P	3/4" MNPT
D	1/2" Parflare 90°		
E	3/4" Parflare 90°		
F	3/4" Parflare		
G	3/8" Parflare		
H	1/2" Parflare		
J	3/4" Flarelock®		

Vent Alignment	
CODE	ALIGNMENT
S	Same Side
D	180¼ Opposite Side

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

[ ] [ ] - C [ ] [ ] 1 [ ] [ ] - [ ] [ ] [ ]

Style	
CODE	DESCRIPTION
T	T-Style
L	L-Style (Left)
R	R-Style (Right)

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Options	
CODE	TEMPERATURE
C	Flourocap-Standard (150°C max)
H	High Temperature (180°C max)

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)
2	20" (500mm)
3	30" (750mm)
4	10" (250mm) (Short)

Connections*			
CODE	DESCRIPTION	CODE	DESCRIPTION
F	3/4" Parflare	W	3/4" Pillar
J	3/4" Flarelock®	Y	3/4" SP 300

Vent Alignment	
CODE	ALIGNMENT
C	Centered

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

*Vent/Drain connections are 1/4" versions of the inlet/outlet fittings, except for codes K and W which are 1/2" Pillar vent/drain fittings.

ENGINEERING **YOUR** SUCCESS.

153

Fluorocap®-Select

High performance all-fluoropolymer capsule for the most aggressive applications

The Fluorocap®-SELECT encapsulated filter cartridge provides exceptional flow rates and on-stream life. It utilizes our unique SELECT pleating that increases filtration area and flow by over 25% compared to our standard Fluorocap®. This results in increased bath turnover and longer filter lifetime demanded by today's fabs. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Its integral filter design maximizes up-time with safe and simple change-outs. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Large filtration area for longer life
- High flow rates for maximum bath turn over
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Hot phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluorocap®-Select

Specifications

Materials of Construction

100% Fluoropolymer construction
All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

12.2 ft² (1.1m²) per 10" (250mm) for 0.03 & 0.05µm
11.4 ft² (1.0m²) per 10" (250mm) for other ratings

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/Temperature

Forward: 80psid (5.5bar) @ 75°F (24°C)
Standard: 55psid (3.8bar) @ 167°F (75°C)
30psid (2.0bar) @ 257°F (125°C)
15psid (1.0bar) @ 300°F (150°C)

Forward: 100psid (6.8bar) @ 75°F (24°C)
HT Option: 75psid (5.1bar) @ 167°F (75°C)
50psid (3.4bar) @ 257°F (125°C)
15psid (1.0bar) @ 356°F (180°C)

Reverse: 50psid (3.4bar) @ 75°F (24°C)
15psid (1.0bar) @ 250°F (121°C)

Performance Attributes

Water Flow rates, Typical *

0.03µm 0.85gpm/psid (4.6lpm/100mbar)
0.05µm 2.0gpm/psid (11.0lpm/100mbar)
0.10µm 4.1gpm/psid (22.5lpm/100mbar)
0.20µm 4.6gpm/psid (25.3lpm/100mbar)
0.45µm 9.6gpm/psid (52.7lpm/100mbar)
1.00µm 14.8gpm/psid (81.3lpm/100mbar)

* Flow rates shown are for FluoroCap filters with 3/4" Parflare™ (in-line) fittings.

Cleanliness (particle shedding)

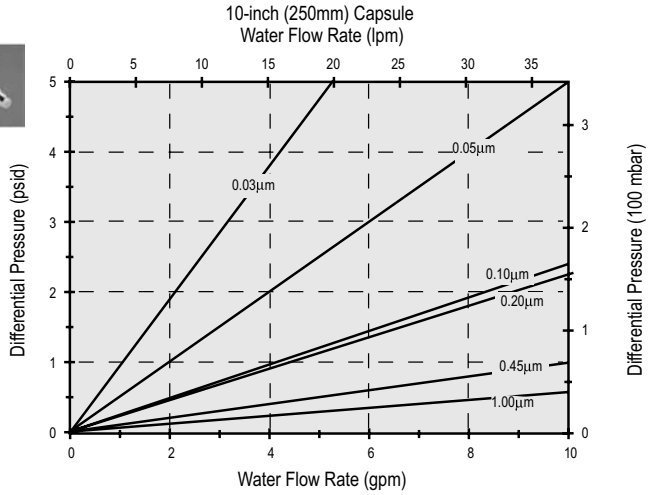
Wet-packed: 2 particles/ml >0.2µm after 7gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)

TOC recovery within 3-5ppb of feed after 12gal @ 1gpm. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Flow Direction Options

T L R



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

F [ ] - [ ] [ ] 2 [ ] [ ] - [ ] [ ] [ ]

Style	
CODE	DESCRIPTION
F	In-Line

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Options	
CODE	TEMPERATURE
C	Flourocap-Standard (150°C max)
H	High Temperature (180°C max)

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)
2	20" (500mm)
3	30" (750mm)
4	10" (250mm) (Short)

Connections*			
CODE	DESCRIPTION	CODE	DESCRIPTION
B	3/4" Buttweld	K	3/4" Pillar 90°
C	3/8" Parflare 90°	P	3/4" MNPT
D	1/2" Parflare 90°		
E	3/4" Parflare 90°		
F	3/4" Parflare		
G	3/8" Parflare		
H	1/2" Parflare		
J	3/4" Flarelock®		

Vent Alignment	
CODE	ALIGNMENT
S	Same Side
D	180° Opposite Side

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

[ ] [ ] - [ ] [ ] 2 [ ] [ ] - [ ] [ ] [ ]

Style	
CODE	DESCRIPTION
T	T-Style
L	L-Style (Left)
R	R-Style (Right)

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Options	
CODE	TEMPERATURE
C	Flourocap-Standard (150°C max)
H	High Temperature (180°C max)

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)

Connections*			
CODE	DESCRIPTION	CODE	DESCRIPTION
F	3/4" Parflare	W	3/4" Pillar
J	3/4" Flarelock®	Y	3/4" SP300

Vent Alignment	
CODE	ALIGNMENT
C	Centered

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

* Vent/Drain connections are 1/4" versions of the inlet/outlet fittings, except for codes K and W which are 1/2" Pillar vent/drain fittings.

Specifications are subject to change without notification.
FluoroCap is a registered trademark of Parker Hannifin Corporation.
Parflare is a trademark of Parker Hannifin Corporation.
FlareLock is a trademark of Fluoroware, Inc.
*US Patents Pending 4,588,464 and 4,663,041

SPEC-FCAP-SELECT Rev H 04/08

ENGINEERING **YOUR** SUCCESS.

155

Fluorocap®-XF

Highest-flowing all-fluoropolymer capsule for the most aggressive applications

The Fluorocap®-XF encapsulated filter cartridge uses a superior asymmetric PTFE membrane than provides unmatched flow rates and on-stream life. Customers using the capsule for viscous fluids like phosphoric acid, have reported flow rates and lifetimes more than twice that of the leading competitor. The advantages of increased bath turnover and longer lifetime improve yields while decreasing filtration costs. In addition, the all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Its integral filter design maximizes up-time with safe and simple change-outs. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Highest flow rates in the industry
- Longest lifetime
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Hot phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1,SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluorocap®-XF

Specifications

Materials of Construction
Asymmetric PTFE membrane
100% Fluoropolymer construct
All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area
11.4ft² (1.03m²) per 10" (250mm)

Metals Extractables*

Standard: <20ppb (total)
Ultraclean: <5ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: SELECT 80psi (5.5bar) @ 75°F (24°C)
Standard 60psi (4.1bar) @ 75°F (24°C)
Forward
HT Option: SELECT 12.5psi (0.9bar) @ 356°F (180°C)
Standard 20psi (1.3bar) @ 356°F (180°C)

Reverse: SELECT 50psi (3.4bar) @ 75°F (24°C)
Standard 40psi (2.8bar) @ 75°F (24°C)

Performance Attributes

Water Flow rates, Typical *
SELECT 7.8gpm/psid (52.2lpm/100mbar)
Standard 4.7gpm/psid (31.3lpm/100mbar)

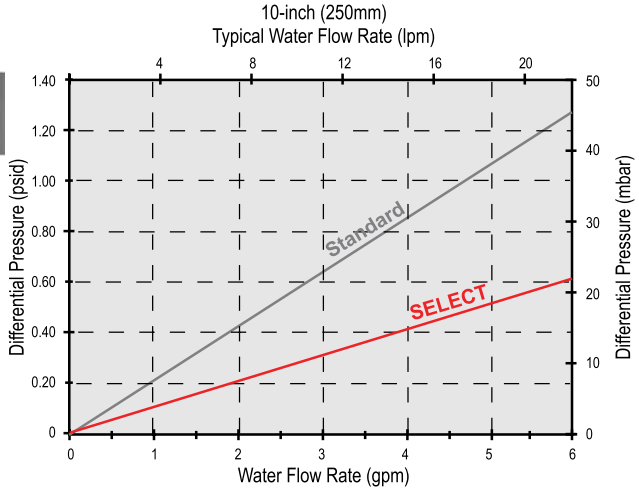
*Flow rates are for in-line Fluorocaps with 3/4" Parflare fittings.

Cleanliness (particle shedding)
Wet-packed: <2 particles/ml >0.2µm after 5gal at 1gpm
Dry-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)
TOC recovery within 3-5ppb of feed after 12gal @ 1gpm. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.

Flow Direction Options

T L R



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

F - _ _ _ _ _ - 0 3 1

Style	
CODE	DESCRIPTION
F	In-Line

Temperature	
CODE	DESCRIPTION
C	Standard up to 150°C
H	High temp up to 180°C

Pleating	
CODE	DESCRIPTION
2	SELECT
1	Standard

Connections*			
CODE	DESCRIPTION	CODE	DESCRIPTION
B	3/4" Buttweld	K	3/4" Pillar 90°
C	3/8" Parflare 90°	P	3/4" MNPT
D	1/2" Parflare 90°		
E	3/4" Parflare 90°		
F	3/4" Parflare		
G	3/8" Parflare		
H	1/2" Parflare		
J	3/4" Flarelock®		

Filter Rating	
CODE	MICRON
031	0.1µm XF

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)
2	20" (500mm)
3	30" (750mm)
4	10" shortened

Vent Alignment	
CODE	ALIGNMENT
S	Same Side
D	180 Opposite Side

_ _ _ _ _ _ - 0 3 1

Style	
CODE	DESCRIPTION
T	T-Style
L	L-Style (Left)
R	R-Style (Right)

Temperature	
CODE	DESCRIPTION
C	Standard up to 150°C
H	High temp up to 180°C

Pleating	
CODE	DESCRIPTION
2	SELECT
1	Standard

Connections*	
CODE	DESCRIPTION
W	3/4" Pillar
Y	3/4" SP300
F	3/4" Parflare
J	3/4" Flarelock®

Filter Rating	
CODE	MICRON
031	0.1µm XF

Treatment	
CODE	DESCRIPTION
C	Dry Packed (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Element Length	
CODE	LENGTH
0	4" (100mm)
1	10" (250mm)

Vent Alignment	
CODE	ALIGNMENT
C	Centered

* Vent/Drain connections are 1/4" versions of the inlet/outlet fittings, except for codes K and W which are 1/2" Pillar vent/drain fittings.

ENGINEERING **YOUR** SUCCESS.

Fluorocap®-XL

Highest-performance all-fluoropolymer capsule for the most aggressive applications

The Fluorocap®-XL encapsulated filter cartridge is setting the new standard for exceptional flow rates and on-stream life. It utilizes a larger diameter cartridge combined with our unique SELECT pleating that increases filtration area by over 70%. This results in increased bath turnover and longer filter lifetime demanded by today's advanced 300mm fabs. The all-fluoropolymer construction provides excellent chemical resistance for the most aggressive applications up to 180°C. Its integral filter design maximizes up-time with safe and simple change-outs. Available wet-packed for quick installation or Ultraclean wet-packed which offers the lowest metals extractables in the industry.

Benefits

- Extra large filtration area for longer life
- Highest flow rates for maximum bath turn over
- Wet-pack option for quick installation
- Ultraclean option for absolute cleanliness
- All-fluoropolymer for maximum chemical resistance
- 100% integrity tested for consistent quality

Applications

- Wet etch and clean
  - Hot phosphoric acid
  - Sulfuric acid
  - Hydrofluoric acid
  - Nitric acid
  - Piranha
  - SC1, SC2
  - NMP-based solvents
- Other high temperature or ozonated processes

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fluorocap®-XL

Specifications

Materials of Construction

100% Fluoropolymer construction

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area per 10" (250mm) Cartridge

22.5ft² (2.04 m²) 0.03µm
21.5ft² (1.99 m²) 0.05µm
18.5ft² (1.71 m²) 0.10µm

Metals Extractables*

Standard: <30ppb (total)
Ultraclean: <7ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24°C)
Standard: 50psid (3.4bar) @ 167ºF (75°C)
15psid (1.0bar) @ 300ºF (150ºC)
Forward
HT option: 15psid (1.0bar) @356ºF (180ºC)
Reverse: 50psid (3.4bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 250ºF (121ºC)

Performance Attributes

Water Flow rates, Typical *

0.03µm 1.2gpm/psid (6.6lpm/100mbar)
0.05µm 2.7gpm/psid (14.9lpm/100mbar)
0.10µm 6.5gpm/psid (35.8lpm/100mbar)

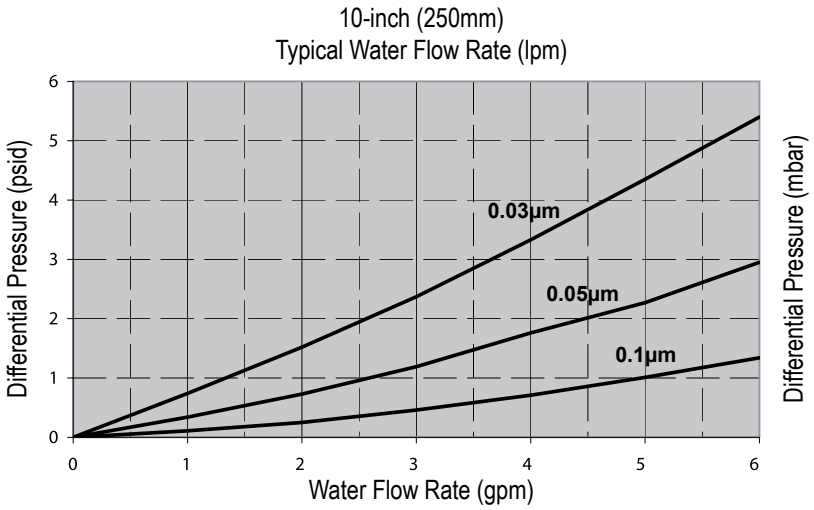
*Flow rates are for in-line Fluorocaps with 3/4" Parflare fittings.

Cleanliness (particle shedding)

Wet-packed: <2 particles/ml >0.2µm after 7gal at 1gpm

TOC/Resistivity Rinse-up (wet-packed)

TOC recovery within 3-5ppb of feed after 12gal @ 1gpm. Resistivity recovery within 0.4megohm-cm of feed after 22gal @ 1gpm.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

F L – ☐ ☐ ☐ ☐ – ☐ ☐ ☐

Style	
CODE	DESCRIPTION
F	In-Line

Treatment	
CODE	DESCRIPTION
C	Dry Padded (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Element Length	
CODE	DESCRIPTION
0	4" (100mm)
1	10" (250mm)
2	20" (500mm)
4	10" (250mm) (Short)

Options	
CODE	DESCRIPTION
C	Standard (150ºC max)
H	High Temperature (180ºC max)

Connections*	
CODE	DESCRIPTION
F	3/4" Parflare
J	3/4" Flarelock®

Vent Alignment	
CODE	DESCRIPTION
S	Same Side
D	180º Opposite Side

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
031	0.10µm

L – ☐ ☐ ☐ ☐ C – ☐ ☐ ☐

Style	
CODE	DESCRIPTION
T	T-Style
L	L-Style (left)

Treatment	
CODE	DESCRIPTION
C	Dry Padded (STD)
W	Ozonated UPW Flushed and Wet Packed
U	Ultraclean

Element Length	
CODE	DESCRIPTION
0	4" (100mm)
1	10" (250mm)

Options	
CODE	DESCRIPTION
C	Standard (150ºC max)
H	High Temperature (180ºC max)

Connections*	
CODE	DESCRIPTION
W	3/4" Pillar
Y	3/4" SP 300
F	3/4" Parflare
J	3/4" Flarelock®

Vent Alignment	
CODE	DESCRIPTION
C	Centered

Filter Rating	
CODE	MICRON
923	0.03µm
925	0.05µm
031	0.10µm

* Vent/Drain connections are 1/4" versions of the inlet/outlet fittings, except for codes K and W which are 1/2" Pillar vent/drain fittings.

Specifications are subject to change without notification.

ENGINEERING **YOUR** SUCCESS.

Chemflow®-PE

Chemically-resistant cartridge for bulk and lower temperature applications

The Chemflow®-PE filter cartridge uses a PTFE membrane along with HDPE supports that provide an economical alternative to all-fluoropolymer cartridges. It provides a high degree of retention and cleanliness along with good flow and lifetime. This filter is ideally suited for bulk chemical delivery and lower temperature wet processes (<60°C). It is available dry or wet-packed for quick installation.

Benefits

- Good flow rates
- Long lifetime
- Wet-pack option for quick installation
- PTFE/ HDPE construction for chemical resistance
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  - Acids, bases, solvents, photochemicals
  - Wet etch and clean (< 60°C)
  - Phosphoric acid
  - Hydrofluoric acid
  - Nitric acid
  - SC1,SC2
  - Solvents

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Chemflow®-PE

Specifications

Materials of Construction

Membrane	:	PTFE
Support Layers	:	HDPE
Structure	:	HDPE

Effective Filtration Area

8.3ft² (0.78m²) per 10" (250mm) cartridge

Metals Extractables*

Standard: <55ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Maximum Operating Temperature

140ºF (60ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 5gal at 1gpm

Data is from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

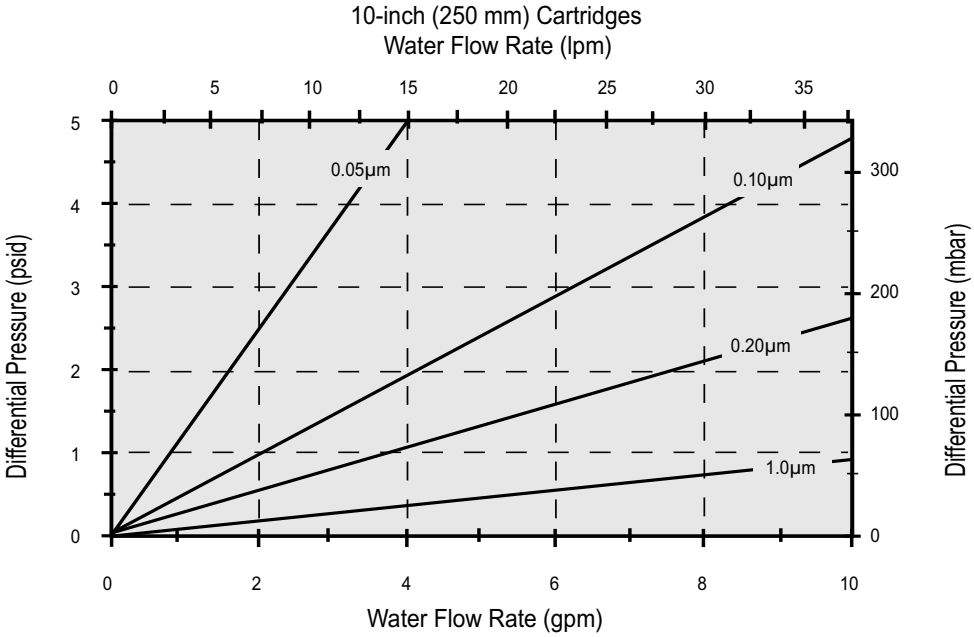
TOC rinse-up to background plus 5ppb of feed after 70gal @ 1gpm. Resistivity rinse-up to background minus 0.2 megohm-cm of feed after 60gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.05µm	0.8gpm/psid (4.39lpm/100mbar)
0.10µm	2.1gpm/psid (11.53lpm/100mbar)
0.20µm	3.8gpm/psid (20.86lpm/100mbar)
1.0µm	10gpm/psid (55.0lpm/100bar)

* Per 10-inch (250mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

PE – ☐ 0 ☐ ☐ ☐ – ☐ ☐ ☐ – ☐ – E ☐

Insert Style

CODE	DESCRIPTION
1	None (Std)
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
925	0.05µm
001	0.10µm
002	0.20µm
010	1.00µm

O-Ring Material

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5	FEP Encapsulated Viton

Options

CODE	TREATMENT
Blank	Standard
W	Wet Packed

ENGINEERING **YOUR** SUCCESS.

Chemflow®-XF

Highest-flowing cartridge for bulk and lower temperature chemical applications

The Chemflow®-XF filter cartridge uses a superior asymmetric PTFE membrane than provides unmatched flow rates and on-stream life. It is constructed with HDPE supports that provide an economical alternative to all fluoropolymer cartridges while still maintaining a high degree of retention and cleanliness. This filter is ideally suited for bulk chemical delivery and lower temperature wet processes (<60°C). Customers using the cartridge for viscous fluids like phosphoric acid, have reported flow rates and lifetimes more than twice that of the leading competitor. These advantages help improve yields while decreasing overall filtration costs. In bulk delivery applications, the high flow allows for reduced system sizing and associated savings. It is available dry or wet-packed for quick installation.

Benefits

- Highest flow rates in the industry
- Long lifetime
- Wet-pack option for quick installation
- PTFE/ HDPE construction for chemical resistance
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  - Acids, bases, solvents, photochemicals
- Wet etch and clean (< 60°C)
  - Phosphoric acid
  - Hydrofluoric acid
  - Nitric acid
  - SC1,SC2
  - Solvents

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Chemflow®-XF

Specifications

Materials of Construction

Membrane	:	PTFE (Asymmetric)
Support Layers	:	HDPE
Structure	:	HDPE

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

SELECT:
11.0ft² (0.99m²) per nominal 10" (250mm) cartridge

Standard:
5.7ft² (0.51m²) per nominal 10" (250mm) cartridge

Metals Extractables*

Standard: <70ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 55psid (4.1bar) @ 75ºF (24ºC)

Reverse: 30psid (2.8bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 7gal at 1gpm

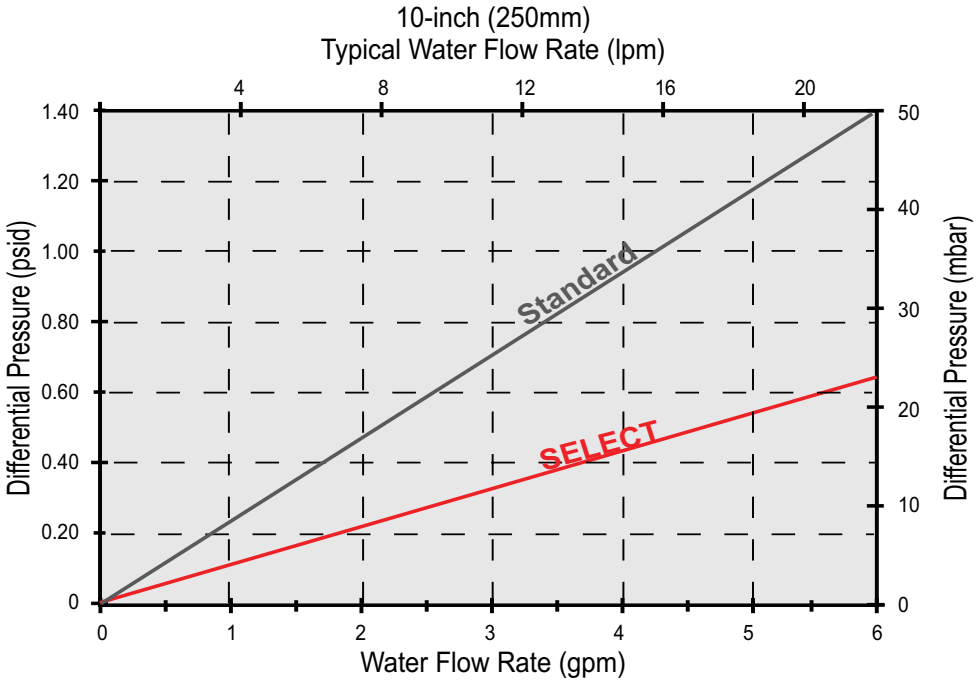
TOC/Resistivity Rinse-up (wet-packed)
TOC recovery within 5ppb of feed without additional rinse-up. Resistivity recovery within 0.2 megohm-cm of feed after 12gal @ 1 gpm.

Performance Attributes

Water Flow rates, Typical *

SELECT 7.9gpm/psid (52.0lpm/100mbar)
Standard 4.3gpm/psid (30.3lpm/100mbar)

* Per 10-inch (250mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

				0				–	0	3	1	–		–	E									

Pleat Technology

CODE	DESCRIPTION
ES	SELECT
PE	Standard

Insert Style

CODE	DESCRIPTION
1	None (Std)
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
031	0.10µm XF

O-Ring Material

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5	FEP Encapsulated Viton

Options

CODE	TREATMENT
Blank	Standard Dry
W	Wet Packed

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E

Chemically-resistant cartridge for ultrapure microelectronics fluids and gases

The Proflow™II-E filter cartridge uses a PTFE membrane along with high-purity polypropylene supports that provide an economical alternative to all-fluoropolymer cartridges. It provides a high degree of retention and cleanliness along with good flow and lifetime. This filter is ideally suited for ultrapure microelectronics fluids and gases. The hydrophobic PTFE membrane serves as a highly efficient barrier to insure low moisture content of gases. It is available dry or wet-packed for quick installation and lower extractables.

Benefits

- Good liquid and gas flow rates
- Wet-pack option for quick installation
- PTFE/ PP construction for chemical resistance
- Wide variety of configurations and ratings
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  – Acids, bases, solvents, photochemicals
- Wet etch and clean
  – Dilute acids
  – DI water (<80°C)
- Ultrapure electronics-grade gases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E

Specifications

Materials of Construction

Membrane	:	PTFE
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

4.6ft² (0.43 m²) 5" (130mm) cartridges
9.3ft² (0.86 m²) 10" (250mm) cartridges

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

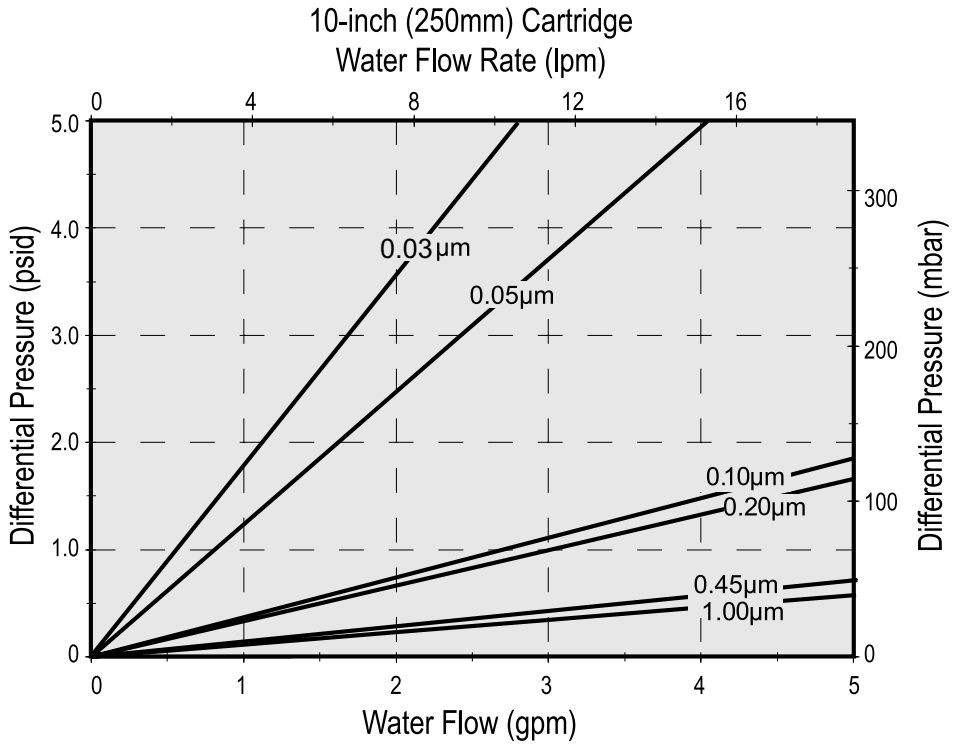
TOC rinse-up to background plus 5ppb of feed after 70gal @ 1gpm. Resistivity rinse-up to background minus 0.2megohm-cm of feed after 30gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.03µm	0.6gpm/psid (3.31lpm/100mbar)	0.20µm	3.2gpm/psid (17.5lpm/100mbar)
0.05µm	0.8gpm/psid (4.39lpm/100mbar)	0.45µm	7.6gpm/psid (41.72lpm/100mbar)
0.10µm	1.7gpm/psid (9.33lpm/100mbar)	1.00µm	9.1gpm/psid (49.97lpm/100mbar)

*Per 10-inch (250mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

3 [ ] - [ ] 0 [ ] [ ] - [ ] [ ] [ ] - [ ] E [ ]

Application

CODE	TREATMENT
4	Standard
6	Extended flushed with 18 Megohm DI Water

Insert Style

CODE	DESCRIPTION
1	No Insert
5	(Standard) Encapsulated
6	Stainless Steel Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (Cuno®)
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin®
G	120/Internal/ Recessed Endcap
H	213/Recessed Endcap (Ametek)
R	222/Recessed Endcap

Nominal Length

CODE	LENGTH
05	5" (130mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5*	FEP-Encapsulated Viton
6*	FEP-Encapsulated Silicone
N	None

*O-Rings only

Gaskets

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

Options

CODE	TREATMENT
Blank	Standard
W	Wet-packed

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E-Select

High-performance cartridge for ultrapure microelectronics fluids and gases

The Proflow™II-E-SELECT filter cartridge provides exceptional flow rates and on-stream life. It uses a PTFE membrane along with high-purity polypropylene supports that provide an economical alternative to all fluoropolymer cartridges. With its unique SELECT pleating technology, the liquid flow rates are increased by up to 50% verses our standard Proflow®II-E. This filter is ideally suited for ultrapure microelectronics fluids and gases. It is available dry or wet-packed for quick installation and lower extractables.

Benefits

- Excellent liquid and gas flow rates
- Wet-pack option for quick installation
- PTFE/ PP construction for chemical resistance
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  – Acids, bases, solvents, photochemicals
- Wet etch and clean
  – Dilute acids
  – DI water (<80°C)
- Ultrapure electronics-grade gases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E-Select

Specifications

Materials of Construction

Membrane	:	PTFE
Support layers	:	Polypropylene
Structure	:	Polypropylene

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

12.4ft² (1.15m²) per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 68°F (20°C)
40psid (2.8bar) @ 180°F (82°C)

Reverse: 40psid (2.8bar) @ 68°F (20°C)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

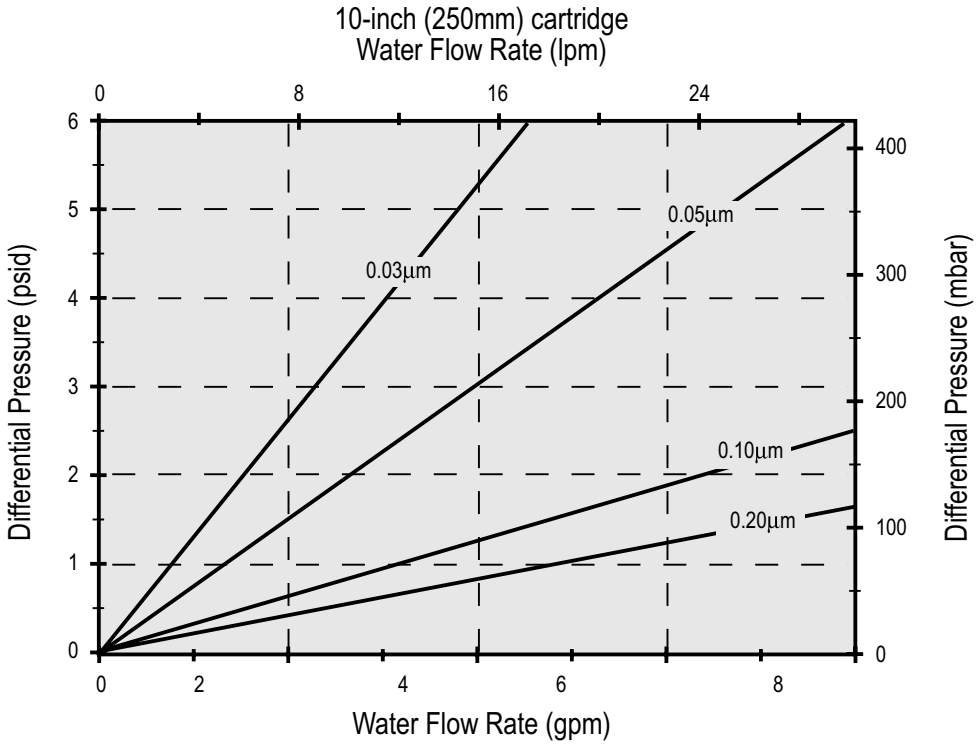
TOC rinse-up to background plus 5ppb of feed after 70gal @ 1gpm.
Resistivity rinse-up to background minus 0.2megohm-cm of feed after 30gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.03µm 0.8gpm/psid
0.05µm 1.3gpm/psid (7.14lpm/100mbar)
0.10µm 2.6gpm/psid (14.27lpm/100mbar)
0.20µm 3.5gpm/psid (19.22lpm/100mbar)*

* Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

PS – [ ] 0 [ ] [ ] – [ ] [ ] [ ] – [ ] – E [ ]

Insert Style

CODE	DESCRIPTION
1	None (Std)
5	Encapsulated Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
923	0.03µm
925	0.05µm
001	0.10µm
002	0.20µm

O-Rings

CODE	MATERIAL
1	EPDM
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
N	None

Options

CODE	TREATMENT
Blank	Standard
W	Wet Packed

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E Mini-Cartridges

Small-volume cartridge for ultrapure microelectronics fluids and gases

The Proflow™ II-E mini cartridge uses a PTFE membrane along with high-purity polypropylene supports that provide an economical alternative to all-fluoropolymer cartridges. It provides a high degree of retention and cleanliness along with good flow and lifetime. This filter is ideally suited for ultrapure microelectronics fluids and gases. The hydrophobic PTFE membrane serves as a highly efficient barrier to insure low moisture content of gases. Its design uses an internal 116 O-ring that is available in several materials.

Benefits

- Good liquid and gas flow rates
- PTFE/ PP construction for chemical resistance
- Secure internal O-ring seal
- 100% integrity tested in cleanroom environment

Applications

- Wet etch and clean
  – Dilute acids
  – DI water (<80°C)
- Ultrapure electronics-grade gases
- Drying systems

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E Mini-Cartridges

Specifications

Materials of Construction

Membrane	:	PTFE
Support layers	:	Polypropylene
Structure	:	Polypropylene

All components are thermally bonded to ensure integrity and minimize extractables.

Effective Filtration Area
3.1ft² (0.29m²) per D-size (125mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

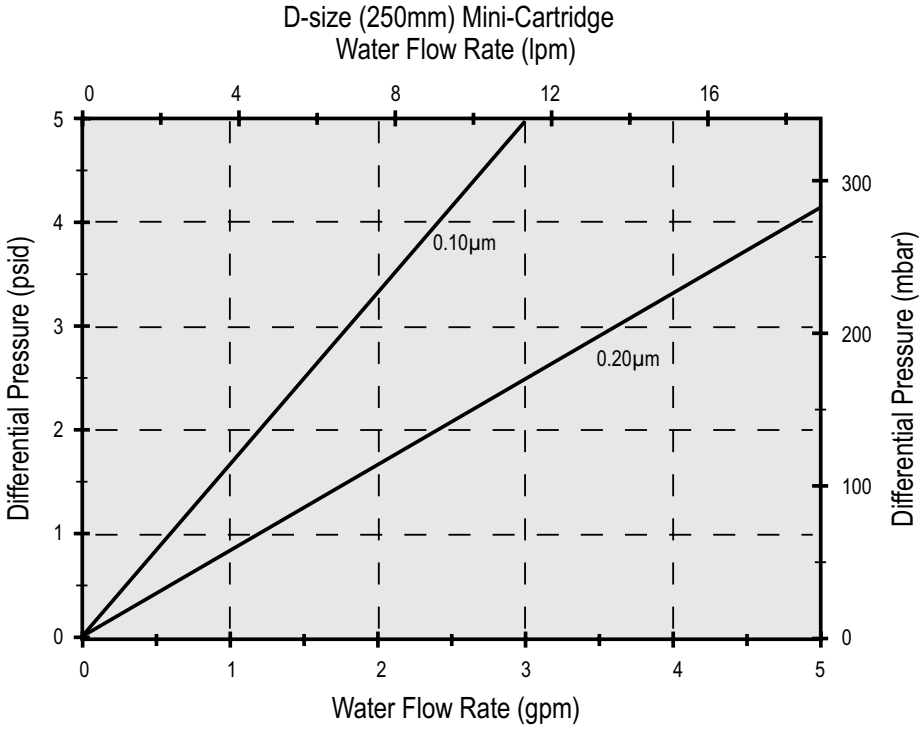
Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

Resistivity Rinse-up
The rinse-up volume required for Proflow-E® mini-cartridges to reach 18megohm-cm resistivity is approximately 12gal (45.4 liters).

Performance Attributes

Water Flow rates, Typical

0.03µm	0.20gpm/psid
0.05µm	0.40gpm/psid
0.45µm	2.6gpm/psid



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

34 — M D E M M — [ ] [ ] [ ] — [ ]

Filter Rating	
CODE	MICRON
001	0.1µm
002	0.2µm
923	0.03µm
925	0.05µm
004	0.45µm
010	1.0µm

0-Ring	
CODE	MATERIALS
0	Buna N
1	EPDM
2	Silicone
4	Viton®
N	None

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E Mini-Capsules

Small-volume capsule for ultrapure microelectronics fluids and gases

The Proflow™ II-E mini-capsule uses a PTFE membrane along with high-purity polypropylene supports that provide an economical alternative to all-fluoropolymer cartridges. It provides a high degree of retention and cleanliness along with good flow and lifetime. This filter is ideally suited for ultrapure microelectronics fluids and gases. The hydrophobic PTFE membrane serves as a highly efficient barrier to insure low moisture content of gases.

Fast and easy change-outs are assured with the encapsulated design. Three sizes are available to match the application and minimize hold-up volume.

Benefits

- Good liquid and gas flow rates
- PTFE/ PP construction for chemical resistance
- Fast and easy change-out
- Three capsule sizes
- 100% integrity tested

Applications

- Wet etch and clean
  – Dilute acids
  – DI water (<80°C)
- Ultrapure electronics-grade gases
- Small-volume lab systems

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-E Mini-Capsules

Specifications

Materials of Construction

Membrane	:	PTFE
Support layers	:	Polypropylene
Structure	:	Polypropylene
Housing	:	Polypropylene

All components are thermally bonded to ensure integrity and minimize extractables.

Effective Filtration Area

H = Half-size 1.1ft² (0.10m²) per 4.82" (122mm) capsule

S = Standard-size 2.2ft² (0.21m²) per 6.38" (162mm) capsule

D = Double-size 3.1ft² (0.29m²) per 7.92" (201mm) capsule

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

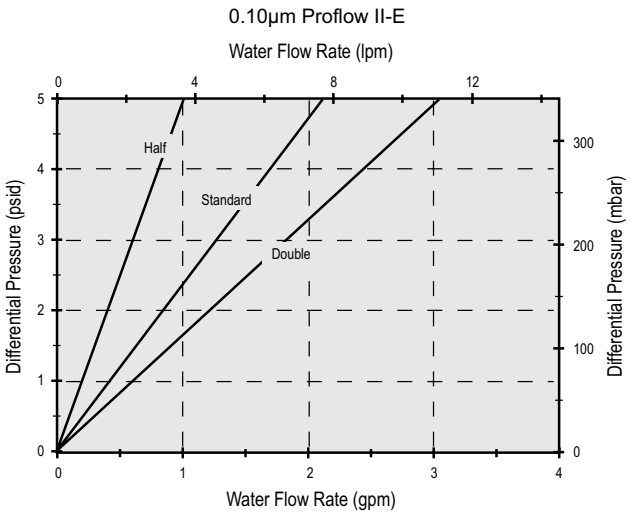
Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

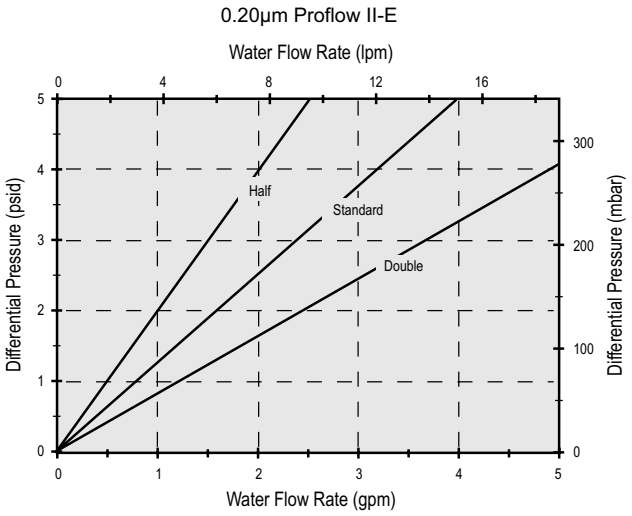
Resistivity Rinse-up

The rinse-up volume required for double-size Proflow-E™ capsules to reach 18megohm-cm resistivity is approximately 12gal (45.4 liters).

Performance Attributes

Water Flow Rates, Typical





Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

34 — C [ ] E [ ][ ] — [ ][ ][ ] — [ ]

Size

CODE	DESCRIPTION
H	Half Size
S	Standard Size
D	Double Size

Inlet/Outlet

CODE	CONNECTION
B	1/4" Hose Barb
H	1/2" Hose Barb
S	1 1/2" Sanitary Flange
D	Quick Disconnect
P	1/4" NPT (Male)
J	1/2" NPT (Male)
K	3/8" NPT (Female)
G	Swagelok® 1/2"

* Select code for both Inlet and Outlet

Filter Rating

CODE	MICRON
001	0.10 µm
002	0.20 µm
923	0.03 µm
925	0.05 µm
004	0.45 µm
010	1.0 µm

Vent 0-Ring

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
N	None
Z	No vents

ENGINEERING **YOUR** SUCCESS.

Clariflow®-WE

Economical hydrophilic PES membrane cartridges for aqueous applications

Clariflow®-WE cartridges provide an economical way to filter fluids used in microelectronics such as DI water and aqueous-based chemicals. Constructed of the same high-quality materials as Clariflow®-E or E-SELECT, these cartridges are suited to less demanding applications with respect to flow and lifetime.

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.

Benefits

- Economical filtration
- High-retention hydrophilic membrane
- Broad chemical compatibility for multiple applications
- 100% integrity tested

Applications

- BOE
- Dilute HF
- POU DI rinse
- Bulk DI water systems
- Copper plating
- Ni plating
- Hard disk wash processes
- Other dilute acids and bases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-WE

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

5.4ft²(0.50m²) per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Bulk Packaging

Bulk packaged in case quantities to reduce material disposal

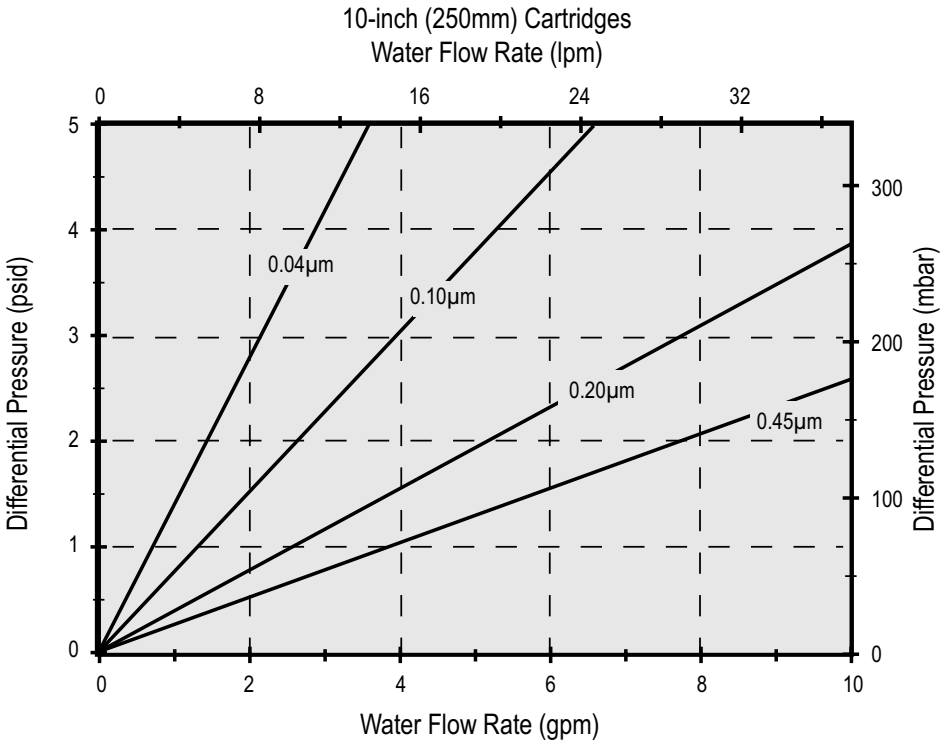
10" 28 per carton
20" 12 per carton
30" 12 per carton
40" 9 per carton

Performance Attributes

Water Flow rates, Typical *

0.04µm 0.7gpm/psid (3.84lpm/100mbar)
0.10µm 1.3gpm/psid (7.14lpm/100mbar)
0.20µm 2.6gpm/psid (14.27lpm/100mbar)
0.45µm 3.8gpm/psid (20.86lpm/100mbar)

*Per 10" (250mm) cartridge equivalent



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 – ☐ 0 ☐ ☐ ☐ – ☐ ☐ ☐ – ☐ ☐ – W E

Insert Style

CODE	DESCRIPTION
1	No Insert (standard)
5	Encapsulated 316 SS Insert
6	Encapsulated Polysulfone Insert
A	1/2" Shortened on 222 Fitting

End Fittings

CODE	DESCRIPTION
0	DOE (CUNO)
1	DOE
2	226\Flat
3	222\Flat
6	020/Internal/Flat
7	226\Fin
8	222\Fin
G	120/Internal/Recessed
H	End cap 213/Recessed
R	End cap (Ametek) 222/Recessed End cap

Nominal Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

All cartridges are 2.75" (69 mm) in diameter.

Filter Rating

CODE	MICRON
924	0.04µm
001	0.10µm
002	0.20µm
004	0.45µm
006	0.65µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton
5*	Encapsulated Viton
6*	Encapsulated Silicone
N	None

*O-rings only

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	None

ENGINEERING **YOUR** SUCCESS.

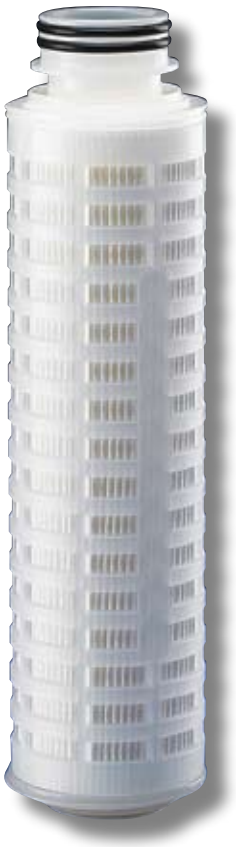
Clariflow®-E

Hydrophilic PES membrane cartridges for aqueous applications

Clariflow® -E cartridges are optimized for use in microelectronics applications such as DI water and aqueous-based chemicals. The unique mirrored-anisotropic PES (Polyethersulfone) membrane has exceptionally high flow rates and on-stream lifetime while providing consistent removal of both organic and inorganic particulates.

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.



Benefits

- High-retention hydrophilic membrane
- High flow rate
- Broad chemical compatibility for multiple applications
- Long on-stream life
- 100% integrity tested

Applications

- BOE
- Dilute HF
- POU DI rinse
- Bulk DI water systems
- Copper plating
- Ni plating
- Hard disk wash processes
- Other dilute acids and bases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

6.8ft²(0.63m²) per 10" (250mm) cartridges

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Dry-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

Resistivity Rinse-up

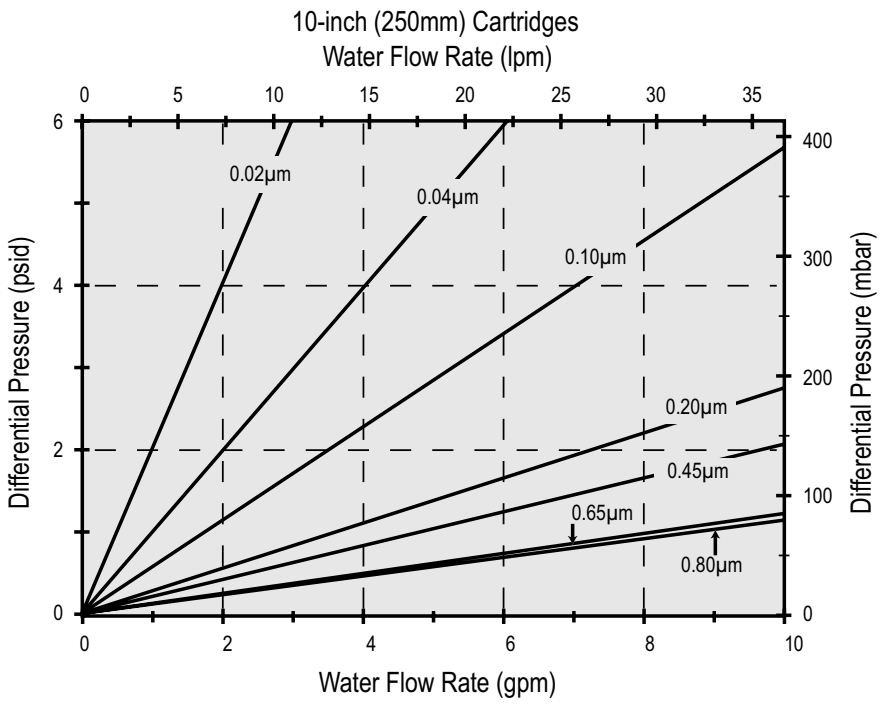
Resistivity rinse-up to background minus 0.2megohm-cm of feed after 20gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.02µm	0.5gpm/psid (2.75lpm/100mbar)
0.04µm	1.0gpm/psid (5.49lpm/100mbar)
0.10µm	1.8gpm/psid (9.88lpm/100mbar)
0.20µm	3.7gpm/psid (20.31lpm/100mbar)
0.45µm	4.8gpm/psid (26.35lpm/100mbar)
0.65µm	8.9gpm/psid (48.86lpm/100mbar)
0.80µm	9.5gpm/psid (52.16lpm/100mbar)

* Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 – □ 0 □ □ □ – □ □ □ – □ – □ – E

Insert Style

CODE	DESCRIPTION
1	None (STD)
5	Encapsulated 316L Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO®)
1	DOE
2*	226/Flat
3*	222/Flat
6	020/Internal/Flat
7*	226/Fin
8*	222/Fin
G	120/Internal/Recessed Endcap
H	213/Recessed Endcap (Ametek)
R	222/Recessed Endcap

Nominal Length

CODE	LENGTH
05[2]	5" (130mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
922	0.02µm
924	0.04µm
001	0.10µm
002	0.20µm
004	0.45µm
006	0.65µm
008	0.80µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5[3]	FEP Encapsulated Viton
6[3]	FEP Encapsulated Silicone
N	None

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

* 5" cartridges are available in these configurations
[2] 5" cartridges are available in 0.04 through 0.8 µm ratings.
[3] O-rings only.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E-Select

High-performance hydrophilic PES membrane cartridges for aqueous applications

Clariflow® E-SELECT cartridges are optimized for use in microelectronics applications such as DI water and aqueous-based chemicals. The unique mirrored-anisotropic PES (Polyethersulfone) membrane has exceptionally high flow rates and on-stream lifetime while providing consistent removal of both organic and inorganic particulates.

The innovative SELECT pleating provides increased performance over competitive cartridges. Membrane area is increased by over 50% while flows are 40% higher within the same footprint. The result is one of the longest lasting cartridges on the market.

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.

Benefits

- High-retention hydrophilic membrane
- Unique SELECT pleating technology
- High flow rates for increased bath turnover
- Broad chemical compatibility for multiple applications
- Wide range of configurations and ratings
- Reduced overall cost of filtration
- 100% integrity tested

Applications

- BOE
- Dilute HF
- POU DI rinse
- Bulk DI water systems
- Copper plating
- Ni plating
- Hard disk wash processes
- Other dilute acids and bases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E-Select

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support Layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

8.8ft² (0.82m²)	0.02µm pore size per 10" (250mm) cartridge
10.3ft² (0.96m²)	other pore sizes per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 70psid (5.5bar) @ 20°C (68°F)
40psid (2.8bar) @ 82°C (180°F)

Reverse: 40psid (2.8bar) @ 20°C (68°F)

Cleanliness (particle shedding)

Dry-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

Resistivity Rinse-up

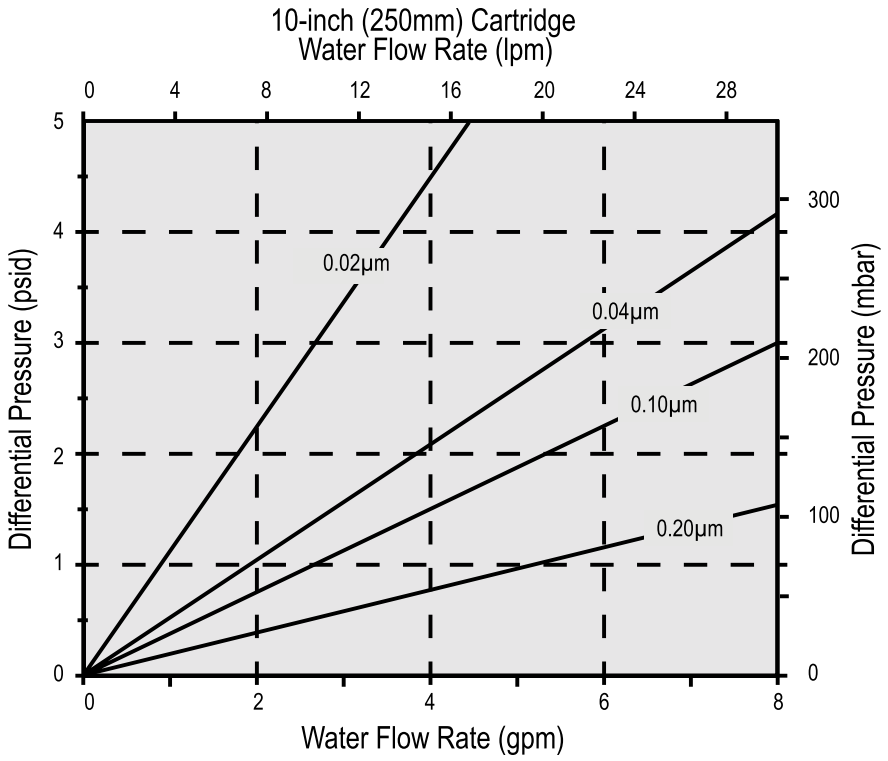
Resistivity rinse-up to background minus 0.2megohm-cm of feed after 20gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.02µm 0.9gpm/psid (4.94lpm/100mbar)
0.04µm 1.9gpm/psid (10.43lpm/100mbar)
0.10µm 2.6gpm/psid (14.27lpm/100mbar)
0.20µm 5.2gpm/psid (28.55lpm/100mbar)

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

CS — ☐ 0 ☐ ☐ ☐ — ☐ ☐ ☐ — ☐ E

Insert Style

CODE	DESCRIPTION
1	None (Std.)
5	Encapsulated Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
922	0.02µm
924	0.04µm
001	0.10µm
002	0.20µm

0-Ring

CODE	MATERIAL
1	EPDM
2	Silicone
4	Viton
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
N	None

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E Mini-Cartridges

Small-volume Hydrophilic PES membrane cartridges for aqueous applications

Clariflow®-E mini-cartridges are optimized for use in small-volume microelectronics applications such as DI water and aqueous-based chemicals. The unique mirrored-anisotropic PES (Polyethersulfone) membrane has exceptionally high flow rates and on-stream lifetime while providing consistent removal of both organic and inorganic particulates

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Its design uses an internal 116 O-ring available in several materials.

Benefits

- High-retention hydrophilic membrane
- High flow rate
- Broad chemical compatibility for multiple applications
- Secure internal O-ring seal
- 100% integrity tested

Applications

- Aqueous electronics chemicals
- Small-volume lab systems
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E Mini-Cartridges

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support Layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

2.5ft² (0.23m²) per D-size (125mm) cartridge

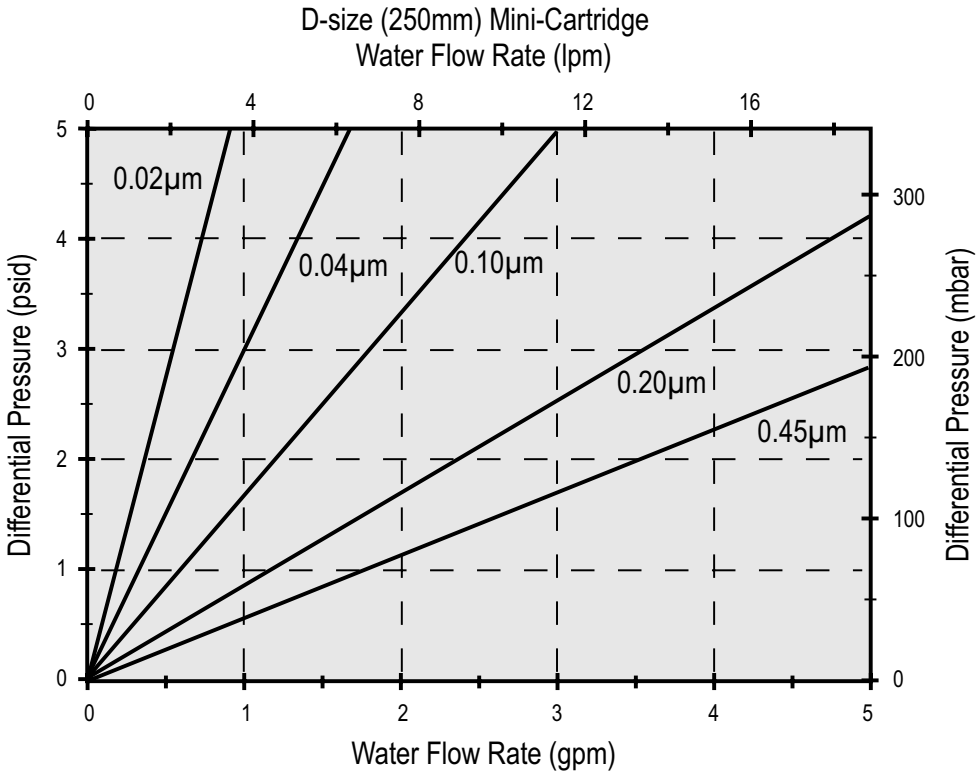
Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

Performance Attributes

Water Flow Rates, Typical



*Values for fluids with viscosity of 1cP.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 — M D E M M — [ ] [ ] [ ] — [ ]

Filter Rating

CODE	MICRON
001	0.1µm
002	0.2µm
992	0.02µm
924	0.04µm
004	0.45µm

0-Ring

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton
N	None

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E Mini-Capsules

Encapsulated PES membrane filters for microelectronics applications

Clariflow®-E capsules filter high-quality water and solvents in semiconductor and microelectronics applications. The mirrored anisotropic polyethersulfone (PES) membrane provides superior fluid flow rates, extended on-stream life, and highly efficient removal of organic and inorganic particulates that can impact process quality.

Clariflow-E capsules are available in a variety of sizes and endfitting combinations enabling users select the best configuration for their system requirements.

The encapsulated design maximizes efficiency by providing faster, easier change-out without laborious cleaning procedures. Eliminating the need to open reusable housings for cartridge replacement minimizes the chance of introducing contamination into the process, and promotes safety by reducing the risk of exposure to potentially hazardous fluids.

Benefits

- Reduce process down time, chance of contamination and risk of exposure to hazardous materials
- Low extractables shorten start-up time
- High flow rate reduces processing time
- Improved design prevents vent caps from disconnecting under pressure

Applications

- Deionized water at point-of-use
- Aqueous chemical fluids

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E Mini-Capsules

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support layers	:	Polypropylene
Structure	:	Polypropylene
Housing	:	Polypropylene

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

H = Half-size — 0.9ft² (0.08m²) per 4.82" (122mm) capsule

S = Standard-size — 1.8ft² (0.16m²) per 6.38" (162mm) capsule

D = Double-size — 2.5ft² (0.23m²) per 7.92" (201mm) capsule

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

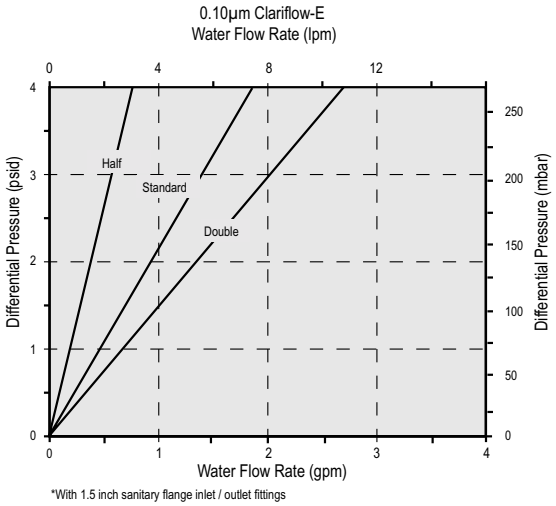
Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

Resistivity Rinse-up

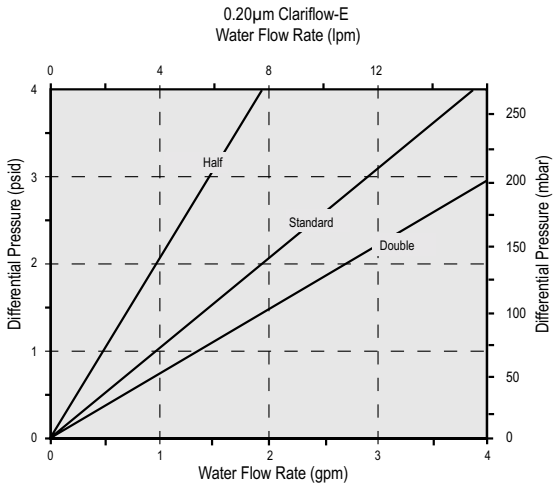
The rinse-up volume required for double-size Clariflow® -E capsules to reach 18megohm-cm resistivity is approximately 12gal (45.4 liters).

Performance Attributes

Water Flow Rates, Typical



*With 1.5 inch sanitary flange inlet / outlet fittings



*With 1.5 inch sanitary flange inlet / outlet fittings

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 — C [ ] E [ ][ ] — [ ][ ][ ] — [ ]

Size

CODE	DESCRIPTION
H	Half Size
S	Standard Size
D	Double Size

Inlet/Outlet

CODE	CONNECTION
B	1/4" Hose Barb
H	1/2" Hose Barb
S	1 1/2" Sanitary Flange
D	Quick Disconnect
P	1/4" NPT (Male)
J	1/2" NPT (Male)
K	3/8" NPT (Female)
G	Swagelok® 1/2"

* Select code for both Inlet and Outlet

Filter Rating

CODE	MICRON
001	0.10 µm
002	0.20 µm

Vent 0-Ring

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
N	None
Z	No vents

ENGINEERING **YOUR** SUCCESS.

Plating

Clariflow®-E

Hydrophilic PES membrane cartridges for aqueous applications

Clariflow® -E cartridges are optimized for use in microelectronics applications such as DI water and aqueous-based chemicals. The unique mirrored-anisotropic PES (Polyethersulfone) membrane has exceptionally high flow rates and on-stream lifetime while providing consistent removal of both organic and inorganic particulates.

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.

Benefits

- High-retention hydrophilic membrane
- High flow rate
- Broad chemical compatibility for multiple applications
- Long on-stream life
- 100% integrity tested

Applications

- BOE
- Dilute HF
- POU DI rinse
- Bulk DI water systems
- Copper plating
- Ni plating
- Hard disk wash processes
- Other dilute acids and bases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

6.8ft²(0.63m²) per 10" (250mm) cartridges

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Dry-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

Resistivity Rinse-up

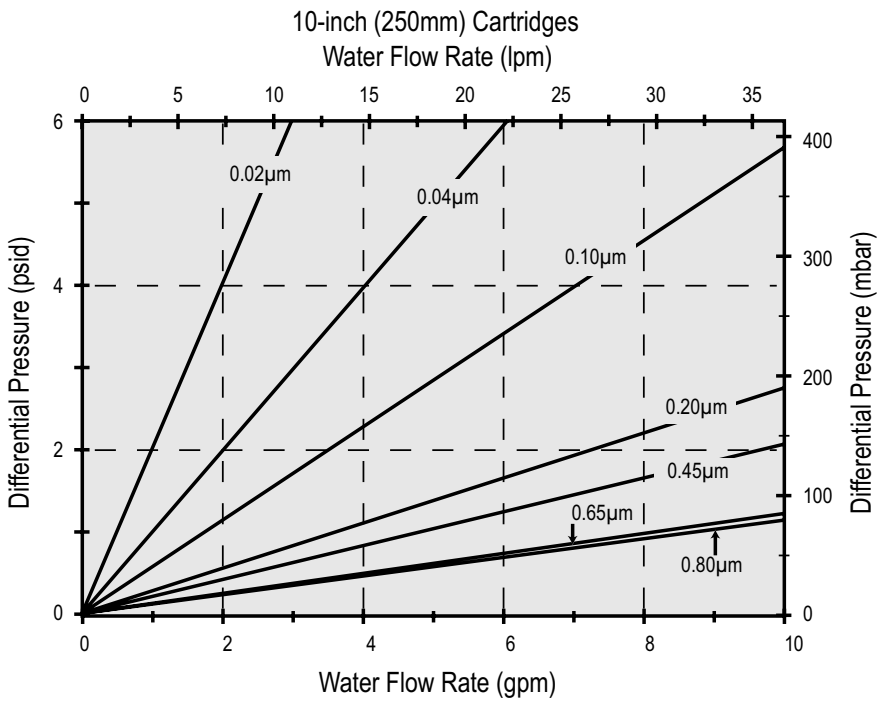
Resistivity rinse-up to background minus 0.2megohm-cm of feed after 20gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.02µm	0.5gpm/psid (2.75lpm/100mbar)
0.04µm	1.0gpm/psid (5.49lpm/100mbar)
0.10µm	1.8gpm/psid (9.88lpm/100mbar)
0.20µm	3.7gpm/psid (20.31lpm/100mbar)
0.45µm	4.8gpm/psid (26.35lpm/100mbar)
0.65µm	8.9gpm/psid (48.86lpm/100mbar)
0.80µm	9.5gpm/psid (52.16lpm/100mbar)

* Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 - ☐ 0 ☐ ☐☐ - ☐☐☐ - ☐ - ☐ - E

Insert Style

CODE	DESCRIPTION
1	None (STD)
5	Encapsulated 316L Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO®)
1	DOE
2*	226/Flat
3*	222/Flat
6	020/Internal/Flat
7*	226/Fin
8*	222/Fin
G	120/Internal/Recessed Endcap
H	213/Recessed Endcap (Ametek)
R	222/Recessed Endcap

Nominal Length

CODE	LENGTH
05[2]	5" (130mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
922	0.02µm
924	0.04µm
001	0.10µm
002	0.20µm
004	0.45µm
006	0.65µm
008	0.80µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5[3]	FEP Encapsulated Viton
6[3]	FEP Encapsulated Silicone
N	None

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

* 5" cartridges are available in these configurations
[2] 5" cartridges are available in 0.04 through 0.8 µm ratings.
[3] O-rings only.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E-Select

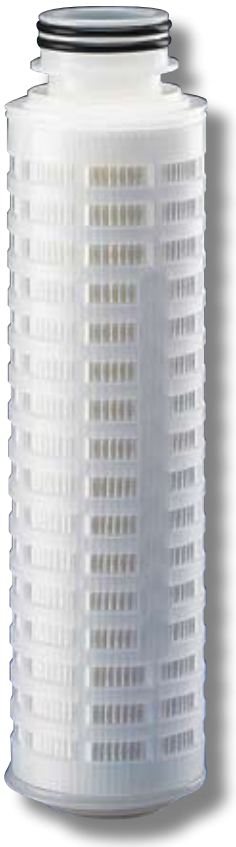
High-performance hydrophilic PES membrane cartridges for aqueous applications

Clariflow® E-SELECT cartridges are optimized for use in microelectronics applications such as DI water and aqueous-based chemicals. The unique mirrored-anisotropic PES (Polyethersulfone) membrane has exceptionally high flow rates and on-stream lifetime while providing consistent removal of both organic and inorganic particulates.

The innovative SELECT pleating provides increased performance over competitive cartridges. Membrane area is increased by over 50% while flows are 40% higher within the same footprint. The result is one of the longest lasting cartridges on the market.

The combination of hydrophilic PES membrane and a high-purity, all-polypropylene support structure results in a very low level of ionic and organic extractables, broad chemical compatibility, and resistance to particle shedding.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.



Benefits

- High-retention hydrophilic membrane
- Unique SELECT pleating technology
- High flow rates for increased bath turnover
- Broad chemical compatibility for multiple applications
- Wide range of configurations and ratings
- Reduced overall cost of filtration
- 100% integrity tested

Applications

- BOE
- Dilute HF
- POU DI rinse
- Bulk DI water systems
- Copper plating
- Ni plating
- Hard disk wash processes
- Other dilute acids and bases

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-E-Select

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support Layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

8.8ft² (0.82m²)	0.02µm pore size per 10" (250mm) cartridge
10.3ft² (0.96m²)	other pore sizes per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 70psid (5.5bar) @ 20°C (68°F)
40psid (2.8bar) @ 82°C (180°F)

Reverse: 40psid (2.8bar) @ 20°C (68°F)

Cleanliness (particle shedding)

Dry-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

Resistivity Rinse-up

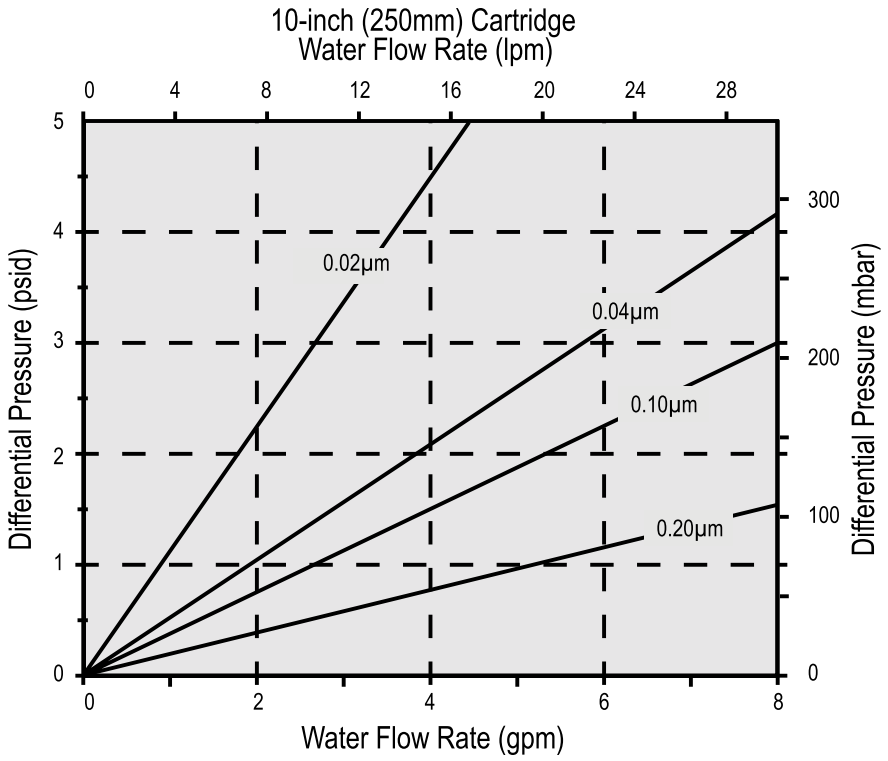
Resistivity rinse-up to background minus 0.2megohm-cm of feed after 20gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.02µm 0.9gpm/psid (4.94lpm/100mbar)
0.04µm 1.9gpm/psid (10.43lpm/100mbar)
0.10µm 2.6gpm/psid (14.27lpm/100mbar)
0.20µm 5.2gpm/psid (28.55lpm/100mbar)

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

CS — ☐ 0 ☐ ☐ ☐ — ☐ ☐ ☐ — ☐ E

Insert Style

CODE	DESCRIPTION
1	None (Std.)
5	Encapsulated Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
922	0.02µm
924	0.04µm
001	0.10µm
002	0.20µm

0-Ring

CODE	MATERIAL
1	EPDM
2	Silicone
4	Viton
5	FEP-Encapsulated Viton
6	FEP-Encapsulated Silicone
N	None

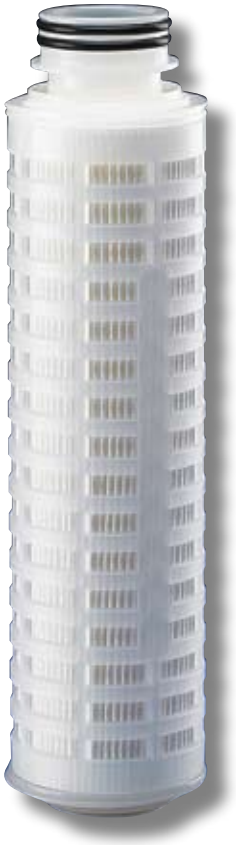
ENGINEERING **YOUR** SUCCESS.

Polyflow®

Absolute-rated polypropylene depth cartridges for electronics applications

Polyflow® cartridges are optimized for use in electronics applications. They feature a random-fiber polypropylene depth matrix that provides excellent retention efficiencies and onstream life. The unique calendering process produces depth media with an absolute rating and superior dirt-holding capacity.

These cartridges are thermally bonded from 100% virgin polypropylene to ensure a high level of cleanliness and chemical compatibility.



Benefits

- High-retention depth matrix
- High flow rate
- Wide variety of configurations and ratings
- Economical prefiltration

Applications

- Solder plating
- Prefiltration of electronics-grade chemicals
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow®

Specifications

Materials of Construction

Depth media : Polypropylene
Support layers : Polypropylene
Structure : Polypropylene

Effective Filtration Area

2.4ft² (0.22 m²) 5" (130mm) cartridges
4.9ft² (0.46 m²) 10" (250mm) cartridges

Filtration Efficiency

The 0.6µm offers typical retention up to 99% efficient. 1.2µm, 2.5µm, 5µm, 10µm, 20µm, and 40µm are up to 99.9% efficient at specified pore size.

Cartridge Extractables

NVR < 35mg per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 40psid (2.8bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 140ºF (60ºC)

Maximum Operating Temperature

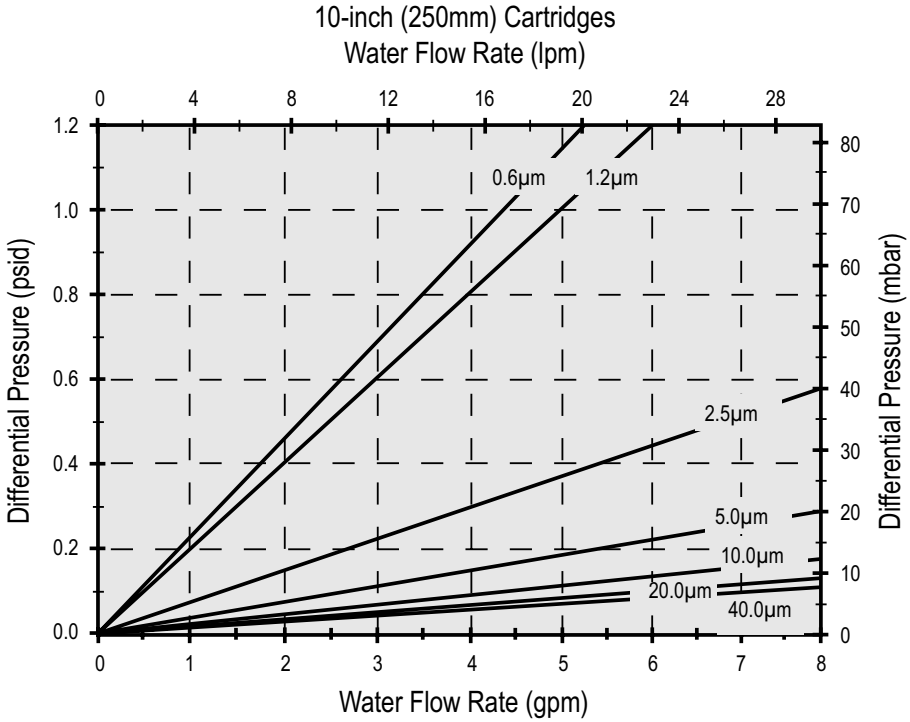
160ºF (71ºC)

Performance Attributes

Water Flow rates, Typical *

0.6µm	4.2gpm/psid (23.3lpm/100mbar)	10.0µm	40.0gpm/psid (219.6lpm/100mbar)
1.2µm	5.0gpm/psid (27.4lpm/100mbar)	20.0µm	50.0gpm/psid (274.4lpm/100mbar)
2.5µm	13.5gpm/psid (74.1lpm/100mbar)	40.0µm	60.0gpm/psid (329.3lpm/100mbar)
5.0µm	26.0gpm/psid (142.7lpm/100mbar)		

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

22 - ☐ 0 ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

Insert Style

CODE	DESCRIPTION
1	None (STD)
5	Encapsulated 316L Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO")
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin
G	120/Internal/Recessed Endcap
H	213/Recessed Endcap (Ametek)
R	222/Recessed Endcap

Nominal Length

CODE	LENGTH
05	5" (125mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
006	0.6µm
012	1.2µm
025	2.5µm
050	5.0µm
100	10.0µm
200	20.0µm
400	40.0µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5*	FEP Encapsulated Viton
6*	FEP Encapsulated Silicone
N	None

*O-rings only

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

ENGINEERING **YOUR** SUCCESS.

CMP

Polyflow®-CMP

All-polypropylene nominal-rated depth cartridges for CMP slurry filtration

Polyflow®-CMP depth cartridges have been developed to reduce post-CMP defectively by removing undesirable large particles and gels from a wide variety of CMP slurries. Its high dirt-loading, random-fiber depth media provides consistent particle retention in ratings from 0.2 µm to 30 µm without removing a significant amount of smaller 'working particles'. The cartridges are thermally bonded from 100% virgin polypropylene to ensure low extractables and chemical compatibility with both acidic and alkaline slurries.

Configurations are available in lengths from 5" to 40" with 10 fitting options. The specially-designed depth media maximizes flow rate and service life to reduce downtime associated with change-outs.

Benefits

- Removes undesirable large particles while retaining working slurry particles
- Chemically compatible with both acidic and alkaline slurries
- High flow rate and long service life reduce system downtime
- Superior particle retention protects downstream filters and reduces overall filtration costs

Applications

- Colloidal silica CMP slurry
- POU, distribution loop and supply
  - Oxide
  - Copper
  - Polysilicon

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Polyflow®-CMP

Specifications

Materials of Construction

Depth media	:	Polypropylene
Support layers	:	Polypropylene
Structure	:	Polypropylene

All components are thermally bonded to ensure integrity and to reduce extractables.

Nominal Filter Ratings

0.2µm, 0.5µm, 1µm, 3µm, 5m, 10µm, and 30µm

Effective Filtration Area

3.6ft² (0.33 m²) per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 40psid (2.8bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 140ºF (60ºC)

Maximum Operating Temperature

160ºF (71ºC)

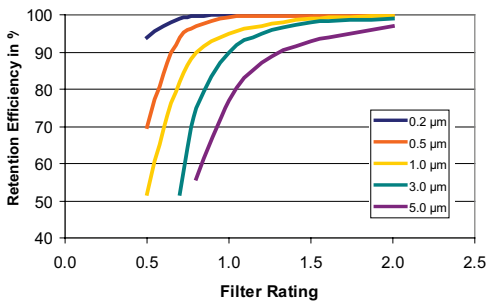
Performance Attributes

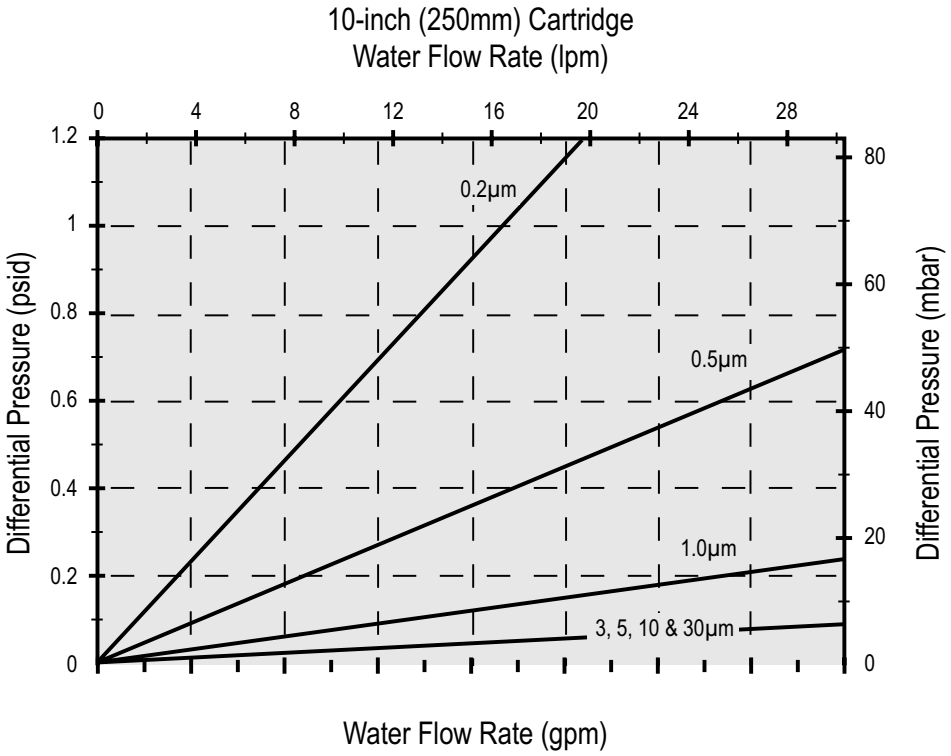
Water Flow rates, Typical *

0.2µm	4.2gpm/psid (23.3lpm/100mbar)
0.5µm	11.0gpm/psid (60.4lpm/100mbar)
1.0µm	33.0gpm/psid (181.1lpm/100mbar)
3.0µm	70.0gpm/psid (384.2lpm/100mbar)
5.0µm	70.0gpm/psid (384.2lpm/100mbar)
10.0µm	70.0gpm/psid (384.2lpm/100mbar)
30.0µm	70.0gpm/psid (384.2lpm/100mbar)

*Per 10-inch (250 mm) cartridge equivalent.

Retention Efficiency





Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

CMP – [ ] 0 [ ][ ] – [ ][ ][ ] – [ ] [ ]

Style

CODE	DESCRIPTION
1	None
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO®)
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin
G	120/Internal/Recessed End cap
H	213/RecessedEnd cap (Ametek)
R	222/Recessed End cap

Nominal Length

CODE	LENGTH
05	5" (125mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
002	0.2µm
005	0.5µm
010	1.0µm
030	3.0µm
050	5.0µm
100	10.0µm
300	30.0µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N (Standard)
1	EPDM
2	Silicone
4	Viton®
5*	FEP Encapsulated Viton®
6*	FEP Encapsulated Silicone
N	None

*O-Rings only

Gasket Thickness

CODE	DESCRIPTION
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	None

ENGINEERING **YOUR** SUCCESS.

Lithography

Polyflow® Membrane

Polypropylene membrane cartridges for microelectronics

Polyflow® Membrane cartridges are optimized for use in microelectronics applications such as bulk chemicals and photoresists. The all-polypropylene construction is an economical alternative to fluoropolymer-based cartridges.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.

Benefits

- High-retention membrane
- Wide range of configurations and ratings
- 100% integrity tested

Applications

- Bulk photoresist
- Bulk electronics grade chemicals

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow® Membrane

Specifications

Materials of Construction

Membrane	:	Polypropylene
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

7.7ft² (0.72m²) 0.04 pore size per 10" (250mm) cartridge

6.6ft² (0.61m²) 0.07 pore size per 10" (250mm) cartridge*

7.7ft² (0.72m²) 0.1 pore size per 10" (250mm) cartridge

7.7ft² (0.72m²) 0.2 pore size per 10" (250mm) cartridge

* double layers of membrane

Metals Extractables*

<50ppb (total)
*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75°F (24°C)*
40psid (2.8bar) @ 180°F (82°C)

Reverse: 40psid (2.8bar) @ 75°F (24°C)
60 psid (4.1 Bar) @ 75°F for 0.04µm

Cleanliness (particle shedding)

Wet-packed <1 particles/ml >0.2µm after 10gal at 1gpm

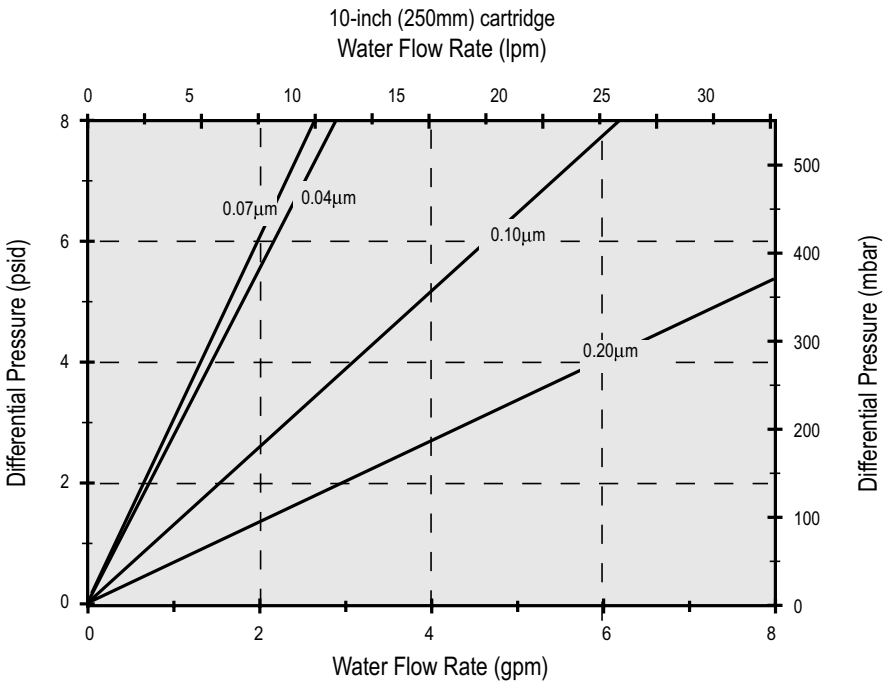
Data from bag open and installed, no additional installation flushing.

Performance Attributes

Water Flow rates, Typical *

0.04µm 0.41gpm/psid (2.2lpm/100mbar)
0.07µm 0.35gpm/psid (1.9lpm/100mbar)
0.10µm 0.7gpm/psid (3.8lpm/100mbar)
0.20µm 1.8gpm/psid (10.3lpm/100mbar)

* Per 10-inch (250 mm) cartridge equivalent.



TOC/Resistivity Rinse-up (wet-packed)
TOC rinse-up to background plus 5ppb of feed after 40gal @ 1gpm.

Resistivity rinse-up to background minus 0.2megohm-cm of feed after 40gal @ 1gpm.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

24 – ☐ 0 ☐ ☐ – ☐ ☐ ☐ – ☐ ☐ ☐ ☐

Insert Style

CODE	DESCRIPTION
1	No Insert (Standard)
5	Encapsulated Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO®)
1	DOE
2	226\Flat
3	222\Flat
7	226\Fin
8	222\Fin

Nominal Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
924	0.04µm
001	0.10µm
002	0.20µm
101	0.07µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5*	FEP-Encapsulated Viton
N	None

* O-rings only

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	None

Options

CODE	TREATMENT
Blank	Standard
EW	Wet Packed

ENGINEERING **YOUR** SUCCESS.

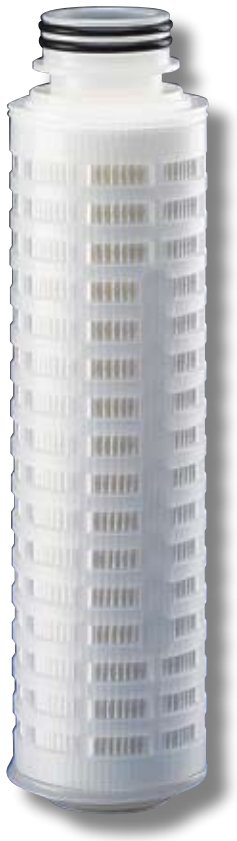
Polyflow® Membrane-Select

High-performance polypropylene membrane cartridges for microelectronics

Polyflow® MEMBRANE-SELECT cartridges are optimized for use in microelectronics applications such as bulk chemicals and photoresists. The all-polypropylene construction is an economical alternative to fluoropolymer-based cartridges.

The innovative SELECT pleating provides increased performance over competitive cartridges. Membrane area is increased by about 30% while flows are more than 50% higher within the same footprint. The result is one of the longest-lasting cartridges on the market.

Every cartridge is fabricated in a clean room environment, pre-flushed with 18 megohm-cm ultrapure DI water, and 100% integrity tested in an ISO-certified facility.



Benefits

- High-retention membrane
- Unique SELECT pleating technology
- High flow rates
- Wide range of configurations and ratings
- 100% integrity tested

Applications

- Bulk photoresist
- Bulk electronics grade chemicals

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow® Membrane-Select

Specifications

Materials of Construction

Membrane	:	Polypropylene
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

11.5ft² (1.07m²) 0.04 pore size per 10" (250mm) cartridge

8.4ft² (0.78m²) 0.07 pore size per 10" (250mm) cartridge*

10.1ft² (0.94m²) 0.10 pore size per 10" (250mm) cartridge

9.8ft² (0.88m²) 0.20 pore size per 10" (250mm) cartridge

* double layers of membrane

Metals Extractables*

<50ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 68°F (20°C)*
40psid (2.8bar) @ 158°F (70°C)

Reverse: 30psid (2.1bar) @ 68°F (20°C)
60 psid (4.1 Bar) @ 68°F for 0.04µm

Cleanliness (particle shedding)

Wet-packed <1 particles/ml >0.2µm after 10gal at 1gpm

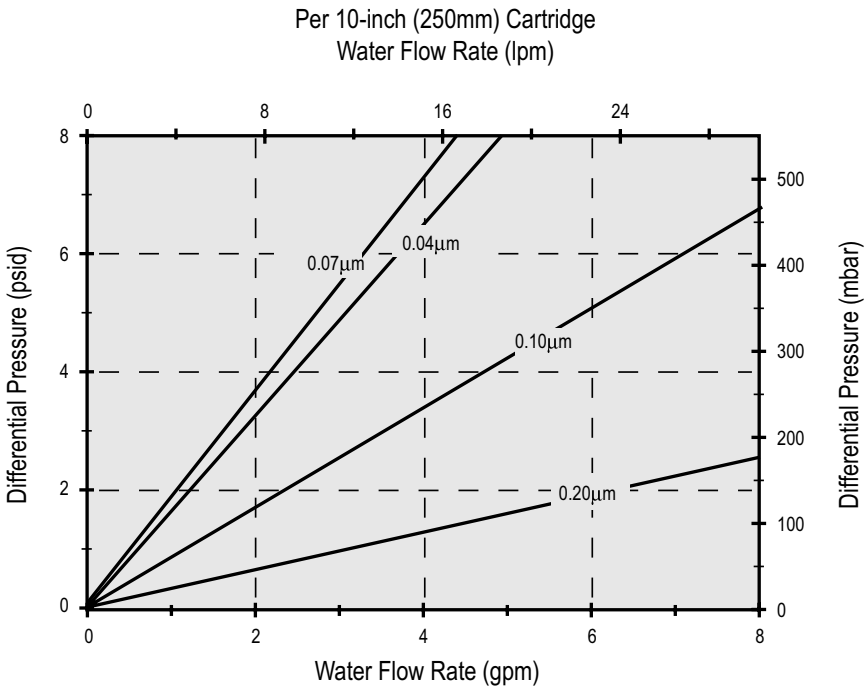
Data as from bag open and installed, no additional installation flushing.

Performance Attributes

Water Flow rates, Typical *

0.04µm	0.65gpm/psid (3.6lpm/100mbar)
0.07µm	0.55gpm/psid (3.0lpm/100mbar)
0.10µm	1.2gpm/psid (6.5lpm/100mbar)
0.20µm	3.0gpm/psid (16.5lpm/100mbar)

* Per 10-inch (250 mm) cartridge equivalent.



TOC/Resistivity Rinse-up (wet-packed)

TOC rinse-up to background plus 5ppb of feed after 40gal @ 1gpm.

Resistivity rinse-up to background minus 0.2megohm-cm of feed after 40gal @ 1gpm.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

MS – ☐ 0 ☐ ☐ ☐ – ☐ ☐ ☐ – ☐ – E ☐

Insert Style

CODE	DESCRIPTION
1	No Insert (Std.)
5	Encapsulated Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
924	0.04µm
001	0.10µm
002	0.20µm
101	0.07µm

O-Rings

CODE	MATERIAL
0	Buna
1	EPDM
2	Silicone
4	Viton®
5	FEP-Encapsulated Viton®
N	None

Options

CODE	TREAMENT
Blank	Standard
W	Wet Pack

ENGINEERING **YOUR** SUCCESS.

121

Chemflow®-PE

Chemically-resistant cartridge for bulk and lower temperature applications

The Chemflow®-PE filter cartridge uses a PTFE membrane along with HDPE supports that provide an economical alternative to all-fluoropolymer cartridges. It provides a high degree of retention and cleanliness along with good flow and lifetime. This filter is ideally suited for bulk chemical delivery and lower temperature wet processes (<60°C). It is available dry or wet-packed for quick installation.

Benefits

- Good flow rates
- Long lifetime
- Wet-pack option for quick installation
- PTFE/ HDPE construction for chemical resistance
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  - Acids, bases, solvents, photochemicals
  - Wet etch and clean (< 60°C)
  - Phosphoric acid
  - Hydrofluoric acid
  - Nitric acid
  - SC1,SC2
  - Solvents

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Chemflow®-PE

Specifications

Materials of Construction

Membrane	:	PTFE
Support Layers	:	HDPE
Structure	:	HDPE

Effective Filtration Area

8.3ft² (0.78m²) per 10" (250mm) cartridge

Metals Extractables*

Standard: <55ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Maximum Operating Temperature

140ºF (60ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 5gal at 1gpm

Data is from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

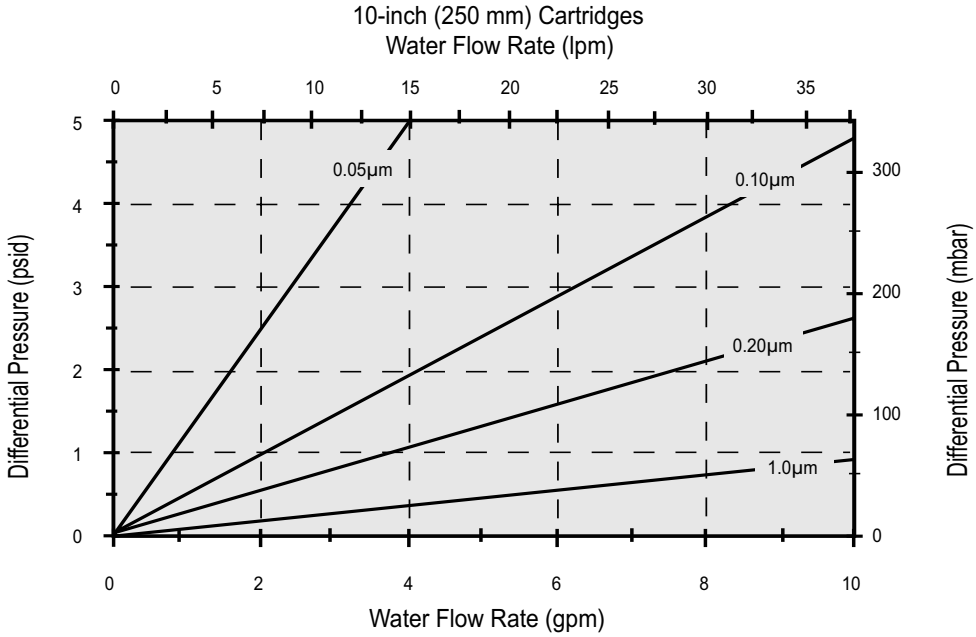
TOC rinse-up to background plus 5ppb of feed after 70gal @ 1gpm. Resistivity rinse-up to background minus 0.2 megohm-cm of feed after 60gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.05µm	0.8gpm/psid (4.39lpm/100mbar)
0.10µm	2.1gpm/psid (11.53lpm/100mbar)
0.20µm	3.8gpm/psid (20.86lpm/100mbar)
1.0µm	10gpm/psid (55.0lpm/100bar)

* Per 10-inch (250mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

PE – ☐ 0 ☐ ☐ ☐ – ☐ ☐ ☐ – ☐ – E ☐

Insert Style

CODE	DESCRIPTION
1	None (Std)
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
925	0.05µm
001	0.10µm
002	0.20µm
010	1.00µm

O-Ring Material

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5	FEP Encapsulated Viton

Options

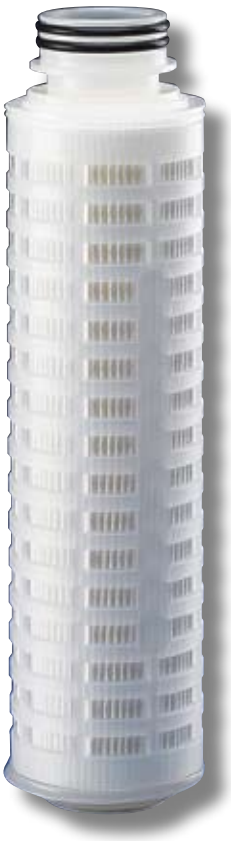
CODE	TREATMENT
Blank	Standard
W	Wet Packed

ENGINEERING **YOUR** SUCCESS.

Chemflow®-XF

Highest-flowing cartridge for bulk and lower temperature chemical applications

The Chemflow®-XF filter cartridge uses a superior asymmetric PTFE membrane than provides unmatched flow rates and on-stream life. It is constructed with HDPE supports that provide an economical alternative to all fluoropolymer cartridges while still maintaining a high degree of retention and cleanliness. This filter is ideally suited for bulk chemical delivery and lower temperature wet processes (<60°C). Customers using the cartridge for viscous fluids like phosphoric acid, have reported flow rates and lifetimes more than twice that of the leading competitor. These advantages help improve yields while decreasing overall filtration costs. In bulk delivery applications, the high flow allows for reduced system sizing and associated savings. It is available dry or wet-packed for quick installation.



Benefits

- Highest flow rates in the industry
- Long lifetime
- Wet-pack option for quick installation
- PTFE/ HDPE construction for chemical resistance
- 100% integrity tested in cleanroom environment

Applications

- Bulk chemical delivery
  - Acids, bases, solvents, photochemicals
- Wet etch and clean (< 60°C)
  - Phosphoric acid
  - Hydrofluoric acid
  - Nitric acid
  - SC1,SC2
  - Solvents

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Chemflow®-XF

Specifications

Materials of Construction

Membrane	:	PTFE (Asymmetric)
Support Layers	:	HDPE
Structure	:	HDPE

All components are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

SELECT:
11.0ft² (0.99m²) per nominal 10" (250mm) cartridge

Standard:
5.7ft² (0.51m²) per nominal 10" (250mm) cartridge

Metals Extractables*

Standard: <70ppb (total)

*in a 10% HNO_3 extraction

Maximum Differential Pressure/ Temperature

Forward: 55psid (4.1bar) @ 75ºF (24ºC)

Reverse: 30psid (2.8bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 7gal at 1gpm

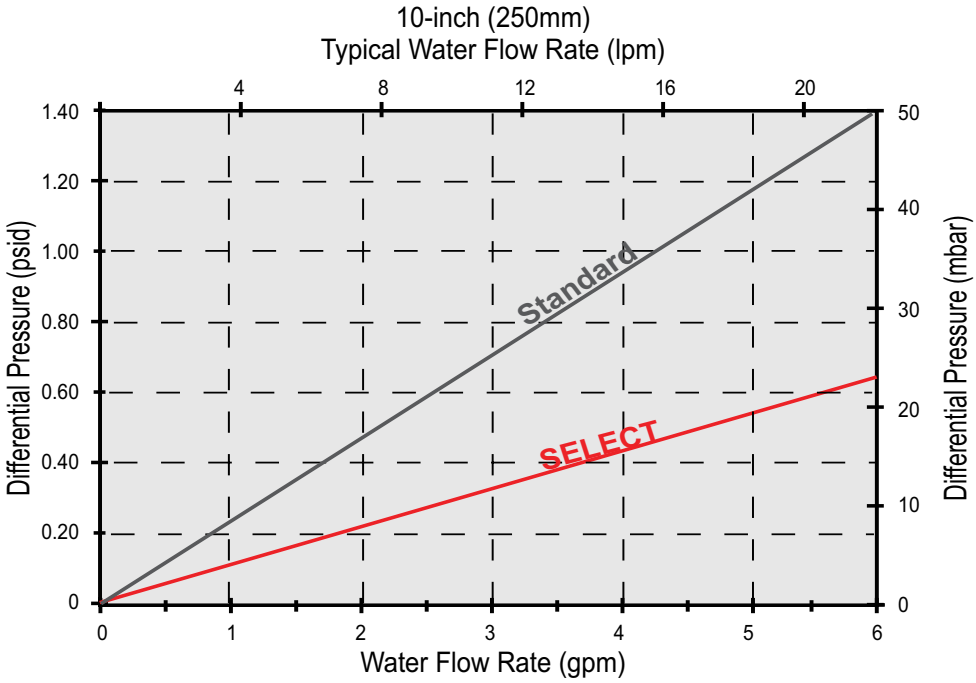
TOC/Resistivity Rinse-up (wet-packed)
TOC recovery within 5ppb of feed without additional rinse-up. Resistivity recovery within 0.2 megohm-cm of feed after 12gal @ 1 gpm.

Performance Attributes

Water Flow rates, Typical *

SELECT 7.9gpm/psid (52.0lpm/100mbar)
Standard 4.3gpm/psid (30.3lpm/100mbar)

* Per 10-inch (250mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

				0				–	0	3	1	–		–	E							

Pleat Technology

CODE	DESCRIPTION
ES	SELECT
PE	Standard

Insert Style

CODE	DESCRIPTION
1	None (Std)
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
2	226/Flat
3	222/Flat
7	226/Fin
8	222/Fin

Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
031	0.10µm XF

O-Ring Material

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5	FEP Encapsulated Viton

Options

CODE	TREATMENT
Blank	Standard Dry
W	Wet Packed

ENGINEERING **YOUR** SUCCESS.

General

Proflow™ II-G

Hydrophobic PTFE membrane for general purpose gas and solvent purification

Proflow™ II-G cartridges provide an economic alternative for general applications where reliable gas and liquid flow rates are required. With 5.6 square feet of expanded PTFE membrane, Proflow II-G is a highly efficient hydrophobic barrier, for the production of dry gas, and will effectively purify aggressive liquids and organic solvents.

Proflow™ II-G cartridges are manufactured under cleanroom conditions and integrity tested before shipment to assure consistent performance and quality.

Benefits

- Reliable air and liquid flow rates for effective performance
- Broad chemical compatibility enables use in many applications
- Broad range of micron ratings for user convenience
- Superior hydrophobicity for long life in vent/air applications
- Integrity tested to ensure quality

Applications

- Photoresists
- Compressed gas
- Non-sterile venting
- Electronic grade solvents
- Hot deionized water (less than 80°C)

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Proflow™ II-G

Specifications

Materials of Construction

Membrane	:	PTFE
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

5.6ft² (0.52 m²) per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Cleanliness (particle shedding)

Wet-packed: <1 particles/ml >0.2µm after 6gal at 1gpm

Data as from open bag and installed, no additional installation flushing.

TOC/Resistivity Rinse-up (wet-packed)

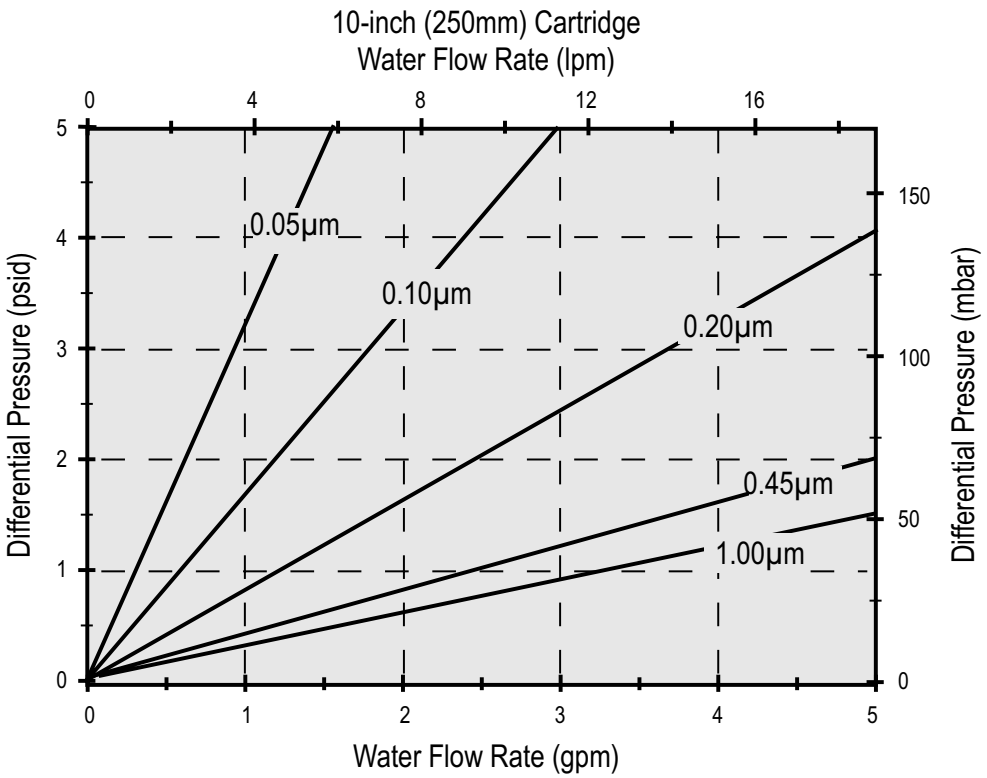
TOC rinse-up to background plus 5ppb of feed after 70gal @ 1gpm. Resistivity rinse-up to background minus 0.2megohm-cm of feed after 30gal @ 1gpm.

Performance Attributes

Water Flow rates, Typical *

0.05µm 0.6gpm/psid (3.29lpm/100mbar)
0.10µm 1.2gpm/psid (6.59lpm/100mbar)
0.20µm 2.5gpm/psid (13.73lpm/100mbar)
0.45µm 5.1gpm/psid (28.00lpm/100mbar)
1.00µm 6.2gpm/psid (34.04lpm/100mbar)

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

3 – [ ] 0 [ ] [ ] – [ ] [ ] [ ] – [ ] G

Application

CODE	TREATMENT
4	Standard
6	Flushed with 18 Megohm DI Water

Insert Style

CODE	DESCRIPTION
1	No Insert
5	(Standard) Encapsulated
6	Stainless Steel Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (Cuno®)
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin®
G	120/Internal/ Recessed End cap
H	213/Recessed Endcap (Ametek)
R	222/Recessed End cap

Nominal Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
925	0.05µm
001	0.10µm
002	0.20µm
004	0.45µm
010	1.00µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5*	FEP-Encapsulated Viton
6*	FEP-Encapsulated Silicone
N	None

*O-Rings only

Gaskets

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

ENGINEERING **YOUR** SUCCESS.

Clariflow®-G

Hydrophilic Polyethersulfone (PES) membrane for aqueous liquid filtration applications

Clariflow®-G cartridges are designed for general-purpose use in the filtration of high-purity liquids and aqueous chemicals.

The mirrored-anisotropic Polyethersulfone (PES) membrane is inherently hydrophilic and has a pore morphology that delivers exceptionally high flow rates.

Because there are no added surfactants or wetting agents, and the support layers and structure are all-polypropylene, the filter exhibits low extractables, broad chemical compatibility and good resistance to hydrolysis.

Benefits

- High flow rate reduces processing time
- Broad chemical compatibility allows use in most applications
- Low differential pressure reduces system wear and tear
- Chemical filtration

Applications

- Chemical filtration
- Liquid clarification
- Recirculating fluids
- General use water filtration
- Deionized water systems

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Clariflow®-G

Specifications

Materials of Construction

Membrane	:	Polyethersulfone
Support layers	:	Polypropylene
Structure	:	Polypropylene

Effective Filtration Area

6.8ft² (0.63m²) per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)
40psid (2.8bar) @ 180ºF (82ºC)

Reverse: 50psid (3.4bar) @ 75ºF (24ºC)

Maximum Operating Temperature

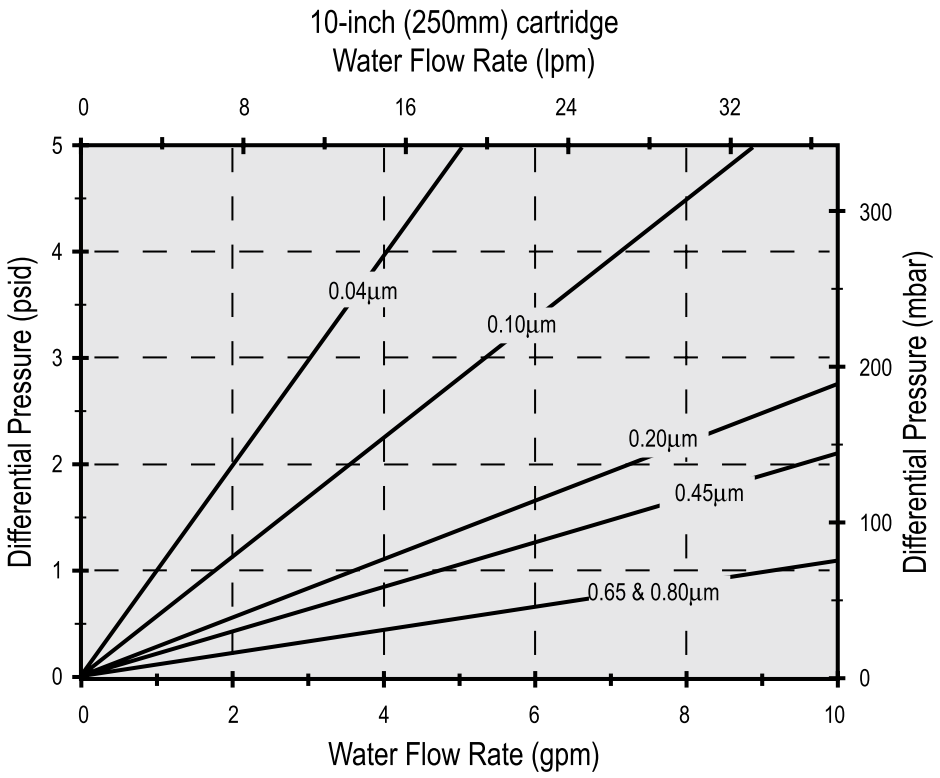
160ºF (71ºC)

Performance Attributes

Water Flow rates, Typical *

0.04µm	1.0gpm/psid (5.29lpm/100mbar)	0.45µm	4.8gpm/psid (26.35lpm/100mbar)
0.10µm	1.8gpm/psid (9.88lpm/100mbar)	0.65µm	9.2gpm/psid (50.51lpm/100mbar)
0.20µm	3.7gpm/psid (20.31lpm/100mbar)	0.80µm	9.5gpm/psid (52.16lpm/100mbar)

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

25 — 10 [ ] [ ] [ ] — [ ] [ ] [ ] — [ ] [ ] — G

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO)
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin

Nominal Length

CODE	LENGTH
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1000mm)

Filter Rating

CODE	MICRON
924	0.04µm
001	0.10µm
002	0.20µm
004	0.45µm
006	0.65µm
008	0.80µm

Gasket/0-Rings

CODE	MATERIAL
0	Buna N
1	EPDM (Standard)
2	Silicone
4	Viton
5*	FEP-Encapsulated Viton
6*	FEP-Encapsulated Silicone
N	None

*O-Rings only

Thickness (Gasket Only)

CODE	MATERIAL
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

ENGINEERING **YOUR** SUCCESS.

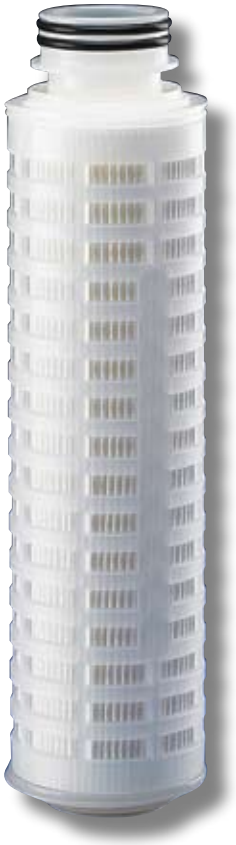
223

Polyflow®

Absolute-rated polypropylene depth cartridges for electronics applications

Polyflow® cartridges are optimized for use in electronics applications. They feature a random-fiber polypropylene depth matrix that provides excellent retention efficiencies and onstream life. The unique calendering process produces depth media with an absolute rating and superior dirt-holding capacity.

These cartridges are thermally bonded from 100% virgin polypropylene to ensure a high level of cleanliness and chemical compatibility.



Benefits

- High-retention depth matrix
- High flow rate
- Wide variety of configurations and ratings
- Economical prefiltration

Applications

- Solder plating
- Prefiltration of electronics-grade chemicals
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Polyflow®

Specifications

Materials of Construction

Depth media : Polypropylene
Support layers : Polypropylene
Structure : Polypropylene

Effective Filtration Area

2.4ft² (0.22 m²) 5" (130mm) cartridges
4.9ft² (0.46 m²) 10" (250mm) cartridges

Filtration Efficiency

The 0.6µm offers typical retention up to 99% efficient. 1.2µm, 2.5µm, 5µm, 10µm, 20µm, and 40µm are up to 99.9% efficient at specified pore size.

Cartridge Extractables

NVR < 35mg per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 40psid (2.8bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 140ºF (60ºC)

Maximum Operating Temperature

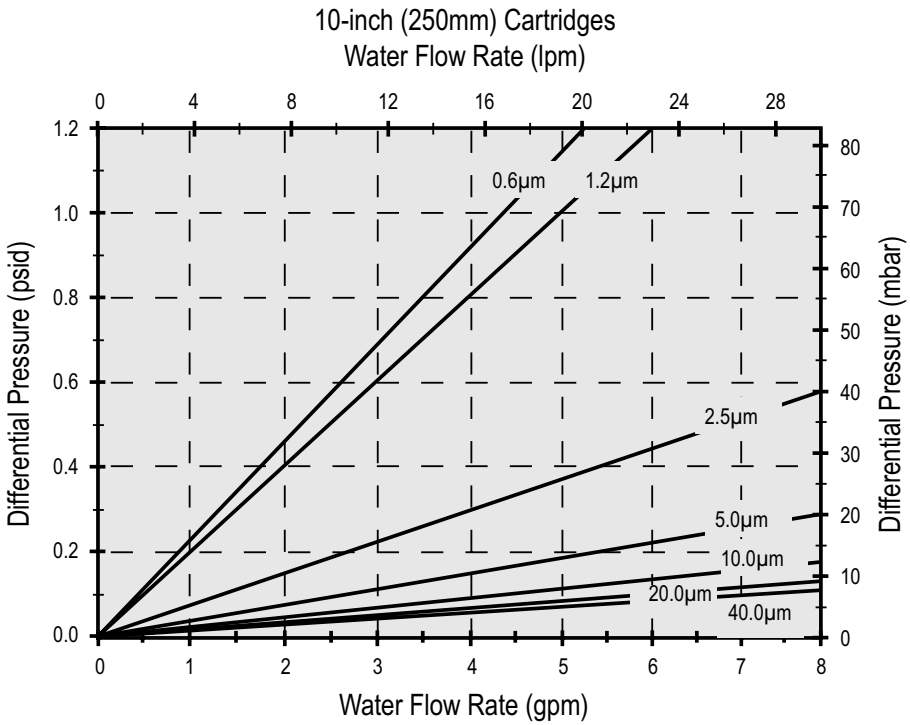
160ºF (71ºC)

Performance Attributes

Water Flow rates, Typical *

0.6µm	4.2gpm/psid (23.3lpm/100mbar)	10.0µm	40.0gpm/psid (219.6lpm/100mbar)
1.2µm	5.0gpm/psid (27.4lpm/100mbar)	20.0µm	50.0gpm/psid (274.4lpm/100mbar)
2.5µm	13.5gpm/psid (74.1lpm/100mbar)	40.0µm	60.0gpm/psid (329.3lpm/100mbar)
5.0µm	26.0gpm/psid (142.7lpm/100mbar)		

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

22 - ☐ 0 ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

Insert Style

CODE	DESCRIPTION
1	None (STD)
5	Encapsulated 316L Stainless Steel
6	Encapsulated Polysulfone
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO")
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin
G	120/Internal/Recessed Endcap
H	213/Recessed Endcap (Ametek)
R	222/Recessed Endcap

Nominal Length

CODE	LENGTH
05	5" (125mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
006	0.6µm
012	1.2µm
025	2.5µm
050	5.0µm
100	10.0µm
200	20.0µm
400	40.0µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
5*	FEP Encapsulated Viton
6*	FEP Encapsulated Silicone
N	None

*O-rings only

Thickness (Gaskets Only)

CODE	THICKNESS
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	No Gasket

ENGINEERING **YOUR** SUCCESS.

Polyflow®-G

All-polypropylene nominal-rated depth cartridges for economical prefiltration

Polyflow®-G depth media has been developed for a wide variety of general process applications from fluid clarification to general prefiltration. Its high dirt-loading, random-fiber polypropylene depth media provides consistent particle retention. Polyflow®-G is thermally bonded from 100% virgin polypropylene to ensure clean filtrates and excellent chemical and thermal compatibility in the most demanding processing conditions.

Polyflow®-G leads in overall reduction of filtration costs when compared to spunbonded, stringwound, and nominally-rated pleated prefilter cartridges. Its longer filtration life reduces downtime due to fewer change-outs.

Benefits

- High flow rate and long service life reduce processing time
- Broad chemical compatibility allows use in most applications
- Thermally bonded construction minimizes extractables for cleaner filtrates

Applications

- Solvent filtration
- Liquid clarification
- Recirculating liquids
- General water filtration
- Reagent grade chemicals
- RO/DI prefiltration
- Waste water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency. Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow®-G

Specifications

Materials of Construction

Depth media	:	Polypropylene
Support layers	:	Polypropylene
Structure	:	Polypropylene

All components are thermally bonded to ensure integrity and to reduce extractables.

Nominal Filter Ratings
0.2µm, 0.5µm, 1µm, 3µm, 10µm, and 30µm

Effective Filtration Area
3.6ft² (0.33 m²) per 10" (250mm) cartridge

Cartridge Extractables
NVR < 35mg per 10" (250mm) cartridge

Biological Safety
All components meet USP specifications for Class VI-121ºC Plastics criteria.

Maximum Differential Pressure/ Temperature

Forward: 80psid (5.5bar) @ 75ºF (24ºC)

Reverse: 40psid (2.8bar) @ 75ºF (24ºC)
15psid (1.0bar) @ 140ºF (60ºC)

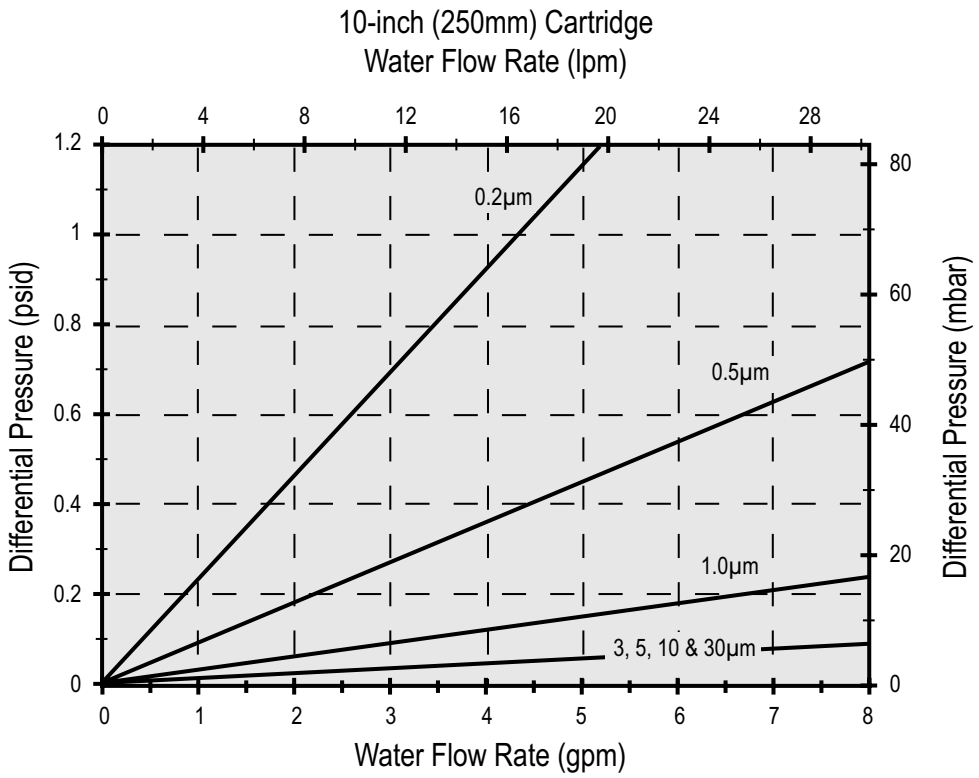
Maximum Operating Temperature
160ºF (71ºC)

Performance Attributes

Water Flow rates, Typical *

0.2µm	4.2gpm/psid (23.3lpm/100mbar)	5.0µm	70.0gpm/psid (384.2lpm/100mbar)
0.5µm	11.0gpm/psid (60.4lpm/100mbar)	10.0µm	70.0gpm/psid (384.2lpm/100mbar)
1.0µm	33.0gpm/psid (181.1lpm/100mbar)	30.0µm	70.0gpm/psid (384.2lpm/100mbar)
3.0µm	70.0gpm/psid (384.2lpm/100mbar)		

*Per 10-inch (250 mm) cartridge equivalent.



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

PG – [ ] 0 [ ] [ ] [ ] – [ ] [ ] [ ] – [ ] [ ]

Style

CODE	DESCRIPTION
1	None
A	1/2" Shortened on 222 Fitting

End Fitting

CODE	DESCRIPTION
0	DOE (CUNO®)
1	DOE
2	226/Flat
3	222/Flat
6	020/Internal/Flat
7	226/Fin
8	222/Fin
G	120/Internal/Recessed End cap
H	213/RecessedEnd cap (Ametek)
R	222/Recessed End cap

Nominal Length

CODE	LENGTH
05	5" (125mm)
10	10" (250mm)
20	20" (500mm)
30	30" (750mm)
40	40" (1,000mm)

Filter Rating

CODE	MICRON
002	0.2µm
005	0.5µm
010	1.0µm
030	3.0µm
050	5.0µm
100	10.0µm
300	30.0µm

Gasket/O-Rings

CODE	MATERIAL
0	Buna N (Standard)
1	EPDM
2	Silicone
4	Viton®
5*	FEP Encapsulated Viton®
6*	FEP Encapsulated Silicone
N	None

*O-Rings only

Gasket Thickness

CODE	DESCRIPTION
1	0.200" (5mm)
2	0.125" (3mm)
4	(1) 0.200" (5mm) & (1) 0.125" (3mm)
N	None

ENGINEERING **YOUR** SUCCESS.

Polyflow® Mini-Cartridges

Small-volume polypropylene depth cartridges for electronics applications

Polyflow® mini-cartridges are optimized for use in small-volume applications such as DI water and aqueous-based chemicals. They feature a random-fiber polypropylene depth matrix that provides excellent retention efficiencies. The unique calendering process produces depth media with superior dirt-holding capacity that extends useful life.

Its design uses an internal 116 O-ring that is available in several materials.

Benefits

- High-retention depth matrix
- High flow rate
- Economical prefiltration
- Secure internal O-ring seal

Applications

- Prefiltration of electronics-grade chemicals
- Small-volume lab systems
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow® Mini-Cartridges

Specifications

Materials of Construction

Depth Media : Polypropylene
Support Layers : Polypropylene
Structure : Polypropylene

Effective Filtration Areas

0.9ft² (0.08m²) per 5" (125mm) cartridge (0.6µm)

1.6ft² (0.15m²) per 5" (125mm) cartridge (1.2µm)

2.0ft² (0.19m²) per 5" (125mm) cartridge (2.5µm)

2.1ft² (0.20m²) per 5" (125mm) cartridge (5.40µm)

Filtration Efficiency

The 0.6µm offers typical retention efficiency of up to 97-99%.1.2µm, 2.5µm, 5.0µm, and 10.0µm are 99.9% efficient at the specified pore size.

Cartridge Extractables

NVR < 3mg per 10" (250mm) cartridge

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

Performance Attributes

FILTER RATING	NOMINAL EFA		TYPICAL WATER FLOW RATE*		TYPICAL AIR FLOW RATE	
	ft²	cm²	gpm/psid	lpm/100mbar	scfm/psid	Cubic Meters³/hr/ 100mbar
0.60µm	0.9	836	1.0	5.5	7.6	18.8
1.20µm	1.6	1486	2.1	11.5	12.0	24.0
2.50µm	2.0	1858	3.3	18.1	15.4	38.1
5.00µm	2.1	1950	6.0	32.9	20.0	49.5
10.00µm	2.1	1950	6.5	35.7	26.6	65.7
20.00µm	2.1	1950	25	137	90	221.7
40.00µm	2.1	1950	40	219.5	220	541.86

*For fluids with viscosity of 1cP.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

22 — M D E M M — [ ] [ ] [ ] — [ ]

Filter Rating

CODE	MICRON
006	0.60µm
012	1.20µm
025	2.50µm
050	5.00µm
100	10.00µm
200	20.00µm
400	40.00µm

0-Ring

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
6	FEP Encap Silcone
N	None

ENGINEERING **YOUR** SUCCESS.

Polyflow® Mini-Capsules

Encapsulated filters with polypropylene depth matrix for small-volume prefiltration applications

Polyflow® Capsules feature a random-fiber polypropylene depth matrix that provides superior retention efficiencies. In addition, the unique calendering process produces depth media with unsurpassed dirt-holding capacity that extends filter service life. Longer life leads to increased savings by requiring fewer filter change-outs.

Polyflow® capsules are available in three sizes, enabling users to match the filters to actual batch sizes and minimize the hold-up volume. Cost savings result from the reduction of lost product, and by scaling the process properly to avoid excess filter capacity.

The encapsulated design maximizes efficiency by providing faster, easier change-out without laborious cleaning procedures. Eliminating the need to open reusable housings for cartridge replacement minimizes the chance of introducing contamination into the process, and promotes safety by reducing the risk of exposure to potentially hazardous fluids.

Benefits

- High flow rate reduces processing time
- Long service life minimizes change out frequency
- Broad chemical compatibility enables use in most applications
- High retention efficiency provides excellent protection for downstream filters
- Non-pyrogenic (per LAL test) for use in critical applications
- Custom ordering option allows different inlet/outlet fittings for specific needs

Applications

- Solvent and reagent grade chemicals
- Lab scale RO/DI pre-filtration
- Recirculating liquids
- General water filtration
- Vent filtration

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

ENGINEERING **YOUR** SUCCESS.

Polyflow® Mini-Capsules

Specifications

Materials of Construction

Depth media	:	Polypropylene
Support layers	:	Polypropylene
Structure	:	Polypropylene
Housing	:	Polypropylene

All components meet USP-XXIV Class VI-121°C criteria, and are thermally bonded to ensure integrity and reduce extractables.

Effective Filtration Area

See table for details.

Filtration efficiency

1.2µm, 2.5µm, 5.0µm, and 10.0µm are 99.9% efficient at the specified pore size. The 0.6µm capsule offers typical retention efficiency of up to 97-100%.

Cartridge extractables

NVR < 3mg per 10" (250mm) capsule

Autoclavable and sanitizable

May be autoclaved for up to 25 cycles at 275°F (135°C), or sanitized using most common cleaning agents.

Maximum Differential Pressure/ Temperature

Forward: 70psid (4.8bar) @ 75ºF (24ºC)
35psid (2.4bar) @ 140ºF (60ºC)
20psid (1.4bar) @ 167ºF (75ºC)

Reverse: 30psid (2.1bar) @ 75ºF (24ºC)

Performance Attributes

FILTER RATING	CAPSULE SIZE	NOMINAL EFA		TYPICAL WATER FLOW RATE*		TYPICAL AIR FLOW RATE	
		ft^2	cm^2	gpm/psid	lpm/100mbar	scfm/psid	$Nm^3/hr/100mbar$
0.6µm	Half	0.4	371	0.4	2.2	3.4	8.4
	Standard	0.7	650	0.8	4.4	5.9	14.6
	Double	0.9	836	1.0	5.5	7.6	18.8
1.2µm	Half	0.6	371	0.8	4.4	4.5	11.1
	Standard	1.1	1021	1.4	7.7	8.3	20.5
	Double	1.6	1486	2.1	11.5	12.0	24.0
2.5µm	Half	0.8	743	1.3	7.1	6.2	15.3
	Standard	1.5	1393	2.5	13.7	11.6	28.7
	Double	2.0	1858	3.3	18.1	15.4	38.1
5µm	Half	0.8	743	2.3	12.6	7.6	18.8
	Standard	1.6	1486	4.5	24.7	15.2	37.6
	Double	2.1	1950	6.0	32.9	20.0	49.5
10µm	Half	0.9	836	2.8	15.3	8.7	21.4
	Standard	1.6	1486	5.0	27.5	20.3	50.0
	Double	2.1	1950	6.5	35.7	26.6	65.7

*For fluids with viscosity of 1 cP, and capsules with sanitary fittings.

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

22 — C [ ] [ ] [ ] [ ] — [ ] [ ] [ ] — [ ]

Size

CODE	DESCRIPTION
H	Half Size
S	Standard Size
D	Double Size

Style

CODE	DESCRIPTION
B	Biological
E	Electronics

Inlet/Outlet

CODE	CONNECTION
B	1/4" Hose Barb
H	1/2" Hose Barb
S	1 1/2" Sanitary Flange
D	Quick Disconnect
P	1/4" NPT (Male)
J	1/2" NPT (Male)
K	3/8" NPT (Female)
G	Swagelok® 1/2"

Filter Rating

CODE	MICRON
006	0.60 µm
012	1.20 µm
025	2.50 µm
050	5.00 µm
100	10.00 µm

Vent 0-Ring

CODE	MATERIAL
0	Buna N
1	EPDM
2	Silicone
4	Viton®
N	None
Z	No vents

ENGINEERING **YOUR** SUCCESS.

Housings

Trufluor™

High purity and rugged design for aggressive chemical filtration

The simple, yet rugged design of the TruFluor filtration housing is an excellent solution to any aggressive chemical filtration problem. The two-piece design allows for ease of installation and a positive seal.

Benefits

- High purity PFA construction
- Also available in PVDF
- Broad chemical compatibility
- Extremely low extractables
- Available in 4" and 10" versions
- Standard ¼" gauge connections upstream and downstream

Applications

- High purity acids and bases
- Aggressive chemical filtration
- Acid etch and BOE
- Photomask and Photoresist
  - Chemicals
  - Solvents
  - Developers

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Trufluor™

Specifications

Materials of Construction

Head and Bowl	:	High purity PFA
O-Ring	:	FEP Encapsulated Viton[1]
NPT Plugs	:	High purity PFA
Threaded Head Inserts	:	PTFE coated 316 Stainless steel
Mounting Bracket Adapter[2]	:	High purity PFA (10" model only)

Connections

Inlet/Outlet: ¾" NPT or Butt-Weld

Vent and Drain: ¼" NPT

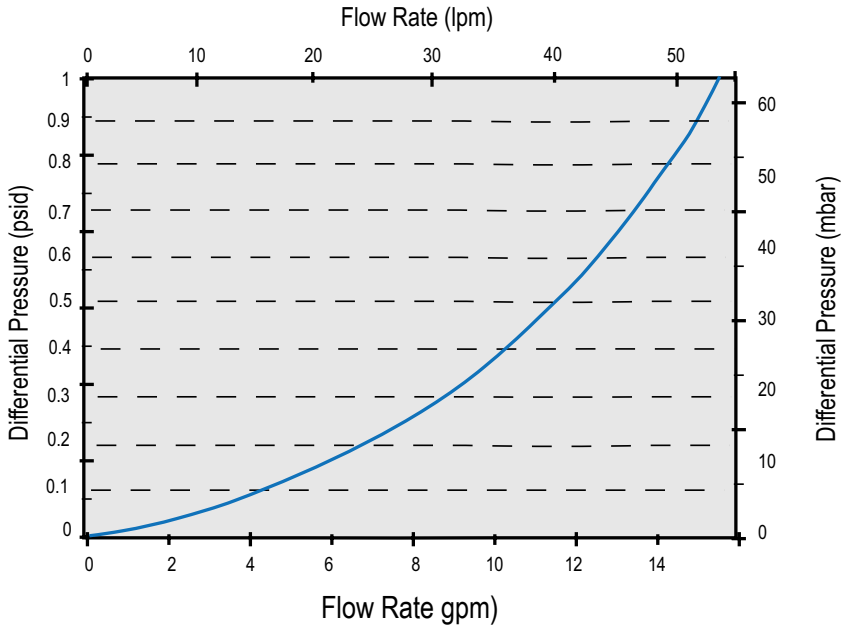
Maximum Operating Specifications

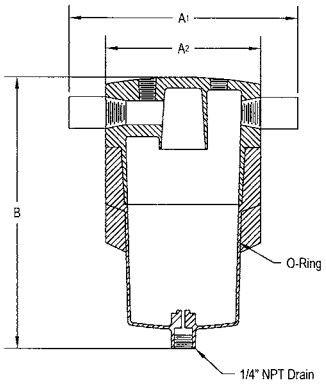
PF4: 65psid (4.5bar) @ 203ºF (95ºC)
75psid (5.2bar) @ 68ºF (20ºC)

PVDF 110psig @ 203ºF (95ºC)
150psig @ 68ºF (20ºC)

Housing Flow Rate (Liquid): (10" model only)

Housing Differential Pressure vs. Liquid Flow Rate





Notes:
1. Dim. A1 = 3/4" Butt Weld
   Dim. A2 = 3/4" NPT
2. Material: TFH = High Purity PFA
   TVH = PVDF
3. O-Ring: FEP Encapsulated Viton
4. Maximum Operating Specifications:
   65 psig (4.5 bar) @ 203°F (95°C)
   75 psig (5.2 bar) @ 68°F (20°C)

Housing Part Number	Overall Width (A)	Overall Length (B)	Minimum Clearance for Cartridge Removal (C)
TFH04N08N02T	4 7/8" (12.4cm)	7 25/32" (19.8 cm)	6" (15.2 cm)
TFH04W08N02T	7 21/32" (19.4 cm)	7 25/32" (19.8 cm)	6" (15.2 cm)
TFH10N08N02T	4 7/8" (12.4cm)	16" (40.6 cm)	13" (33.0 cm)
TFH10W08N02T	7 21/32" (19.4 cm)	16" (40.6 cm)	13" (33.0 cm)
TVH04N08N02T	4 7/8" (12.4cm)	7 25/32" (19.8 cm)	6" (15.2 cm)
TVH04W08N02T	7 21/32" (19.4 cm)	7 25/32" (19.8 cm)	6" (15.2 cm)
TVH10N08N02T	4 7/8" (12.4cm)	16" (40.6 cm)	13" (33.0 cm)
TVH10W08N02T	7 21/32" (19.4 cm)	16" (40.6 cm)	13" (33.0 cm)

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

TFH	04	N	08	N	02	T
Model	Bowl Length	Connection Type	Connection Size	Drain/Vent Type	Drain/Vent Size	Seal Material

Model	
CODE	DESCRIPTION
TFH	TruFluor
TVH	TruFluor PVDF

Bowl Length	
CODE	DESCRIPTION
04	4"
10	10"

Connection Type	
CODE	DESCRIPTION
N	NPT
W	Butt Weld

Connection Size	
CODE	DESCRIPTION
08	3/4"

Drain/Vent Type	
CODE	DESCRIPTION
N	NPT
W	Butt Weld

Drain/Vent Size	
CODE	DESCRIPTION
02	1/4"

Seal Material	
CODE	DESCRIPTION
T	FEP Encapsulated Viton[1]

1 Trademark of E.I. du Pont de Nemours and Co.
2 Additional changes apply
3 These models are PVDF construction

Specifications are subject to change without notification.

ENGINEERING **YOUR** SUCCESS.

3052

Trufluor +™

High purity PFA filter housing

The Trufluor +™ filter housing is designed for maximum chemical resistance and high purity for microelectronics applications. Constructed of PFA (wetted parts) and PVDF (non-wetted parts), this housing is compatible with the most aggressive chemistries. The high-purity materials of construction and cleanroom packaging insure a high level of cleanliness. The housing consists of a stationary bowl and locking ring that provides a positive seal and easy filter replacement. It is compatible with our Fluoroflow® line of all-fluoropolymer cartridges including the large-diameter Fluoroflow®-XL in lengths of 10, 20 and 30 inches.

Benefits

- Excellent chemical resistance
- High-purity construction
- Packaged in cleanroom
- High flow rates
- Compatible with 2.75" and 3.25" diameter cartridges

Applications

- Wet etch and clean (90°C or less)
- Photochemicals
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Trufluor +™

Specifications

Materials of Construction

Head and Bowl	:	High Purity PFA
O-Ring	:	FEP Encapsulated Viton®
Locking Ring	:	PVDF (non-wetted part)

Connections

Inlet/Outlet	3/4" or 1" Flare 3/4" or 1" Butt-Weld
Vent/Drain	1/4" Flare 1/4" Butt-Weld 1/4" NPTF 3/8" Closed 3/8" Flare

Maximum Operating Specifications

50 psig (3.4 bar) at 194°F (90°C)
100 psig (6.9 bar) at 77°F (25°C)

Cartridge Configurations Supported

10"	222/Flat End Cap SS Reinforced 222/Flat End Cap
20"	222/Flat End Cap SS Reinforced 222/Flat End Cap
30"	222/Flat End Cap SS Reinforced 222/Flat End Cap

Dimensional Data

10" Filter

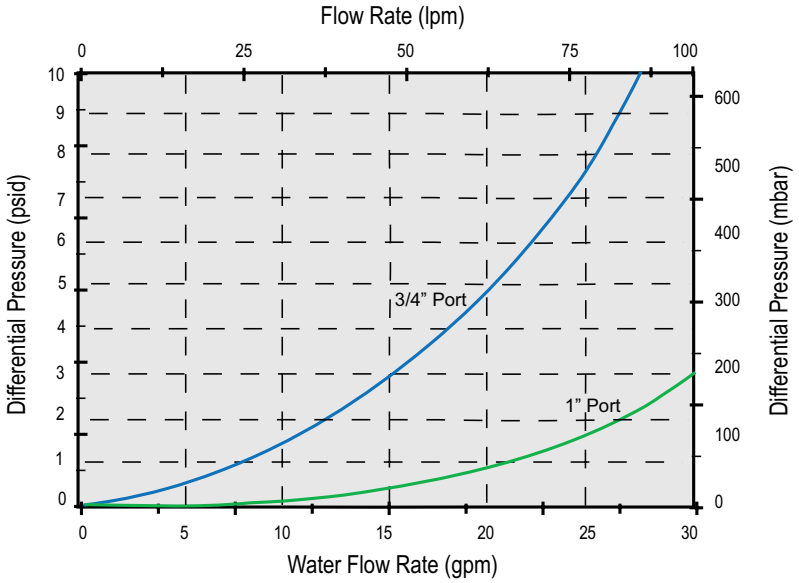
HOUSING STYLE	OVERALL WIDTH	OVERALL LENGTH
3/4" Butt-Weld Pipe 3/4" Flare	9.0" / 22.9 cm 10.5" / 26.7 cm	16.0" / 40.6 cm 19.5" / 49.5 cm
1" Butt-Weld Pipe 1" Flare	9.0" / 22.9 cm 11.0" / 27.9 cm	16.0" / 40.6 cm 19.5" / 49.5 cm

20" Filter

HOUSING STYLE	OVERALL WIDTH	OVERALL LENGTH
3/4" Butt-Weld Pipe 3/4" Flare	12.0" / 30.5 cm 10.5" / 26.7 cm	25.7" / 65.3 cm 29.3" / 74.4 cm
1" Butt-Weld Pipe 1" Flare	9.0" / 22.9 cm 11.0" / 27.9 cm	25.7" / 65.3 cm 29.3" / 74.4 cm

30" Filter

HOUSING STYLE	OVERALL WIDTH	OVERALL LENGTH
3/4" Butt-Weld Pipe 3/4" Flare	12.0" / 30.5 cm 10.5" / 26.7 cm	35.5" / 90.2 cm 39.1" / 99.3 cm
1" Butt-Weld Pipe 1" Flare	9.0" / 22.9 cm 11.0" / 27.9 cm	35.5" / 90.2 cm 39.1" / 99.3 cm



Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

TFP [ ][ ] [ ] [ ][ ] [ ] 0 2 T

Bowl Length

CODE	DESCRIPTION
10	10" (254mm)
20	20" (508mm)
30	30" (762mm)

Connection Type

CODE	DESCRIPTION
F	Flare
W	Buttweld

Connection

CODE	LENGTH
08	3/4" (19.05mm)
10	1" (25.40mm)

Drain/Vent Type

CODE	DESCRIPTION
C	Closed[2]
F	Flare[2]
W	Butt-Weld
N	NPTF

Drain/Vent Size

CODE	DESCRIPTION
02	1/4" (6.35mm)

Seal Material

CODE	DESCRIPTION
T	FEP Encapsulated Viton[1]

1 Trademark of E.I. du Pont de Nemours and Co.
2 Additional changes apply

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

ENGINEERING **YOUR** SUCCESS.

C-3055

Fulflo® NP

Natural Polypropylene filter housings for electronics-grade chemicals

The Fulflo® filter housings are designed for high purity electronics applications. Its natural polypropylene construction provides good chemical compatibility and cleanliness. These housings offer an economical alternative to stainless steel or PFA for less aggressive chemistries. They are available in both 10- and 20-inch lengths and both single- and double-open end designs. A secure head-to-shell O-ring ensures effective sealing while a positive 'stop' design prevents overtightening.

Benefits

- High-purity construction
- Versatile design
- Economical
- Good flow rates

Applications

- Bulk chemical delivery of electronics-grade chemicals
- CMP slurries
- Plating solutions
- DI water

Parker Hannifin Corporation provides our customers with unsurpassed product consistency and cost-efficiency.
Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at www.parker.com or through your nearest **Parker Hannifin Corporation** office.

Parker Hannifin Corporation designs and manufactures an extensive line of innovative solutions for specific applications in the Microelectronics, Biopharmaceutical, Food and Beverage, Industrial and Chemical industries.

Parker

ENGINEERING **YOUR** SUCCESS.

Fulflo® NP

Specifications

Materials of Construction

Vessel 100% natural FDA grade polypropylene

Head-to-shell 2-240 O-Ring:

Standard (Industrial Grade): Viton*

Optional (FDA Grade): Buna-N, EPDM, Silicone, FEP encapsulated silicone

Pressure Relief Button O-Ring: Buna-N only

Maximum Recommended Operating Conditions:

Temperature:
125°F (52°C) @ 100 psi (6.9 bar)

Pressure:
150 psi (10.3 bar) @ 75°F (22°C)

Flow Rate:
6 gpm (23 lpm) for 10 in vessel
12 gpm (45 lpm) for 20 in vessel

Recommended Cartridge Dimensions:

NP10:
2-3/8 in to 2-3/4 in O.D. x 1 in I.D.
x 9-5/8 in to 9-13/16 in long

NP20:
2-3/8 in to 2-3/4 in O.D. x 1 in I.D.
x 19-7/8 in to 20-1/16 in long

Connection Dimensions:

Inlet/Outlet: 3/4 in (19 mm) NPTF

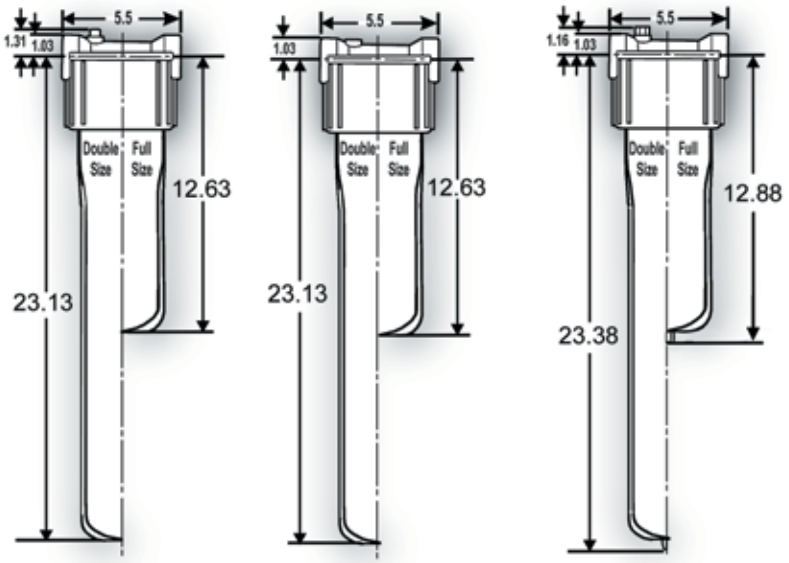
Vent/Drain: 1/4 in (6.4 mm) NPTF

Cartridge Seal Designs:

"TC": Single-Open-End with 222 O-ring receptacle

"DO": Double-Open-End with knife edge seal; also accepts 213 O-ring seal cartridge (PR code)

Vessel Assembly Dimensions:



Vessel with pressure relief button

Vessel without pressure relief button

Vessel with 1/4" NPT vent and drain

Compatible Chemicals (125°F max. temp.)

Acetic Acid	50%
Acetone	99.5%
Ammonium Fluoride	40%
Ammonium Hydroxide	10%
Hydrochloric Acid	37%
Hydrofluoric Acid	49%, 52%
Nitric Acid	10%
Phosphoric Acid	85%
Potassium Hydroxide	45%
Sodium Hydroxide	50%
Tetrachloroethylene	99.0%

Standard Vessel Assemblies

NP10-DO-N-V	NP20-DO-N-V
NP10-DO-R-V	NP20-DO-R-V
NP10-D0-DV-V	NP20-DO-DV-V
NP10-TC-N-V	NP20-TC-N-V
NP10-TC-R-V	NP20-TC-R-V
NP10-TC-DV-V	NP20-TC-DV-V

Ordering Information

Each cartridge is identified with a product number, pore size and lot number for traceability.

Vessel Type	Shell Length	Cartridge Seal Design	Vent/Drain Options	Head-to-Shell 240 O-Ring
NP	10 = 10 20 = 20	DO = Double-Open-End (gasket seal) TC = Single-Open-End (222 O-ring)	D = 1/4 Femal NPT Drain (plugged N = No Vent, Drain or Pressure Relief Button R = Pressure Relief Button** V = 1/4 in Female NPT Vent (plugged)	E = EPDM (FDA grade) L = FEP/silicone (FDA grade) N = Buna-N (FDA grade) S = Silicone (FDA grade) V = Viton* (Industrial grade)

** Pressure Relief Button ("R") not recommended for hazard fluid applications.

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

ENGINEERING **YOUR** SUCCESS.

Filter Recommendation by Application

Application	Chemicals		Filter Family	
			Primary Choice	Secondary Choice
Etching	Si etch	HF/HNO_3/acetic acid	Chemflow	Proflow
	SiO_2 etch	BOE/BHF-HF/NH_4F	Clariflow	Fluoroflow
	Si_3N_4 etch	H3PO4	Fluorocap	Fluoroflow XF
	Al etch	H_3PO_4/HNO_3/acetic acid	Fluoroflow	
Residue Removal	Hydroxy/amine based	NMP, glycol amine, etc.	Chemflow (<60°C), Fluoroflow (>60°C)	Proflow-E (<60°C) Fluoroflow (>60°C)
	Glycol/NH4F based	Glycol, NH_4F	Chemflow (<60°C), Fluoroflow (>60°C)	Proflow-E (<60°C) Fluoroflow (>60°C)
	DMSO/amine based	DMSO/amine, EL/2 pentamone	Proflow (<60°C), Fluoroflow (>60°C)	Chemflow-E (<60°C) Fluoroflow (>60°C)
Cleaning	Pirahha	H_2SO_4/H_2O_2	Fluorocap	Fluoroflow XF
	SC1	NH_4OH/H_2O_2/H_2O	Fluoroflow	
	SC2	HCl/H_2O_2/H_2O	Fluoroflow	
	Cu, Ni, Au, etc.	Metal compound/acid or base/buffer	Clariflow (<60°C), Fluoroflow (>60°C)	Polyflow M (<60°C) Fluoroflow (>60°C)
Photochemical Filtration	Photoresist	Photo sensitive agent/ polymer resin	Polyflow M	Chemflow
	Developing		Chemflow PE	
			Fluoroflow	
			Proflow	
CMP	Oxide		Polyflow G	
	Copper		Polyflow G	
DI	Rinsing	H_2O	Clariflow (<60°C), Fluoroflow (>60°C)	
Ozonatde DI	Rinsing	H_2O/O_3	Fluoroflow	

SELECT
Pleating Technology

Bath recovery rate is related to a filter's flow capacity. However, space availability in process baths is limited, thus there is always a constant challenge to increase the surface area and the flow capacity of the filter without increasing its size.

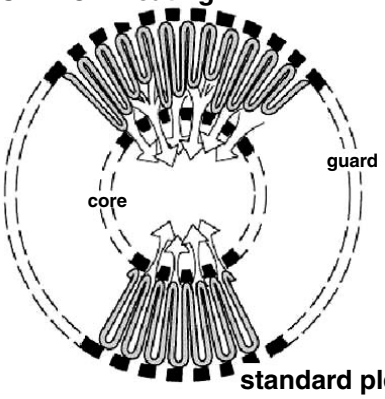
Our revolutionary SELECT pleating utilizes an innovative pleat-design that not only increases the effective filtration area, but also greatly increases the flow-rate as compared to conventional types of pleating. SELECT pleating effectively offers up to 80% more filtration area, which translates into twice the flow capacity. Bath recovery can thus be significantly improved and costs lowered.

Ultraclean
Leads the Microelectronics Industry in Cleanliness

To improve product quality and yield, our R&D and design teams have successfully developed the revolutionary Ultraclean cleaning process. This proprietary process is applied to electronics grade products to provide a total metals extractables level of <5ppb.

Ultraclean's low levels of metals extractables provide users with a highly consistent manufacturing process – and thus very low product reject rates.

SELECT-Pleating



standard pleating

ENGINEERING **YOUR** SUCCESS.

Chemical Compatibility Chart

Microelectronics Industry

This chemical compatibility chart uses a rating system: A, B, C and F (most compatible to least) and is an easy way of rating a filter based solely on its chemical compatibility. However, all chemical compatibility guides are intended as general reference documents. By their nature, they cannot address the wide ranges of process parameters and their interactions. These include variations in temperature, pressure, chemical concentration, solid or liquid phase, pH level, and solubility. As each of these parameters is changed, so a material's resistance to chemical attack can be affected.

Due to this variability, we recommend that users contact our Technical Services team in order to confirm the suitability and chemical resistance of a proposed filter material for each application. Our Technical Services team will undertake a compatibility evaluation and provide a product recommendation.

A = Recommended
B = Conditionally recommended
C = Non-critical applications at ambient
F = Do not use

	FILTERS							O-RINGS						HOUSINGS		
	Fluoroflow®	FluoroCap™	Proflow II™	Chemflow PE®	Polyflow® Membrane	Polyflow®	Clariflow®	Chemrez®	Teflon® Encapsulated Viton®	Viton®	EPR	Silicone	Buna	PFA	Stainless Steel	PVC
Acetic Acid (5-80%)	A	A	C	C	A	A	C	A	A	A	A	F	B	A	A	A
Acetic Acid Glacial	A	A	B	C	B	B	C	A	A	F	B	F	B	A	C	B
Acetone (Dimethylketone)	A	A	A	C	A	A	F	A	A	F	A	F	F	A	A	A
Ammonium Fluoride	A	A	B	A	B	B	A	A	A	A	A	F	B	A	F	B
Ammonium Hydroxide	A	A	A	C	A	A	A	A	A	B	A	A	B	A	C	A
Aqua Regia	A	A	F	F	F	F	F	A	A	F	F	F	F	A	F	F
BOE; NH_4F:HF	A	A	A	B	A	B	A	A	A	A	F	F	F	A	F	A
Carbon Tetrachloride	A	A	F	F	F	F	F	A	A	A	F	A	F	A	B	F
Citric Acid	A	A	A	A	A	A	B	A	A	A	A	A	F	A	A	C
Chrom Phos; (32:1:0.1) H_2O:H_3PO_4:CRO_2	A	A	B	B	C	C	F	A	A	C	F	F	F	A	C	F
Coating Aquator AZ	A	A	A	B	C	C	F	A	A	F	C	F	F	A	A	B
Copper Sulfate	A	A	A	C	A	A	A	A	A	A	A	A	A	A	A	A
Dimethyl Sulfoxide (DMSO)	A	A	A	B	A	A	F	A	A	F	A	F	F	A	A	F
EGMEA	A	A	B	B	B	C	F	A	A	F	F	F	F	A	B	F
EKC (Strip) Pyrollidone, n-methyl (NMP) to 40°C	A	A	C	C	C	C	F	A	A	F	B	F	F	A	A	B
EKC (Strip) Pyrollidone, n-methyl (NMP) 40-150°C	A	A	F	F	F	F	F	A	A	F	F	F	F	A	A	F
Ethanol	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A
Freon TF	A	A	B	C	C	C	F	A	A	B	F	F	F	A	A	C
Hexamethyldisilazane (HMDS)	A	A	B	C	B	C	F	A	A	F	F	F	F	A	C	F
Hydrochloric Acid (5-30%)	A	A	A	A	A	A	A	A	A	A	A	F	B	A	F	A
Hydrofluoric Acid (10-49%)	A	A	A	A	A	A	A	A	A	A	C	F	C	A	A	A
Hydrofluoric Acid 50%	A	A	A	B	F	F	B	A	A	A	F	F	F	A	A	F
Hyrdofluoric Acid (conc.) cold	A	A	C	C	A	A	F	A	A	A	F	F	F	A	B	A
Hydrogen Peroxide (3-10%)	A	A	A	A	A	A	A	A	A	A	B	A	B	A	A	A
Hyrdogen Peroxide (11-30%)	A	A	A	A	A	A	B	A	A	A	B	A	F	A	A	A
Hydrogen Peroxide (31-90%)	A	A	A	B	A	A	F	A	A	A	F	B	F	A	A	A
Isopropyl Alcohol (IPA)	A	A	A	A	A	A	A	A	A	A	B	A	B	A	A	A
Methanol	A	A	A	A	A	A	B	A	A	C	B	B	B	A	A	A
Methylene Chloride	A	A	B	C	F	F	F	A	A	B	F	F	F	A	A	F
Methyl Ethyl Ketone (MEK)	A	A	B	C	F	F	F	A	A	F	A	F	F	A	A	F
Mixed Acid Etch; (HNO_3<20%:HF:CH_3:CO_2H)	A	A	C	F	C	C	F	A	A	C	F	F	F	A	B	F
Negative Resist	A	A	C	C	F	F	F	A	A	A	F	F	F	A	A	F
Nitric Acid (10-35%)	A	A	A	F	A	A	B	A	A	A	B	A	F	A	A	A
Nitric Acid (50-70%)	A	A	F	F	F	F	F	A	A	A	F	F	F	A	A	F
Nitric Acid (conc.)	A	A	F	F	F	F	F	A	A	B	F	A	F	A	C	F
NOE; NH_4F:H_20: Ethylene Glycol/Surfactant	A	A	A	A	C	C	A	A	A	C	C	F	C	A	F	C
P-Etch; (92:5:3) DI H_20:HF:HNO_3	A	A	B	F	C	C	F	A	A	B	F	F	F	A	B	C

Chemical Compatibility Chart

Microelectronics Industry

A = Recommended
B = Conditionally recommended
C = Non-critical applications at ambient
F = Do not use

	FILTERS							O-RINGS						HOUSINGS		
	Fluoroflow®	FluoroCap™	Proflow II™	Chemflow PE®	Polyflow® Membrane	Polyflow®	Clariflow®	Chemrez®	Teflon® Encapsulated Viton®	Viton®	EPR	Silicone	Buna	PFA	Stainless Steel	PVC
PEGMEA	A	A	B	A	C	C	F	A	A	F	F	F	F	A	B	F
Petroleum Ether	A	A	C	C	C	C	C	A	A	B	F	F	B	A	A	F
Piranha; (H_2SO_4:H_2O_2)	A	A	F	F	F	F	F	A	A	F	F	F	F	A	F	F
Phosphoric Acid (10-19%) to 65°C	A	A	A	A	A	A	C	A	A	A	A	B	B	A	A	A
Phosphoric Acid (20-50%) to 65°C	A	A	A	A	A	A	C	A	A	A	A	F	F	A	A	A
Phosphoric Acid (51-80%) to 65°C	A	A	F	C	A	A	F	A	A	A	B	F	F	A	A	F
Phosphoric Acid (conc.) to 65°C	A	A	A	F	A	A	F	A	A	A	B	F	F	A	A	A
Phosphoric Acid 65-150°C	A	A	F	F	F	F	F	A	A	F	F	F	F	A	F	F
PMMA Developer	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
PMMA Rinse	A	A	A	B	C	C	F	A	A	F	B	F	F	A	A	C
Positive Resist AZ 4330	A	A	A	B	C	C	F	A	A	F	C	F	F	A	A	C
Positive Resist	A	A	A	B	C	C	F	A	A	F	C	F	F	A	A	C
Positive Resist, Shipley S 1800	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
Positive Resist, Shipley S 1400	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
Positive Resist, Shipley System 8	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
Positive Resist, AZ 1300 series	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
Positive Resist, AZ 5200 series	A	A	A	B	C	C	F	A	A	F	A	F	F	A	A	C
Potassium Hydroxide 10%	A	A	A	B	A	A	A	A	A	B	A	B	B	A	A	A
Potassium Hydroxide 30%	A	A	A	B	A	A	B	A	A	B	A	B	F	A	A	A
PRS-3000 (Strip) see Pyrallidone Pyrallidone, n-methyl (NMP) to 40°C	A	A	C	C	C	C	F	A	A	F	B	F	F	A	A	B
Pyrallidone, n-methyl (NMP) 40-150°C	A	A	F	F	F	F	F	A	A	F	F	F	F	A	A	F
RCA Etch; (75:15:5:5); H_3PO_4:CH_3CO_2H:HNO_3:DI H_2O	A	A	B	F	F	F	F	A	A	B	F	F	F	A	A	C
SC1; (RCA Clean) NH_4OH:H_2O_2:DI H_2O	A	A	C	C	F	F	C	A	A	C	F	F	F	A	C	C
SC2; HCl:H_2O_2:DI H_2O	A	A	F	C	F	F	C	A	A	C	F	F	F	A	C	C
Sodium Hydroxide 5%	A	A	A	B	A	A	A	A	A	F	A	C	A	A	A	A
Sodium Hydroxide (20-40%)	A	A	A	B	A	B	B	A	A	F	A	F	C	A	A	A
Sulfuric Acid (5-25%) to 65°C	A	A	A	A	A	A	A	A	A	A	A	F	B	A	A	A
Sulfuric Acid (50-60%) to 65°C	A	A	A	A	A	A	C	A	A	A	C	F	F	A	B	A
Sulfuric Acid (75-96%) to 65°C	A	A	A	A	A	A	F	A	A	A	F	F	F	A	B	A
Sulfuric Acid (conc.) to 65°C	A	A	F	C	F	F	F	A	A	C	F	F	F	A	F	F
Sulfuric Acid 65-150°C	A	A	F	F	F	F	F	A	A	F	F	F	F	A	B	F
Tetramethyl Ammonium Hydroxide (TMAH 5%)	A	A	A	B	B	B	F	A	A	C	C	C	F	A	B	C
Water, Deionized to 65°C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	C
Water, Deionized 65-95°C	A	A	F	F	F	F	F	A	A	F	F	F	F	A	B	C
Water, Ozonated	A	A	F	C	F	F	F	A	A	A	A	A	F	A	A	F
Xylene (Xylol)	A	A	F	F	F	F	F	A	A	A	F	F	F	A	A	F

WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection for the products and systems and assuring that all performance, safety and warning requirements of the application are met.

Process Advanced Filtration Division
2340 Eastman Avenue
Oxnard, California, USA 93030
Toll Free: +1 877 784 2234
Phone: +1 805 604 3400
Fax: +1 805 604 3401
PAFsales@parker.com
www.parker.com

CAT-510-08 Rev 06/08