TOTAL SOLUTION OF FILTRATION

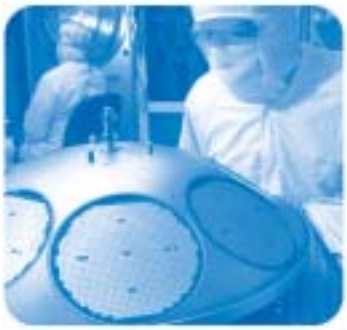
CSM®

woongjin chemical

C·O·N·T·E·N·T·S

TOTAL SOLUTION OF FILTRATION

CSM®



Woongjin Chemical CSM

Pleated Cartridge Filter

Standard Type

High Volume Type

Ultra High Volume Type

Special Type

Woongjin Chemical CSM Pleated Cartridge Filter

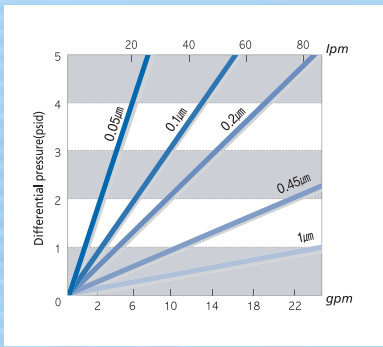
Standard Type

Standard Type

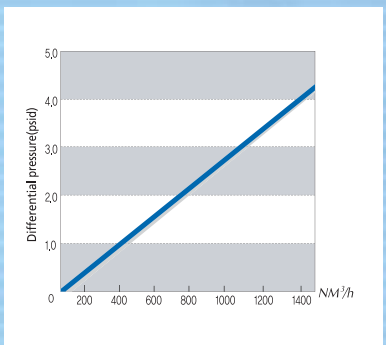
Hydrophobic PTFE Membrane Filter
Hydrophilic PTFE Membrane Filter
Hydrophilic Nylon66 Membrane Filter
Hydrophilic PES Membrane Filter
High Particle Holding Pleated Filter
High Performance Pleated Filter
High Long Performance Pleated Filter
High Clean Pleated Filter
High Flux-Absolute Pleated Filter
High Flux-Nominal Pleated Filter

Hydrophobic PTFE Membrane Filter

Liquid flow rate filter cartridge



Compressed Air(2bar)flow vs differential pressure CSM PTFE 0.2㎛



Description

- CSM hydrophobic PTFE pleated cartridges have superior flow rate and efficiency maximizing the performance of the teflon media cartridge.
- CSM hydrophobic PTFE cartridge are manufactured from teflon membrane and polypropylene components for broad application compatibility.

Feature and Benefits

- Hydrophobic PTFE cartridges will remove particles and microorganisms greater than 0.2㎛ from gases and liquid.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- Semiconductor / FPD / Fine chemical
- Chemical delivery system, photolithography, wet chemicals

Specification

Material of Construction

- Media : Hydrophobic PTFE membrane
- Core / cage / end cap / support : Polypropylene

Sealing Method : Thermal bonding

Recommended Maximum Differential Pressure

- Forward pressure : 70psi (4.8 bar) at 25℃
- Reverse pressure : 40psi (2.7 bar) at 25℃

Filtration Area : 0.8㎡ / 10" cartridge

Integrity Test

- Bubble point at 25℃(60 / 40 : IPA / DI-water)
  0.05㎛ ≥ 48psig
  0.1㎛ ≥ 22psig
  0.2㎛ ≥ 13psig

Removal Ratings(㎛)

- 0.02 ~ 10㎛

Cartridge Dimensions

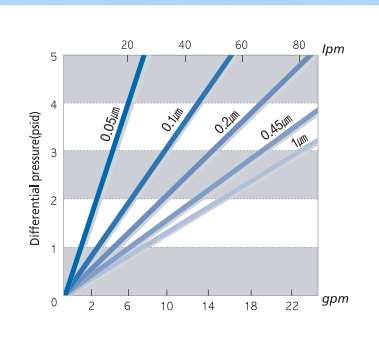
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	TF : Hydrophobic PTFE	P : Polypropylene	A2 : 0.02㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

Hydrophilic PTFE Membrane Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM Hydrophilic PTFE pleated cartridge superior flow rate and efficiency maximizing the performance of the teflon media cartridge.
- CSM hydrophilic PTFE cartridge are manufactured from teflon membrane and polypropylene components for broad application compatibility.

Feature and Benefits

- Hydrophilic PTFE cartridges will remove particles and microorganisms greater than 0.2㎛ from liquid application.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- Semiconductor / FPD / Fine chemical
- Chemical delivery system

Specification

Material of Construction

- Media : Hydrophilic PTFE membrane
- Core / cage / end cap / support : Polypropylene

Sealing Method : Thermal bonding

Recommended Maximum Differential Pressure

- Forward pressure : 70psi (4.8 bar) at 25℃
- Reverse pressure : 40psi (2.7 bar) at 25℃

Filtration Area : 0.8 ㎡ / 10" cartridge

Integrity Test

- Bubble point at 25℃(60 / 40 : IPA / DI-water)
  0.05㎛ ≥ 48psig
  0.1㎛ ≥ 22psig
  0.2㎛ ≥ 13psig

Removal Ratings(㎛)

- 0.05 ~ 10.0㎛

Cartridge Dimensions

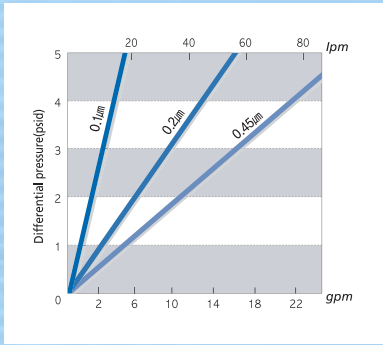
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	TI : Hydrophilic PTFE	P : Polypropylene	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 11 : 10.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

Hydrophilic Nylon66 Membrane Filter

Liquid flow rate filter cartridge



Description

- CSM hydrophilic nylon66 pleated cartridge superior flow rate and efficiency maximizing the performance of the nylon66 media cartridge.
- CSM hydrophilic nylon66 cartridge are manufactured from N66 membrane and polypropylene components for broad application compatibility.

Feature and Benefits

- Hydrophilic nylon66 cartridges will remove particles and microorganisms greater than 0.2㎛ from gases and liquid.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- Chemical delivery system, Photolithography, Etching
- Developer, Stripper, DI

Specification

Material of Construction

- Media : Hydrophilic nylon66 membrane
- Core / cage / end cap / support : Polypropylene

Sealing Method : Thermal bonding

Recommended Maximum Differential Pressure

- Forward pressure : 70psi (4.8 bar) at 25℃
- Reverse pressure : 40psi (2.7 bar) at 25℃

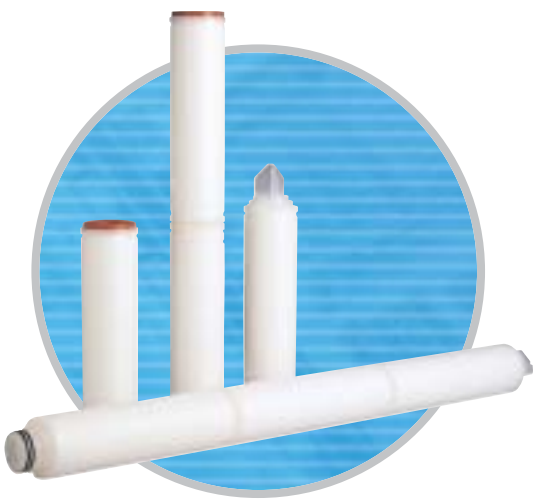
Filtration Area : 0.8㎡ / 10" cartridge

Removal Ratings (㎛)

- 0.1, 0.2, 0.45

Cartridge Dimensions

- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

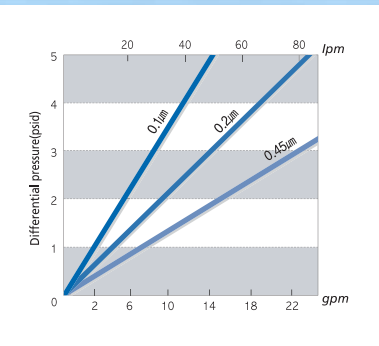


Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	NI : Hydrophilic Nylon66	P : Polypropylene	01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.65㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

Hydrophilic PES Membrane Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM hydrophilic PES pleated cartridge constructed of polyethersulfone microporous membrane and polypropylene support components enable superior durability and particle removal performance and can be used in various applications.
- CSM hydrophilic PES filter element is integrity tested after manufacturing using bubble point and air diffusion.

Feature and Benefits

- Constructed of asymmetric polyethersulfone microporous membrane and polypropylene support components.
- Consistent filtration performance through controlled pore size.
- Thermal bonded manufacturing without adhesives media extraction.

Application

- DI-water : Central PAD, Polishing, Station
- Chemical : Developer
- Pharmaceutical

Specification

Material of Construction

- Media : Polyethersulfone membrane.
- Core / cage / end cap / support : Polypropylene

Sealing Method : Thermal bonding

Recommended Maximum Differential Pressure

- Forward pressure : 70psi (4.8 bar) at 25℃
- Reverse pressure : 40psi (2.7 bar) at 25℃

Filtration Area : 0.7 ㎡ / 10" cartridge

Integrity Test

0.1㎛ ≥ 75psig
0.2㎛ ≥ 45psig

Removal Ratings(㎛)

- 0.05, 0.1, 0.2, 0.45, 1.0

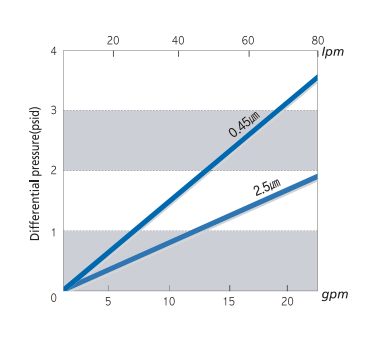
Cartridge Dimensions

- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	SI / SO : Hydrophilic PES SD : Hydrophilic PES	P : Polypropylene	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 12 : 1.2㎛ 50 : 5.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Particle Holding Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HH pleated filter cartridges offer superior dirty holding capacity and high removal efficiency compared to conventional pleated cartridges due to their multiple layered construction.
- CSM HH pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HH pleated filter cartridges are provides twice the average lifecycle.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Electronic : LCD, PDP, EL, Rinse solution, Fine chemical

Specification

Material of Construction

- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 70psi (4.8 bar) at 25℃
- 25psi (1.7 bar) at 80℃

Removal Ratings

- Absolute removal efficiency at each pore size

Cartridge Dimensions

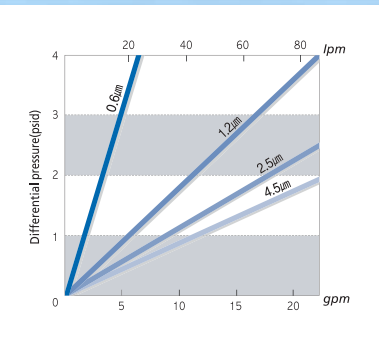
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	HO : High particle holding PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛ 12 : 1.2㎛ 25 : 2.5㎛ 50 : 5.0㎛ 11 : 10.0㎛ 33 : 30.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Performance Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HP pleated filter cartridges offer superior removal efficiency compared to conventional pleated cartridges due to their multiple layered construction.
- CSM HP pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HP pleated filter cartridges are produced by the woongjin chemical unique technology from the filter media to all the component parts.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Prefiltration, DI-water, solvents, selected acids & bases

Specification

Material of Construction

- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 75psi (5.1 bar) at 25℃
- 25psi (1.7 bar) at 80℃

Removal Ratings

- Absolute removal efficiency at each pore size

Cartridge Dimensions

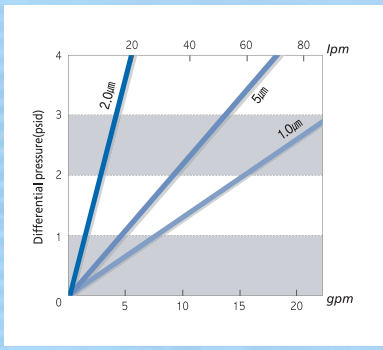
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	PO : High performance PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛ 12 : 1.2㎛ 25 : .2.5㎛ 45 : 4.5㎛ 60 : 6.0㎛ 11 : 10㎛ 22 : 20.0㎛ 44 : 40.0㎛ 77 : 70.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Long Performance Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HPL pleated filter cartridges offer long performance compared to HP. pleated cartridges due to their multiple layered construction.
- CSM HPL pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HPL pleated filter cartridges are produced by the Woongjin chemical unique technology from the filter media to all the component parts.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Prefiltration, DI-water, Solvents, Selected acids & bases, CMP Sluny.

Specification

Material of Construction

- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 75psi (5.1 bar) at 25℃
- 25psi (1.7 bar) at 80℃

Removal Ratings

- Absolute removal efficiency at each pore size

Cartridge Dimensions

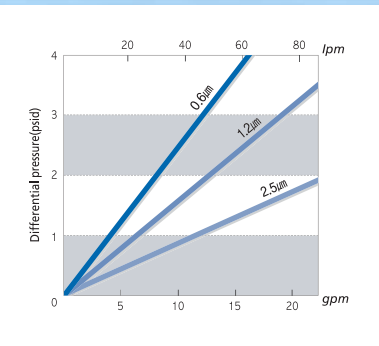
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	PL : Long performance PP grade	P : Polypropylene	20 : 2.0㎛ 50 : 5.0㎛ 10 : 10㎛ 22 : 20㎛ 33 : 30㎛ 44 : 40㎛ 55 : 50㎛ 77 : 70㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Clean Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HC pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HC pleated filter cartridges are provides long lifecycle.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Solvents, Chemicals, DI-water

Specification

Material of Construction

- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 75psi (5.1 bar) at 25℃
- 25psi (1.7 bar) at 80℃

Cartridge Dimensions

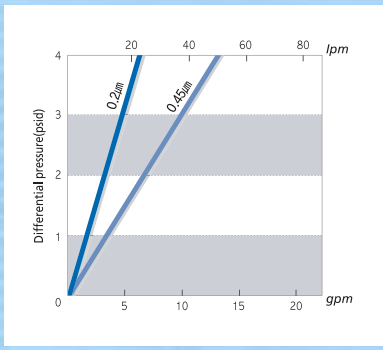
- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000,1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	CO : High clean PP grade	P : Polypropylene	03 : 0.3㎛ 06 : 0.6㎛ 12 : 1.2㎛ 25 : 2.5㎛ 50 : 5.0㎛ 11 : 10.0㎛ 33 : 30.0㎛ 50 : 50.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Flux Absolute Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HF pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HF pleated cartridges are provides increasing of flow rates.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Solvents, Chemicals, DI-water

Specification

Material of Construction

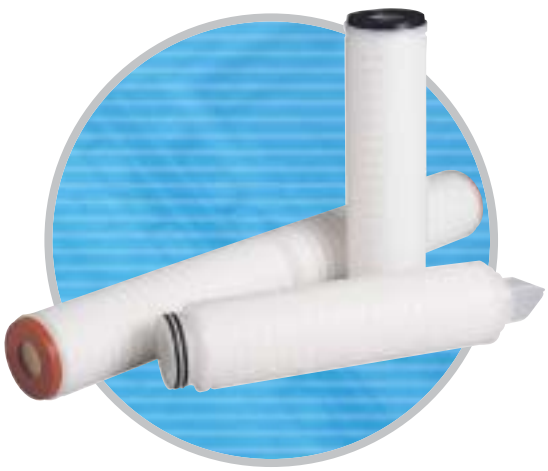
- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 75psi (5.1 bar) at 25℃
- 25psi (1.7 bar) at 80℃

Cartridge Dimensions

- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

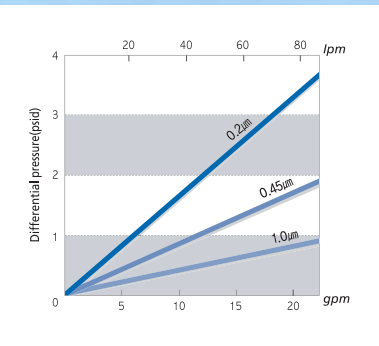


Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	FA : High flux-absolute PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛ 10 : 1.0㎛ 30 : .3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 55 : 50.0㎛ 77 : 70.0㎛ 99 : 100.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

High Flux Nominal Pleated Filter

Liquid flow rate per 10" filter cartridge



Description

- CSM HF pleated cartridges are available in a wide selection of micron rating to meet clients's filtration requirement.
- All polypropylene components and thermal bonded manufacturing enable the smallest contaminant extraction and higher durability.
- CSM HF pleated cartridges are provides increasing of flow rates.

Feature and Benefits

- Constructed of all polypropylene filter media.
- Multiple layered micro-porous construction ensures consistent filtration performance.
- No adhesive minimizes contamination from media extraction.

Application

- Solvents, Chemicals, DI-water

Specification

Material of Construction

- Media : Polypropylene
- Support and drainage : Polypropylene
- Core / cage / end-caps : Polypropylene
- Sealing : Thermal bonding

Recommended Operating Conditions

- Maximum differential pressure :
- 75psi (2.7 bar) at 25℃
- 25psi (2.7 bar) at 80℃

Cartridge Dimensions

- Out diameter : 69mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	H : Pleated	FN : High flux-nominal PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛ 10 : 1.0㎛ 30 : .3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 55 : 50.0㎛ 77 : 75.0㎛ 99 : 100.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end G : 020 Internal O-ring M : 2-222 O-ring / Flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

Woongjin Chemical CSM

Pleated Cartridge Filter

Standard Type

High Volume Type

Ultra High Volume Type

Special Type

Woongjin Chemical CSM Pleated Cartridge Filter

High Volume Type

High Volume Type

High Volume Hydrophobic PTFE Membrane Filter

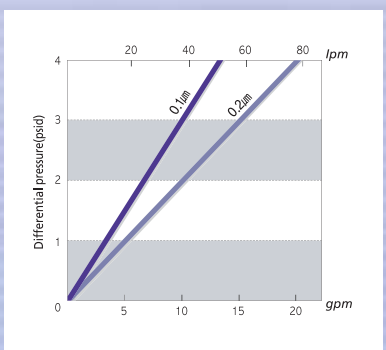
High Volume Hydrophilic PTFE Membrane Filter

High Volume Hydrophilic PES Membrane Filter

High Volume PP Pleated Filter

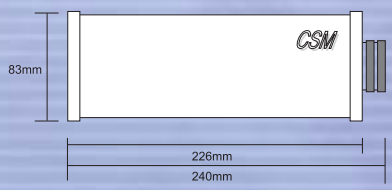
High Volume Hydrophobic PTFE Membrane Filter

Liquid flowrate per 10″ filter cartridge

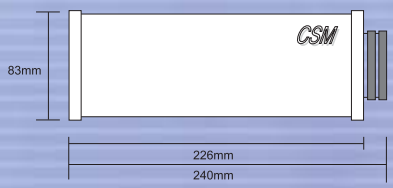


Dimension

222-Type



226-Type



Description

- New cartridge for high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- CSM hydrophobic PTTE cartridges will remove particles and microorganisms greater than 0.2㎛ from gases and liquid.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- For high volume point-of-use filtration
- Design to filter a wide range of acids, bases and solvents
- Electronics : Photoresists, Wetchemicals, Solvents
- Pharmaceutical : Bacteria, Vaccines

Specification

Material of Construction

- Membrane : Hydrophobic PTFE
- Support / cage / core / end-caps : All polypropylene
- O-ring : TEV, Viton, EPDM

Operating Condition

- Maximum pressure(Liquid) : 4.9 bar at 25℃
- Maximum pressure(Air) : 2.9 bar at 25℃

Removal Ratings(㎛)

- 0.05 ~ 10.0

Effective Area(㎡)

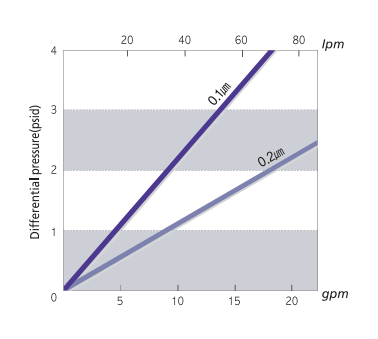
- 1.1~1.3

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	V : High Volume	TF : Hydrophobic PTFE	P : Polypropylene	A2 : 0.02㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 11 : 10.0㎛	D : 2-226 O-ring / Flat end M : 2-222 O-ring / Flat end	1 : 10″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

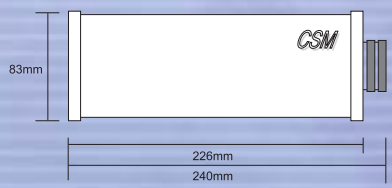
CSM High Volume Hydrophilic PTFE Membrane Filter

Liquid flowrate per 10″ filter cartridge

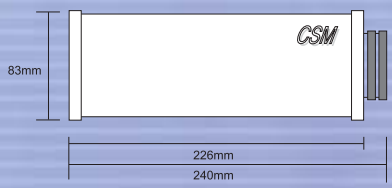


Dimension

222-Type



226-Type



Description

- New cartridge for high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- CSM hydrophilic PTTE cartridges will remove particles and microorganisms greater than 0.2㎛ from gases and liquid.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- For high volume point-of-use filtration
- Design to filter a wide range of acids, bases and solvents
- Electronics : Wet chemicals, Solvents, DI-water
- Pharmaceutical : Bacteria, Vaccines

Specification

Material of Construction

- Membrane : Hydrophilic PTFE
- Support / cage / core / end-caps : All polypropylene
- O-ring : TEV, Viton, EPDM

Operating Condition

- Maximum pressure(Liquid) : 4.9 bar at 25℃
- Maximum pressure(Air) : 2.9 bar at 25℃

Removal Ratings(㎛)

- 0.05 ~ 10.0

Effective Area(㎡)

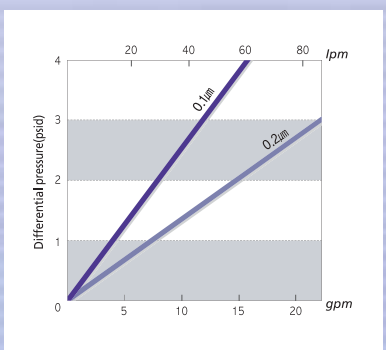
- 1.1~1.3

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	V : High Volume	TI : Hydrophilic PTTE	P : Polypropylene	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 11 : 10.0㎛	D : 2-226 O-ring / Flat end M : 2-222 O-ring / Flat end	1 : 10″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging S : SUS ring Insertion

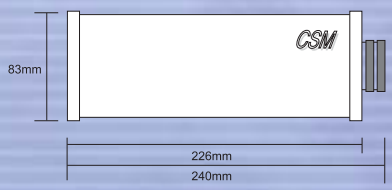
High Volume Hydrophilic PES Membrane Filter

Liquid flowrate per 10″ filter cartridge

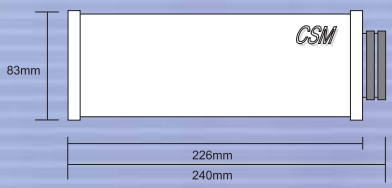


Dimension

222-Type



226-Type



Description

- New cartridge for high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- CSM hydrophilic PES cartridges will remove particles and microorganisms greater than 0.2㎛ from gases and liquid.
- Each cartridge is integrity tested during manufacturing to guarantee filters performance.
- Thermal bonded manufacturing without adhesives.

Application

- For high volume point-of-use filtration
- Electronics : Wet chemicals, Solvents, DI-water
- Pharmaceutical : Bacteria, Vaccines

Specification

Material of Construction

- Media : Hydrophilic PES (0.1 ~ 1.0㎛)
- Support / cage / core / end-caps : All polypropylene
- O-ring : TEV, Viton, EPDM

Operating Condition

- Maximum pressure(Liquid) : 4.9 bar at 25℃
- Maximum pressure(Air) : 2.9 bar at 25℃

Removal Ratings(㎛)

- 0.1, 0.2, 0.45, 1.0

Effective Area(㎡)

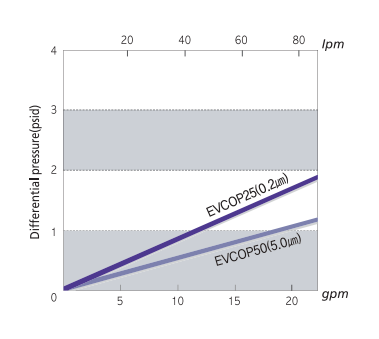
- 1.1~1.3

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	V : High Volume	SI/SO : Hydrophilic PES SD : Hydrophilic PES	P : Polypropylene	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 12 : 1.2㎛ 50 : 5.0㎛	D : 2-226 O-ring / Flat end M : 2-222 O-ring / Flat end	1 : 10″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

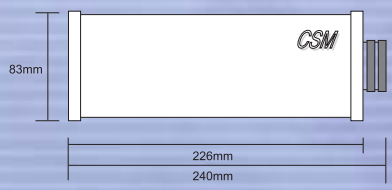
High Volume PP Pleated Filter

Liquid flowrate per 10″ filter cartridge

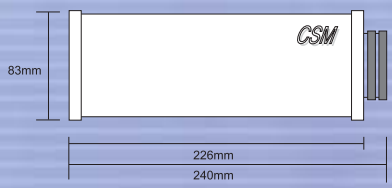


Dimension

222-Type



226-Type



Description

- New cartridge for high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- Constructed of all PP filter media
- Multiple layered micro-porous construction ensures consistent filtration performance
- No achesive minimizes contamination from media extraction

Application

- Prefiltration
- DI-water
- Solvents
- Selected acids & bases

Specification

Material of Construction

- Membrane : Polypropylene
- Support / cage / core / end-caps : All polypropylene
- O-ring : TEV, Viton, EPDM

Operating Condition

- Maximum pressure(Liquid) : 4.9 bar at 25℃
- Maximum pressure(Air) : 2.9 bar at 25℃

Removal Ratings(㎛)

- 0.2 ~ 30.0

Effective Area(㎡)

- 1.1~1.3

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	V : High Volume	HO : High particle holding PO : High performance CO : High clean PP grade PL : Long Performance PP grade	P : Polypropylene	02 : 0.2㎛ 03 : 0.3㎛ 04 : 0.45㎛ 06 : 0.6㎛ 12 : 1.2㎛ 25 : 2.5㎛ 45 : 4.5㎛ 50 : 5.0㎛* 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 20 : 2.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 44 : 40.0㎛ 55 : 50.0㎛ 77 : 70.0㎛	D : 2-226 O-ring / Flat end M : 2-222 O-ring / Flat end	1 : 10″	E : EPDM N : Buna-N S : Silicone V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

*Only used 'CO' type

Woongjin Chemical CSM

Pleated Cartridge Filter

Standard Type

High Volume Type

Ultra High Volume Type

Special Type

Woongjin Chemical CSM Pleated Cartridge Filter

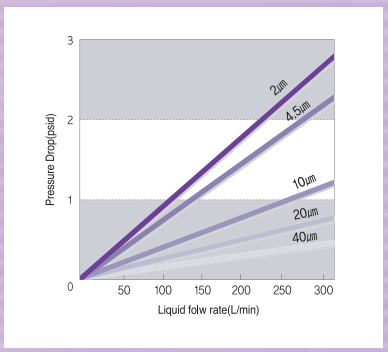
Ultra High Volume Type

Ultra High Volume Type

Ultra High Volume PP Pleated Filter
Ultra High Volume PES Pleated Filter
Ultra High Volume PTFE Pleated Filter
Jumbo Pleated Filter

Ultra High Volume PP Pleated Filter

Polypropylene



Description

- Updated cartridge for ultra high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- Superior flow rate
- Excellent particle removal

Application

- TFT-LCD, Glass manufacturing
- DI, Most of acid, Base etc

Specification

Material of Construction

- Media : Polypropylene
- Support : Polypropylene

Recommended Operation Condition

- Maximum pressure : 3.4 bar at 80℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 0.05 ~ 100 ㎛

Cartridge Dimensions

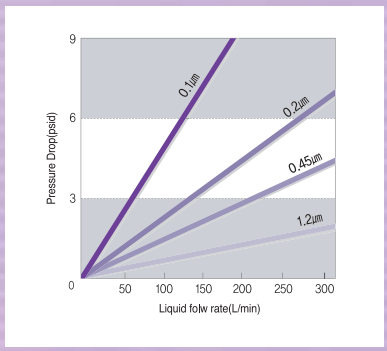
- In diameter : 55mm
- Out diameter : 130mm
- Length(mm) : 269mm

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	U : Ultra High Volume (out diameter 130mm))	HO : High Particle Holding PP PO : High performance PP grade CO : High clean PP grade PL : Long Performance PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 55 : 50.0㎛ 20 : 2.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 44 : 40.0㎛ 55 : 50.0㎛ 77 : 70.0㎛	K : 2-334 O-ring	1 : 10″	E : EPDM T : Teflon encapulated viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

Ultra High Volume PES Pleated Filter

Polyethersulfone



Description

- Updated cartridge for ultra high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- Superior flow rate
- Excellent particle removal

Application

- TFT-LCD, Glass manufacturing
- DI, Most of acid, Base etc

Specification

Material of Construction

- Media : PES
- Support : Polypropylene

Recommended Operation Condition

- Maximum pressure : 3.4 bar at 80℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 0.05 ~ 100㎛

Cartridge Dimensions

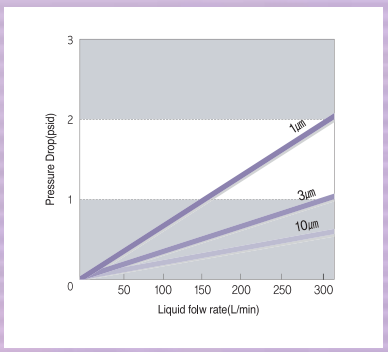
- In diameter : 55mm
- Out diameter : 130mm
- Length(mm) : 269mm

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	U : Ultra High Volume (out diameter 130mm))	SI/SO : Hydrophilic PES SD : Hydrophilic PES	P : Polypropylene	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 12 : 1.2㎛ 50 : 5.0㎛ 02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛	K : 2-334 O-ring	1 : 10″	E : EPDM T : Teflon encapulated viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

Ultra High Volume PTFE Pleated Filter

PTFE



Description

- Updated cartridge for ultra high flowrate applications
- Compatible with most chemical solvents
- Low filter extractables

Feature and Benefits

- Superior flow rate
- Excellent particle removal

Application

- TFT-LCD, Glass manufacturing
- DI, Most of acid, Base etc

Specification

Material of Construction

- Media : PTFE
- Support : polypropylene

Recommended Operation Condition

- Maximum pressure : 3.5Kgf/㎠ at 80℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 0.05 ~ 100㎛

Cartridge Dimensions

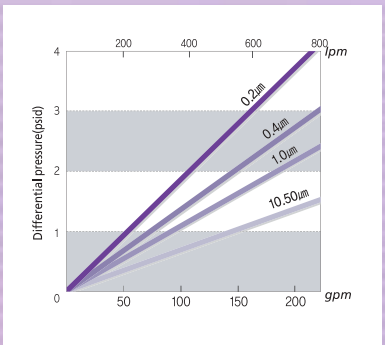
- In diameter : 55mm
- Out diameter : 130mm
- Lenth(mm) : 269mm

Ordering Information

1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	U : Ultra High Volume (out diameter 130mm))	TF : Hydrophobic PTFE TI : Hydrophilic PTFE	P : Polypropylene	A2 : 0.02㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛	K : 2-334 O-ring	1 : 10″	E : EPDM T : Teflon encapulated viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

Jumbo Pleated Filter

Liquid flow rate per 10″ filter cartridge



Description

- CSM jumbo pleated filter cartridges is constructed of quality polypropylene filter media to ensure excellent efficiency in the inner layer.
- Provide longer service and used in a applications of large flows system.
- Thermal bonded micro-fiber construction offers no fiber release and consistent flow rates as well as superior filtration performance.
- Low operating maintenance costs
- Enlarge filtering area
- Materials are FDA listed as acceptable for potable and edible.
- Available in a wide selection of micron ratings from 0.2㎛ to 50㎛.

Application

- DI-water, Chemical, Food & Beverage, Coating

Specification

Material of Construction

- Media : Polypropylene microfiber 100%
- Support : Polypropylene

Recommended Operating Conditions

- Maximum differential pressure : 70psi(4.8 bar) at 25℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 0.2, 0.45, 1, 2.5, ... 70

Cartridge Dimensions

- In diameter : 75mm
- Out diameter : 158mm
- Length(mm) : 500, 1000

Ordering Information

1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
J : Jumbo	H : Pleated	PO : High Performance PP grade	P : Polypropylene	02 : 0.2㎛ 04 : 0.45㎛ 06 : 0.6㎛ 12 : 1.2㎛ 25 : 2.5㎛ 45 : 4.5㎛ 60 : 6.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 44 : 40.0㎛ 77 : 70.0㎛	H : Horizontal non-core type R : Vertical core type V : Vertical non-core type	2 : 20″ 4 : 40″ 6 : 60″	E : EPDM N : Buna-N S : Silicone V : Viton

Woongjin Chemical CSM

Pleated Cartridge Filter

Standard Type

High Volume Type

Ultra High Volume Type

Special Type

Woongjin Chemical CSM Pleated Cartridge Filter

Special Type

Special Type

4" Capsule Filter

6" Capsule Filter

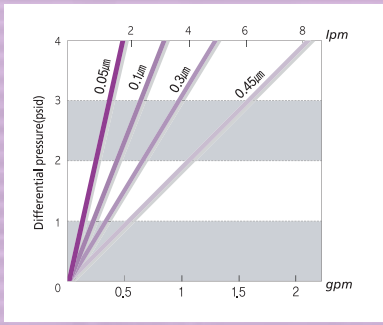
Mini Cartridge Filter

All PTFE Membrane Filter

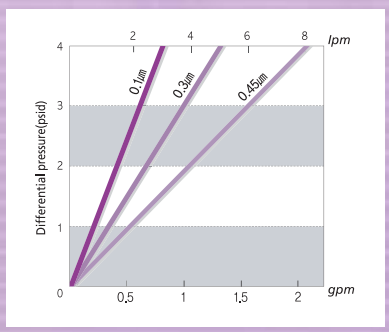
All PTFE Membrane Capsule Filter

4" Capsule Filter

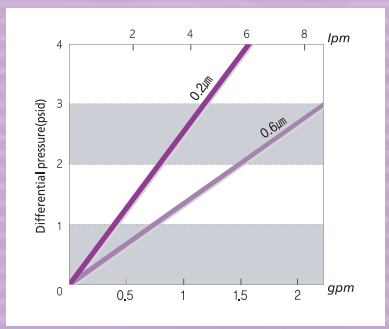
Liquid flow rate per each Filter cartridge



Hydrophilic PES



Polypropylene



Description

- Disposable pleated filter in a polypropylene shell
- Economical, no housing required
- Low filter extractables
- Compatitable with most chemical solvents

Application

- For small volume point-of-use filtration
- Designed to filter a wide range of acids, bases and solvents
- Electronics : Photoresists, Wet chemical solvents, Coatings
- Pharmaceutical : Water, Bacteria, Vaccines

Specification

Material

- Media : Hydrophobic / Hydrophilic PTFE / Hydrophilic PES / PP
- Support : Polypropylene
- Cage / core / end-caps / shell : Polypropylene

Operating Condition

- Maximum pressure : 3.5 bar at 25℃

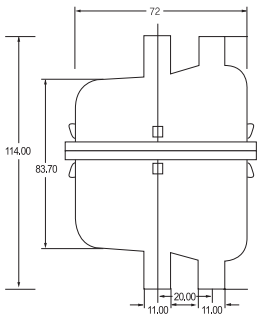
Removal Ratings(㎛)

- Hydrophobic PTFE
  0.02, 0.05, 0.1, 0.2, 0.45, 1.0, 3.0, 10.0
- Hydrophilic PTFE
  0.05, 0.1, 0.2, 0.45, 1.0

Effective Area

- 0.1㎡ ~ 0.18㎡(4″)

Dimension(unit : mm)

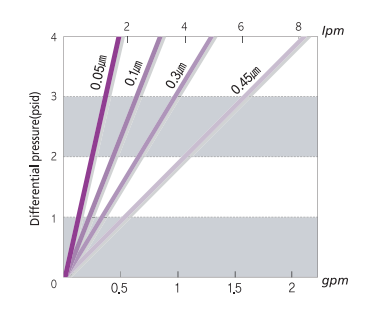


Ordering Information

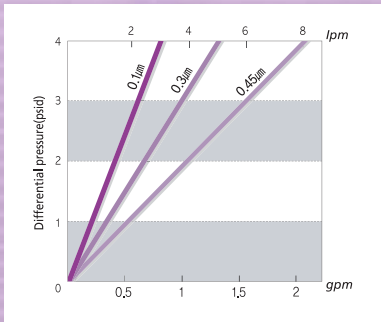
1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
C : Capsule	H : Pleated	TF : Hydrop ɦobic PTFE TI : Hydrophilic PTFE SI/SO : Hydrophilic PES HO : High Particle Holding PP PO : High performance PP grade CO : High clean PP grade	P : Polypropylene	A2 : 0.02㎛ A3 : 0.03㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 55 : 50.0㎛	X : Inlet / Outlet SW 1/4″ Vent / Drain 1/4″ W : Inlet / Outlet SW 3/8″ Vent / Drain 1/4″ V : Inlet / Outlet NPT 1/4″ Vent / Drain 1/8″ U : Inlet / Outlet Pillar 6mm″ Vent / Drain 4mm T : Inlet / Outlet Pillar 8mm″ Vent / Drain 4mm	4 : 4″	C : DI cleaning & Vacuum V : Vacuum Packaging

6" Capsule Filter

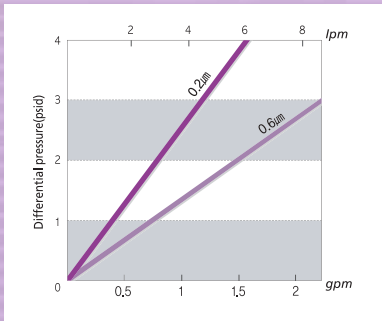
Liquid flow rate per each Filter cartridge



Hydrophilic PES



Polypropylene



Description

- Disposable pleated filter in a polypropylene shell
- Economical, no housing required
- Low filter extractables
- Compatitable with most chemical solvents

Application

- For small volume point-of-use filtration
- Designed to filter a wide range of acids, bases and solvents
- Electronics : Photoresists, Wet chemical solvents, Coatings
- Pharmaceutical : Water, Bacteria, Vaccines

Specification

Material

- Media : Hydrophobic / Hydrophilic PTFE / Hydrophilic PES / PP
- Support : Polypropylene
- Cage / core / end-caps / shell : Polypropylene

Operating Condition

- Maximum pressure : 3.5 bar at 25℃

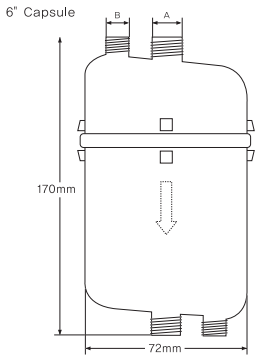
Removal Ratings(㎛)

- Hydrophobic PTFE
  0.02, 0.05, 0.1, 0.2, 0.45, 1.0, 3.0, 10.0
- Hydrophilic PTFE
  0.05, 0.1, 0.2, 0.45, 1.0

Effective Area

- 0.1㎡ ~ 0.18㎡(4″)

Dimension (unit : mm)

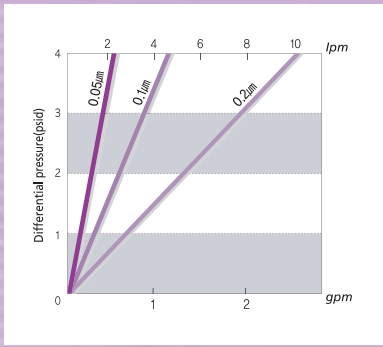


Ordering Information

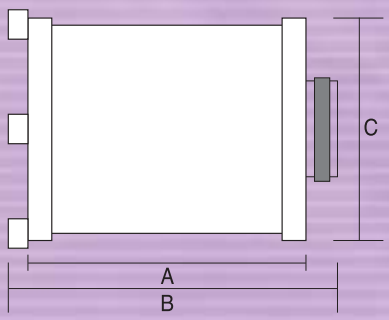
1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
C : Capsule	H : Pleated	TF : Hydrophobic PTFE TI : Hydrophilic PTFE SI/SO : Hydrophilic PES HO : High Particle Holding PP PO : High performance PP grade CO : High clean PP grade	P : Polypropylene	A2 : 0.02㎛ A3 : 0.03㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 30 : 3.0㎛ 50 : 5.0㎛ 11 : 10.0㎛ 22 : 20.0㎛ 33 : 30.0㎛ 55 : 50.0㎛	X : Inlet / Outlet SW 1/4″ Vent / Drain 1/4″ W : Inlet / Outlet SW 3/8″ Vent / Drain 1/4″ V : Inlet / Outlet NPT 1/4″ Vent / Drain 1/8″ U : Inlet / Outlet Pillar 6mm″ Vent / Drain 4mm T : Inlet / Outlet Pillar 8mm″ Vent / Drain 4mm	6 : 6″	C : DI cleaning & Vacuum V : Vacuum Packaging

Mini Cartridge Filter

Liquid flow rate per each Filter cartridge



Dimension (unit : mm)



구분	MINI(2")	MINI(3")	MINI(4")
a	44	64.5	104.5
b	52	81	112.5
c	67	58	67

Description

- Small volume point of use photochemical filter
- 100% integrity tested
- Low extractables
- Excellent compatibility
- Reliably removes soft gel particles
- Superior downstream cleanliness

Application

- For small volume point-of-use filtration
- Designed for use with photo chemical solvent

Specification

Material

- Membrane : PTFE, PES, PP, HDPE
- Support / cage / core / end-caps : Polypropylene / Highdensity polyethylene

O-ring Size / End-cap

- 015 external / flat

O-ring Material

- EPDM, Viton, TEV, Kalrez

Operating Condition

- Maximum differential pressure : 3.9 bar at 25℃

Removal Ratings (㎛)

- 0.02, 0.05, 0.1, 0.2, 0.4, 1.0,...50

Effective Area

- 2" length : 0.18 ㎡
- 3" length : 0.3 ㎡
- 4.5" length : 0.35 ㎡

Filter Length

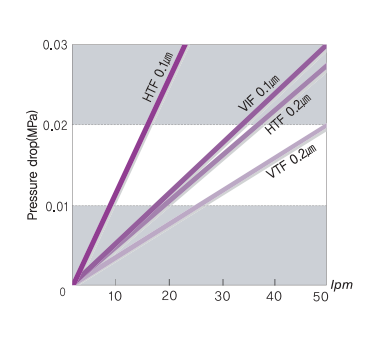
- 2" : 52mm
- 3" : 81mm
- 3" : 113mm

Ordering Information

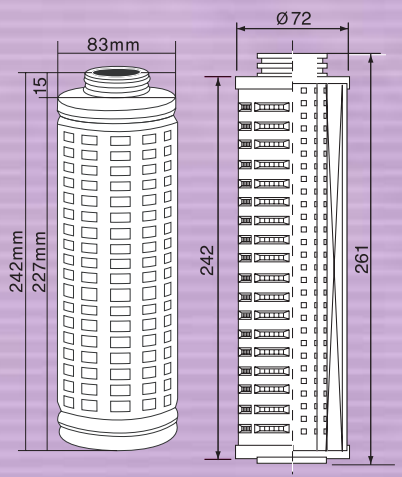
1	2	3 4	5	6 7	8	9	10	11
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material	Special Option
E : Electronics blank : Industries	M : Mini	TF : Hydrophobic PTFE TI : Hydrophilic PTFE SI / SO : Hydrophilic PES PO : High performance PP grade	P : Polypropylene	A2 : 0.02㎛ A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 25 : 2.5㎛ 45 : 4.5㎛ 11 : 10.0㎛	Z : 2-015 O-ring / Flat end Y : 2-122 O-ring / Flat end	2 : 2″ 3 : 3″ 4 : 4″	E : EPDM V : Viton T : Teflon encapsulated Viton	C : DI cleaning & Vacuum package V : Vacuum Packaging

ALL PTFE Membrane Filter

Liquid flow rate per each Filter cartridge



Dimension (unit : mm)



Product Features & Advantage

Constructed of PTFE membrane and PFA support

- Good chemical resistance in strong chemical process
- Good heat resistance
- Minimum extractables

Filtration area Increase

- Filter life time increase
- Cost effectiveness

High Performance Membranes

- Superior retention efficiency

Description

- Good chemical resistance in strong chemical precess
- Good heat resistance
- Minimum extractables
- Long life time
- Superior retention efficiency

Feature and Benefits

- For high volume point-of-use filtration
- Designed to filter a wide range of acids, bases and solvents

Application

- Electronics : Photoresists, Wetchemicals, Solvents
- Pharmaceutical : Bacteria, Vaccines

Specification

Material of Construction

- Media : Hydrophobic PTFE
- Support : PFA
- O-Ring : TEV(Teflon Encapsulated Viton)

Operation Conditions

- Differential pressure : 5 bar
- Temperature : 150℃

Dimensions

- Diameter : 83㎜(high volume), 72㎜(standard)
- Length : 5", 10"

Effective area (㎡)

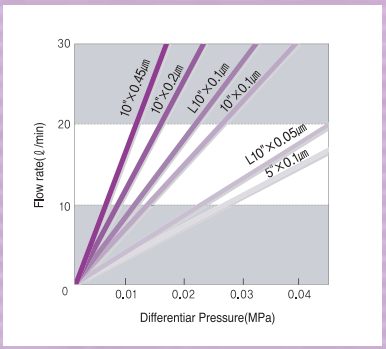
- 1.3 ㎡ in 10" cartridge

Ordering Information

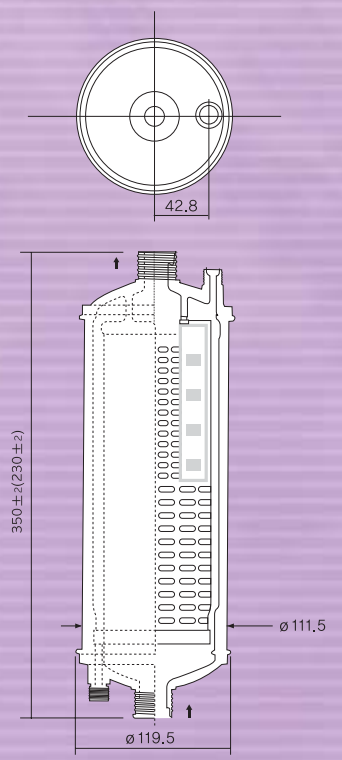
1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
E : Electronics blank : Industries	H : Standard V : High Volume	TF : Hydrophobic PTFE Membrane	T : PFA Support	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 20 : 2.0㎛ 50 : 5.0㎛ 11 : 10.0㎛	A : DOE M : 222 o-ring / flat end	5 : 5″ 1 : 10″ 2 : 20″ 3 : 30″	T : TEV

ALL PTFE Membrane Capsule Filter

Flow Rate



Structure



Product Features & Advantage

Constructed of PTFE Membrane and PFA Support

- Good chemical resistance in strong chemical process
- Good heat resistance
- Minimum extractables

Filtration Area Increase

- Filter life time increase
- Cost effectiveness

High Performance Membranes

- Superior retention efficiency

Description

- Good chemical resistance in strong chemical precess
- Good heat resistance
- Minimum extractables
- Long life time
- Superior retention efficiency

Feature and Benefits

- For high volume point-of-use filtration
- Designed to filter a wide range of acids, bases and solvents

Application

- Most acids, bases and solvents at temperatures up to 180℃
- Viscous chemicals such as room temperature acids

Specification

Material of Conditions

- Media : Hydrophobic / Hydropilicity PTFE
- Support : PFA

Operating Conditio

- Differential pressure : 3 bar

Dimensions

- Diameter : 119.5mm
- Length : 9"

Ordering Information

1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	Fitting Type	Length	Option
C : Capsule	H : Standard U : High Volume	TF : Hydrophobic PTFE TI : Hydrophilicity PTFE	T : PTFE	A5 : 0.05㎛ 01 : 0.1㎛ 02 : 0.2㎛ 04 : 0.45㎛ 10 : 1.0㎛ 20 : 2.0㎛ 50 : 5.0㎛ 11 : 10㎛	F : Final lock L : Flaretek T : Tube	9 : 9″	E : Prewetting H : High Temperature

Woongjin Chemical CSM

Depth Cartridge Filter

DP / DA / DT Cartridge Filter

DB Cartridge Filter

DC Cartridge Filter

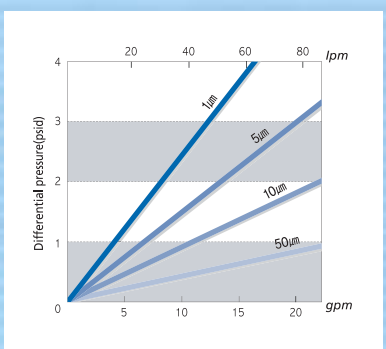
DJ Cartridge Filter

DL / DE Cartridge Filter

WOUND Cartridge Filter

DP / DA / DT Cartridge Filter

Liquid flow rate per 10″ filter cartridge



Description

- CSM depth filter cartridges is constructed of quality polypropylene filter media to ensure high efficiency in the inner layer.
- Thermal bonded micro-fiber construction offers no fiber release and consistent flow rates as well as superior filtration performance.
- High dirt holding capacity.
- Materials are FDA listed as acceptable for potable and edible.
- Available in a wide selection of micron ratings from 0.5㎛ to 100㎛.

Application

- DI-water, Chemical, High technology coatings, Membrane prefiltration

Specification

Material of Construction

- Media : Polypropylene microfiber 100%
- Core : Polypropylene

Recommended Operating Conditions

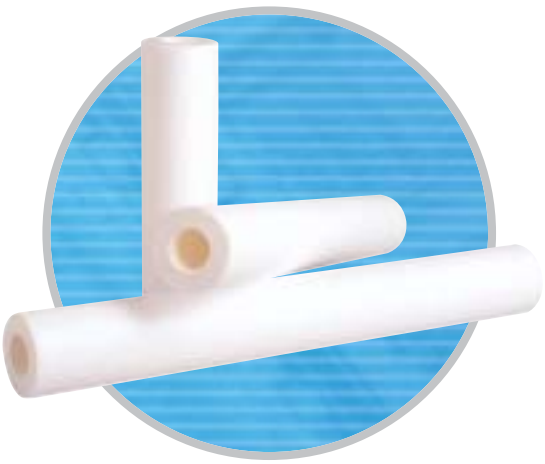
- Maximum differential pressure : 70psi (4.8 bar) at 25℃
- Maximum temperature : 80℃(DP, DA)
- Maximum temperature : 90℃(DT)

Removal Ratings (㎛)

- 0.5, 1, 3, 5,..... 100

Cartridge Dimensions

- In diameter : 28 / 30mm
- Out diameter : 62 ~ 65mm
- Length(mm) : 250, 254, 500, 508, 750, 762, 1000, 1016

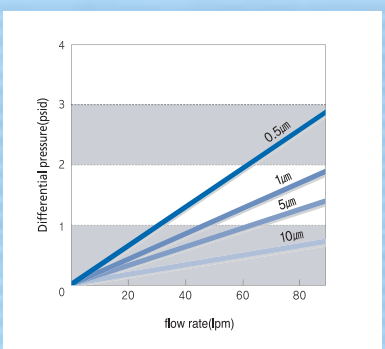


Ordering Information

1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
E : Electronics blank : Industries	D : Depth	PO : High performance AO: Absolute grade TO : Heat resistance	P : Polypropylene	00 : 0.5㎛ 01 : 1.0㎛ 03 : 3.0㎛ 05 : 5.0㎛ 10 : 10.0㎛ 50 : 50.0㎛ 75 : 75.0㎛ 11 : 100.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-226 O-ring / Fin end M : 2-222 O-ring / Flat end	1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton

DB Cartridge Filter

Liquid flow rate per 10″ filter cartridge



Description

– CSM DB cartridge filter, which used 100% PP/ PE conjugated fiber to create 3-dimentional skeleton structures, is a high-functional filter that maximizes the treatment efficiency of processed water and disposal capacity.

– It also maximizes the combining power of each level. It is a heat-combination chemical free filter.

– At the same time, it keeps a high-level cleanness, as it does not use plastic injection core.

Application

– Food & beverage, Coating, Plating, Painting, Electrodeposition

Specification

Material of Construction

– Media : Bi-component (PP/PE)

– Thermal bonding manufacture

Recommended Operating Conditions

– Maximum differential pressure : 1.9 bar (40psid)

Removal Ratings(㎛)

– 0.5, 1, 3, 5, 10, 25, 50

Cartridge Dimensions

– In diameter : 30mm

– Out diameter : 68mm

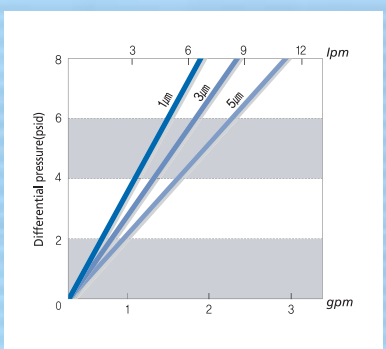
– Length(mm) : 250, 500, 750,1000

Ordering Information

1	2	3	4 5	6	7	8
Grade	Type	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
E : Electronics blank : Industries	D : Depth	B : Bi-Component	00 : 0.5㎛ 01 : 1.0㎛ 03 : 3.0㎛ 05 : 5.0㎛ 10 : 10㎛ 25 : 25㎛ 50 : 50㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring/Flat end D : 2-226 O-ring/Flat end E : 2-222 O-ring/Fin end F : 2-226 O-ring/Fin end	1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton

DC Cartridge Filter

Liquid flow rate per 10″ filter cartridge



Description

- CMP(Chemical Mechanical Polishing) filter cartridges is constructed of polypropylene filter media to ensure high efficiency the inner multi-layer.
- CMP filter are used for the filtration of both oxide and metal slurries at chemical mechanical polishing process.
- This multi-layer depth structure provides high dirt holding capacity.
- Available in a wide absolute filter removal ratings from 1.0㎛ to 40㎛

Application

- Oxide slurry, Metal slurry, Chemical slurry, Pigment

Specification

Material of Construction

- Media : Polypropylene microfiber 100%
- Core / cage : Polypropylene

Recommended Operating Conditions

- Maximum differential pressure : 4.8 bar at 25℃

Removal Ratings(㎛)

- 1, 3, 5, 7, 10, 25, 50

Cartridge Dimensions

- In diameter : 28mm
- Out diameter : 67mm

Removal Efficiency

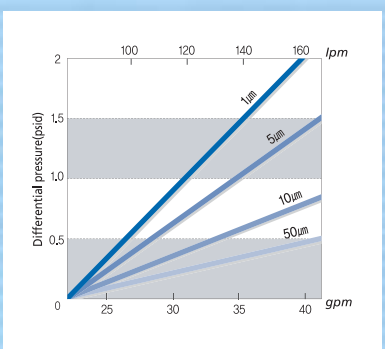
- Absolute grade(99.98%)

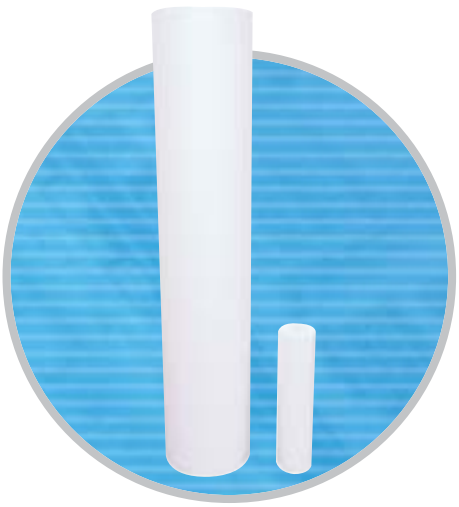
Ordering Information

1	2	3 4	5	6 7	8	9	10
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length	O-ring Material
E : Electronics blank : Industries	D : Depth	CO : CMP grade	P : Polypropylene	01 : 1.0㎛ 03 : 3.0㎛ 05 : 5.0㎛ 07 : 7.0㎛ 10 : 10.0㎛ 20 : 20.0㎛ 50 : 50.0㎛	A : 250mm D/O B : 254mm D/O C : 2-222 O-ring / Flat end D : 2-226 O-ring / Flat end E : 2-222 O-ring / Fin end F : 2-222 O-ring / Fin end	1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″	E : EPDM N : Buna-N S : Silicone V : Viton

DJ Cartridge Filter

Liquid flow rate per 10″ filter cartridge





Description

- CSM jumbo depth filter cartridges is constructed of polypropylene filter media.
- Thermal bonded micro-fiber construction offers no fiber release and consistent flow rates as well as superior filtration performance.
- High dirt holding capacity and excellent flow rates.
- Materials are FDA listed as acceptable for potable and edible.
- Available in a wide selection of micron ratings from 0.5㎛ to 100㎛

Application

- DI-water, Chemical, R/O pre-filter

Specification

Material of Construction

- Media : Polypropylene microfiber 100%
- Core : Polypropylene

Recommended Operating Conditions

- Maximum differential pressure : 4.8 bar at 25℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 1, 3, 5, ... 100

Cartridge Dimensions

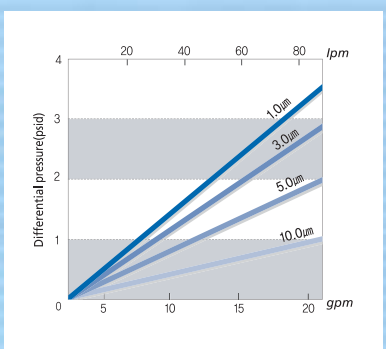
- In diameter : 113mm
- Out diameter : 150mm
- Length(mm) : 250, 500, 750, 1000

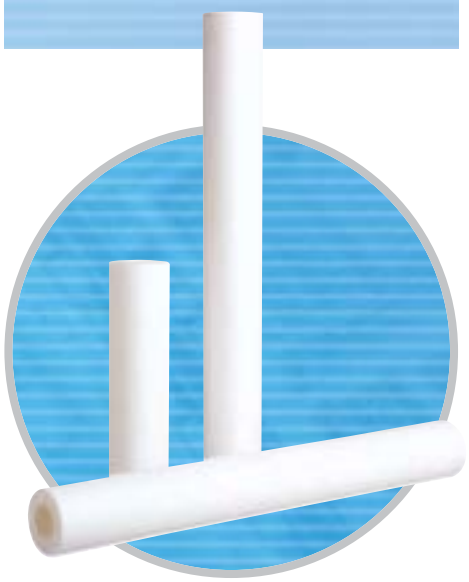
Ordering Information

1	2	3 4	5	6 7	8	9
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length
J : Jumbo	D : Depth	PO : High performance	P : Polypropylene	01 : 1.0㎛ 05 : 5.0㎛ 10 : 10㎛ 25 : 25.0㎛ 50 : 50㎛ 75 : 75.0㎛ 11 : 100.0㎛	A : 250mm D / O B : 254mm D / O	1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″

DL / DE Cartridge Filter

Liquid flow rate per 10″ filter cartridge





Description

- CSM economical & longer life cycle depth filter cartridges are constructed of pure polypropylene fiber.
- To produce filter with melt-blown process.
- Non-fiber releasing, suitable in relative high temperature.
- Materials are FDA listed as acceptable for potable and edible.
- Available in a wide selection of micron ratings from 1㎛ to 100㎛.

Application

- DI-water, Chemical, Food & beverage, Coating, Cosmetic

Specification

Material of Construction

- Media : Polypropylene microfiber 100%
- Structure : Coreless cartridge

Recommended Operating Conditions

- Maximum differential pressure : 3.0 bar at 25℃
- Maximum temperature : 80℃

Removal Ratings(㎛)

- 1, 3, 5, ...100

Cartridge Dimensions

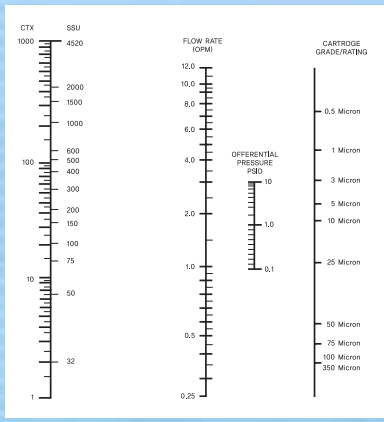
- In diameter : 28 / 30mm
- Out diameter : 64mm
- Length(mm) : 250, 500, 750, 1000

Ordering Information

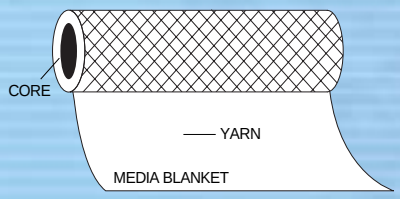
1	2	3 4	5	6 7	8	9
Grade	Type	Media	Support Material	Micron Rating	End-cap Option	Length
E: Electronics	D : Depth	PL : Long life PE : Economy	P : Polypropylene	00 : 0.5㎛ 01 : 1.0㎛ 03 : 3.0㎛ 05 : 5.0㎛ 10 : 10.0㎛ 25 : 25.0㎛ 50 : 50㎛ 75 : 75.0㎛ 11 : 100.0㎛	A : 250mm D / O	1 : 10″ 2 : 20″ 3 : 30″ 4 : 40″

CSM WOUND Cartridge Filter

Viscosity



Dimension



Grade(㎛)	Maximun Recommended Flow Rate (GPM)
0.5~1	2
3	3
5~10	4
25~350	5

Description

- CSM Wound filter cartridges is used in pre-filter application.
- This enhanced design provides improved dirt-holding capacity over standard wound cartridge.
- Provides long lifecycle.
- Materials are FDA listed as acceptable for potable and edible.
- Nominal micron ratings 0.5~150㎛.

Application

- Cotton : Used for potable liquides, vegetable oil beverages
- Polypropylene : Organic solvents, Water, Dilute acids,Oxidizing agents, Plating solution

Specification

Material

- Yarn : Polypropylene / cotton
- Matrix : Polypropylene / cotton
- Core : Polypropylene / tinned steel 304 & 316SS

Operating Conditions

- Maximum differential pressure : 4.8 bar at 25℃
- Maximum temperature : cotton(121℃), polypropylene(80℃)

Removal Ratings(㎛)

- 0.5,1, 3, 5, ... 350

Cartridge Dimensions

- In diameter : 28 / 30mm
- Out diameter : 62 ~ 65mm
- Length(mm) : 250, 500, 750, 1000

Ordering Information

1	2	3 4	5	6	7
Grade	Yarn/Matrix	Micron Rating	End-cap Option	Length	Core
W : Wound Filter	P: Polypropylene only normal type C: Cotton S: Polypropylene	00 : 0.5㎛ 01 : 1.0㎛ 03 : 3.0㎛ 05 : 5.0㎛ 25 : 25.0㎛ 50 : 50.0㎛ 75 : 75.0㎛ 97 : 100.0㎛ 98 : 150.0㎛	A : 250 D / O C : 2-222 O-ring D / O D : 2-226 O-ring D / O E : 2-222 O-ring D / O F : 2-226 O-ring D / O	1 : 250mm 2 : 500mm 3 : 750mm 4 : 1000mm	P : Polypropylene S : 304 SS N : 316 SS

Woongjin Chemical CSM

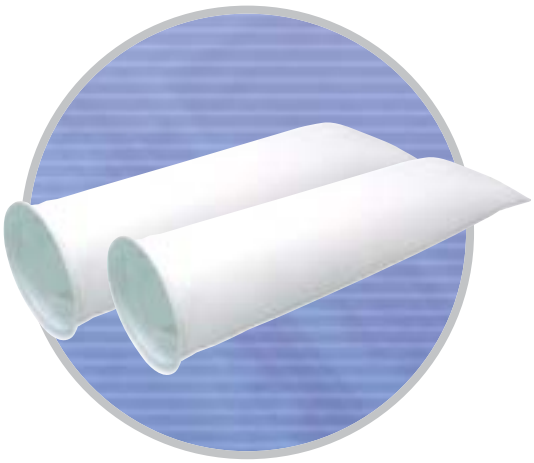
BAG Filter

Ring & Flange Type Filter Bag

High Efficiency Filter Bag

High Efficiency Oil Magnet Filter Bag

Ring & Flange Type Filter Bag



Feature and Benefits

- 100% filtering by absolutely preventing bypass
- Improved sealing integrity

Application

- Food & beverage : Beer, Flavors, Juices, Syrup, Wines
- Industrial : Petroleum, Paints, Chemicals, Waste water
- Pharmaceutical

Specification

Material of Construction

- Media : Polypropylene, polyester, nylon

Cartridge Dimension

- Bag size : 100*230mm, 100*380mm, 180*430mm, 180*810mm

Micron Ratings

PE-Polyester		1	5	10	15	25	50	80	100	125	150	200	250	300	400	600	800
PP-Polypropylene	PE	●	●	●		●	●		●			●					
	PP	●	●	●		●	●		●								
NMO-Nylon Monofilament Mesh	NMO				●	●	●	●	●	●	●	●	●	●	●	●	●

Ordering Information

1	2	3	4	5	6	7	8	9	10
Grade	Media	Type	Micron	Filter Bag Size	Ring Meterial	Handle	Reinforced	Style	Modification
CSM-B : Bag Filter	PE : Polyethylene Terephthalate PP : Polypropylene NM : Nylon Monofilament	R : Ring Type B : Band Type P : Plastic flange Type	1 : 1㎛ 800 : 800㎛ (*See media Micron Ratings)	01 : 100 ×230㎜ 02 : 100 ×380㎜ 11 : 180 ×430㎜ 12 : 180 ×810㎜	E : SUS304 P : Plastic Ring Z : Zinc Plated Ring	W : With Handle n : None Handle	Reinforced R : Reinforced side & bottom bytwill type N : None Reinf oroed side	S : Reverse style (Standard) O : Outside Stitching	M : Modification

High Efficiency Filter Bag

Feature and Benefits

- High efficiency of exceeding 95%
- Wide chemical compatibility
- Excellent oil absorbing capabilities
- Optional extended life feature

Application

- Food & Beverage : Beer, Flavors, Juices, Syrup, Wines
- Industrial : Petroleum, Paints, Chemicals, Waste water
- Pharmaceutical

Specification

Material of Construction

- Media : Polypropylene and polyester

Cartridge Dimensions

- Bag size : 100*230mm, 100*380mm, 180*430mm, 180*810mm

Micron Ratings

High Effociency Materials (90% min.)	Micron Ratings				
	1.0	2.5	5.0	10.0	25.0
Poly Propylene	●	●	●	●	●
Polyester	●	●	●	●	●

Ordering Information

1	2	3	4	5	6	7	8
Grade	Media	Type	Micron	Filter Bag Size	Ring Meterial	Style	Modification
CSM-MF : MicroFiber CSM-MFXL : MicroFiber Extended Life	PE : Polyethylene Terephthalate PP: Polypropylene	R : Ring Type P : Plastic flange Type	1 : 1㎛ 25 : 25㎛ (*See media Micron Ratings)	01 : 100×230㎜ 02 : 100×380㎜ 11 : 180×430㎜ 12 : 180×810㎜	E : SUS304	S : Reverse style (Standard)	M : Modification

High Efficiency Oil Magnet Filter Bag

Feature and Benefits

- Three layers of polypropylene
- Remove a lot of oil contaminations from liquid streams
- Silicon free
- Wide variety of sizes

Application

- Food & beverage : Beer, Flavors, Juices, Syrup, Wines
- Industrial : Petroleum, Paints, Chemicals, Waste water
- Pharmaceutical

Specification

Material of Construction

- Media : Three layers of polypropylene including melt-blown polypropylene media

Cartridge Dimension

- Bag size : Numerous sizes are available

Micron Ratings

Oil Magnet Bag Micron Ratings

Series	1	3	5	10	15	25	50	75	100	150	200	250	300	400
CSM-OM-S	●	●	●	●	●	●	●	●	●					
CSM-OM-H	●	●	●	●	●	●	●							
CSM-OM-XL	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CSM-OMI	CSM-OMI-Insets work through adsorption and are not micron rated													

Ordering Information

1	2	3	4	5	6	7	8
Grade	Media	Type	Micron	Filter Bag Size	Ring Meterial	Style	Modification
CSM-OM-S : Oil Magnet Standard CSM-OM-H : Oil Magnet Heavy Duty CSM-OM-XL : Oil Magnet Extended Life	PP: Polypropylene	R : Ring Type P : Plastic flange Type	1 : 1ß㎛ 400 : 400ß㎛ (*See media Micron Ratings)	01 : 100 × 230㎜ 02 : 100 × 380㎜ 11 : 180 × 430㎜ 12 : 180 × 810㎜	E : SUS304	S : Reverse style (Standard)	M : Modification

Woongjin Chemical CSM

Filter Housing

PVC Housing

PP Housing for UHV Type

NEW PFA Housing

Bag Filter Housing

Product Features & advantage

- Constructed of PVC for HEAD, PVC and PC for BOWL
- Good chemical resistance in strong chemical process
- Good heat resistance
- Minimum extractables

Specification

Materials
- Head : PVC
- Bowl : PVC / PC
- Union : PVC

IN, OUT Connection
- 40A

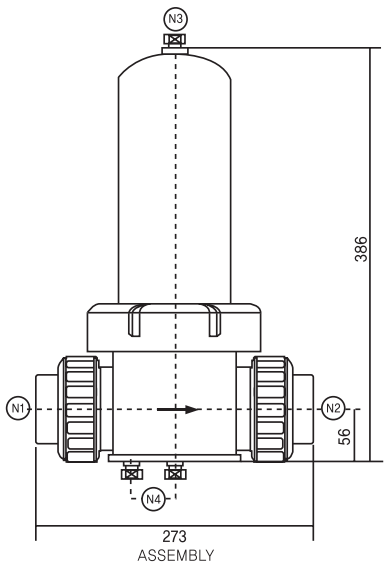
Vent, Drain
- 1/4″ NPT

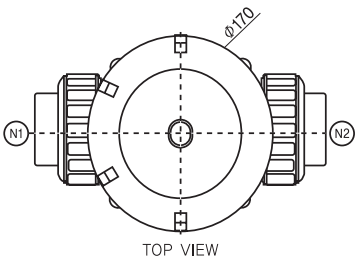
Cartridge Connection
- 226 O-ring / 222 226 O-ring

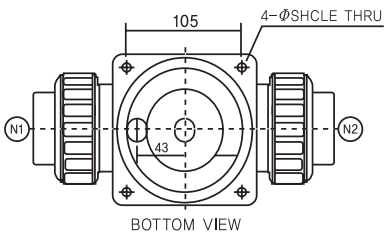
Operation Condition
- Differential pressure : max. 5kgf(at 25℃)
- Temperature : max. 60℃

Dimensions
- Diameter : 273mm
- Length : 386mm

Dimensions







Ordering Information

1	2	3 4	5	6	7
Type	Length	Material	Connection	O-ring	Cartridge Connection
HS : Housing	1 : 10″	VV : HEAD PVC/BOWL PVC VC : HEAD PVD/BOWL PC PP : HEAD PP/BOWL PP PC : HEAD PP/BOWL PC	40 : 40A in/out	N : NBR E : EPDM V : Viton T : TEV	D : 2-226 O-ring/Flatend M : 2-222 O-ring/Flat end

PP Housing for UHV Type

Product Features & Advantage

- Constructed of PP for HEAD, PP for BOWL, PVC for union
- Good chemical resistance in strong chemical process
- Good heat resistance
- Minimum extractables

Specification

Materials
- Head : PP
- Bowl : PP
- Union : PP

IN, OUT Connection
- 40A / 50A

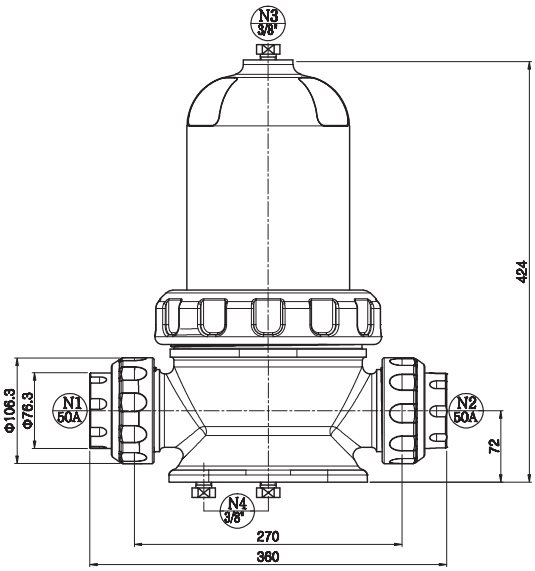
Vent, Drain
- 3/8″ NPT

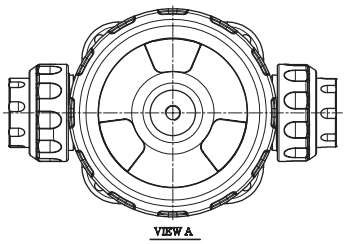
Cartridge Connection
- 334 O-ring

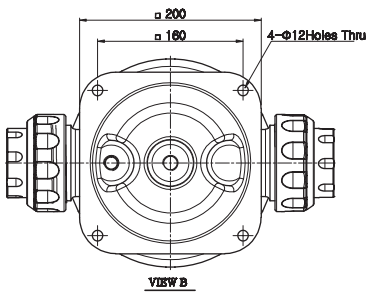
Operation Condition
- Differential pressure : max. 5kgf(at 25℃)
- Temperature : max. 50℃

Dimensions
- Diameter : 360mm
- Length : 424mm

Dimensions







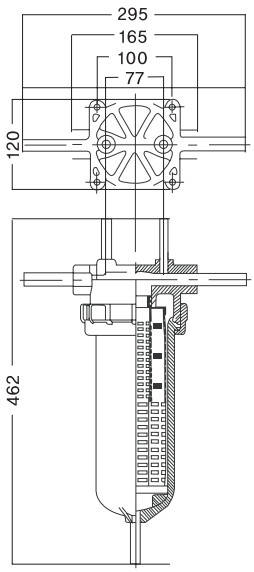
Ordering Information

1	2	3 4	5	6	7
Type	Length	Material	Connection	O-ring	Cartridge Connection
HS : Housing	UHV	PP : HEAD PP/BOWL PP	40 : 40A in/out 50 : 50A in/out	N : NBR E : EPDM V : Viton T : TEV	D : 2-226 O-ring/Flat end M : 2-222 O-ring/Flat end K : 2-334 O-ring/Flat end

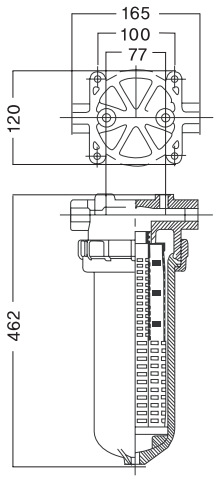
NEW PFA Housing

Dimensions

3/4 Inch tube connection



3/4 Inch NPT female connection



Product Features & Advantage

- Constructed of new PFA
- Good chemical resistance in strong chemical process
- Good heat resistance
- Minimum extractables
- No fracture by twist of o-ring

Application

- Most acids, bases and solvents at temperatures up to 80
- Viscous chemicals such as room temperature acids

Specification

Size (inch)
- 5″, 10″, 20″

Materials
- Housing : New PFA
- O-ring : Viton, TEV

IN, OUT Connection
- 3/4″ tube connection
- 1″ tube connection
- 3/4″ NPT female connection

Operation Conditions
- Differential pressure : Max. 3.2 bar (at 25℃)
- Temperature : Max. 80℃

Dimensions
- Diameter : 3/4,1″ tube : 295mm(10″),
  3/4″ NPT female : 165mm(10″)
- Length : 3/4″ tube : 462mm(10″),
  3/4″ NPT female : 352mm(10″)
- O-ring size : AS568-344

Accessories

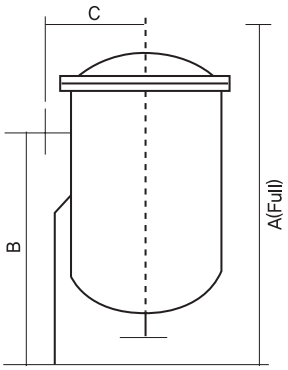
Option

Bag Filter Housing

Davit Type Multi Bag Filter Housing

- Multi bag filter housing is designed to filtrate liquid more than 80m³/h flow rate.
  The liquid flows from side through upper cover dome into filter bag.
  Special locking device allows no bypass of liquid.
  CSM standard BFM housing ranges 2-24 installation of bag filters.
  However special specification is available on customer's request.

Dimensions



Spring Lid Type Multi Bag Filter Housing

- Open and close by spring allows the installation space minimum.
- Locating outlet on the bottom side of housing allows the total height 30-50cm lower than standard type housing, thus no foothold or ladder is necessary when replacing filters.
- Minimizing the number of eye bolts reduces the time for filter replacement.

Type of Housing		Multi Bag Housing								
Code		212	412	612	812	1012	1212	1612	2012	2412
Material		SUS304 / SUS316 / Carbon Steel								
Max. Operating Pressure(bar)		6								
Max. Operating Temperature(℃)		120								
standard Inlet / Outlet		3" (80A)	4" (100A)	6" (150A)	8" (200A)	10" (250A)	10" (250A)	12" (300A)	14" (350A)	16" (400A)
Max. Flow Rate(㎥/h)		80	160	240	320	400	480	640	800	960
Normal Flow Rate(㎥/h)		40	80	120	160	200	240	320	400	480
Bag Size		2×12	4×12	6×12	8×12	10×12	12×12	16×12	20×12	24×12
Filter Area(㎡)		1	2	3	4	5	6	8	10	12
Filter Volume(litre)(approx.)		160	210	340	460	660	820	1100	1600	2100
Housing Weight-Dry(kg) (approx.)		110	220	430	465	735	770	975	1050	1700
Dimension(㎜)	A	1670	1759	1925	2070	2238	2358	2416	2772	2984
	B	1119	1151	1212	1261	1323	1433	1386	1637	1748
	C	400	435	510	560	635	660	735	790	880

Woongjin Chemical CSM

Appendix

Cartridge Filter Test Method

Membrane Filter Cartridge Test Method

Media Test Method

Technical Service

Chemical Compatibility

O-ring materials

Cartridge Filter Test Stand

Cartridge Filter Performance Tester

– For selecting the fittest filter of process : flow rate, removal efficiency test

Test Condition

– Used test method : ASTM F317, ASTM F795, ISO4572

– Flow rate
Maximum flow rate : 85 lpm
Fluid : 18㏁Ω DI-water

– Removal efficiency
Flow rate : 11.34 lpm(3gpm)
Test dust & concentration : ISO test dust

Woongjin chemical Industries
Pressure Drop Versus Flow Test Report Sheet

Test System Data

P / N :	S66/C5-4/PPMESH	FLOW RATE (lpm) :	S66/C5-4/PPMESH
FILTER ID :	EVHOP12M1E-1	TEST FLUID :	EVHOP12M1E-1
TEST No :	PQ01513	TEMPERATURE (℃) :	PQ01513
TEST Date :	1/29/05	RH% :	42.00
OPERATOR :	SG HONG		

Pressure / Flow Data

Flow Rate (lpm)	Assembly DP (psid)	Housing DP (psid)	Element DP (psid)
0.0	0.0	0.0	0.0
7.17	0.17	0.00	0.17
14.06	0.58	0.22	0.36
21.33	1.17	0.55	0.62
27.69	1.79	1.04	0.75
35.68	2.67	1.69	0.98
42.72	3.68	2.23	1.36
49.60	4.78	3.10	1.68
56.42	6.01	4.05	1.96
63.36	7.43	5.19	2.24
70.98	9.04	6.40	2.64
77.54	10.75	7.95	2.80
84.98	13.04	9.32	3.72

Woongjin chemical Industries
Filter Element Single-Pass Efficiency
Test Report Sheet

Test System Data

P / N :	S66/C504/PP 1.2
FILTER ID :	EVHOP12D1T
TEST No. :	EFF100823
TEST Date :	2/1/05
OPERATOR :	SG HONG
FLOW RATE (lpm) :	11.69
TEST FLUID :	WATER
SYSTEM VOLUME (L) :	60.00
TEMPERATURE (℃) :	21.00
RH% :	42.00
DUST TYPE :	ISO UFTD
BATCH No. :	

Differential Pressure Data

HOUSING (psid) :	0.07
CLEAN ASSEMBLY (psid) :	0.31
CLEAN ELEMENT (psid) :	0.24

Injection Data

INJECTION	INITIAL	FINAL	AVERAGE
VOLUME (L)	6.000	5.100	Flow(L/min) : 0.015
GRAV.(mg/L)	155.910	155.710	GRAV.(mg/L) : 155.910

Upstream Geavimetric Level(mg/L)

BASE :	0.20

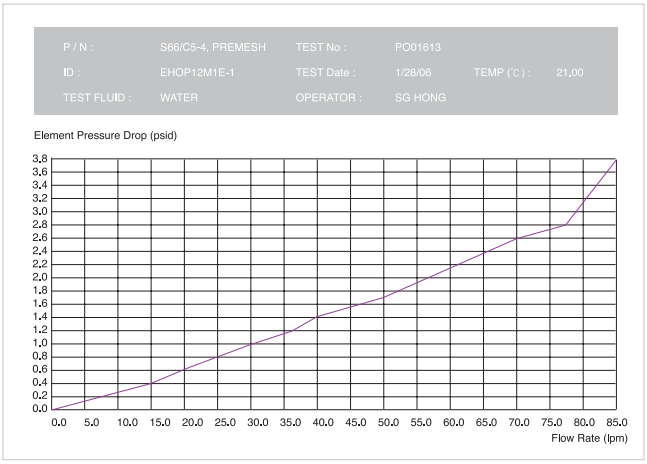
Dust Capacity (gram)

INJECTED :	0.140

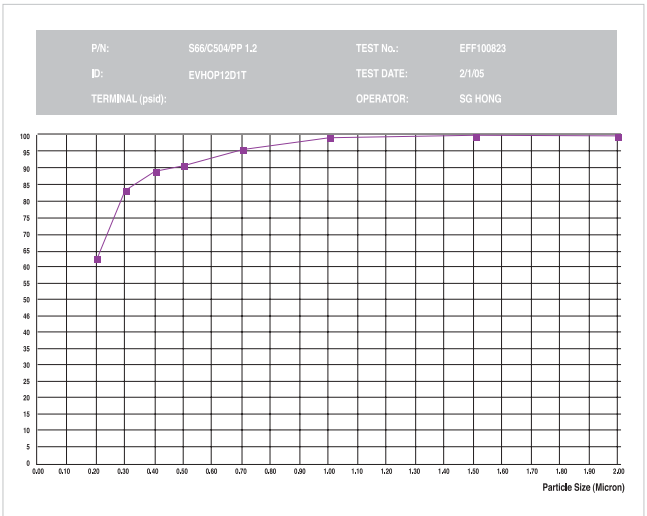
Particle Distribution Analysis (Particles / Milliliter)

SAMPLE POINT		0.20㎛	0.30㎛	0.40㎛	0.50㎛	0.70㎛	1.00㎛	1.50㎛	2.00㎛
INITIAL		8527.98	2203.71	1078.79	367.87	75.02	21.47	13.60	12.25
2min	UP	43316.68	24086.14	20450.24	10989.27	3965.65	1224.82	643.48	508.98
	DOWN	17188.03	411.29	2400.90	1088.99	174.14	9.26	1.78	1.78
	BETA	2.52	5.86	8.52	10.09	22.77	137.27	361.51	285.94
	EFF.%	60.32	82.93	88.26	90.09	95.61	99.24	99.72	99.65
5min	UP	66440.13	39093.01	33491.58	18317.72	6745.03	2064.29	1039.65	803.62
	DOWN	27649.32	7312.00	4348.54	2047.90	351.70	16.31	3.92	1.78
	BETA	2.40	5.35	7.70	8.94	19.21	134.83	265.22	451.47
	EFF.%	58.38	81.30	87.02	88.82	94.79	99.26	99.62	99.78
10min	UP	79331.15	47953.06	41168.50	22893.91	8573.08	2663.89	1360.73	1076.53
	DOWN	34386.88	9349.89	5640.51	2776.76	473.61	23.88	4.28	1.78
	BETA	2.31	5.13	7.30	8.24	18.10	111.55	317.93	601.42
	EFF.%	56.65	80.50	86.30	87.87	94.48	99.10	99.69	99.83
20min	UP	84587.33	51586.57	44546.94	24828.01	9287.12	2848.64	1436.07	1125.62
	DOWN	37358.39	10116.57	6007.24	2919.63	477.95	22.42	3.56	1.42
	BETA	2.26	5.19	7.42	8.50	19.43	127.06	403.39	792.69
	EFF.%	55.83	80.39	86.51	88.24	94.85	99.21	99.75	99.87
30min	UP	84070.08	51100.70	43955.88	24386.19	9087.64	2804.48	1383.50	11069.23
	DOWN	35935.13	9684.89	5700.28	2761.42	478.96	20.62	2.84	2.13
	BETA	2.34	5.28	7.71	8.83	18.97	136.01	487.15	501.99
	EFF.%	57.26	81.05	87.03	88.68	94.73	99.26	99.29	99.80
40min	UP	85805.20	52237.05	44977.97	25051.27	9379.61	2928.38	1456.85	1142.92
	DOWN	5626.17	2692.03	452.59	20.67	2.49	0.71	0.00	0.00
	BETA	15.25	19.40	99.38	1211.96	3766.91	4124.48	9999.99	9999.99
	EFF.%	93.44	94.85	98.99	99.92	99.97	99.98	100.00	100.00
50min	UP	85112.53	51650.85	44543.66	24681.28	9140.15	2898.59	1452.70	1136.63
	DOWN	35827.22	9287.85	5275.42	2466.78	415.58	18.87	3.56	2.14
	BETA	2.38	5.56	8.44	10.01	21.99	153.61	408.06	531.14
	EFF.%	57.91	82.02	88.16	90.01	95.45	99.35	99.75	99.81
60min	UP	86250.47	52312.37	45121.07	25015.90	9387.53	2883.48	1443.79	1128.33
	DOWN	36959.23	9459.47	5315.51	2515.42	415361	16.77	2.14	1.43
	BETA	2.33	5.53	8.49	9.95	22.59	171.84	674.67	789.04
	EFF.%	57.15	81.92	88.22	89.94	95.57	99.42	99.85	99.87
Avg. Beta		2.66	5.97	9.06	10.61	22.50	158.92	462.72	640.82
Avg. Eff.(%)		62.44	83.24	88.96	90.58	95.75	99.37	99.78	99.84

Filter Presure Drop Versus Flow Rate



Efficiency Versus Particle Size



Cartridge Filter Test Method

Leak Tester

– For Judging acceptance or rejection of cartridge filters' leak

Supplement Description

– The equipment to judge membrane cartridge filters(half-finished goods)' leak with providing air before Integrity test

Sartorius Separationstechnik Diffusion and B.P. Test

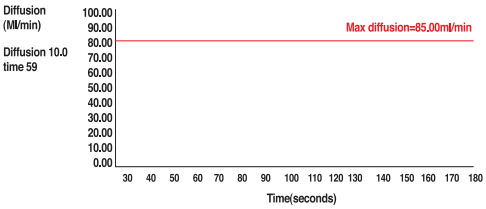
Serial No: 91191101171
Software Version: V2.12.21.01.99
Test Date: 03.05.2001.02.51:10
File Name: C:\WINDOWS\Peronal\임상열\당사생산\pes\01년 05월 pes\01년 05월 pes0.4\pes0.4-0.1.s3P
Program No : 10
Last calibration : 26.11.1999
Product Lot

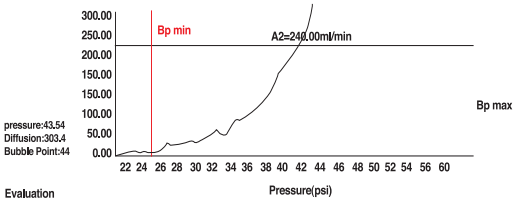
Test Location / Product
Company Name: pes-0.4
Department:
Production Area:
Filter Line:
Product:
Product Lot:

Filter/Housing Parameters
Filter:
housing:
Remarks:
Filter Lot: So4jjjjj01008

Test Parameters
Control Gas:
Operating Pressure: 14.5psi
BP Max: 25.0psi
Max Diffusion: 25.0psi
Welt Agent
Test Pressuer: 22.0psi
Stab Time 3mm
Test Time 3mm

Test Results
Bubble Point: 43.5psi
Diffusion: 25.0psi
Net Volume 1212ml
Pressuer Drop: 0.1 psi





Evaluation
Test passed
Operator: _____
(L.S.Y)

Sartocheck 3Filertest

Integrity Tester

– The measurement of B.P, air diffusion

Supplement Description

– The equipment to measure bubble point, air diffusion, pressure drop of membrane cartridge filters after passing them.

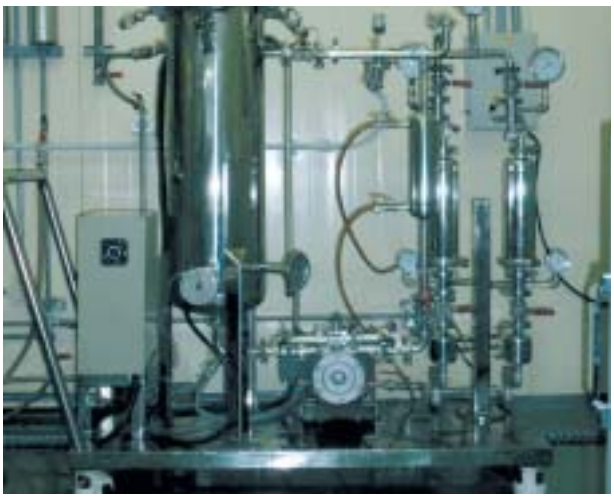
Cartridge Filter Test Method

Hydraulic Tester

– Hydraulic test in high temperature / pressure process

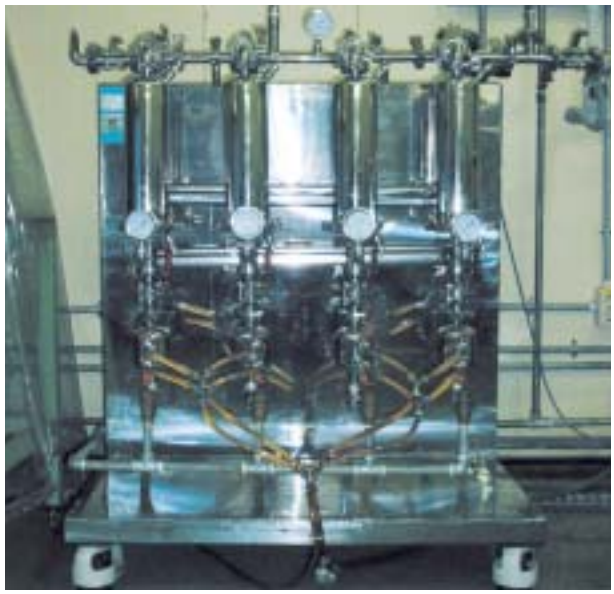
Supplement Description

– The equipment to test by thermal liquid the filter's warp and variant conditions in different kinds of condition



Heat Stress Tester

– Heat stress test by hot steam in high temperature process (121, 135 ℃)



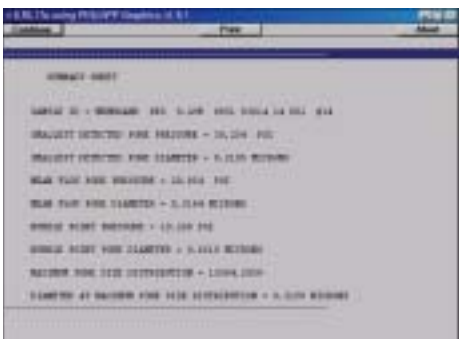
Media Test Method

Perm Porometer

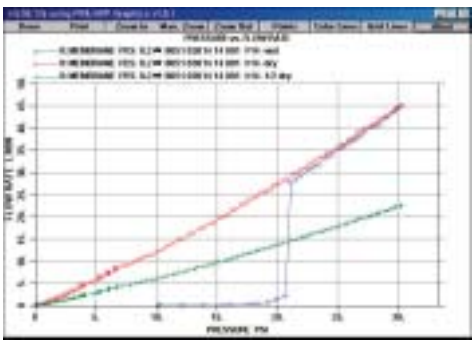
Supplement Description

– The equipment to measure pore size, flow rate of the different kinds of media which makes up of micro filter.

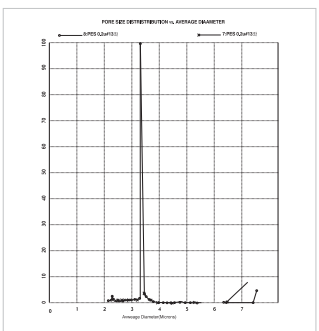
Bubble Point Summary



Dry/Wet Air Permeability



Pore Size Distribution



Media Test Method

Air Permeability Tester

– Porosity of membrane / media

Test Report no. 2002.11.21, 15:40.22.LBD

Style : test1
User : SAEHAN
Media : 부직포
P/N : 20021121

Date/time : 21.11.2002.15:40-21.11.2002.15:47
Operator Y.S.HAM

Air permeability-static

Test pressure 125 pa
Test area 38㎠

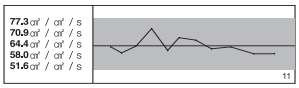
Date/time : 21.11.2002.15:40-21.11.2002.15:47
Operator Y.S.HAM

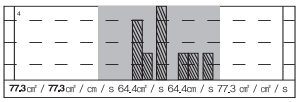
1: 63.8㎠
2: 63.8㎠
3: 63.8㎠
4: 63.8㎠
5: 63.8㎠
6: 63.8㎠
7: 63.8㎠
8: 63.8㎠
9: 63.8㎠
10: 63.8㎠
11: 63.8㎠

Commentary :

Avg :	64.4㎠ / ㎠	Nominal:	64.4㎠ / ㎠ / s
Min :	61.7㎠ / ㎠	Min:	61.7㎠ / ㎠ / s
Max :	69.8㎠ / ㎠	Max:	69.8㎠ / ㎠ / s
CV :	4.5%	Tests:	10
CI :	3.0%	CI:	

77.3㎠ / ㎠ / s
70.9㎠ / ㎠ / s
64.4㎠ / ㎠ / s
58.0㎠ / ㎠ / s
51.6㎠ / ㎠ / s



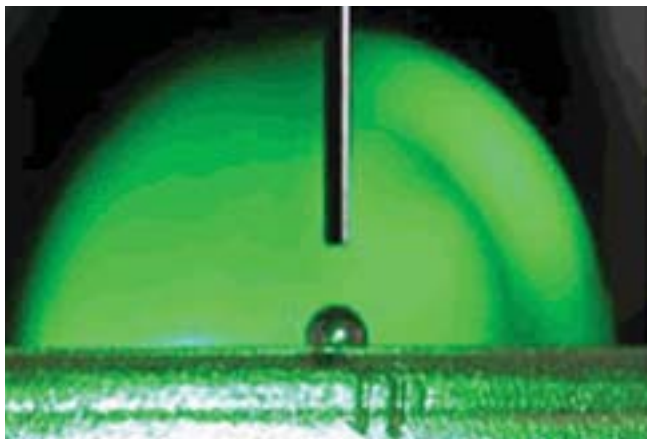


77.3㎠ / 77.3㎠ / ㎝ / s 64.4㎠ / s 64.4㎝ / s 77.3 ㎠ / ㎠ / s

Test Report no. 2002.11.21, 15:40.22.LBD

Contact Angle Tester

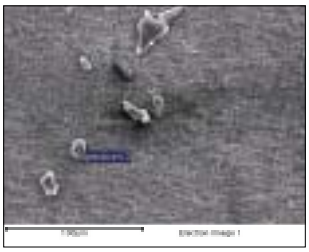
– Hydrophilicity of membranes

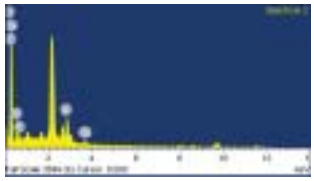


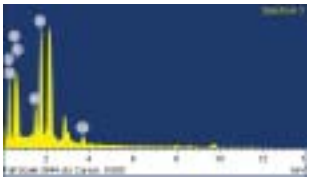
Scanning Electron Microscope / Energy Dispersive Spectrometer

– The structure of media's surface / cross section(×200,000)

– The shape of an alien substance and the qualitative analysis of inorganic elements

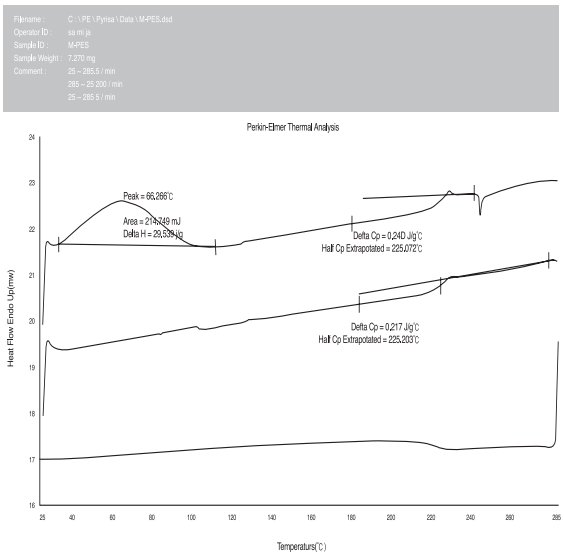






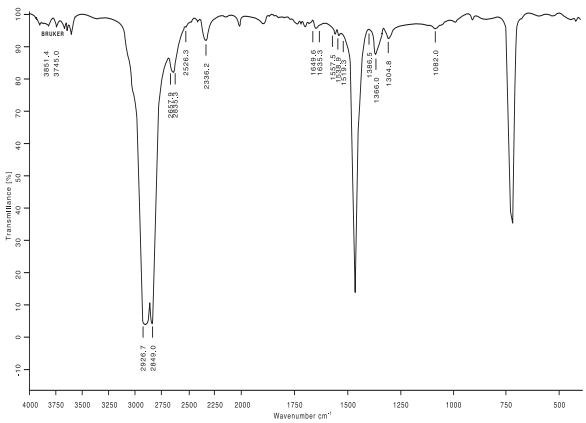
Differential Scanning Calorimeter

– The material analysis of a high molecular substance
– The temperature range : -170~730℃
– Heating & cooling rate : 0.1~200℃/min



Fourier Transform Infrared Spectrometer

– The material analysis of a highly polymerized compound
– The wavelength range : 10~4,000㎝$^{-1}$



Particle Counter

– The liquid test of before and after conditions
– The performance simulation of a crude liquid
– Off-line particle counter

HIAC Royco PharmSpec V1.4 Summary Repport

측정회사 : 내열내구용
Sample name : 5/13 PP 10D 3-4
Lot NO. : 10min IN
어과시간 :
maker :
일자 : 02/22/12

Sensor model : HRLD -150
Sensor serial : CO1264
Operator name : Y . S . HAM
Sample date : 20021112

Total unmber of runs : 2 Sample volume(mL) : 10.00

Chan	Size um	Cuml Counts	Diff Counts	Cuml Cnts/mL	Diff Cuts/mL
Run : 1					
01	1.00	288837.0	173134.0	28883.7	17313.4
02	2.00	115703.0	29436.0	11570.3	2943.6
03	3.00	86267.0	49095.0	8626.7	4909.5
04	5.00	37172.0	21880.0	3717.2	2188.0
05	7.00	15292.0	9649.0	1529.2	964.9
06	10.00	5643.0	4353.0	564.3	435.3
07	15.00	1290.0	950.0	129.0	95.0
08	20.00	340.0	237.0	34.0	23.7
09	25.00	103.0	63.0	10.3	6.3
10	31.00	40.0	32.0	4.0	3.2
11	40.00	8.0	2.0	0.8	0.2
12	50.00	6.0	0.0	0.6	0.0
13	60.00	6.0	0.0	0.6	0.0
14	70.00	6.0	0.0	0.6	0.0
15	80.00	6.0	1.0	0.6	0.1
16	120.00	5.0	5.0	0.5	0.5
Run : 2					
0	1.00	287639.0	173134.0	28763.0	17313.4
02	2.00	114505.0	29483.0	11450.5	2948.3
03	3.00	85022.0	48977.0	8502.2	4879.7
04	5.00	36045.0	21597.0	3604.5	2159.7
05	7.00	14448.0	9458.0	1444.8	945.8
06	10.00	4990.0	3972.0	499.0	397.2
07	15.00	1018.0	791.0	101.8	79.1
08	20.00	227.0	19.0	22.7	16.9
09	25.00	58.0	40.0	5.8	4.0
10	31.00	18.0	12.0	1.8	1.2
11	40.00	6.0	1.0	0.5	0.1
12	50.00	5.0	1.0	0.5	0.1
13	60.00	4.0	0.0	0.4	0.0
14	70.00	4.0	0.0	0.4	0.0
15	80.00	4.0	0.0	0.4	0.0
16	120.00	4.0	4.0	0.4	0.4
Run : Average					
01	1.00	288238.0	173134.0	28823.8	17313.4
02	2.00	115104.0	29459.5	11510.4	2945.9
03	3.00	85644.5	49036.0	8564.5	4903.6
04	5.00	36608.5	21738.5	3660.9	2173.9
05	7.00	14870.0	9553.5	1487.0	955.3
06	10.00	5316.5	4162.5	531.7	416.2
07	15.00	1154.0	870.5	115.4	87.1
08	20.00	283.5	203.0	28.4	20.3
09	25.00	80.5	51.5	8.1	5.2
10	31.00	29.0	22.0	2.9	2.2
11	40.00	7.0	1.5	0.7	0.2
12	50.00	5.5	0.5	0.6	0.1
13	60.00	5.0	0.0	0.5	0.0
14	70.00	5.0	0.0	0.5	0.0
15	80.00	5.0	0.5	0.5	0.1
16	120.00	4.5	4.5	0.4	0.4

Technical Service

Atomic Force Microscope

– Device that uses a spring-mounted probe to image individual atoms on the surface of a material.

High Performance Liquid Chromatography

– The quantitative analysis of an organic compound in solution

Fourier Transform Nuclear Magnetic Resonance

– The analysis of an organic compound structure.
– The analysis of a polymer ingredient and composition.

Thermal Gravimetric Analyzer

– The analysis of compound coposition.
– The analysis of a high molecular material.

Electrokinetic Analyzer

– The equipment to measure the surrounding medium and imposed electric fields interact with extended flat surfaces, channels, pores, particles, and molecular aggregates to produce.

Inductively Coupled Plasma

– The quantitative analysis of an inoganic metallic element in high molecule substance.
– The quantitative analysis of a metallic element in water.
– The analysis of metal purity and impurities.

Thermal Mechanical Analyzer

– To test structural behaviour of crystalline materials as they are subjected to external stress.

Chemical Compatibility

This chart is intended only as a guide. Users should verify chemical compatibility based upon experimentation with specific filter under actual use conditions; chemical compatibility is affected by many variables, including temperature, concentration, and length of exposure.
Chemical compatibility data : this data is presented as a customer service. Accuracy cannot be guaranteed. Variables in customer use such as concentrations, purity, temperature, pressure, time and various chemical combinations prevent complete accuracy.

Data Interpretation Chemical Compatibility Observations are Divided into Three Categories as Follows :

R - Recommended : No significant changes observed in performance, physical properties, dimensions or visible indication of chemical attack of the cartridge filter.

LR - Limited Recommended : Moderate changes in physical properties or dimensions of the cartridge filter were observed. Filter may be suitable for short-term exposure at low pressure and ambient temperatures.

NR - Not Recommended : The filter cartridge is basically unstable. In most cases, extensive shrinking or swelling occurs. Filter may gradually weaken or partially dissolve after extended exposure. temperatures.

Filter media

Media	PP	PES	PTFE
Acids	PP		
Acetic acid, glacial	R	R	R
Acetic acid, 90%	R	R	R
Acetic acid, 30%	R	R	R
Acetic acid, 10%	R	R	R
Hydrochloric acid, conc.	R	-	R
Hydrochloric acid, 6N	R	R	R
Nitric acid, conc.	R	-	R
Nitric acid, 6N	R	R	R
Sulfuric acid, conc.	R		R
Sulfuric acid, 6N	R		R
Phosphoric	R		R
Chromic acid, conc.	R		
Hydrofluoric acid, 6N	R	R	R
Alcohols			
Amyl alcohol	R	R	R
Benzyl alcohol, 100%	R		R
Benzyl alcohol, 3%	R		R
Butanol	R	R	R
Ethanol	R	R	R
Isopropanol	R	R	R
Methanol	R	R	R
Aromatic Hydrocarbons			
Benzene	NR	NR	LR
Toluene	NR		LR
Xylene	NR		LR
Bases			
Ammonium hydroxide, 3N	R		R
Ammonium hydroxide, 6N	R		R
Potassium hydroxide, 3N	R		
Sodium hydroxide, 3N	R		R
Sodium hydroxide, 6N	R		R
Esters			
Amyl acetate	R		R
Butyl acetate	LR		
Cellosolve acetate	R		
Ethyl acetate	LR		R
Isopropyl acetate	R		R
Methyl acetate	R		
Ethers			
Ethyl ether	LR		R
Isopropyl	R		R
Dioxane	R		
Tetrahydrofuran	NR		R

Media	PP	PES	PTFE
Glycols			
Ethylene glycol	R	R	R
Glycerine	R	R	R
Propylene glycol	R	R	
Halogenated Hydrocarbons			
Carbon tetrachloride	LR	R	R
Chloroform	NR	R	R
ChlorotheneR NU	NR		
Ethylene dichloride	LR		
FreonR TF	LR		R
Freon TMC	LR		
GenosolvR D	-		
Methylene chloride	LR	R	LR
Perchloroethylene	NR		
Trichlorethylene	NR		
Ketones			
Acetone	R	R	R
Cyclohexanone	R	R	R
Methyl ethyl ketone	R		R
Methyl isobutyl ketone	R		R
Oils			
Cottonseed oil	R		
Lubrication oil MIL-L-7808	R		
Peanut oil	R		
Sesame oil	R		
White petrolatum	R		
Photoresists			
Positive	R		
Negative	R		
Miscellaneous			
Acetonitrile	LR		R
Aniline	LR		
Dimethyl formamide	R		R
Dimethyl sulfoxide	R		R
Formaldehyde, 37%	LR		R
Formaldehyde, 4%	R		R
Gasoline	NR		LR
Hexane, dry	NR		
JP-4	R		
Kerosene	R		
Nickel sulfate solution	R		
Phenol, liquified	R		
Pyridine	LR	NR	
Skydrol 500	-		
Turpentine	LR		
Water	R		

O-ring materials

Cartridge Configurations

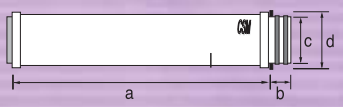
A-TYPE

B-TYPE

C-TYPE

M-TYPE

D-TYPE



E-TYPE

N-TYPE

F-TYPE

구분	A	B	C	D	E	F	G
a	242	242	242	242	242	242	242
b			29.5	22	29.5	22	15
c			45.3	57.7	45.3	57.7	45.3
d	68.5	68.5	68.5	68.5	68.5	68.5	68.5

Media	EPR	Viton	Silicone	Teflon
Acetic Acid, Glacial	LR	NR	R	R
Acetone	R	NR	R	R
Acetonitrile	R	NR	NR	R
Alconox 1%	-	-	-	-
Ammonium Hydroxide	R	R	R	R
Ammonium Sulfate Saturated	R	R	R	R
Amyl Acetate	R	NR	NR	R
Amy Alcohol	R	R	NR	R
Benzene	NR	R	NR	R
Benzyl Alcohol	R	R	R	R
Boric Acid	R	R	R	-
Butyl Acetate	R	NR	NR	-
Butyl Alcoho	R	R	R	R
Carbon Tetrachloride	NR	R	NR	R
Cellosolve (Ethyl)	R	LR	NR	-
CHAPS(zwitterionic detergent)	-	LR	-	-
Chloroform	NR	R	NR	R
Cychlohexanone	LR	NR	LR	R
Diethyl Pyrocarbonate 0.2%	-	-	-	-
Dimethyl Sulfoxide	NR	NR	NR	R
Dimethylacetamide	NR	NR	R	-
Dimethylformamide	LR	NR	R	R
Dioxane	NR	NR	NR	R
Ether	NR	NR	LR	-
Ethyl Acetate	LR	NR	NR	-
Ethyl Alcohol	R	R	LR	R
Ethylene Glycol	R	R	R	R
Formaldehyde	R	NR	R	R
Formic Acid 50%	R	-	R	-
Freon TF or PCA	NR	R	R	-
Gasoline	NR	R	NR	R
Glycerine(Glycerol)	R	R	R	R
Guanidine HCl 6M	R	-	-	-
Guanidine Thiocyanate 5M	R	-	-	-
Helium	R	-	R	-
Hexane	NR	R	NR	R
Hydrochloric Acid 1N	NR	R	R	R
Hydrochloric Acid 6N	NR	R	R	R
Hydrochloric Acid Conc	NR	NR	R	R
Hydrofluoric Acid	NR	NR	NR	R
Hydrogen	R	R	NR	-
Hydrogen Peroxide 3%	R	R	R	R
Hydrogen Peroxide 30%	R	R	R	R
Hydrogen Peroxide 90%	NR	R	NR	-
Hypo (photo) Na	R	R	R	R
Isobutyl Alcohol	R	R	R	R
Isopropyl Acetate	R	NR	NR	R
Isopropyl Alcohol	R	R	R	R
Kerosene	NR	R	NR	-
Latic Acid 50%	R	R	R	-
Lubrol PX	-	-	-	-
MEK	R	NR	NR	-
Mercaptoethanol 0.1M	R	NR	-	-
Methyl Acetate	R	NR	NR	R
Methyl Alcohol	R	R	R	R
Methylene Chloride	NR	NR	NR	R
MIBK	R	NR	NR	-
Mineral Spirits	NR	R	NR	-
Nitric Acid 6N	R	R	NR	R
Nitric Acid (Conc.)	NR	R	NR	R
Nitrobenzene	NR	R	NR	R
Nitrogen	R	R	R	-
Nonidet-P 40	R	-	-	-
Ozone	R	NR	NR	-
Paraldehyde	R	NR	R	-
Pentane	NR	R	NR	R
Petroleum Ether	NR	R	NR	-
Phenol	R	R	NR	-
Potassium Hydroxide 3N	R	R	NR	-
Pyridine	NR	NR	NR	R
Silicone Oils	NR	R	NR	-
Sodium Carbonate	R	R	R	-

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