



Klearfil™ Absolute Rated Pleated Depth Filters

A range of absolute rated cartridge filters from Porvair Filtration Group, featuring the latest developments in meltblown polypropylene filter media technology, Klearfil™ cartridges are based on a robust all polypropylene construction, offering removal ratings from 0.5 to 75 micron absolute.

The combination of up to eight separate filtration layers provides true depth filtration, within a pleated cartridge construction. This design will reduce fouling of the filter surface area caused by a broad spectrum of contaminants.

Klearfil™ cartridges are ideally suited for the filtration of process fluids, that contain contaminants with a wide range of particle sizes.

The graded multi-layer polypropylene media provides prefiltration of the process fluid prior to the absolute rated final layer. The unique design of the Klearfil™ cartridges helps to achieve lower running costs and a smaller process footprint.

The Klearfil™ are also highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics.

They are suitable for applications ranging from bioburden reduction and the clarification of a wide range of process liquids and end products.

Applications

Klearfil™ cartridges provide absolute and nominal filtration where the cost of filtration is critical. Suitable for the filtration of aqueous and organic liquids, Klearfil™ cartridges can be used as prefilters or final filters in bulk inkjet filtration. Suitable for manufacture with all major ink types:

- Aqueous
- UV
- Solvent
- Dye
- Pigment

Inprinta bulk filtration provides a low cost product aimed at the highest end of the digital ink manufacturing industry.

Features and Benefits

Klearfil™ cartridges

The combination of up to eight separate filtration layers provides true depth filtration, within a pleated cartridge construction, and resistance to fouling.

Graded multi-layer media

The multi-layer media structure provides prefiltration of the process fluid prior to the absolute rated final layer. This combination provides economy of use and a smaller process footprint.

Guaranteed removal ratings

Klearfil™ cartridges are validated using the recognised industry standard modified OSU-F2 single pass test to Beta 5000 (99.98% efficiency).

Suitable for steam and hot water sanitisation

Klearfil™ cartridges are resistant to repeat steam sterilisation up to 135°C (275°F) and hot water cycles at up to 90°C (194°F).

Environmentally friendly

Klearfil™ filters are environmentally friendly, all spent cartridges can be readily incinerated to trace ash.

Full traceability

All Klearfil™ cartridges are identified with a batch serial number. Each Klearfil™ cartridge is supplied with a Certificate of Quality and an operating instruction leaflet.

Particle retention rating

Code	Pore Rating (microns)	Absolute Rating 99.98% Beta 5000 (microns)	Nominal Rating 99.90% Beta 1000 (microns)	Nominal Rating 99.00% Beta 10 (microns)
KP5	0.5	0.5	0.45	-
K01	1	1	0.7	-
K02	2	2	1.5	-
K03	3	3	2	-
K05	5	5	3	-
K10	10	10	8.5	2
K15	15	15	12	4
K20	20	20	13.5	<5
K30	30	30	20	7
K40	40	40	27.5	11
K75	75	75	65	20

Controlled manufacturing environment

Klearfil™ cartridges are manufactured in an ISO Cleanroom environment by fully gowned staff, minimising the risk of contamination.

Cartridge construction

The high quality robust polypropylene and/or nylon construction of Klearfil™ cartridges, allows for excellent chemical compatibility with a wide range of bulk inkjet fluids.

The meltblown polypropylene and nylon media provides a bonded matrix thus eliminating fibre migration.

The inherent structural stability of the Klearfil™, prevents 'channelling' and avoids the risk of particle unloading even under impulse conditions.

The multi-layer combination of filter media, irrigation mesh and drainage material carefully pleated and thermally bonded maximises the filtration depth and ensures an efficient flow throughout the cartridge.

The Klearfil™ fusion bonded construction ensures cartridge integrity. No surfactants or bonding agents are used, minimising extractables.

Specifications

Materials of manufacture

Filter media	Polypropylene
Support layers	Polypropylene
Inner core	Polypropylene
Outer support	Polypropylene
End fittings	Polypropylene
Support ring	Stainless steel

Cartridge dimensions (nominal)

Diameter	70mm (2.8")
Length	1 module (short): 125mm (5")
	1 module: 254mm (10"), 508mm (20")
	2 modules: 762mm (30"), 1016mm (40")

Cartridge treatment

Standard	Cleaned without further treatment.
Flushed	Flushed with pyrogen-free water.
Rinsed	Ultra-clean, pulse flushed to give a system resistivity of 18MΩ.cm.

Gaskets and o-rings

Ethylene Propylene, FEP encapsulated, Silicone, Viton®, Nitrile or Polypropylene felt.

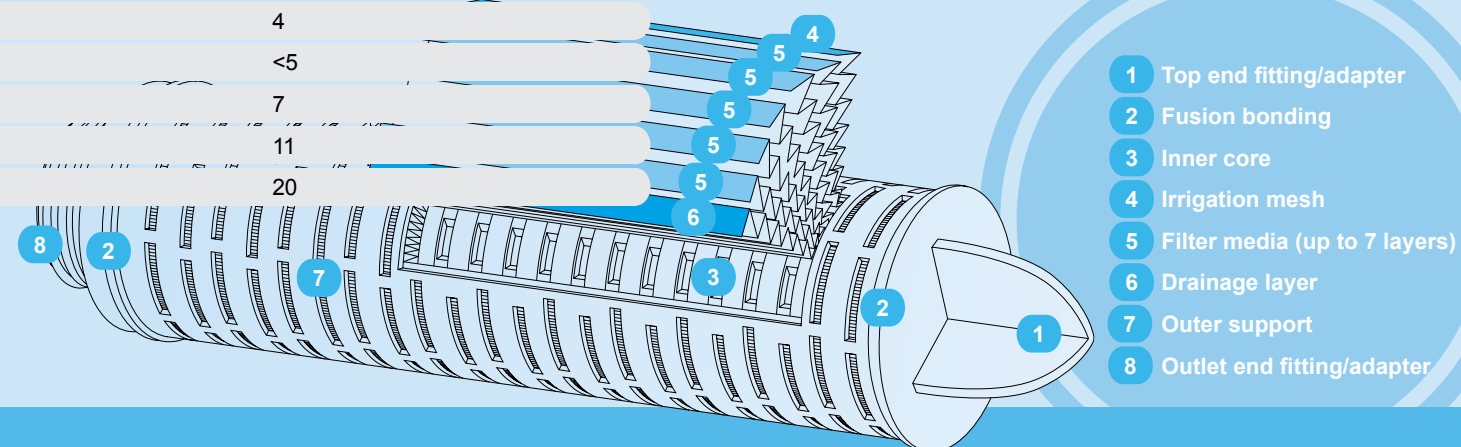
Maximum differential pressure

Normal flow direction at

20°C (68°F):	6.0 bar (87psi)
80°C (176°F):	4.0 bar (58psi)
100°C (212°F):	3.0 bar (44psi)
120°C (248°F):	2.0 bar (29psi)
125°C (257°F):	1.5 bar (22psi)

Reverse flow direction at

20°C (68°F):	2.1 bar (30psi)
80°C (176°F):	1.0 bar (15psi)
100°C (212°F):	0.5 bar (7psi)



Operating temperature

Maximum continuous 80°C (176°F)

Sterilisation

In situ steam 80 x 30 minute cycles at 135°C (275°F).
Hot water 200 x 20 minute cycles at 85-90°C (185-194°F).

Extractables

Minimum total extractables. Please refer to the Klearfil™ Validation Guide.

Integrity testing

Klearfil™ filter cartridges are batch tested for integrity using the Bubble Point Test. Procedural details are available from Inprinta.

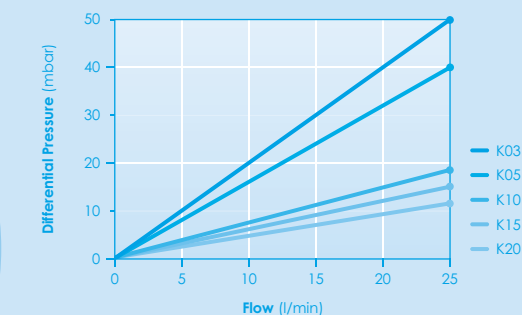
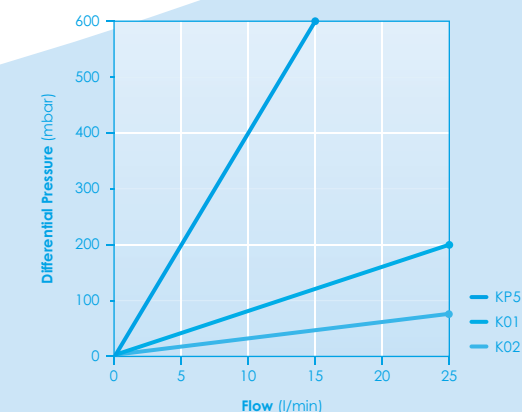
Clean water flow rates

Typical clean water flow rate:

A 254mm (10") Klearfil™ single cartridge exhibits the flow-ΔP characteristics indicated below, for solutions with a viscosity of 1 centipoise.

Other solutions:

For solutions with a viscosity of greater than 1 centipoise, multiply the indicated differential pressure by the viscosity in centipoise.



Additional Information

Range

Suitable for use in Inprinta filter housings and as direct replacements for existing cartridges, Klearfil™ cartridges can be supplied with end fittings to suit most hardware installations without modification. They are available in single or multiple module units of 5, 10, 20, 30 and 40 inches, and in a choice of removal ratings from 0.5 to 75 micron. Klearfil™ Junior versions are also available. Each cartridge is supplied with all necessary seals or O-rings to ensure chemical compatibility.

Quality assurance

Klearfil™ cartridges are manufactured in an ISO Cleanroom environment by staff fully gowned to minimise any risk of contamination during production. Klearfil™ cartridges are batch tested and flushed with pyrogen-free ultra-pure water. As a further safeguard, every cartridge is identified with a batch serial number, allowing users to maintain their own process records.

Registered to ISO 9001, Inprinta procedures are subject to high standards of quality assurance as demonstrated through its Drug Master File status.

Material conformity and validation

The bio-safety of all materials used in the manufacture of Klearfil™ cartridges is assured by FDA approval, USP Class VI and meets or exceeds the latest EC Directives for Food Contact.

A comprehensive validation guide for Klearfil™ cartridges is available on request.

Chemical compatibility

The Klearfil™ materials of construction are compatible with a wide range of chemicals and solvents, however care must be taken to select the appropriate seal material. A comprehensive chemical compatibility guide is available. Since operating conditions vary considerably between applications, verification by the end user is recommended.

Filter housings

Please contact an Inprinta representative for further information on our range of filter housings.

Contact us

For further information on our product range or manufacturing services, please contact Inprinta on the details below:

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