

# Filter Elements



# Filter Elements

## Ultipor® III Filter Elements

High performance Pall Ultipor III filters incorporate state-of-the-art design technology, including a unique patented “helical wrap” pleat support system and composite element structure for unsurpassed strength, performance and service life. The result is a cost-effective solution clearly superior to traditional filter designs.

### Element Features

1. An outer helical wrap tightly bonds to each pleat for uniform, rigid pleat spacing. This minimizes pleat flexing and possible media damage, even under severe cold start or pressure surge conditions.

**Benefit: Reliable, consistent performance and resistance to severe operating conditions.**

2. Proprietary plastic upstream and downstream support layers have built-in flow channels to prevent media blind-off as pressure drop increases.

**Benefit: Extended element life for lower maintenance costs.**

3. Media is made up of inert, inorganic fibers securely bonded into a fixed, tapered pore structure that preserves high particle removal efficiency throughout the life of the element. Tapered pores spread particulate through the entire media depth for maximum dirt holding capacity.

**Benefit: Consistent filter performance and extended service life.**

4. O-ring seals, corrosion resistant end caps and a rugged metal inner core complete the element structure. Coreless Ultipor III elements have no metal components. End caps are reinforced polymer and the core is part of the filter housing. Thus the element is lightweight (60% lighter than traditional designs), crushable, and incinerable.

**Benefit: Environmentally friendly product reduces disposal and maintenance costs.**



# Coreless Ultipor® III Filter Elements

Pall Coreless Ultipor III filters provide all the performance advantages of Ultipor III filter elements in a totally metal-free package. Like our standard Ultipor III filter elements, Coreless filters feature a helical outer wrap, high strength upstream and downstream support, and Ultipor III filter medium. Coreless filters, however, use reinforced polymer end caps, and do not include an internal core (the core is a part of the filter housing).

With Coreless Ultipor III filters, Pall has created a product that not only provides unparalleled system component protection, extended fluid life, and reduced element disposal frequency, but also reduces disposal costs and is environmentally friendly.

## Features

### *Incinerable*

Pall Coreless Ultipor III elements are constructed without metal components. Reinforced polymer end caps and filter support add BTU value in waste-to-energy facilities.

### *Crushable*

Elimination of a structural core from a disposable filter element facilitates crushing. Elements can be folded to easily fit into drum packing equipment. Packed volume is reduced as much as 50%.

### *Lightweight*

Pall Coreless Ultipor III elements weigh an average 60% less than comparable elements with cores. This not only reduces waste, but also saves on transportation costs.

### *Easy Change-out*

Plugged filter elements can be pulled off of the permanent core with little effort. A new element slides easily over the core for fast installation.

### *Simple Retrofit*

Many existing Pall housings can be quickly upgraded to coreless technology on-site. A one time conversion kit is required, including a core which becomes a permanent part of the filter assembly.

**Contact Pall for information on the availability of retrofit kits for standard Pall housings.**

### **Reduce Disposal Costs through Waste Minimization**

Pall Coreless Ultipor III elements have been designed to assist in waste reduction and environmental protection.



# Dirt-Fuse® Filter Elements

The ultimate in reliability for high pressure filters is the Dirt-Fuse high collapse filter element. Used in Pall non-bypass filter housings, these elements are designed for protection of critical system components. They are designed to withstand full system pressure (up to 3000 psid, 210 bar) without damage or collapse. These filters are ideal for protecting contaminant-sensitive components such as servo and proportional valves.

If service is ignored, and the system is allowed to operate with a dirty filter element, the differential pressure builds across the element and system flow gradually shuts off without dirt bypassing the filter. Incorporating Ultipor® III media in a special pressure resistant design, these elements ensure that only filtered fluid makes its way to critical system components.

Common applications that benefit from Pall non-bypass filters incorporating Dirt-Fuse elements include:

- Plastic blow molding
- Plastic injection molding
- Industrial component test stands
- Die casting
- Flight simulators
- Machine tools
- Edge guide controls
- Gauge controls
- Motion control simulators

## Features:

1. An upstream support mesh promotes uniform, pleat spacing and strength. This reduces pleat flexing and promotes uniform flow through the filter, even under severe cold start or pressure surge conditions.

**Benefit: Reliable, consistent performance and resistance to severe operating conditions.**

2. Media is made up of inert, inorganic fibers securely bonded into a fixed, tapered pore structure that preserves high particle removal efficiency throughout the life of the element. Tapered pores capture particulate through the entire media depth for maximum dirt holding capacity.

**Benefit: Consistent filter performance and extended service life.**

3. Tighter downstream support mesh promotes drainage and adds strength under high differential pressure conditions.

**Benefit: Reliable, consistent performance and resistance to high differential pressure conditions.**

4. Rugged, high strength core provides protection against element collapse at differential pressure as high as 3000 psi (210 bar).

**Benefit: Optimum protection of critical components under all operating conditions.**



# Ultipor® III Filter Element Specifications

## Multi-Pass Filter Rating

Per ISO16889

### Standard Elements

Beta ratio = 1000 at 2.5, 5, 7, 12 and 22  $\mu\text{m(c)}$

### Dirt-Fuse Elements

Beta ratio = 1000 at 5 and 15  $\mu\text{m(c)}$

## Element Collapse Pressure Rating (ISO 2941)

### Standard Elements

Pressure Line Filters:  
290 psid (20 bar)

Return Line Filters:  
150 psid (10 bar)

8310 Series Filters:  
100 psid (7 bar)

### Spin-Ons

100 psid (7 bar)

### Dirt-Fuse Elements

3000 psid (207 bar)

9606 Series  
600 psid (41 bar)

### Coreless Elements

150 psid (10 bar)

## Fluid Compatibility (ISO 2943)

Compatible with petroleum oils, water glycols, water-oil emulsions and high water content fluids. Fluorocarbon seals are available for industrial phosphate esters, diesters, and specified synthetics.

## Flow Fatigue (ISO 3724)

Contact factory; element structure incorporates upstream and downstream medium support to achieve maximum fatigue cycle life.

## Fabrication Integrity (ISO 2942)

Fabrication integrity is verified and assured during the manufacturing process by numerous evaluations and inspections including bubble point testing.

## Flow vs. Pressure Drop (ISO 3968)

Flow vs. Pressure drop data (psid/gpm) is listed with each filter series. See appropriate filter series page.

## Temperature Range

Nitrile Seals:

45°F (-43°C) to +225°F (107°C)

Fluorocarbon Seals:

-20°F (-29°C) to +250°F (120°C)

Note: maximum 140°F (-60°C) in water based fluids

## Quality Control

All elements are manufactured by Pall to exacting procedures and strict quality controls. Elements are checked against rigorous, ongoing validation test protocols within Pall.

## Filter Element Part Numbering

Example:

|           |             |          |           |           |          |
|-----------|-------------|----------|-----------|-----------|----------|
| <b>HC</b> | <b>9600</b> | <b>F</b> | <b>KP</b> | <b>16</b> | <b>H</b> |
| 1         | 2           | 3        | 4         | 5         | 6        |

- HC** Pall Industrial Hydraulics Company Filter Element
- 9600** Filter Element Series (9601 for Dirt Fuse, 9604 for Coreless)
- F** Filter Cartridge ("S" for spin-on filter)
- KP** Media Grade - 5  $\mu\text{m(c)}$
- 16** Nominal Length - 16 inches
- H** Seal Material - Nitrile ("Z" for Fluorocarbon)

| Pall Media Grade   | $\mu\text{m}$ Rating for $\beta$ Value | $\mu\text{m(c)}$ Rating for $\beta$ Value |           |            |            |             |             |
|--------------------|----------------------------------------|-------------------------------------------|-----------|------------|------------|-------------|-------------|
|                    |                                        | $\beta=200$                               | $\beta=2$ | $\beta=10$ | $\beta=75$ | $\beta=100$ | $\beta=200$ |
| <b>Ultipor III</b> |                                        |                                           |           |            |            |             |             |
| KZ                 | <1                                     | <2                                        | <2        | <2         | <2         | 2           | 2.5         |
| KP                 | 3                                      | <2                                        | <2        | 3.1        | 3.3        | 3.8         | 5           |
| KN                 | 6                                      | 2.1                                       | 3.4       | 5.0        | 5.2        | 5.7         | 7           |
| KS                 | 12                                     | 3.2                                       | 5.5       | 8.3        | 8.7        | 9.7         | 12          |
| KT                 | 25                                     | 7.2                                       | 11        | 15.8       | 16.5       | 18.2        | 22          |
| <b>Dirt Fuse</b>   |                                        |                                           |           |            |            |             |             |
| DP                 | 3                                      | <2                                        | <2        | 3.0        | 3.2        | 3.8         | 5           |
| DT                 | 17                                     | 3.3                                       | 6.3       | 10.1       | 10.7       | 12          | 15          |

