

# 3M™ 740B Series Cartridges

High throughput filter cartridges

## Features, advantages and benefits

The 3M™ 740B Series high throughput filter cartridge, which incorporates the radial pleat, puts an extraordinary amount of surface area into a single cartridge. This results in the following:

- High loading capacity for long life and lower cost filtration
- Fewer cartridges for fewer change-outs and lower labour cost
- Fewer seals, reduced risk of by-pass resulting in high quality filtration
- Extremely low disposal costs, less than a tenth of some cartridges

Double O-ring seals in a variety of material options means:

- Extremely low risk of by-pass for high quality fluids
- No loose parts to assemble for easy installation, thus less labour cost
- No springs and caps to lose reduces the risk of by-pass
- Broad chemical compatibility for many applications
- Convenient handle for easy manual or mechanical removal

## Materials of construction

Meltblown polypropylene microfibre filter media provides high particle removal efficiency for high quality filtration with broad chemical compatibility.

No silicone is intentionally used in materials of construction or in manufacturing.

The raw materials composing these filters are FDA compliant according to CFR Title 21.

|                                       |  |
|---------------------------------------|--|
| Filter media                          | FDA compliant polypropylene meltblown microfibres                |
| Inner core, outer sleeve and end caps | FDA compliant polypropylene                                      |
| O-rings<br>Product number 7010        | FDA Buna N (standard)<br>Other O-rings are available on request. |

## Performance data

### Loading capacity

| Table 1               |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|
| Product Model Number  | 742B | 743B | 744B | 745B | 746B | 747B | 748B | 749B |
| Kilogrammes at 9 m³/h | 7.3  | 9.5  | 10.7 | 10.8 | 10.7 | 11   | 11   | 11   |

Loading capacity is extremely high due to the large amount of surface area available. The data above shows typical loading capacities of the different micron rated filters. Loading capacity is determined by challenging a filter with a dispersion of silica test dust in water at the recommended flow rate. Pressure drop is monitored and testing is terminated at 3.4 bar. The 742B filter is terminated at 2.4 bar. The loading capacity reported is the dry weight gain of the cartridge.



## Applications

Prefilters or final filters for:

- Acids and bases
- Amines
- Carbon beds
- Completion fluids
- Deep wells
- Desalination
- DI resins
- EDM fluids
- Glycol
- Groundwater clean-up
- Laundry water
- Machine coolants
- Makeup water
- Organic solvents
- Photo chemicals
- Plating solutions
- RO membranes
- Storm water
- UF membranes
- Wastewater
- Waterflood
- Workover fluids

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## Efficiency

**Table 2: Particle removal efficiency (in microns)**

| Product model number | 742B | 743B | 744B | 745B | 746B | 747B | 748B | 749B |
|----------------------|------|------|------|------|------|------|------|------|
| Efficiency at 99%    | 1    | 2    | 5    | 10   | 15   | 25   | 40   | 70   |
| Efficiency at 95%    | 0.9  | 1.1  | 2.5  | 8    | 9    | 13   | 24   | 43   |
| Efficiency at 90%    | 0.8  | 0.9  | 1.7  | 6    | 8    | 10   | 19   | 35   |
| Efficiency at 75%    | <0.7 | 0.7  | 1.5  | 3.5  | 6    | 8    | 13   | 24   |
| Efficiency at 50%    | <0.7 | <0.7 | 1.1  | 1.5  | 4.0  | 4.5  | 8    | 14   |

The 3M high flow filter cartridges are rated using a silica test challenge in water at 9 m³/h. The results reported are typical initial efficiencies taken within ten minutes of the start of the test.

## Disposal

Disposal of used filter cartridges must comply with applicable federal, state and local laws and regulations.

## Pressure drop

**Table 3: Clean pressure drop versus flow rate (in mbar)**

| Product model number | 742B   | 743B   | 744B  | 745B  | 746B  | 747B  | 748B  | 749B  |
|----------------------|--------|--------|-------|-------|-------|-------|-------|-------|
| Δp at 4.54 m³/h      | 41.37  | 27.58  | 13.79 | 6.89  | 6.89  | 6.89  | 5.52  | 4.14  |
| Δp at 9.08 m³/h      | 75.84  | 55.16  | 27.58 | 20.68 | 13.79 | 13.79 | 11.03 | 8.96  |
| Δp at 13.6 m³/h      | 151.68 | 75.84  | 34.47 | 27.58 | 20.68 | 20.68 | 17.24 | 13.79 |
| Δp at 18.2 m³/h      | 199.95 | 103.42 | 48.26 | 41.37 | 27.58 | 27.58 | 22.75 | 18.61 |

The 3M high flow filter cartridges have low initial pressure drop (Δp) in water as table 3 indicates. The table does not include the pressure drop of the housing.

## Product specifications

| Model number | Part number | Micron rating | Length | Inner diameter | Outer diameter | Cartridges per case |
|--------------|-------------|---------------|--------|----------------|----------------|---------------------|
| 742B         | 70070815520 | 1 µm          | 100 cm | 4 cm           | 16.5 cm        | 1                   |
| 743B         | 70070231249 | 2 µm          |        |                |                |                     |
| 744B         | 70070231256 | 5 µm          |        |                |                |                     |
| 745B         | 70070231264 | 10 µm         |        |                |                |                     |
| 746B         | 70070231272 | 15 µm         |        |                |                |                     |
| 747B         | 70070623569 | 25 µm         |        |                |                |                     |
| 748B         | 70070623577 | 40 µm         |        |                |                |                     |
| 749B         | 70070623585 | 70 µm         |        |                |                |                     |

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**Table 4: Operating conditions**

| Micron rating          |                    |
|------------------------|--------------------|
| Product number         | Initial efficiency |
| 742B                   | 1 micron at 99%    |
| 743B                   | 2 micron at 99%    |
| 744B                   | 5 micron at 99%    |
| 745B                   | 10 micron at 99%   |
| 746B                   | 15 micron at 99%   |
| 747B                   | 25 micron at 99%   |
| 748B                   | 40 micron at 99%   |
| 749B                   | 70 micron at 99%   |
| Dimensions (nominal)   |                    |
| O-ring inside diameter | 5 cm               |
| O-ring thickness       | 0.35 cm            |

**Table 5: Product specifications**

|                               |         |
|-------------------------------|---------|
| Maximum Operating Temperature | 70 °C   |
| Recommended Flow (in water)   | 9 m³/h  |
| Maximum flow (in water)       |         |
| 742B and 743B                 | 14 m³/h |
| 744B to 749B                  | 18 m³/h |
| Maximum differential pressure |         |
| 742B                          | 2.4 bar |
| 743B to 749B                  | 3.4 bar |

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3M™ 740B Series 742B, 743B, 744B, 745B, and 746B are tested and certified by NSF International against NSF/ANSI Standard 61 for material requirements only.

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