

Filtration and purification solutions for Life Science



Purification Control Technology



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Since **1961** **BEA Technologies** develops and distributes a complete line of filters for the treatments of liquids and compressed Air/Gas manufactured in its Italian production facility.

The BEA Technologies filtration systems are manufactured in compliance with the reference standard and regulations of the main industrial sectors in which it operates: **Life Science, Food & Beverage, Industry, Air & Gas Treatment and Energy, Oil & Gas.**

The continuous research in the field of technologies and materials allows to supply products that are always at the state of the art, advanced and competitive. The processes adopted for the construction of the filter elements are all certified and controlled in accordance with the Quality Management Manual.



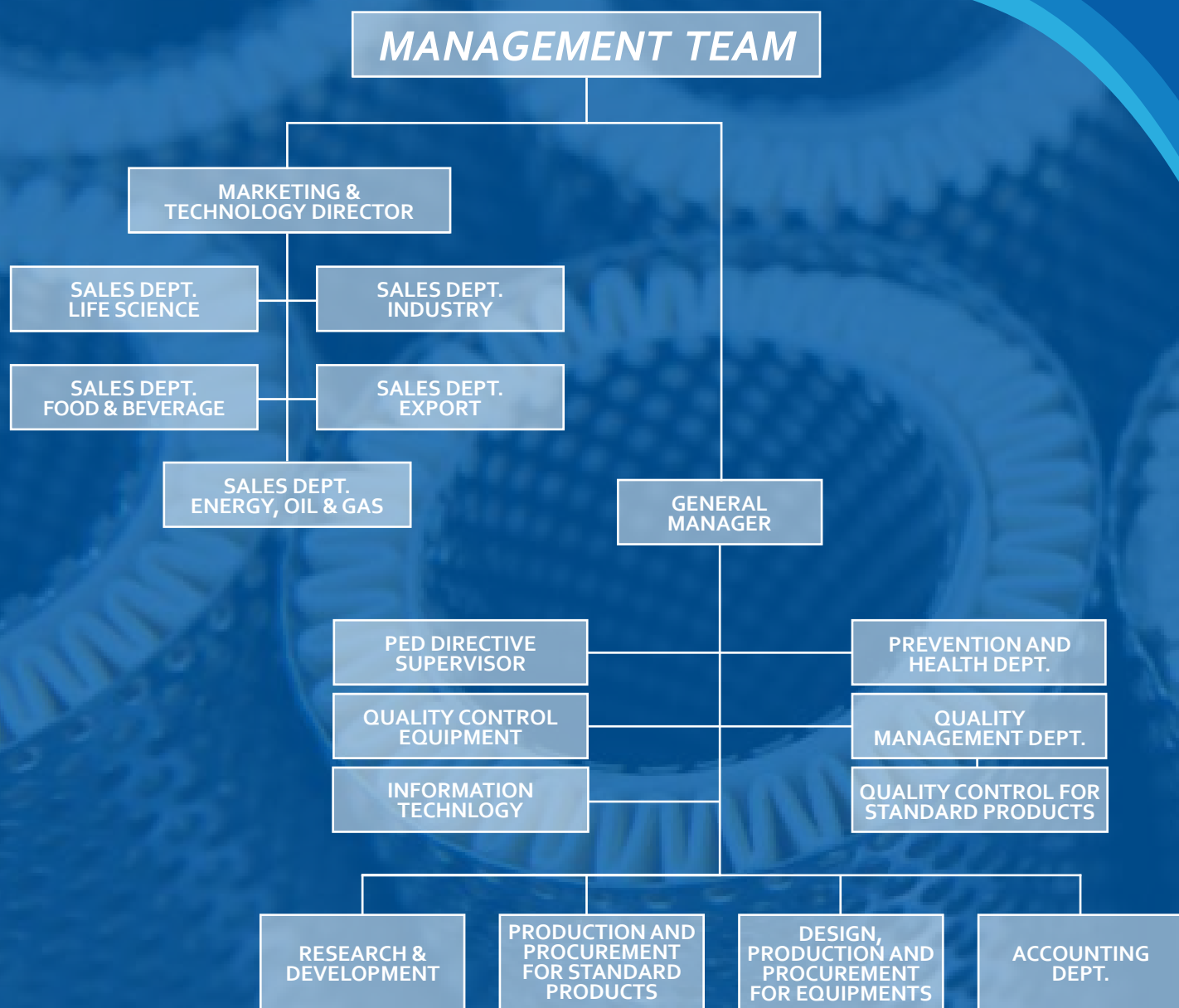
Company History



OUR EXECUTIVE TEAM



BEA Technologies has developed a proven and functional organization over the years, to meet customer demands quickly and with extreme flexibility.



R&D LABORATORY SERVICE

The "**Research and Development**" Department studies the filtration methods and the new filtering materials in order to select the best solutions to meet customers' needs as well as new applications. It processes the filter test procedures, selects the parameters for the integrity tests of the filter elements and follows the execution of the tests at the certified external laboratories. Finally it elaborates the "**VALIDATION GUIDE**" and the "**Declarations**" that accompany the products supplied.

Moreover, a team specialized in filtration, micro filtration and industrial processes assure consulting, analysis and research of the new technologies and applications, both during the selection phase to optimize the filtration process and to maintain high efficiency over time.

Consulting service:

-  *Feasibility studies*
-  *Supports qualification*
-  *Training courses*
-  *Start-up of Filtration Systems*
-  *Particle analysis*
-  *Microbiological challenge according to ASTM F838*
-  *Filtration tests in-house and on-site to size the system and optimize the process*
-  *International technical assistance*



VALIDATION SERVICE

BEA Technologies provides a filtration process validation support service aimed at defining an approach that complies with regulatory requirements and industry best practices. The service includes the evaluation of the physical, chemical, and microbiological performance of filters in relation to the specific process fluids with which they are used.

Process Validation Steps

1. Define according the production process the filtration needs with preliminary test on site, if needed.
2. Select the suitable filter.
3. Approve testing strategy.
4. Set acceptance criteria.
5. Approve protocols.
6. Perform tests.
7. Review test results.
8. Finalize documentation.

Validation Focus Areas

- Microbial Viability & Retention
- Physical & Chemical Parameters
- Filter Extractables & Leachables according USP 665

Physical Chemical Compatibility

Ensures filters do not degrade.

Key tests include:

- Pressure Drop vs Flow Rate
- Bubble Point (for prefilters)
- Diffusion Flow (for membrane/sterilizing filters)

These tests confirm whether the filter maintains integrity and performance in worst-case process conditions.





Integrity Testing

- Required by FDA/USP to ensure filters function correctly after use.
- Tests must be adapted to process fluid to avoid contamination from standard liquids like water or IPA blends.
- New test pressure and limits are established via correlation with standard liquid tests.

USP 665

- Controlled extractable study on cartridge filters for the manufacture of liquid product according USP665
- Analysis is done using techniques like GC-MS, HPLC/HR-MS Q-ORBITRAP in cooperation with external lab.
- Toxicological evaluation is conducted if necessary.

Microbial Retention (Bacterial Challenge Tests)

Demonstrates complete removal of microorganisms using:

- *Brevundimonas Diminuta* 0.2 μm
- *Serratia Marcescens* 0.45 μm

Done on filter discs or standard filter cartridges according to the viability study, using high microbial concentrations ($\geq 10^7$ CFU/cm² as per ASTM F838).

Two scenarios considered:

- Process fluid has **no bactericidal effect**
- Process fluid **does have bactericidal effect**, strategy adjustments needed (e.g., surrogate fluid, pH/temperature changes)

BEA Technologies uses a comprehensive, protocol-driven approach to validate filters in real-use conditions, ensuring reliability, safety, and compliance with regulatory standards.



QUALITY MANAGEMENT

The activities of **BEA Technologies** are regulated by the quality management system, for the design, production, distribution and after-sale service.

The System is certified by an international third party and to be in compliance the ISO-9001.



PED/ATEX

Certification for the design of the pressure containers.

BEA Technologies develops the design of pressure vessels, manufactured to contain the filter elements, with validated software and in accordance with international design codes and in compliance with the European PED (Pressure Equipment Directive) for which it is certified by an independent third party.

PRODUCTS & TECHNOLOGIES

The entire manufacturing is carried out in-house, to ensure the customer the quality of Made in Italy and the reliability of a full controlled production line. The highly qualified production team is managing highly automated production lines to guarantee on-time delivery.



TRACEABILITY

BEA Technologies guarantees the traceability of its processes, the materials used and the control of each individual production phase. The company is also able to support the customer in all validation operations for the use of BEA filters in pharmaceutical production processes.



PRODUCTION CONTROLS

Certification and integrity testing of the filter elements.

BEA Technologies manufactures filter elements dedicated to micro filtration in a certified Clean Room to ensure compliance with GMP requirements and to guarantee high quality and contamination-free products.

The production phases are constantly controlled and monitored by computerized systems. All membrane filter elements are subjected to integrity testing using non-destructive methods. In order to guarantee the effective bacterial retention, destructive tests of Challenge Bacterial are performed according to ASTM F838 standards.

The procedures and data related to these tests, together with the correlation table between the integrity test and bacterial retention data, are reported in the Validation Guide of each single product.



Filtration Systems for Life Science

Pharmaceutical companies and those involved in “Life Science” have gone beyond traditional business models and are operating on a global scale nowadays.

The challenges for the production of new medicines and active substances are requiring increased research and more strict cooperation with suppliers to design and realize new production lines and more flexible and efficient new equipment. To meet these new market demands, BEA Technologies has a highly qualified team and the most advanced technologies and instruments, and is able to achieve the levels of quality and safety required by current regulations.

The filtration technologies proposed by us are finalized to reach the best Quality – price rate for sterilization and clarifications of products, liquid solutions active substances for pharmaceutical use and utilities.

BEA Technologies offers solutions for the microfiltration of liquids and compressed gases dedicated to the specific needs of the LIFE SCIENCE industries: Pharmaceutical, Medical and Cosmetic.

The expertise in typical applications such as fermentation, sterile filtration of liquids, filtration for injectables, filtration of process fluids and gelatins has allowed the development of products with specific performances tailored to needs of industry and laboratory services and a highly professional technical assistance.



Reliable, efficient, customized.

BEA Technologies filtration solutions for the LIFE SCIENCE sector

Each product is the result of constant technological research, of the careful selection of materials, of a controlled production process and it is verified and accepted after specific tests.

All materials used to manufacture filter elements, tested and approved by independent laboratories, are in compliance with the USP class VI for plastic materials; moreover, all the filters have been tested and approved according to the elemental impurities ICHQ3D guideline requirements.

BEA Technologies is organized to provide:

Validation guides for each filter element.

Wide range of filtering membranes:
PES, N66, PVDF e PTFE.

Customization of filters and housings.

"BEAPURE" - Innovative model
for a dedicated supply chain



Complete traceability of product.



Compliance with USP-class VI, USP water for injection.



Interchangeable configurations and End-Caps.



Guarantee of high quality as the production process is entirely Made in Italy.



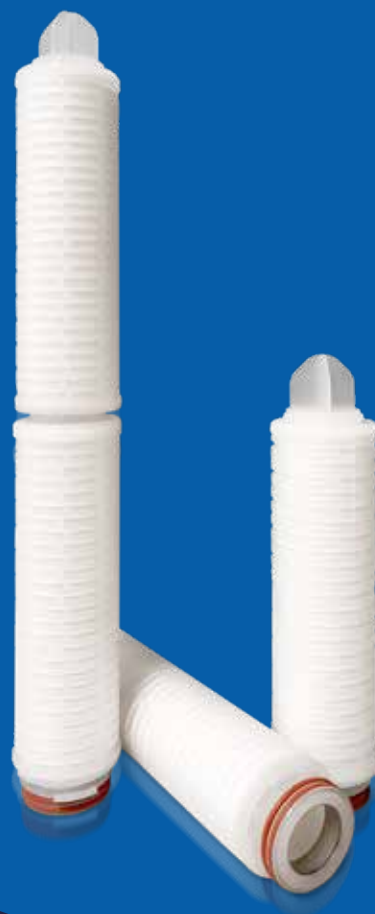


CRITICAL APPLICATIONS

We are available to develop customized filtration solutions engineered to ensure operator safety and effective containment in High-Potency API (HPAPI) applications and other critical production processes.

COMPLETE LINE OF CAPSULES AND FILTER ELEMENTS

BEA Technologies offers a complete line of filter elements for all the needs of the Life Science industry, which includes the main types of membrane filters and filter elements in nano- fibers, pre-filters available with the most widely used interchangeable fittings. The filter elements are provided with the necessary documentation: Validation Guides, to complete the Regulatory Files and marked with a barcode on the labels for a quick and safe recognition. Additional QR Code on fin or top cap.



QUALITY MAKES A DIFFERENCE IN CRITICAL MOMENTS

To select a manufacturer as a supplier, with a high technical skill and a structured organization makes the difference in critical moments. It means to have certified pharma products, checked and in compliance with the regulations, but also being able to count on the advice of an expert partner. Essential elements for companies accustomed to face future scenarios with a "focus" to "risk base thinking" that really want to be prepared for the challenges of the future markets.



Looking for the right solution.

Dedicated filtration solutions for specific applications

Legislative constraints, typical problems, process complexity: each application has its own characteristics, which must be carefully considered in the selection phase of the most suitable filtration system.

For each industry and application of the LIFE SCIENCE sector, BEA Technologies suggests one or more dedicated products.

PHARMACEUTICALS:

- ULTRAPURE WATER
- INJECTABLE LIQUIDS
- DEPYROGENATION
- SYRUPS
- OPTHALMIC
- ACTIVE PRINCIPLES (API-HPAPI)
- FERMENTATION
- SOLVENTS

HOSPITAL:

- LIQUID PURIFICATION AT THE POINT OF USE
- DIALYSIS
- BIOBURDEN REDUCTION
- FLUID STERILIZATION

COSMETIC:

- CREME/MOUSSE
- GEL
- AEROSOL
- PURIFIED WATER



The Products

Discover our datasheets dedicated to the technical specifications of the products





QUALIKAP QKP-P

PP filter media capsules

- High filtering surface
- High mechanical resistance and dirt holding capacity
- Sanitizable and autoclave sterilizable
- EC-listed materials as per food contact
- FDA-listed materials as per CFR21
- Extractables as per USP for plastic materials
- Validation Guide available
- Low extractables



QUALIKAP QKP-P are capsules entirely manufactured using polypropylene to generate a high compatibility for fluid and aqueous solution filtration.

The pleated different filtration layers provide enhanced dirt holding capacity, together with high flow rate and a wide compatibility with the different acid/basic solutions and sanitizing agents.

The QUALIKAP QKP-P are available with filtration rating from 0,6 to 20 micron.

Manufacturing is completed in a controlled environment; each filter is subject to specific tests before delivery.

MATERIALS OF CONSTRUCTION

Filter media	polypropylene
Upstream drainage layers	polypropylene
Downstream drainage layers	polypropylene
Core and Cage	polypropylene
Cartridge ends	polypropylene
Outer shell	polypropylene

APPLICATIONS

Ultra-pure water, alcoholic solutions, acid-base and buffer solutions, vaccines, physiological solutions, biotechnological products, ophthalmic liquids, laboratory batch purification.

FOOD-SAFETY

QUALIKAP-QKP-P capsules meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY AND EXTRACTABLES

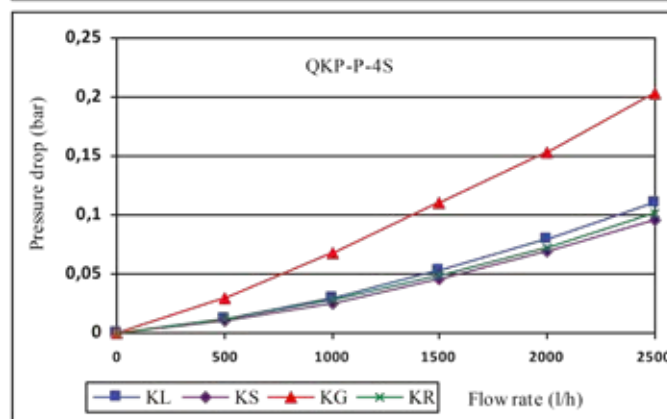
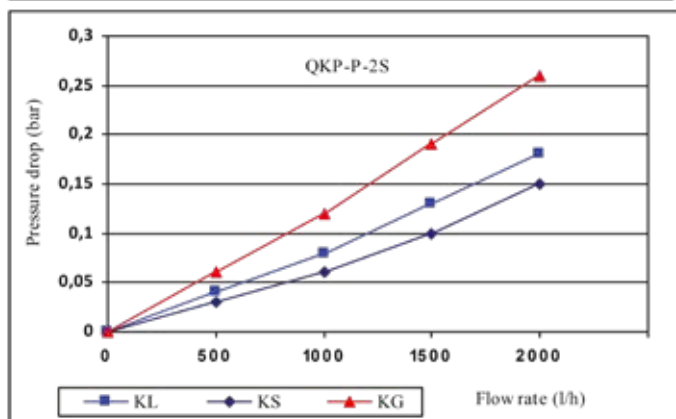
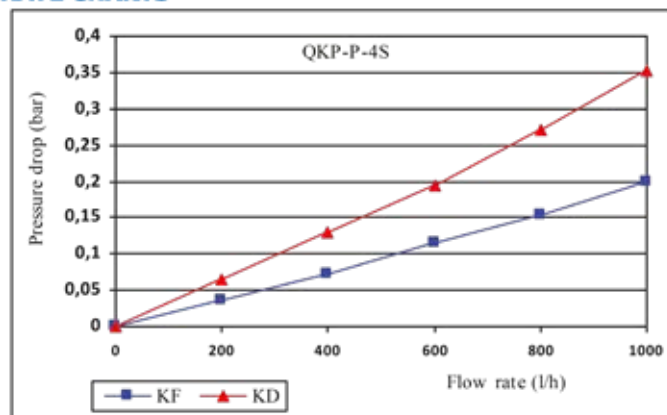
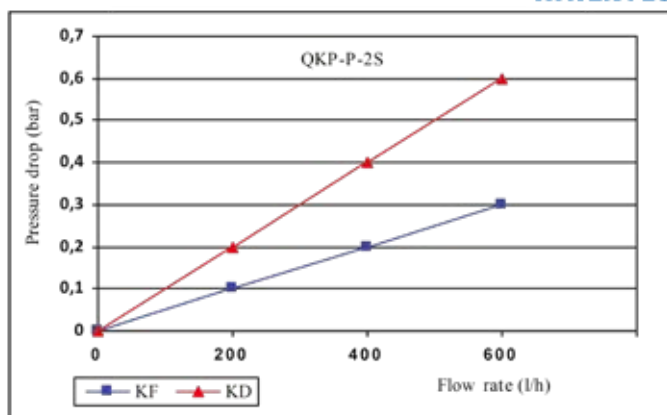
- Materials are compliant to USP-VI CLASS toxicological requirements and USP-Plastic Materials chemical and physical requirements.
- Capsule filters meet USP "Water for injection" requirements for endotoxin particle release; the bacterial endotoxin are determined using LAL Test.
- Extractable NVR (gravimetric) after autoclave ≤ 2 mg.
- TOC and conductivity according USP "Purified water" and "Water for Injection" requirements.

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	40 °C
- max. cumulative time of steam sterilization (no in line sterilization allowed)	40 hours at 125 °C or 20 hours at 135 °C (30' cycle)
- max. pressure	5 bar at 40°C (liquids) - 3 bar at 40°C (gas)
- chemical sanitization	compatible with a wide range of sanitizers
- max. differential pressure @ forward flow	4,0 bar at 40 °C - 2,0 bar at 40°C (gas)
- max. differential pressure @ reverse flow	1,0 bar at 40 °C
- changeover recommended pressure drop	2,0 bar at 40 °C

CODE	FILTRATION RATING *	MAX SUGGESTED WATER FLOW RATE(l/h) SIZE 2	MAX SUGGESTED WATER FLOW RATE(l/h) SIZE 4
KD	0,6 µm	200	300
KF	1,2 µm	400	600
KG	2,5 µm	1000	1500
KL	4,5 µm	1500	2000
KR	6,5 µm	1500	2000
KS	10,0 µm	1500	2000
KT	20,0 µm	1500	2000
KV	40,0 µm	1500	2000
KZ	60,0 µm	1500	2000
* Liquids and wet gases			

WATER FLOW RATE CHARTS



QUALIKAP QKP-P ORDERING INFORMATION

QKP - P - 2 S - X P KF - PH

SHELL	CODE
Polypropylene	P

FILTER	CODE
PKP	P

NOMINAL LENGTH	CODE
175 mm	2
287 mm	4

VENT-DRAINING VALVE GASKETS	CODE
Silicone O-Rings	S

FILTER ELEMENT ASSEMBLY	CODE
Thermowelded	X

CODE	PRODUCT GRADE
PH	Fluxed and tested with non-pyrogenic water. Quality Certificate in the box

FILTRATION GRADE micron	CODE
0,6	KD
1,2	KF
2,5	KG
4,5	KL
6,5	KR
10,0	KS
20,0	KT
40,0	KV
60,0	KZ

TERMINALS FILTER ELEMENT	CODE
Polypropylene	P

- Max diameter (valves included): 117 mm
- Tri-clamp connections 1 1/2"

QUALIKAP QKP-C

- Positive Zeta potential
- Enhanced endotoxins retention
- Easy integrity testable in situ
- Repeatedly steamable in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21



QUALIKAP QKP-C capsules are specifically designed to use the positive charged nylon 6,6 membrane. QUALIKAP QKP-C greatly interacts with the negative particles contained in the liquid in order to withhold particles smaller than the pore size. QUALIKAP QKP-C have proven to hold a great quantity of submicron particles and endotoxins. QUALIKAP QKP-C are designed to guarantee high quality standard and results in Pharma and medical critical applications. Manufacturing is completed in a controlled environment; each filter is subject to specific tests before delivery.

MATERIALS OF CONSTRUCTION

Membrane	Positive charged nylon 6,6
Upstream drainage layers	Polyester
Downstream drainage layers	Polyester
Core and Cage	Polypropylene
Cartridge ends	Polyester
Outer Shell	Polypropylene

FOOD-SAFETY

QUALIKAP-QKP-C capsules meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY AND EXTRACTABLES

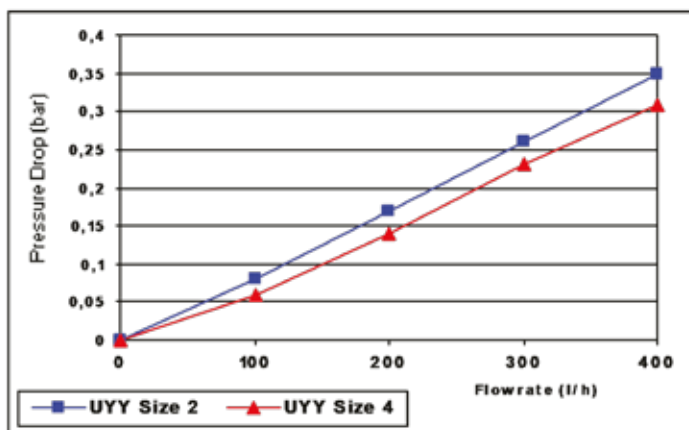
- Materials are compliant to USP-VI CLASS toxicological requirements and USP-Plastic Materials chemical and physical requirements.
- Capsule filters meet USP "Water for injection" requirements for endotoxin and particle release.
- TOC and conductivity according USP "Purified water" and "Water for Injection" requirements.

RECOMMENDED OPERATING CONDITIONS

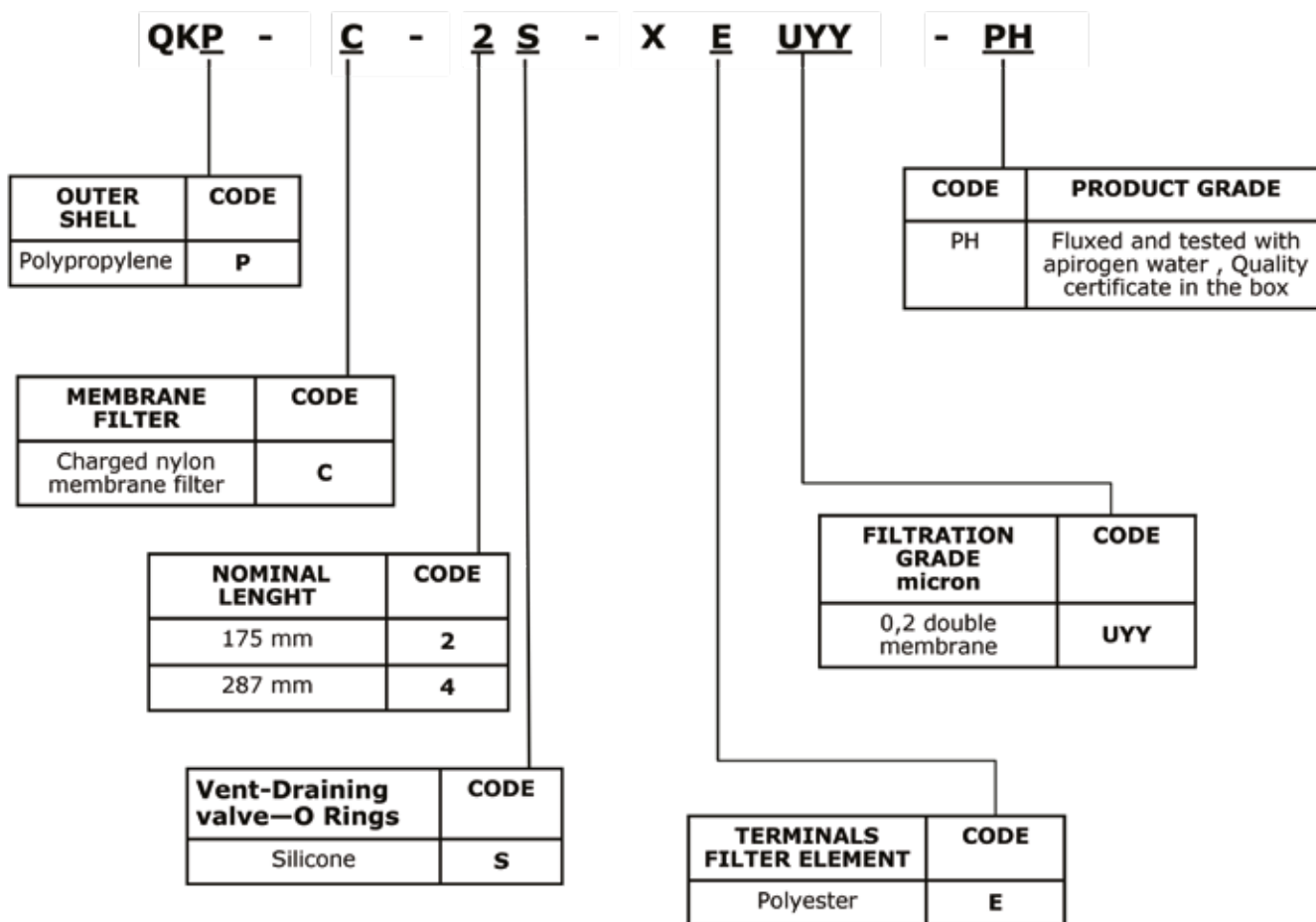
- steam sterilization	6 hours at 135 °C / 13 hours at 125 °C / 15 hours at 121 °C
- max. pressure	5 bar at 40 °C
- chemical sanitization	compatible with a wide range of sanitizers
- forward flow max. differential pressure	4,5 bar at 40 °C
- reverse flow max. differential pressure	1,0 bar at 40 °C
- recommended pressure drop for changeover	2,0 bar at 40 °C
- in situ recommended flushing volume	1 liter for size 2 / 2 liters for size 4

CODE	ABSOLUTE FILTRATION GRADE IN LIQUIDS	BACTERIAL REDUCTION CHARGE >10 ⁷ CFU/cm ² *	ACCEPTANCE LIMIT FOR DIFFUSION TEST (ml/min) @ 2,1 bar
UYV	0,2 µm double membrane	Brevundimonas Diminuta	≤ 8.0 for size 2
			≤ 16,0 for size 4
* according ASTM F838			
ENDOTOXINS RETENTION 120 l/h flow rate for 5" capsules 250 l/h flow rate for 10" capsules		efficiency > 99,994 % GM	

WATER FLOW RATE CHARTS



QUALIKAP QKP-C ORDERING INFORMATION



- Max diameter (valves included): 117 mm
- Tri-clamp connections 1 1/2"

QUALIKAP QKP-N

Nylon 6,6 membrane capsule filter

- Testable in situ
- Sterilizable in autoclave
- Sanitizable
- Thermowelded assembly
- EC-listed materials for food contact
- FDA-listed materials per CFR21
- Extractables as per USP for plastic materials
- Validation Guide available
- Low extractable



QUALIKAP QKP-N capsules are especially designed to be used as sterilizable final filter for small batches in pharma applications. QUALIKAP QKP-N are fitted with Nylon 6,6 membrane whose porosity guarantees high bacterial retention efficiency. Typical applications are alcoholic solutions, ultra pure water, vaccines, physiological solutions, ophthalmic solutions, etc. The manufacturing is done in a controlled environment; each filter element is tested to verify the integrity. Each capsule is supplied with conformity test certificate showing the lot.

MATERIALS OF CONSTRUCTION

Membrane	Nylon 6,6 membrane
Upstream drainage layers	Polyester
Downstream drainage layers	Polyester
Core and Cage	Polypropylene
Cartridge ends	Polyester
Outer Shell	Polypropylene

FOOD-SAFETY

QUALIKAP-QKP-N capsules meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY AND EXTRACTABLES

- Materials are compliant to USP-VI CLASS toxicological requirements and USP-Plastic Materials chemical and physical requirements.
- Capsule filters meet USP "Water for injection" requirements for endotoxin particle release; the bacterial endotoxin are determined using LAL Test.
- Extractable NVR (gravimetric) after autoclave ≤ 2 mg.
- TOC and conductivity according USP "Purified water" and "Water for Injection" requirements.

RECOMMENDED OPERATING CONDITIONS

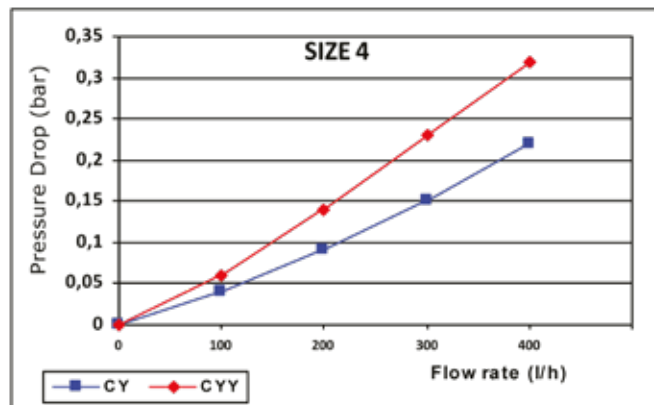
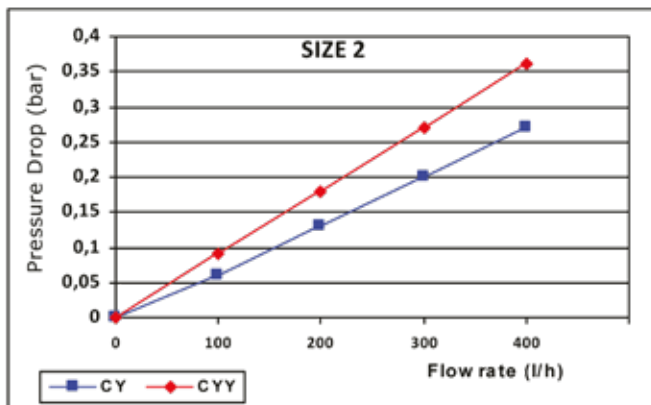
- steam sterilization (no in line sterilization available)	in autoclave up to 135 °C *
- max. pressure	5 bar at 40 °C
- chemical sanitization	Compatible with a wide range of sanitizers
- forward flow max. differential pressure	4,5 bar at 40 °C
- reverse flow max. differential pressure	1,0 bar at 40 °C
- recommended pressure drop for changeover	2,0 bar at 40 °C
- in situ recommended flushing volume	1 liter

CODE	ABSOLUTE FILTRATION GRADE IN LIQUIDS	BACTERIAL REDUCTION CHARGE $>10^7$ CFU/cm ² **	ACCEPTANCE LIMIT FOR DIFFUSION TEST (ml/min)
CY	0,2 µm	Brevundimonas Diminuta	≤ 8.0 @ 2,1 bar
CYY	0,2 µm double	Brevundimonas Diminuta	≤ 8.0 @ 2,1 bar

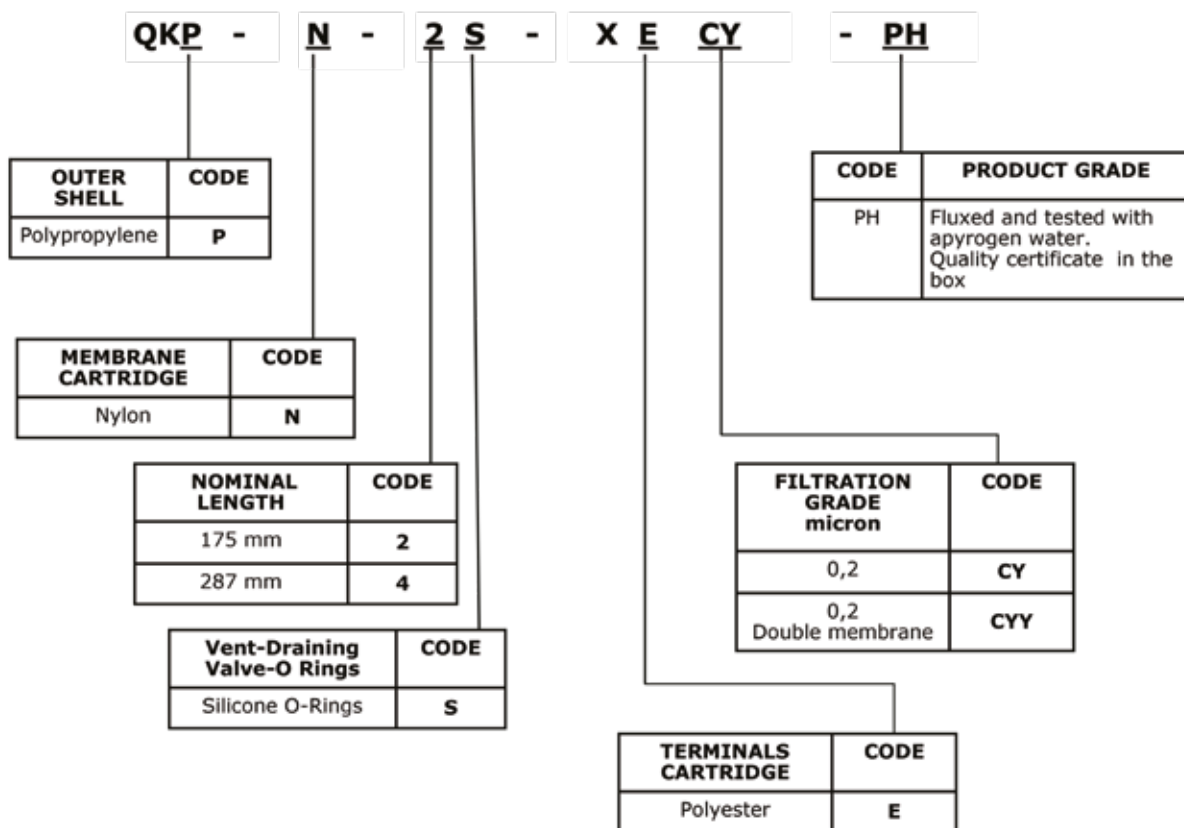
* Operational limits and usage conditions available upon request

** BACTERIAL RETENTION TEST as per ASTM F838

WATER FLOW RATE CHARTS



QUALIKAP QKP-N ORDERING INFORMATION



- Max diameter (valves included): 117 mm
- Tri-clamp connections 1 1/2"

QUALIKAP QKP-S

PES capsule filters

- Testable in situ
- Sterilizable in autoclave
- Sanitizable
- Thermowelded assembly
- EC-listed materials for food contact
- FDA-listed materials per CFR21
- Extractables as per USP for plastic materials
- Validation Guide available
- Low extractable



QUALIKAP QKP-S capsules are especially designed to be used as sterilizable final filter for small batches in pharma and food applications. QUALIKAP QKP-S are fitted with a pleated membrane filter element, whose polyethersulfone asymmetric porosity guarantees enhanced flow rate and a wide chemical compatibility both for acid and basic solutions.

Typical applications are alcoholic solutions, ultra pure water, vaccine, physiological solutions, ophthalmic liquids and lab batch purification process, etc.

The manufacturing is done in a controlled environment; each filter element is tested to verify the integrity. Each capsule is supplied with conformity test certificate showing the lot.

MATERIALS OF CONSTRUCTION

Membrane	asymmetric PES membrane
Upstream drainage layers	Polyester
Downstream drainage layers	Polyester
Core and Cage	polypropylene
Cartridge ends	polypropylene
Outer Shell	polypropylene

FOOD-SAFETY

QUALIKAP-QKP-S capsules meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY AND EXTRACTABLES

- Materials are compliant to USP-VI CLASS toxicological requirements and USP-Plastic Materials chemical and physical requirements.
- Capsule filters meet USP "Water for injection" requirements for endotoxin particle release; the bacterial endotoxin are determined using LAL Test.
- Extractable NVR (gravimetric) after autoclave ≤ 2 mg.
- TOC and conductivity according USP "Purified water" and "Water for Injection" requirements.

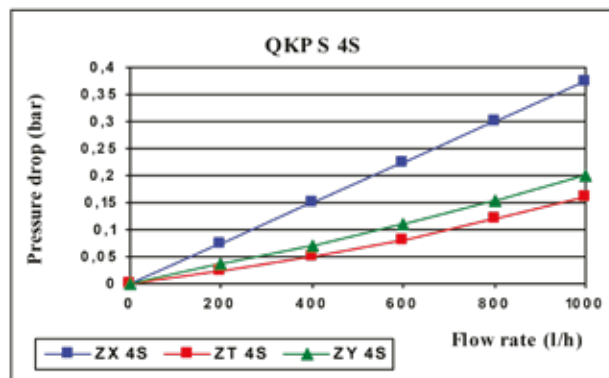
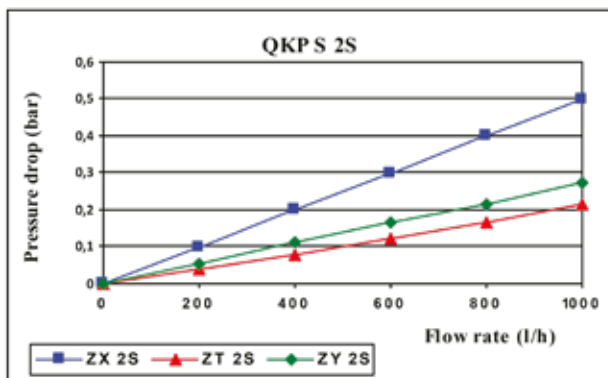
RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	40 °C
- max. cumulative time of steam sterilization (no in line sterilization available)	16 hours at 125 °C or 8 hours at 135 °C (30' cycle)
- max. pressure	5 bar at 40 °C
- chemical sanitization	compatible with a wide range of sanitizers
- forward flow max. differential pressure	4,5 bar at 40 °C
- reverse flow max. differential pressure	1,0 bar at 40 °C
- recommended pressure drop for changeover	2,0 bar at 40 °C
- in situ recommended flushing volume	1 liter

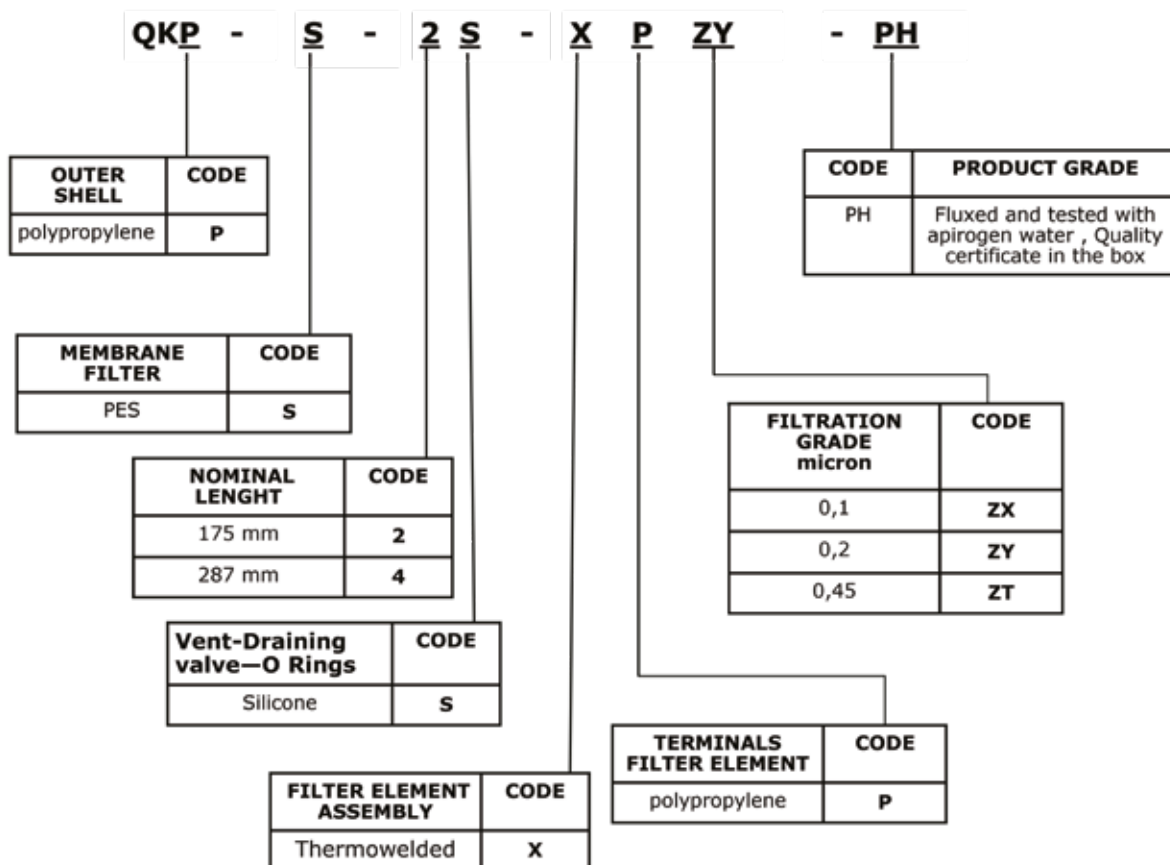
CODE	ABSOLUTE FILTRATION GRADE IN LIQUIDS	BACTERIAL REDUCTION CHARGE $>10^7$ CFU/cm ² *	ACCEPTANCE LIMIT FOR DIFFUSION TEST (ml/min)
ZX	0,1 µm	Acholeplasma Laidlawii	≤ 9.0 @ 3,5 bar for size 2
			≤ 18.0 @ 3,5 bar for size 4
ZY	0,2 µm	Brevundimonas Diminuta	≤ 8.0 @ 2,8 bar for size 2
			≤ 16.0 @ 2,8 bar for size 4
ZT	0,45 µm	Serratia marcescens	≤ 7.5 @ 1,7 bar for size 2
			≤ 15.0 @ 1,7 bar for size 4

* according ASTM F838

WATER FLOW RATE CHARTS



QUALIKAP QKP-S ORDERING INFORMATION



- Max diameter (valves included): 117 mm
- Tri-clamp connections 1 1/2"

QUALIKAP QKP-T

PTFE membrane capsule filters

- Inherently Hydrophobic Membrane
- Sterilizable in autoclave
- Enhanced gas permeability
- Thermowelded assembly
- EC-listed materials for food contact
- FDA-listed materials per CFR21
- Extractables as per USP for plastic materials
- Validation Guide available



QUALIKAP QKP-T capsules are especially designed to be used as sterilizable final filter for small batches where a fluid free from particle and/or biological contaminants is required. QUALIKAP QKP-T are fitted with a pleated hydrophobic PTFE membrane filter element, that guarantees enhanced performance in gas, alcoholic solution and solvent filtration, typical in pharma, cosmetic and food & beverage applications. The capsules are available with a filtration grade of 0,1 and 0,2 micron.

The filter element is manufactured in a controlled environment; each filter element is tested to verify the integrity.

Each capsule is supplied with conformity test certificate showing the lot.

MATERIALS OF CONSTRUCTION

Membrane	PTFE membrane
Upstream drainage layers	polypropylene
Downstream drainage layers	polypropylene
Core and Cage	polypropylene
Cartridge ends	polypropylene
Outer Shell	polypropylene

FOOD-SAFETY

QUALIKAP-QKP-T capsules meet regulation (EC) 1935/2004 for indirect food contact.

BIO-SAFETY AND EXTRACTABLES

- Materials are compliant to USP-VI CLASS toxicological requirements and USP-Plastic Materials chemical and physical requirements.
- Capsule filters meet USP "Water for injection" requirements for endotoxin and particle release; the bacterial endotoxin is determined using LAL Test.

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	40 °C
- max. cumulative time of steam sterilization (no in line sterilization available)	50 hours at 135 °C (30' cycle)
- max. pressure with liquids	5 bar at 40 °C
- max. pressure with gas	3,0 bar at 40 °C
- max. differential pressure	4,0 bar at 40 °C with liquids - 2,0 bar at 40 °C with gas
- recommended pressure drop for changeover	2,0 bar at 40 °C

CODE	ABSOLUTE FILTRATION GRADE IN LIQUIDS	3) BACTERIAL RETENTION >10 ⁷ CFU/cm ²	ACCEPTABLE LIMIT FOR INTEGRITY TEST
SH	0,1 µm	Acheleoplasma laidlawii in liquid	1) ≤ 6 ml/min @ 1,3 bar for size 2
			1) ≤ 12 ml/min @ 1,3 bar for size 4
SL	0,2 µm	Brevundimonas diminuta	1) ≤ 6 ml/min @ 0,8 bar for size 2
			1) ≤ 12 ml/min @ 0,8 bar for size 4
SLA	0,2 µm	Brevundimonas diminuta	2) ≤ 7 Nml/10min @ 2,5 bar for size 2
			2) ≤ 14 Nml/10min @ 2,5 bar for size 4

Note:

1- The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting liquid.

2- The integrity is verified by WATER FLOW INTRUSION TEST.

3- Cartridges are validated for retention of the microorganism reported in the table according to ASTM F838

STERYKLEAR KSE

- Easy integrity testable in situ
- High effective filtering area with SE-TECH technology
- Repeatedly steamable in situ and in autoclave
- Sanitizable
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Bio-Safety per USP—Plastics
- Validation Guide available on request



STERYKLEAR KSE filter elements incorporate SE-TECH technology which allows to achieve better filtration results from the membranes; the design optimises the flow distribution between the filter media and the internal core to avoid restrictions and to exploit the full area of the cartridge to generate higher throughput and to increase the life of the filter.

STERYKLEAR KSE is utilized as final sterilizing filter in pharmaceutical and food & beverage general application; PH and PHH grade, prefluxed with non-pyrogenic water and with certification of quality, are utilized in critical applications. The cartridge, realized with polyether components can operate in continuous at temperature of 80°C.

Manufacturing is completed in a controlled environment; each cartridge is integrity tested and the limits of acceptability are monitored on regular basis by bacteria challenge test.

MATERIALS OF CONSTRUCTION

Filter media	Asymmetric PES membrane
Upstream supports	polyester
Downstream supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polyester

FOOD-SAFETY

STERYKLEAR KSE filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

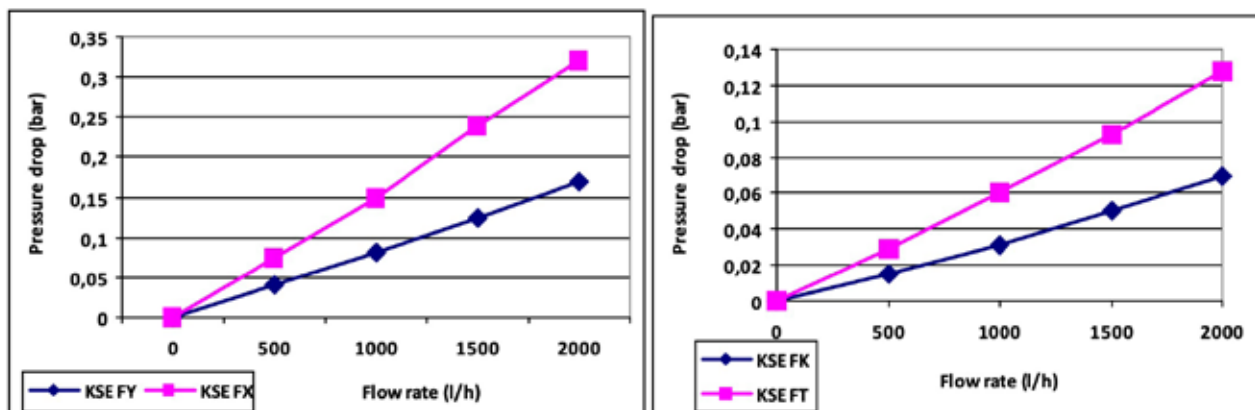
Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

- max. continuous temperature	80 °C
- max. cumulative time of steam sterilization	13 hours at 125 °C with cycles of 30 minutes
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters/cartridge 10"

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU/ 10" CARTRIDGE*	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
FX	0,1 µm	Acholeplasma laidlawii	≤ 30 @ 3,5 bar
FY	0,2 µm	Brevundimonas diminuta	≤ 26 @ 2,7 bar
FT	0,45 µm	Serratia marcescens	≤ 16 @ 1,7 bar
FK	0,65 µm	Leuconostoc oenos	≤ 25 @ 1,1 bar
*as per ASTM F838			

WATER FLOW RATE FOR 10" CARTRIDGE



STERYKLEAR KSE ORDERING INFORMATION

KSE - 207 1 - FY - BG - SB -

END FITTING	CODE
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,1	FX
0,2	FY
0,45	FT
0,65	FK

CODE	GASKETS	
No code	Standard	Silicone
E	On request	EPDM
V	On request	VITON

CODE	PACKING TYPE
SB	Single box
MB	Multiple box

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

CODE	PRODUCT GRADE
BG	Biological Grade; tested and prefluxed .
BQ	Biological Grade; tested and prefluxed. Quality Certification in the box.
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box

STERYKLEAR KSP

- Integrity Testable in situ
- High effective filtering area with SE-TECH technology
- Repeatedly steamable in situ and in autoclave
- Sanitizable
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Bio-Safety per USP-Plastics



STERYKLEAR KSP filter elements adopt SE-TECH technology which allows to achieve better filtration results from the membranes; the design optimises the flow distribution between the filter media and the internal core to avoid restrictions and to exploit the full area of the cartridge to generate higher throughput and increase service life.

STERYKLEAR KSP are utilized as final sterilizing filters in pharmaceutical and food & beverage general application; PH and PHH grade, prefluxed with non-pyrogenic water and with certification of quality are used in critical applications. Manufacturing is completed in a controlled environment; secure testing during the manufacturing process assures standards of high quality.

MATERIALS OF CONSTRUCTION

Filter media	Asymmetric PES membrane
Supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

STERYKLEAR KSP filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

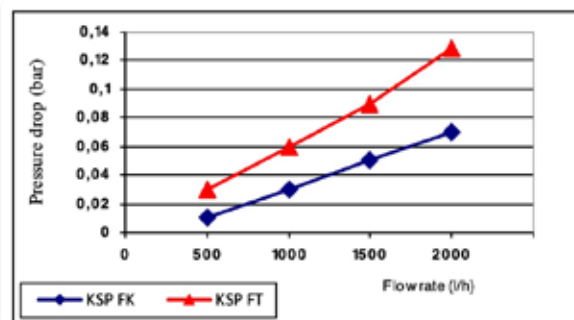
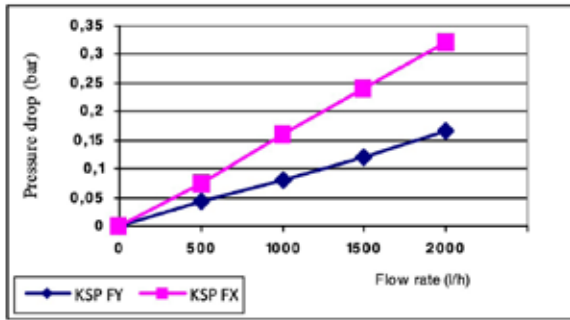
QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature		80 °C	
- max. cumulative time of steam sterilization		20 hours at 125 °C or 40 hours at 121° C with cycles of 30 minutes	
- sanitization with hot water		80 °C max	
- sanitization with chemicals		can be sanitized by standard chemical agents	
- max. differential pressure		5,0 bar at 25 °C	
- recommended change out differential pressure		2,0 bar at 25 °C	
- recommended rinse up volume		3 liters/ 10" cartridge	
CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION >10 ¹⁰ CFU/ 10" CARTRIDGE *	ACCEPTABLE LIMIT FOR DIFFUSION TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
FX	0,1 µm	Acholeplasma laidlawii	≤ 30 @ 3,5 bar
FY	0,2 µm	Brevundimonas diminuta	≤ 26 @ 2,7 bar
FT	0,45 µm	Serratia marcescens	≤ 16 @ 1,7 bar
FK	0,65 µm	Leuconostoc oenos	≤ 25 @ 1,1 bar
*as per ASTM F838			

WATER FLOW RATE FOR 10" CARTRIDGE



STERYKLEAR KSP ORDERING INFORMATION

KS P - 207 1 - FY - BG - SB -

END FITTING	CODE
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,1	FX
0,2	FY
0,45	FT
0,65	FK

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

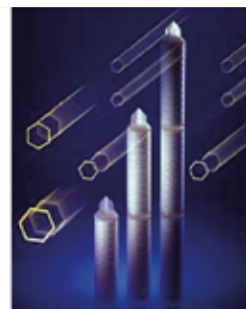
CODE	GASKETS	
No code	Standard	Silicone
E	On request	EPDM
V	On request	VITON

CODE	PACKING TYPE
SB	Single box
MB	Multiple box

CODE	PRODUCT GRADE
BG	Biological Grade; tested and prefluxed.
BQ	Biological Grade; tested and prefluxed. Quality Certification in the box.
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box.
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box.

STERYFLUS TSP-PH

- Testabile in situ
- Sterilizzabilità multipla in linea o in autoclave
- Sanitizzabile
- Assemblaggio per termosaldatura
- Materiali idonei al contatto con alimenti secondo i regolamenti (CE) e (UE)
- Materiali in accordo ai requisiti FDA-CFR21
- Estraibili in accordo a USP per materiali plastici
- Validation Guide disponibile a richiesta



La cartuccia STERYFLUS TSP-PH presenta le caratteristiche ideali per essere utilizzata come filtro finale sterilizzante nel settore farmaceutico; preflussata con acqua apirogena e con certificato di conformità individuale riportante il numero di serie della cartuccia, essa viene utilizzata nelle applicazioni critiche.

STERYFLUS TSP-PH è disponibile con gradi di filtrazione da 0,2 micron a 0,45 micron, il grado di filtrazione 0,2 è disponibile sia con singola che con doppia membrana.

La costruzione avviene in camera bianca certificata; tutte le cartucce sono sottoposte a test di integrità correlati a test di ritenzione microbiologica condotti a campione sul lotto di produzione.

MATERIALI DI COSTRUZIONE

Filter media	membrana asimmetrica in PES
Supporto a monte	poliestere
Supporto a valle	poliestere
Canotto interno	polipropilene
Canotto esterno	polipropilene
Terminali	polipropilene

DIRETTIVE EC

IDONEITA' CONTATTO CON ALIMENTI

I materiali utilizzati per le cartucce STERYFLUS TSP sono in accordo al D.M. 21/3/73 (S.O. della G.U. n° 104 del 20.04.73) e successivi aggiornamenti, al regolamento europeo (UE) 10/2011 e successivi aggiornamenti, ai regolamenti (CE) 1935/2004 e 1895/2005.

SICUREZZA BIOLOGICA ED ESTRAIBILI

I materiali superano i test tossicologici previsti da USP-CLASSE VI e le prove chimico fisiche previste da USP-Materie Plastiche.

Le cartucce sono in accordo ai requisiti USP "Water for injection" per rilascio particelle ed endotossine; le endotossine batteriche sono determinate per mezzo del LAL Test.

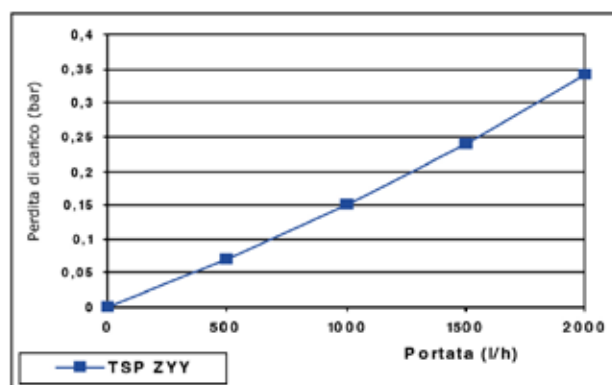
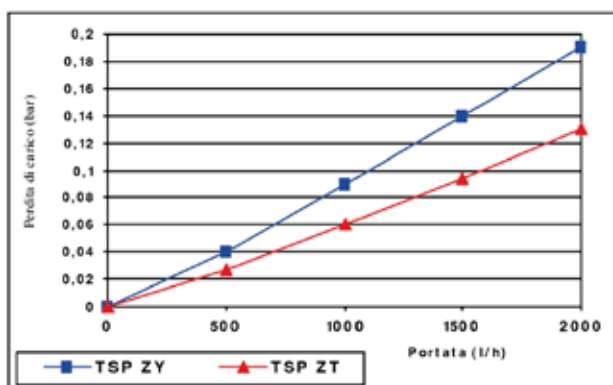
CONDIZIONI OPERATIVE CONSIGLIATE

- max. temperatura in continuo	65 °C
- tempo cumulativo di sterilizzazione con vapore	20 ore a 125 °C o 40 ore a 121 °C (cicli di 30')
- sanitizzazione con acqua calda	80 °C max
- sanitizzazione chimica	compatibile con un'ampia gamma di sanitizzanti
- max. pressione differenziale	5,0 bar a 25 °C - 1,7 bar a 80 °C
- perdita di carico raccomandata per la sostituzione	2,0 bar a 25 °C
- volume raccomandato di flussaggio in situ	3 litri/cartuccia 10"

CODICE	GRADO DI FILTRAZIONE ASSOLUTO IN LIQUIDI	RITENZIONE DI CARICA BATTERICA $>10^7$ CFU/cm ² *	LIMITE ACCETTABILE PER TEST DI DIFFUSIONE CON ACQUA PER CARTUCCIA 10" (ml/min)
ZYY	0,2 µm doppia membrana	Brevundimonas diminuta	≤ 16,5 @ 2,8 bar
ZY	0,2 µm	Brevundimonas diminuta	≤ 16,5 @ 2,8 bar
ZT	0,45 µm	Serratia marcescens	≤ 13 @ 1,7 bar

* secondo ASTM F838-05

CURVE DI PORTATA CON ACQUA PER CARTUCCIA DA 10"



SELEZIONE CODICI PER ORDINARE STERYFLUS TSP-PH

TSP - 207 1 - ZY - [] - PH

TERMINALE	CODICE
DOE: aperta entrambi i lati con guarnizione piana	200
SOE: aperta da un solo lato con O-Ring interno 2-20	202
SOE: lato aperto con (2) O-Ring 2.222. Lato cieco con terminale piatto.	203
SOE: lato aperto con (2) O-Ring 2.226 e attacco a baionetta a 2 punti. Lato cieco con puntale.	207
SOE: lato aperto con (2) O-Ring 2.222 e lato cieco con puntale.	208
SOE: lato aperto con (2) O-Ring 2.222 e baionetta a 3 punti. Lato cieco con puntale	212

GRADO FILTRAZIONE ASSOLUTO MICRON	CODICE
0,2 doppia membrana	ZYY
0,2	ZY
0,45	ZT

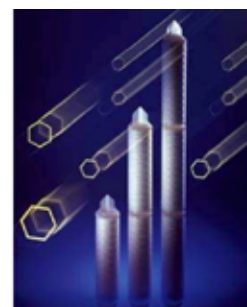
CODICE	LUNGHEZZA NOMINALE
05	5"
1	10"
2	20"
3	30"
4	40"

CODICE	PRODUCT GRADE
PH	Biological Grade testata e preflussata con acqua apirogena. Certificato di qualità nella confezione.
PHH	Biological Grade testata e preflussata con acqua apirogena. Certificato di qualità nella confezione con serial number.

CODICE	GUARNIZIONI	
Nessun codice	Standard	Silicone

STERYFLUS TSE—PH

- Easy integrity testable in situ
- Repeatedly steamable in situ or in autoclave
- Sanitizable
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Bio-Safety per USP—Plastics
- Validation Guide available on request



STERYFLUS TSE-PH cartridge is final sterilizing filter for general application in pharmaceutical industries; prefluxed with non-pyrogenic water and with certification of quality reporting the serial number, it is utilized in critical applications.

Steryflus cartridges have liquid absolute filtration ratings from 0,1 micron to 0,45 micron; 0,1 micron and 0,2 micron are available with single and double membrane layers.

Manufacturing is completed in a controlled environment; each cartridge is integrity tested and the limits of acceptability are monitored on regular basis by bacteria challenge test.

MATERIALS OF CONSTRUCTION

Filter media	Asymmetric PES membrane
Upstream supports	polyester
Downstream supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polyester

FOOD-SAFETY

STERYFLUS TSE filter elements meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics.

The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

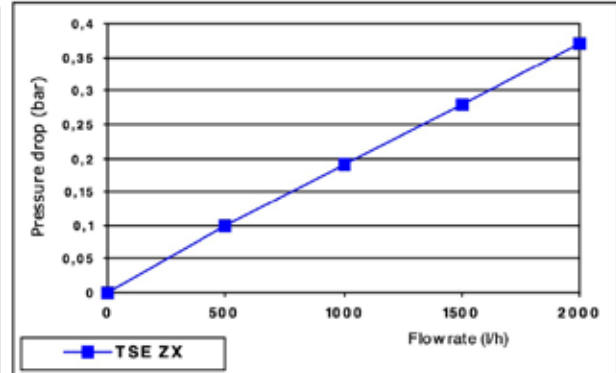
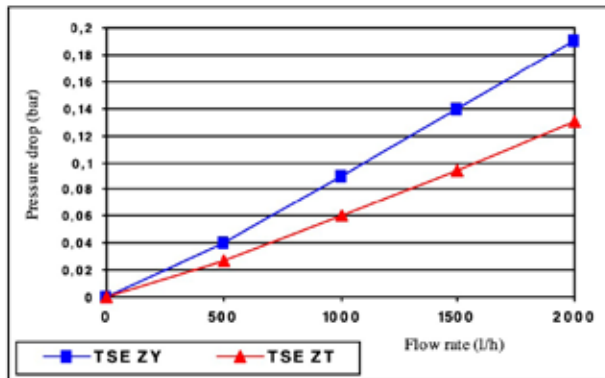
Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	65 °C
- max. cumulative time of steam sterilization	13 hours at 125 °C with cycles of 30 minutes
- sanitization with hot water	80 °C max
- sanitization with chemicals	can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C - 1,7 bar at 80 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters / 10" cartridge

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION >10 ⁷ CFU/cm ² *	ACCEPTABLE LIMIT FOR DIFFUSION TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
ZXX	0,1 µm double membrane	Acholeplasma laidlawii	≤ 20 @ 3,5 bar
ZX	0,1 µm	Acholeplasma laidlawii	≤ 20 @ 3,5 bar
ZYY	0,2 µm double membrane	Brevundimonas diminuta	≤ 16.5 @ 2,8 bar
ZY	0,2 µm	Brevundimonas diminuta	≤ 16.5 @ 2,8 bar
ZT	0,45 µm	Serratia marcescens	≤ 13 @ 1,7 bar
* as per ASTM F838			

WATER FLOW RATE FOR 10" CARTRIDGE



STERYFLUS TSE ORDERING INFORMATION

TSE - 207 1 - ZY - [] - PH

END FITTING	CODE
DOE: double open end with flat gaskets.	200
SOE: open end with (1) O-Ring 2.20. Blind end with flat top.	202
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0.1 double membrane	ZXX
0.1	ZX
0,2 double membrane	ZYY
0,2	ZY
0,45	ZT

CODE	NOMINAL LENGTH
05	5"
1	10"
2	20"
3	30"
4	40"

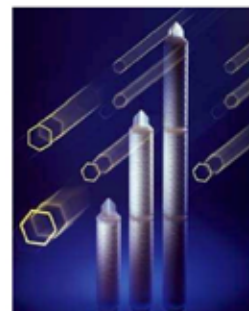
CODE	PRODUCT GRADE
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box.
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box.

CODE	GASKETS
No code	Standard Silicone

STERYULTRA

Mycoplasma retentive PES membrane filter element

- High effective filtering area
- Repeatedly steamable in situ or in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Bio-Safety per USP—Plastics
- Validation Guide available on request



STERYULTRA is designed to be the final sterilizing filter in the biotechnological industry; preflushed with non-pyrogenic water is utilized in critical applications as processing of serum, vaccines, tissue culture media, biological fluids, etc.

The polyetersulfone membrane (PES) offers the highest retention performances in ultrafine particles and microorganisms and provides extensive service life with high flow rate.

Steryultra cartridges are available with liquid absolute filtration ratings from 0,04 micron to 0,45 micron. Manufacturing is completed in a controlled environment; each cartridge is integrity tested and the limits of acceptability are monitored on regular basis by bacteria challenge test.

MATERIALS OF CONSTRUCTION

Filter media	Asymmetric PES membrane
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

STERYULTRA filter elements meet Directive 2002/72/EC and its subsequent amendments and regulations EC 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	65 °C
- max. cumulative time of steam sterilization	10 hours at 135 °C with cycles of 30 minutes
- sanitization with hot water	80 °C max
- sanitization with chemicals	can be sanitized by ordinary chemical agents
- max. differential pressure	5,0 bar at 25 °C - 1,7 bar at 80 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters / 10" cartridge

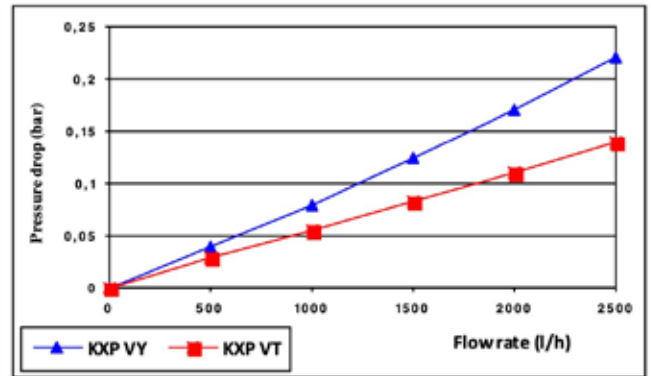
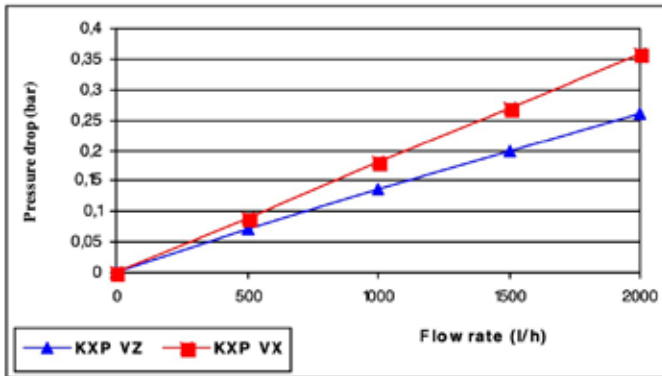
CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION CFU/cm ²	ACCEPTABLE LIMIT FOR INTEGRITY TEST 10" CARTRIDGE (ml/min)
VX	0,04 µm	> 10 ⁷ <i>Acholeplasma laidlawii</i>	≤ 29 @ 1,7 bar
VZ**	0,1 µm	> 10 ⁷ <i>Hydrogenophaga pseudoflava</i>	≤ 27 @ 1,4 bar
VY	0,2 µm	> 10 ⁷ <i>Brevundimonas diminuta</i>	≤ 18 @ 0,9 bar
VT	0,45 µm	> 10 ⁷ <i>Serratia marcescens</i>	≤ 15 @ 0,6 bar

Note:

The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting liquid.

** Retention with ≥ 10⁷ /*Acholeplasma laidlawii*, 10" cartridges.

WATER FLOW RATE FOR 10" CARTRIDGE



STERYULTRA ORDERING INFORMATION

KXP - 207 1 - VX - PH -

END FITTING	CODE
DOE: double open end with flat gaskets.	200
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0.04	VX
0.1	VZ
0,2	VY
0,45	VT

CODE	GASKETS
No code	Standard Silicone

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

CODE	PRODUCT GRADE
PHH	Biological Grade; tested and prefluxed with Non-pyrogenic water. Quality Certification, with serial number, in the box.
PH	Biological Grade; tested and prefluxed with Non-pyrogenic water. Quality Certification in the box.

BIOKLARIS Evo PHARMA

- PES membrane optimized for pharmaceutical use
- Easy integrity testable in situ
- High effective filtration area
- Repeatedly steamable in situ or in autoclave
- Thermowelded construction (without resins or adhesives)
- Preflushed with pyrogen-free water



BIOKLARIS Evo PHARMA filter element was developed to meet the specific requirements of the pharmaceutical industries .

Designed to guarantee greater mechanical resistance it is indicated for the treatment of WFI water and aqueous solutions for drugs manufacturing.

The asymmetrical polyethersulfone membrane combined with the high effective filtration area is able to guarantee excellent performances and to assure the filtrate sterilization.

The removal of microorganisms is guaranteed by bacterial challenge tests according to ASTM F 838, reported in the "Validation Guide".

BIOKLARIS Evo PHARMA filter elements can be repeatedly sterilized with steam or sanitized with chemical products and can be regenerated with soda solutions .

Manufacturing is realized in a Certified clean room, with constant monitoring of all production parameters.

MATERIALS OF CONSTRUCTION

Membrane	PES (hydrophilic)
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps	polypropylene

FOOD-SAFETY

The materials used for the BIOKLARIS Evo PHARMA cartridges are in accordance with the D.M. 21/3/73 (S.O. no.104 of 20.04.73) and subsequent updates, to the European regulation (EU) 10/2011 and subsequent updates, to the regulations (EC) 1935/2004 and 1895/2005.

The materials used in the construction of the BIOKLARIS Evo PHARMA comply with the FDA requirements for food contact according to CFR21 170-199.

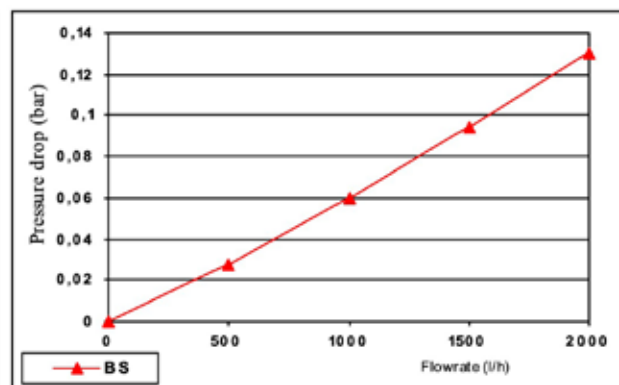
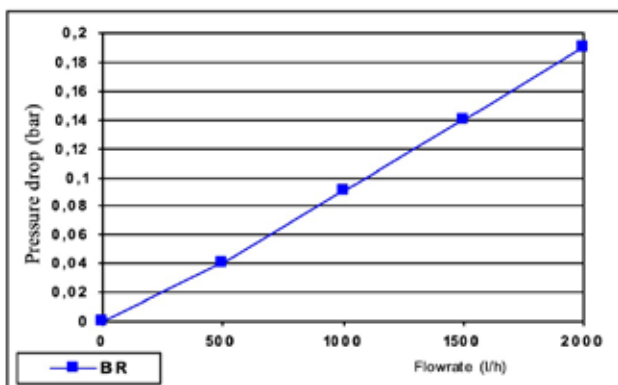
RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	75 °C
- max. cumulative number of steam sterilization cycles	≥100 hours at 121 °C, ≥80 hours at 125 °C*, with max ΔP 0,3 bar (cycles of 60 minutes)
- sanitization with hot water	90 °C max
- sanitization with chemicals	can be sanitized by standard chemical agents
- regeneability	NaOH solution up to 3% at 85 °C
- max. differential pressure	5,0 bar at 25 °C and 1,0 bar at 90 °C
- recommended change out differential pressure	2,0 bar at 25 °C
* maximum in-line sterilization temperature	

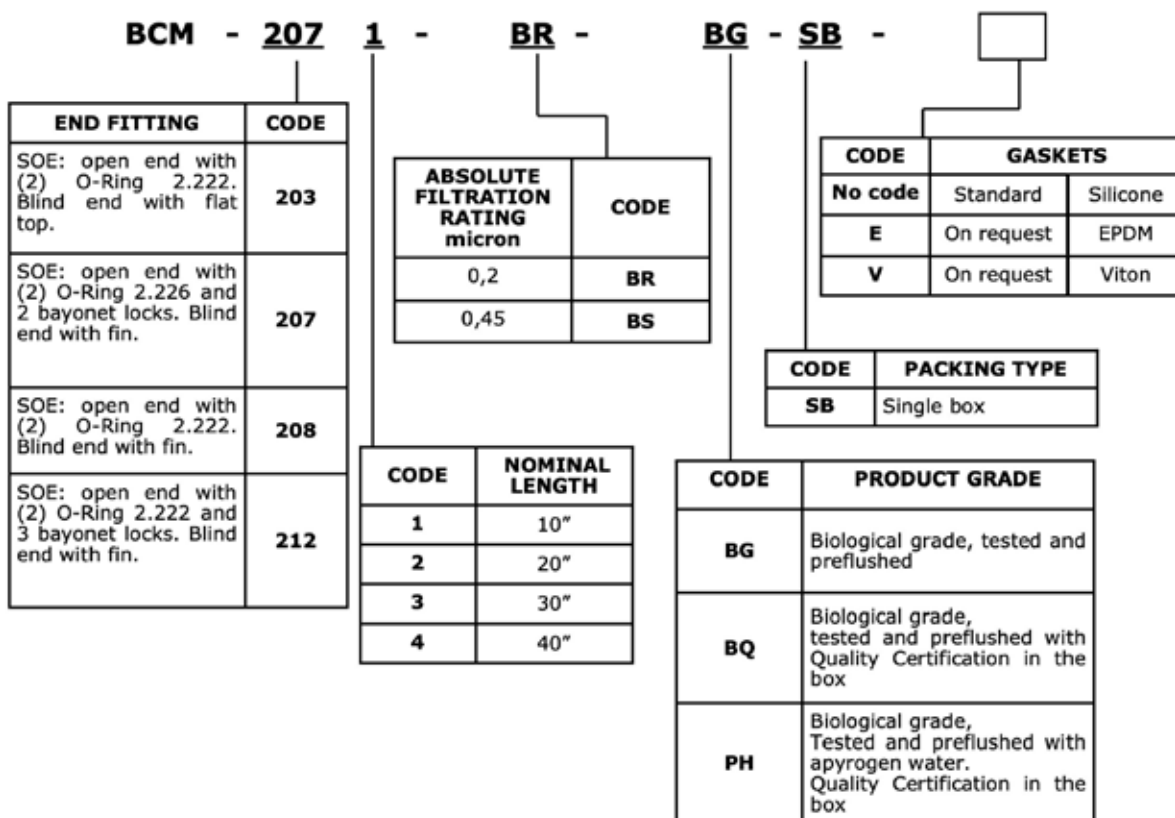
INTEGRITY TEST DATA

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION >10 ⁷ CFU/cm ² *	ACCEPTABLE LIMITS FOR DIFFUSION TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
BR	0,2 µm	Brevundimonas diminuta	≤25 @ 2,3 bar
BS	0,45 µm	Serratia marcescens	≤20 @ 1,7 bar
* AS PER ASTM F838			

WATER FLOW RATE FOR 10" CARTRIDGE



BIOKLARIS Evo PHARMA NUMBER ORDERING INFORMATION



TRACEABILITY

In order to ensure the complete traceability, each filter element is identified with Part Number, lot number, serial number and filtration rating.

QUALITY

Each filter element is tested during production and before final packaging.

STERYDENE

High performance Hydrophilic PVDF

- Easy integrity testable in situ
- Repeatedly steamable in situ and in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per 21 CFR
- Bio-Safety per USP—Plastics
- Validation Guide available on request



STERYDENE filter element is designed and manufactured to satisfy and assure high quality and consistent performances in critical applications.

STERYDENE cartridge includes PVDF membrane at controlled porosity and provides high efficiency in bacteria retention.

The membrane is pleated with support and drainage layers in polypropylene which give high endurance versus thermal sterilization, hydraulic pulsation stress and excellent chemical compatibility.

Manufacturing is completed in a controlled environment; each filter is integrity tested.

STERYDENE filter element is available from 0.2 micron to 0.65 micron.

MATERIALS OF CONSTRUCTION

Filter media	Hydrophilic PVDF
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

STERYDENE filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP CLASS VI Biological Reactivity and Chemical-Physical tests for USP plastics.

Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

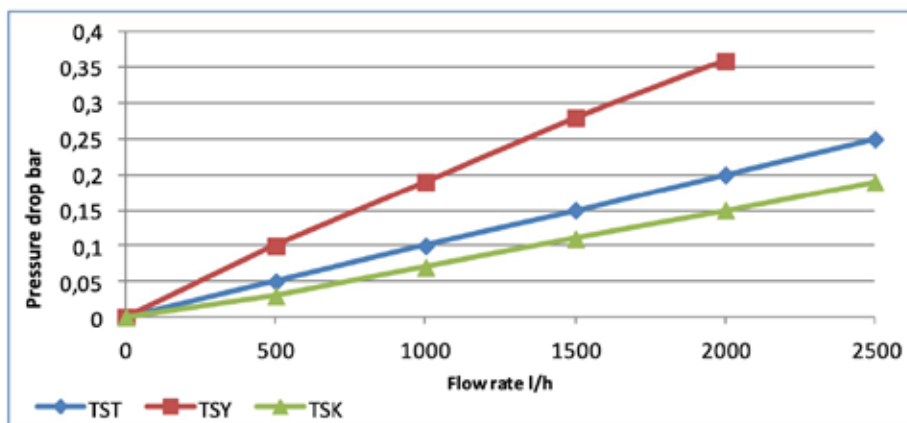
OPERATING CONDITIONS

- max. continuous temperature	85 °C
- max. cumulative time of steam sterilization	80 hours at 125 °C with cycles of 60 minutes />100 hours at 121°C
- sanitization with hot water	90 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C—2,5 bar 80 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters/cartridge 10"

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU/ 10" CARTRIDGE*	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
TSY	0,2 µm	Brevundimonas diminuta	≤ 25 @ 2,3 bar
TST	0,45 µm	Serratia marcescens	≤ 16 @ 1,5 bar
TSK	0,65 µm	Leuconostoc oenos	≤ 25 @ 0,9 bar

*as per ASTM F838

WATER FLOW RATE CURVES FOR 10" ELEMENT



STERYDENE ORDERING INFORMATION

S D P - 207 1 - TSY - BQ - SB -

CODE	MEMBRANE
D	Hydrophilic PVDF

CODE	END CAP AND SUPPORT
P	Polypropylene

END FITTING	CODE
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208

ABSOLUTE FILTRATION RATING micron	CODE
0,2	TSY
0,45	TST
0,65	TSK

CODE	NOMINAL LENGTH
05	5"
1	10"
2	20"
3	30"
4	40"

CODE	GASKETS
No code	Standard Silicone
E	On request EPDM
V	On request VITON

CODE	PACKING TYPE
SB	Single box

CODE	PRODUCT GRADE
BQ	Biological Grade; tested and prefluxed. Quality Certification in the box.
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box.
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box.

STERINYL High performance nylon 6,6

- Easy integrity testable in situ
- Repeatedly steamable in situ and in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per 21 CFR
- Bio-Safety per USP—Plastics
- Low filter extractables even with solvents
- Validation Guide available on request



STERINYL filter element is designed and manufactured to satisfy and assure high quality and consistent performances in critical applications.

STERINYL cartridge includes Nylon 6,6 membrane at controlled porosity and provides high efficiency in bacteria retention.

The membrane is pleated with support and drainage layers in polyester which give high endurance versus thermal sterilization and hydraulic pulsation stress.

The intrinsically water wettability of nylon and polyester allows easy integrity testability. Manufacturing is completed in a controlled environment; each filter is integrity tested.

STERINYL filter element 0.1 micron and 0.2 micron are available with single and double membrane layer.

MATERIALS OF CONSTRUCTION

Filter media	nylon 6,6
Upstream supports	polyester
Downstream supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polyester

FOOD-SAFETY

STERINYL filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP CLASS VI Biological Reactivity and Chemical-Physical tests for USP plastics.

Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

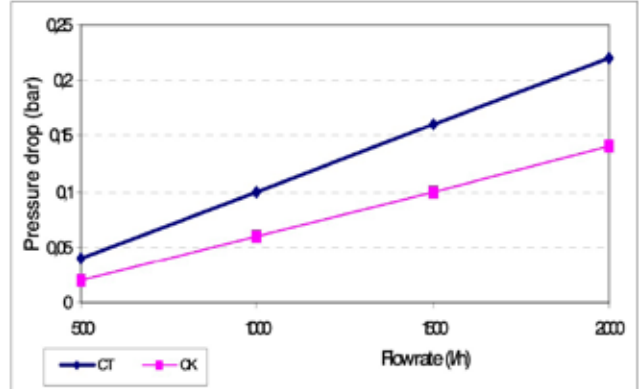
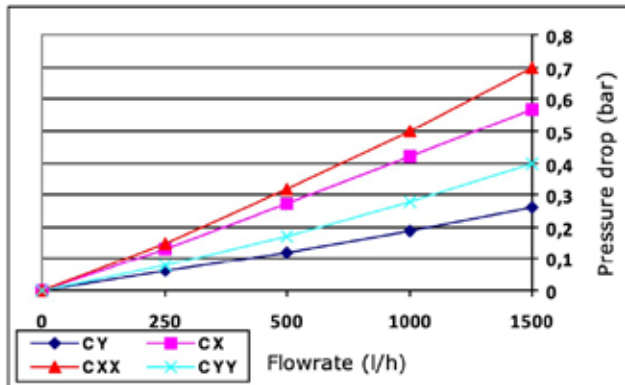
- max. continuous temperature	80 °C
- max. cumulative time of steam sterilization	5 hours at 140°C / 13 hours at 125°C / 20 hours at 121 °C
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C—2,5 bar 80 °C—0,3 bar 135 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters/cartridge 10"

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU/ 10" CARTRIDGE*	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
CX**	0,1 µm	Hydrogenophaga pseudoflava	≤ 15 @ 2,8 bar
CXX**	0,1 µm double layer	Hydrogenophaga pseudoflava	≤ 15 @ 2,8 bar
CY	0,2 µm	Brevundimonas diminuta	≤ 16 @ 2,1 bar
CYY	0,2 µm double layer	Brevundimonas diminuta	≤ 16 @ 2,1 bar
CT	0,45 µm	Serratia marcescens	≤ 16 @ 1,5 bar
CK	0,65 µm	Leuconostoc oenos	≤ 18 @ 0,9 bar

*as per ASTM F838

** bacterial retention with *Acholeplasma laidlawii* ≥ 10⁸

WATER FLOW RATE FOR 10" CARTRIDGE



STERINYL KLE ORDERING INFORMATION

KLE - 207 1 - CY - PH - SB -

END FITTING	CODE
DOE: double open end with flat gaskets.	200
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,1	CX
0,1	CXX
0,2	CY
0,2	CYY
0,45	CT
0,65	CK

CODE	GASKETS	
No code	Standard	Silicone
E	On request	EPDM
V	On request	VITON
F	On request	FEP

CODE	PACKING TYPE
SB	Single box

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"
05	5"

CODE	PRODUCT GRADE
BQ	Biological Grade; tested and prefluxed. Quality Certification in the box.
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box.
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box.

POSINYL Nylon 6,6 membrane

- Positive Zeta potential
- Enhanced endotoxins retention
- Easy integrity testable in situ
- Repeatedly steamable in situ and in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per 21 CFR
- Bio-Safety per USP—Plastics
- Low filter extractables even with solvents



POSINYL filter element is manufactured using a highly positive charged, Nylon 6,6 membrane; its Zeta potential retains negative charged fine particles even smaller than the pores size itself. Tests have proven that the positive charged Nylon membrane provides an enhanced retention capability of sub-micron particles and especially on endotoxins in aqueous solution. The intrinsically water wettability of nylon and polyester allows easy integrity testability. Manufacturing is completed in a controlled environment; each filter is integrity tested to provides the quality level required in products for pharmaceutical and medical applications.

MATERIALS OF CONSTRUCTION

Filter media	Positive charged nylon 6,6
Upstream supports	polyester
Downstream supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polyester

FOOD-SAFETY

POSINYL filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP CLASS VI Biological Reactivity and Chemical-Physical tests for USP plastics. Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

- max. continuous temperature	80 °C
- max. cumulative time of steam sterilization	5 hours at 140°C / 13 hours at 125°C / 20 hours at 121 °C
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C—2,5 bar 80 °C—0,3 bar 135 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	3 liters/cartridge 10"

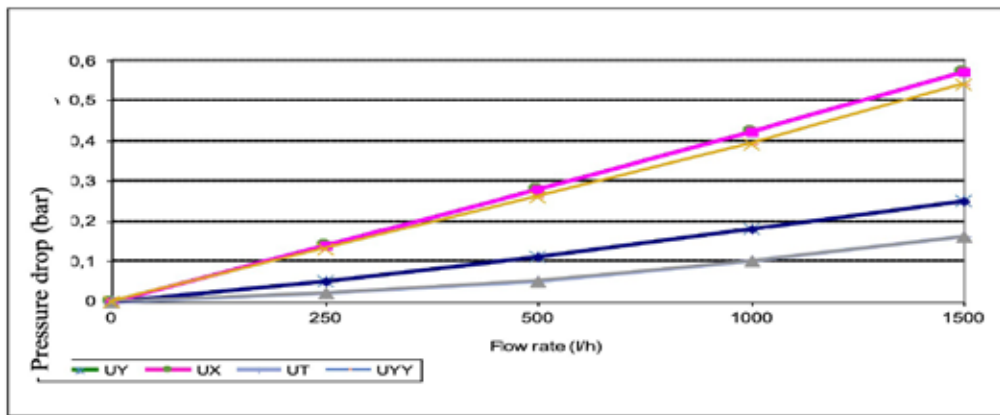
CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU/ 10" CARTRIDGE*	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER FOR 10" CARTRIDGE (ml/min)
UX	0,1 µm	Hydrogenophaga pseudoflava**	≤ 16 @ 2,8 bar
UY	0,2 µm	Brevundimonas diminuta	≤ 16 @ 2,1 bar
UT	0,45 µm	Serratia marcescens	≤ 16 @ 1,5 bar
UYY	0,2 µm Double membrane	Brevundimonas diminuta	≤ 16 @ 2,1 bar

*as per ASTM F838

** bacterial retention with *Acholeplasma laidlawii* ≥ 10⁸

ENDOTOXINS RETENTION 350 l/h flow rate / 10" cartridge	CODE UX-UY-UYY	CODE UT
	efficiency > 99,994 % GM	efficiency > 99,95 % GM

WATER FLOW RATE FOR 10" CARTRIDGE



POSINYL ORDERING INFORMATION

PZE - 207 1 - UY - PH - SB S

END FITTING	CODE
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,1	UX
0,2	UY
0,45	UT
0,2 Double membrane	UYY

CODE	GASKETS
S	Standard Silicone

CODE	PACKING TYPE
SB	Single box

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"
05	5"

CODE	PRODUCT GRADE
PH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification in the box.
PHH	Biological Grade; tested and prefluxed with non-pyrogenic water. Quality Certification, with serial number, in the box.

POLYSAN-PKP

- Higher surface area
- Higher resistance with high dirt holding capacity
- Steamable and sanitizable
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Validation guide on request (only PH grade)



POLYSAN-PKP is obtained by pleating up to 5 polypropylene layers of decreasing porosity to achieve high effective filtration area, high dirt holding capacity and precise and controlled filter ratings. All the components in polypropylene are assembled by thermowelding process. POLYSAN-PKP is well suited in all applications (chemical—petrochemical—water treatment—food&beverage—RO—etc..) thanks to its strengths and high chemical compatibility both with liquid and gases; PH grade is prefluxed with non-pyrogenic water and suitable for pharmaceutical applications.

MATERIALS OF CONSTRUCTION

Filter media	polypropylene
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

POLYSAN-PKP filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

RECOMMENDED OPERATING CONDITIONS

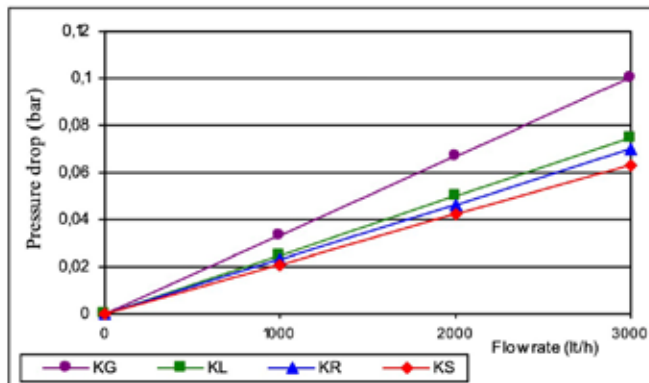
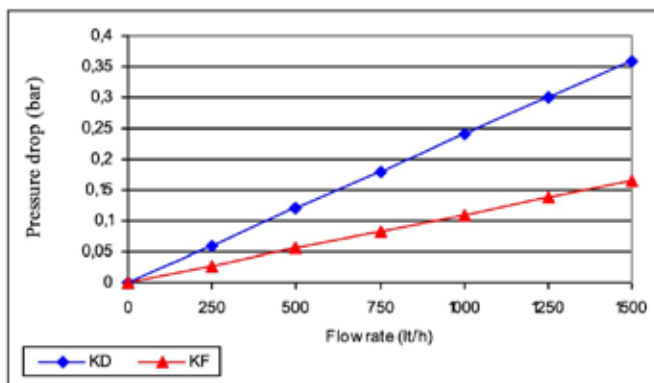
- max. continuous temperature	65 °C
- regeneration	2% NaOH solution at room temperature
- sterilization with steam	continuously with cycles of 20 minutes at 121 °C
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

POLYSAN-PKP SOE END FITTING

CODE	FILTRATION RATING (µm) *	MAX. WATER FLOW RATE FOR 10" CARTRIDGE (l/h)	MAX. AIR GAS FLOW RATE FOR 10" CARTRIDGE (Nm ³ /h @ 7 bar and 20°C)
KD	0,6	450	400
KF	1,2	800	500
KG	2,5	3000	550
KL	4,5	3000	600
KR	6,5	3000	600
KS	10,0	3000	600
KT	20,0	3000	600
KV	40,0	3000	600
KZ	60,0	3000	600
KW	120,0	3000	600

* Referred to filtration of liquid and wet gas; filtration efficiency is drastically increased when dry gases are involved

WATER FLOW RATE FOR 10" CARTRIDGE POLYSAN-PKP



POLYSAN ORDERING INFORMATION

PKP - 207 1 - KR -

END FITTING	CODE
DOE: double open end with flat gaskets.	200
SOE: open end with (1) O-Ring 2.20. Blind end with flat top.	202
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.225. Blind end with fin.	209
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING µm	CODE
PKP	
0,6	KD
1,2	KF
2,5	KG
4,5	KL
6,5	KR
10,0	KS
20,0	KT
40,0	KV
60,0	KZ
120,0	KW

CODE	DESCRIPTION
PH	Prefluxed with non-pyrogenic water; Quality Certification in the box.
no code	General Grade

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"
05	5"

CODE	GASKETS		END FITTING
no code	Standard	EPDM	200—202
S	On request	Silicone	
no code	Standard	Silicone	203 207 208 209 212
E	On request	EPDM	
F	On request	FEP	207
SSS	On request	SILICONE	203-207 208-212 With AISI 316 stainless steel ring

TOPLIFE TPR

- High chemical compatibility
- High dirt holding capacity
- Available in several configurations
- Thermowelded construction up to 40"
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Steamable and sanitizable



TOPLIFE TPR is manufactured with polypropylene. The filter media is obtained by winding around the internal core several polypropylene layers, having different porosity and permeability from external to internal; the outer section retains larger particles while the inner section provides filtration rating with efficiency of 99,98%. The different consistency of the layers allows to manufacture cartridges with filtration ratings larger than 10 microns.

TOPLIFE TPR with external cage is recommended in presence of pulsation flow or operating temperature above 50°C. The high chemical compatibility of the polypropylene allows the use both in industrial general applications and Food&Beverage applications; PH grade, prefluxed with non-pyrogenic water and with certification of quality, is available for pharmaceutical applications.

MATERIALS OF CONSTRUCTION

Filter media	polypropylene
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	extruded polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

TOPLIFE TPR filter elements materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

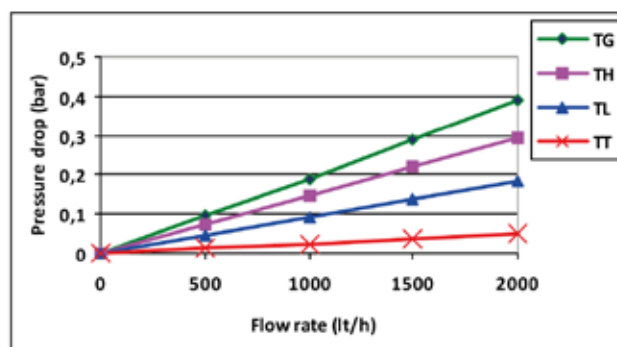
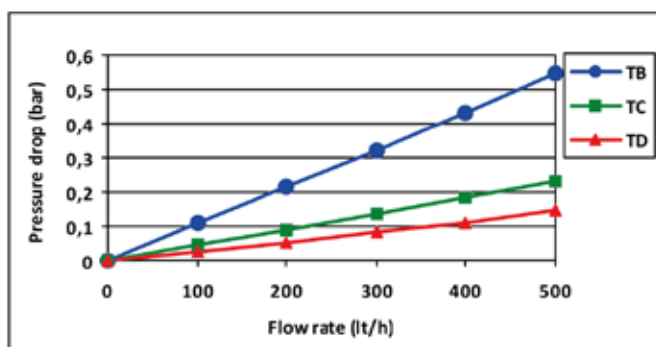
BIO-SAFETY

Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

OPERATING CONDITIONS

- max. continuous temperature		65 °C
- steam sterilization		cycles of 20 minutes at 121°C
- sanitization with hot water		80 °C max
- max. differential pressure		5,0 bar at 25 °C
- recommended change out differential pressure		2,0 bar at 25 °C
CODE	FILTRATION RATING (µm)	MAX. WATER FLOW RATE FOR 10" CARTRIDGE (l/h)
TB	0,6	150
TC	0,8	200
TD	1,0	350
TG	3,0	500
TH	5,0	700
TL	10,0	1100
TT	20,0	1500
TV	40,0	2000
TZ	50,0	2500
TK	70,0	3000
TX	90,0	3000

WATER FLOW RATE FOR 10" CARTRIDGE



TOPLIFE TPR ORDERING INFORMATION

TPR - 207 1 - TC - C - [] - []

END FITTING	CODE
DOE: double open end with flat gaskets.	200
DOE: double open end with thermobonded Polyethylene gaskets.	201
SOE: open end with (1) O-Ring 2.20. Blind end with flat top.	202
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (1) O-Ring. Blind end with fin.	209
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

FILTRATION RATING	CODE
0,6 µm	TB
0,8 µm	TC
1,0 µm	TD
3,0 µm	TG
5,0 µm	TH
10,0 µm	TL
20,0 µm	TT
40,0 µm	TV
50,0 µm	TZ
70,0 µm	TK
90,0 µm	TX

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

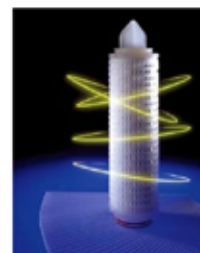
CODE	PRODUCT GRADE
no code	General grade
PH	Preflused with non-pyrogenic water; Quality Certification in the box.

CODE	GASKET	END FITTING CODE
no code	EPDM	200 202
no code	Polyethylene	201
no code	Silicone	All the others
E	EPDM	
SSS	SILICONE	203-207-208-212 With AISI 316 stainless steel ring

CODE	DESCRIPTION
C	With external cage
Z	Without external cage

POSITRAK Plus

- **Positively charged**
- Steamable
- Sanitizable
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Bio-safety per USP-Plastics (only PH grade)
- Validation Guide on request (only PH grade)



POSITRAK Plus is designed for cosmetic and Food&Beverage applications in the filtration of liquid with high bio-burden and colloidal particles. PH grade, prefluxed with non-pyrogenic water, is suitable for pharmaceutical process applications.

The media made by borosilicate microfibers pleated with layers of positively charged polypropylene; the electrical charges of the porous media interact with the negative contaminant electrical charges and generate an attraction whose effect is to retain particles finer than the physical passage. POSITRAK Plus are well suited upstream membrane cartridges to extend the operating service life.

Manufacturing is performed in a controlled environment.

MATERIALS OF CONSTRUCTION

Filter media	Positively charged polypropylene and borosilicate microfiber
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

POSITRAK Plus filter elements materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

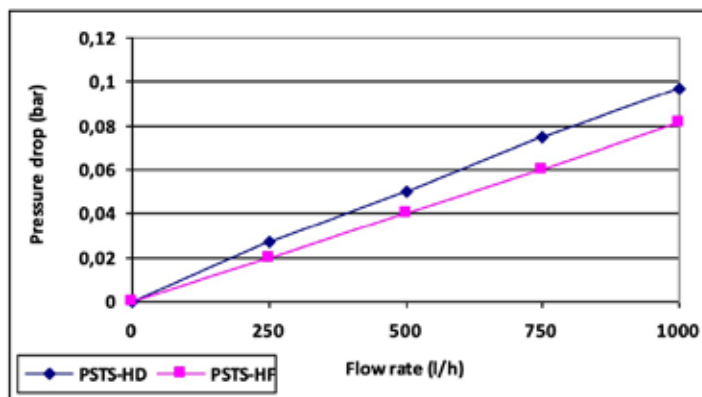
Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

OPERATING CONDITIONS

- max. continuous temperature	65 °C
- max cumulative time of steam sterilization	30 hours at 125 °C (with cycles of 30 minutes)
- sanitization with hot water	80 °C max
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	MAX WATER FLOW RATE FOR 10" CARTRIDGE	BACTERIAL RETENTION / 10" CARTRIDGE
HD	0,5 µm	500 l/h	≥ 10 ⁴ <i>Brevundimonas diminuta</i> ≥ 10 ⁷ <i>Serratia marcescens</i>
HF	1,0 µm	700 l/h	≥ 10 ⁷ <i>Leuconostoc oenos</i> ≥ 10 ¹⁰ <i>Saccharomyces cerevisiae</i>

WATER FLOW RATE FOR 10" CARTRIDGE



POSITRAK Plus ORDERING INFORMATION

PSTS - 207 1 - HD - PH - [] - []

END FITTING	CODE
DOE: double open end with flat gaskets	200
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,5	HD
1,0	HF

CODE	PACKING TYPE
No code	Single box
MB	Multiple box

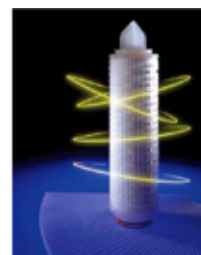
GASKETS	CODE	END FITTING CODE
Silicone	No code	200-203-207 208 212
SILICONE	SSS	203-207-208-212 With AISI 316 stainless steel ring

CODE	PRODUCT GRADE
No code	General Grade
PH	Biological Grade; prefluxed with non-pyrogenic water; Quality Certification in the box.
BQ	Biological Grade fluxed with water with certification

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

NOVATRAK

- Innovative filter media completely made of polypropylene nanofibers
- High dirt holding capacity
- Sanitizable and sterilizable
- Thermowelded construction
- EC listed materials for food contact
- FDA listed material per CFR21



NOVATRAK cartridge represents a further milestone for Bea Technologies research and development of nanofibers for critical applications that require absolute filtration grade and reduction of the bacterial load.

NOVATRAK filter element is manufactured with an innovative filter media made of a matrix of very fine polypropylene fibers (nanofibers); they allow to achieve constant and reproducible performance, that is not influenced by the quantity of the contaminant in the liquid to be filtered, and to retain various microorganisms and bacteria as per the filtration rating.

The chemical compatibility of the materials and the technology adopted in the manufacturing process allow an effective regeneration process both by backwashing and by chemical agents.

Typical applications are in food & beverage and treatment of liquids that require particulate filtration, such as in the pharmaceutical industry.

MATERIALS OF CONSTRUCTION

Filter media	Matrix of nanofibers of polypropylene
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal core	polypropylene
External cage	polypropylene
End caps / Adapters	polypropylene

EC DIRECTIVE FOOD SAFETY

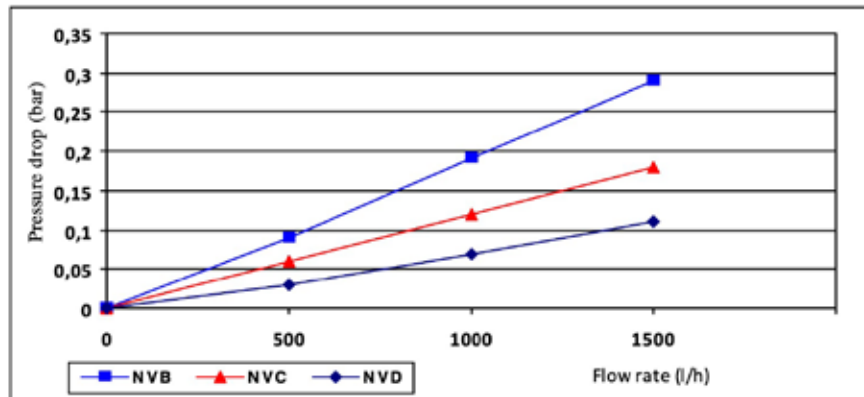
Novatrak filter elements meet (EU) regulation 10/2011 and its subsequent amendments and regulations (EC) 1935/2004 and 1895/2005.

RECOMMENDED OPERATING CONDITIONS

- max. continuous temperature	85 °C
- max. cumulative time of steam sterilization	40 hours at 125 °C (with cycles of 30 minutes)
- sanitization with hot water	90 °C max
- sanitization with chemicals	can be sanitized by standard chemical agents
- regenerability	3% NaOH solution up to 85 °C
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION FOR 10" CARTRIDGE	MAX FLOW RATE FOR 10" CARTRIDGE l/h
NVB	0,2 µm	Oenococcus oeni ≥ 10 ⁶ Enterobacteriaceae ≥ 10 ⁶ Saccharomyces ≥ 10 ¹² Lactobacillus brevis ≥ 10 ⁶	400
NVC	0,45 µm	Oenococcus oeni ≥ 10 ⁵ Enterobacteriaceae ≥ 10 ⁵ Saccharomyces ≥ 10 ¹¹	600
NVD	1,0 µm	Oenococcus oeni ≥ 10 ³ Enterobacteriaceae ≥ 10 ³ Saccharomyces ≥ 10 ¹⁰	800

WATER FLOW RATE FOR 10" CARTRIDGE



NOVATRAK ORDERING INFORMATION

NVT - 207 1 - NVB - GG - SB - S

END FITTING	CODE
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207 *
SOE: open end with (2) O-Ring 2.222 and blind end with fin.	208 *
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212 *

* with AISI 316 stainless steel ring

FILTRATION RATING MICRON	CODE
0,2	NVB
0,45	NVC
1,0	NVD

CODE	DESCRIPTION
SB	Single box
MB	Multiple box

GASKET	CODE
Silicone	S

CODE	DESCRIPTION
CQ	General grade with Quality Certificate in the box
PH	Biological grade General grade fluxed with non-pyrogenic water with Quality Certificate in the box
GG	General grade

CODE	NOMINAL LENGTH
1	10"
2	20"
3	30"
4	40"

POLIXSTER

- Integrally made of Polyester
- High chemical compatibility
- High effective surface area
- High resistance to temperature
- Steamable and sanitizable
- EC and FDA-listed materials



POLIXSTER is obtained by pleating together up to 4 polyester layers of decreasing porosity to achieve high effective filtration area, high dirt holding capacity and controlled filter ratings.

All the components are in polyester, assembled by thermowelding process; its high chemical compatibility gives the best performance in filtration of solvents, acids and bases in chemical and petrochemical applications.

PH grade is preflushed with non-pyrogenic water and suitable for bulk products filtration used by pharmaceutical industries.

MATERIALS OF CONSTRUCTION

Filter media	polyester
Upstream supports	polyester
Downstream supports	polyester
Internal core	polyester
External core	polyester
End caps/adapters	polyester

FOOD-SAFETY

POLIXSTER-PKE filter element material meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (≤ 0.25 EU/ml).

OPERATING CONDITIONS

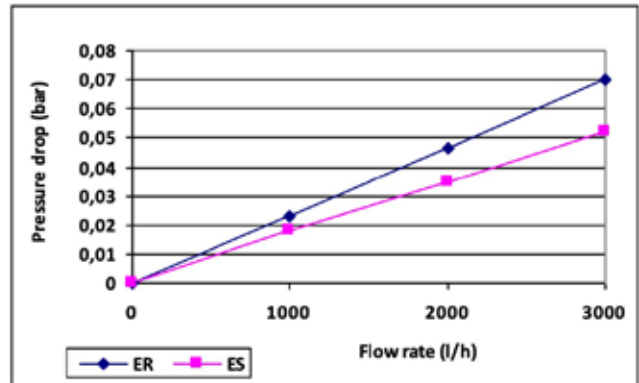
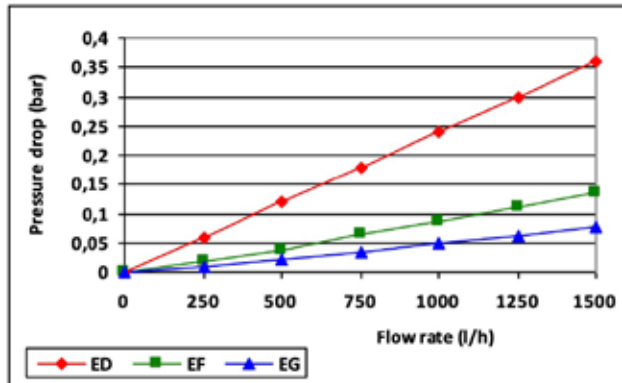
- max operating temperature	120 °C
- sterilization with steam	Continuously with cycles of 20 minutes at 121 °C
- sanitization with hot water	90 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agent
- max differential pressure	5,0 bar a 25 °C
- recommended change out differential pressure	2,0 bar a 25 °C

CODE	FILTRATION RATING (μ m)	MAX FLOW RATE FOR 10" CARTRIDGE (l/h)
ED	0,5	400
EF	1	800
EG	3	3000
ER	5	3000
ES	10	3000
ET	20	3000
EV	40	3000

FILTER USAGE CHEMICAL COMPATIBILITY AT ROOM TEMPERATURE

- Benzene
- Butyl acetate
- Butyl alcohol
- Carbon tetrachloride
- Cyclohexane
- Dioxane
- Ethanol
- Ether petroleum
- Ethylic ether
- Formaldehyde 30%
- Formic acid max 20%
- Hexane
- Hydrofluoric acid max 20%
- Hydrogen peroxide (30%)
- Methyl acetate
- Methylethylketone
- Phosphoric acid max 20%
- Silicon and mineral oils
- Sulphuric acid max 5N
- Xylene

WATER FLOW RATE FOR 10" CARTRIDGE



POLIXSTER ORDERING INFORMATION

PKE - 207 1 -

END FITTING	CODE
DOE: double open end with flat gaskets.	200
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (1) O-Ring. Blind end with flat top.	209

NOMINAL LENGTH	CODE
10"	1
20"	2
30"	3
40"	4

EF -

FILTRATION RATING μm	CODE
0,5	ED
1	EF
3	EG
5	ER
10	ES
20	ET
40	EV

GG -

DESCRIPTION	CODE
Prefluxed with non-pyrogenic water; Quality Certification in the box	PH
General grade without certification	GG
Product certified Halal by WHA-IT00172-002	HIA

SB -

CODE	O-RING	
NO CODE	Standard	EPDM
S	On request	Silicon
F	On request	FEP
V	On request	Viton

CODE	PACKING
SB	Single box
MB	Multiple box

STERYFLUS MINI CARTRIDGES

STERYFLUS mini cartridges are an important advance in membrane filter cartridge technology. These mini cartridges are specifically designed for sterile filtration in pharmaceutical and food & beverage applications. The filter membrane is a **hydrophilic PES (Polyethersulphone)** with liquid absolute filtration rating of **0.2** and **0.45** micron, pleated with upstream and downstream support layers in polyester. All construction materials are chemically and biologically inert according to **FDA, USP** and **EC** directives. **STERYFLUS** are manufactured in Clean Rooms. Extensive testing is conducted to assure filter elements of highest quality. Each mini cartridge is subjected to integrity test before releasing from production. Furthermore, it is possible for customers to re-verify the integrity of **STERYFLUS** cartridges **IN SITU**. **STERYFLUS** mini cartridges have a **Validation Guide** which is available upon request.



CONSTRUCTION MATERIALS

Filter media:	PES membrane
Upstream drainage:	Nonwoven polyester
Downstream drainage:	Nonwoven polyester
Core & Cage:	Moulded polypropylene
End caps:	Moulded polypropylene/Polyester

DIMENSIONS

External diameter	56 mm
Length	135 mm (size 1001)
Other lengths available on request	

OPERATING SPECIFICATIONS

- max continuous temperature:	65 ° C
- steam sterilization cumulative time:	TSP : 20h at 125°C or 40h at 121°C TSE : 13h at 125°C
- chemical sanitization:	compatible with standard chemical sanitising agents
- pressure drop recommended for replacement:	2,0 bar at 25 °C
- max pressure drop:	5,0 bar at 25 °C

FILTRATION RATING

FILTRATION CLASS	LIQUID ABSOLUTE FILTRATION RATING
ZYY	0.2 µm double layer membrane
ZY	0.2 µm single layer membrane
ZT	0.45 single layer membrane
ZK	0.65 single layer membrane

WATER FLOW RATE

FILTRATION CLASS	l/h (ΔP = 0.1 bar)
ZYY	250
ZY	400
ZT	600
ZK	800

INTEGRITY TEST

FILTRATION CLASS	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST (ml/min)*
ZYY	≤ 8 at 2.8 bar
ZY	≤ 8 at 2.8 bar
ZT	≤ 6.5 at 1.7 bar
ZK	≤ 10 at 1.7 bar

(*)The DIFFUSION FLOW TEST is performed using water as wetting liquid

BACTERIAL RETENTION

STERYFLUS membrane cartridges are validated for retention of the microorganisms reported in the Table according to ASTM F838-05 ($\geq 10^7$ CFU/cm² effective filtration area).

FILTRATION CLASS	MICROORGANISM USED FOR MICROBIOLOGICAL TEST
ZY, ZYY	<i>Brevundimonas diminuta</i> in liquid
ZT	<i>Serratia marcescens</i> in liquid

GLOBAL MIGRATION TEST

STERYFLUS filter elements materials meet directive 2002/72/EC and its amendments, regulations EC 1935/2004 and 1895/2005.

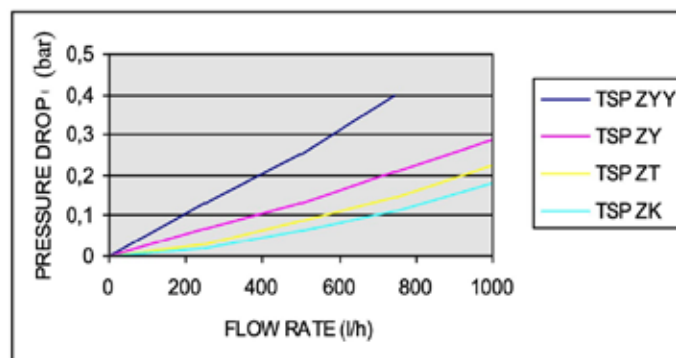
TOXICITY

Component materials meet the **USP XXV class VI Biological Test for Plastics**.
Test data is available upon request.

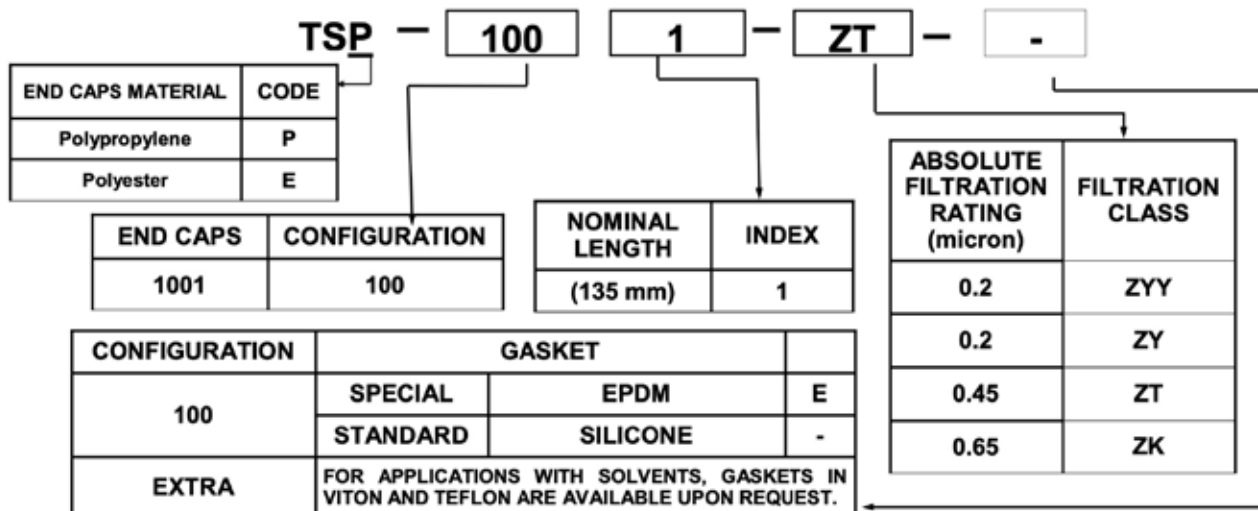
EXTRACTABLE SUBSTANCES

STERYFLUS cartridges meet **USP** requirements.

WATER FLOW RATE CURVES



STERYFLUS MINI CARTRIDGES SELECTION CODE



TECHNICAL SUPPORT

Bea Technologies S.p.a manufactures a broad range of filter elements and systems that are used with confidence and satisfaction by customers worldwide in beverage, food and many other demanding industries. The highly experienced team of technical experts at Bea Technologies S.p.a is available to help customers select the best performing and most cost effective filter for particular application.

STERYDENE MINI CARTRIDGES HYDROPHILIC PVDF MEMBRANE

- Easy integrity testable in situ
- Repeatedly steamable in situ and in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per 21 CFR
- Bio-Safety per USP—Plastics
- Low filter extractables even with solvents
- Validation Guide available on request



STERYDENE Mini filter element is a complementary compound to Sterydene series suitable to filter small batches.

Sterydene Mini is manufactured with hydrophilic PVDF membrane that has a controlled porosity and provides high efficiency in bacteria retention.

The membrane is pleated with support and drainage layers made of polypropylene which give high endurance versus thermal sterilization and hydraulic stress.

The good water wettability of the components allows easy integrity testability.

Manufacturing is performed in a controlled environment; each filter is integrity tested.

MATERIALS OF CONSTRUCTION

Filter media	hydrophilic PVDF
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

STERYDENE Mini filter elements materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP CLASS VI Biological Reactivity and Chemical-Physical tests for USP plastics. Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

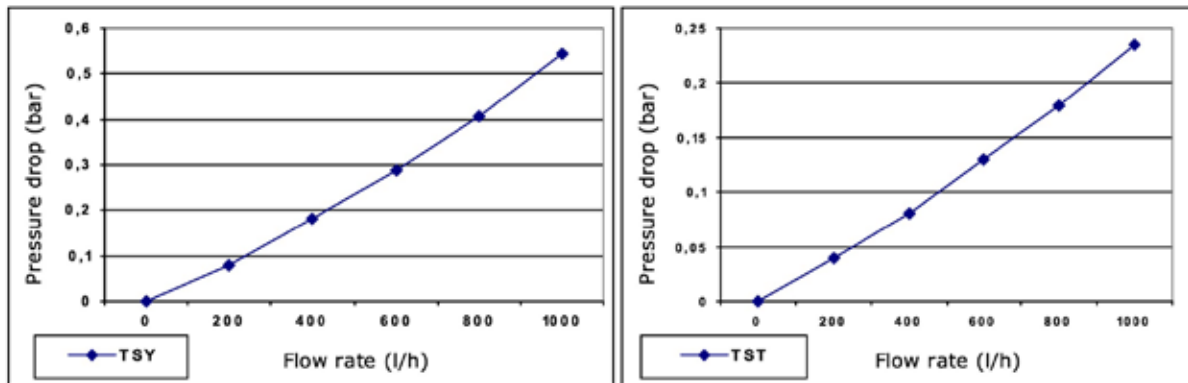
OPERATING CONDITIONS

- max. continuous temperature	80 °C
- max. cumulative time of steam sterilization	80 hours at 125 °C />100 hours at 121 °C (30 minutes cycles)
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C—2,5 bar 80 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	2 liters / cartridge

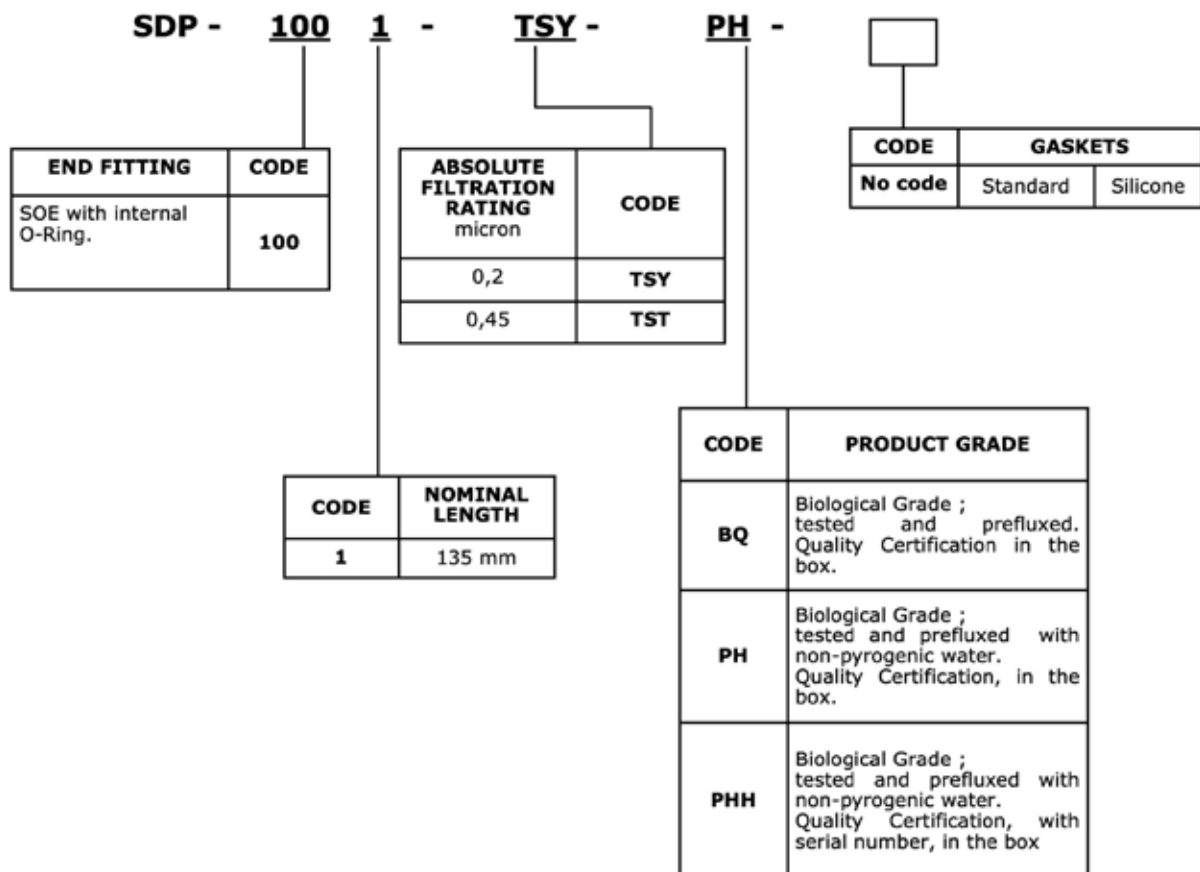
CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU PER CARTRIDGE *	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER (ml/min)
TSY	0,2 µm	Brevundimonas diminuta	≤ 13 @ 2,3 bar
TST	0,45 µm	Serratia marcescens	≤ 8 @ 1,5 bar

*as per ASTM F838

WATER FLOW RATE



STERYDENE MINI ORDERING INFORMATION



STERINYL MINI CARTRIDGES

High performance nylon 6,6

- Easy integrity testable in situ
- Repeatedly steamable in situ and in autoclave
- Thermowelded construction
- EC-listed materials for Food contact
- FDA-listed materials per 21 CFR
- Bio-Safety per USP—Plastics
- Low filter extractables even with solvents
- Validation Guide available on request



STERINYL Mini filter element is a complementary compound to Sterinyl series suitable to filter small batches. Sterinyl Mini is manufactured with Nylon 6,6 that has a controlled porosity that provides high efficiency in bacteria retention.

The membrane is pleated with support and drainage layers in polyester which give high endurance versus thermal sterilization and hydraulic stress.

The intrinsically water wettability of nylon and polyester allows easy integrity testability.

Manufacturing is performed in a controlled environment; each filter is integrity tested.

MATERIALS OF CONSTRUCTION

Filter media	nylon 6,6
Upstream supports	polyester
Downstream supports	polyester
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polyester

FOOD-SAFETY

STERINYL Mini filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP CLASS VI Biological Reactivity and Chemical-Physical tests for USP plastics.

Specific for "PH" and "PHH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

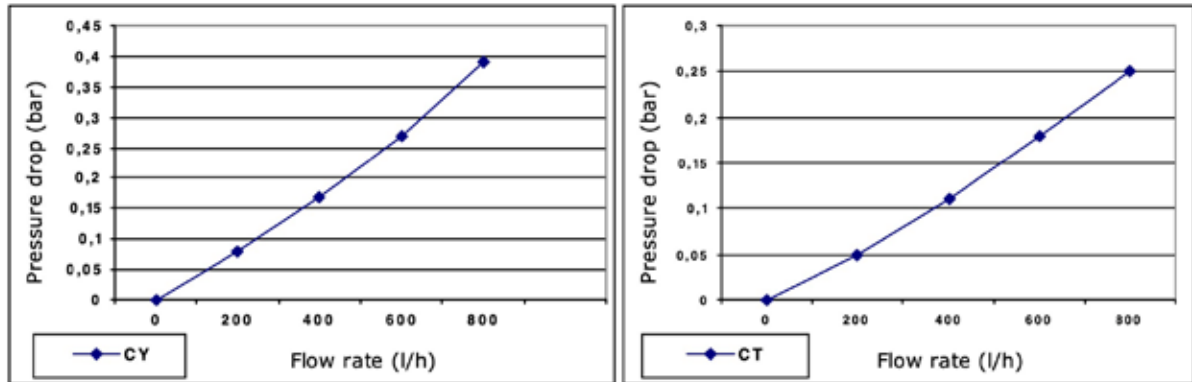
Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

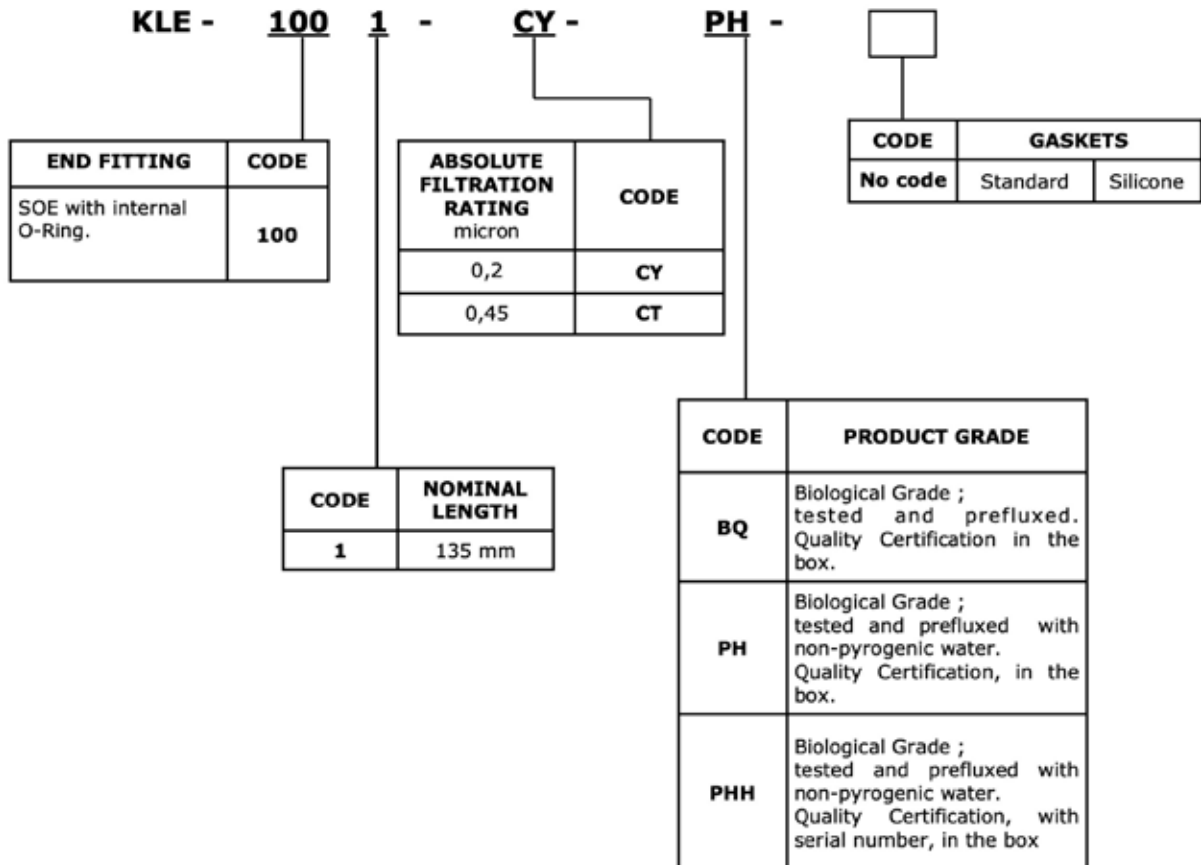
- max. continuous temperature	80 °C
- max. cumulative time of steam sterilization	10 hours at 125 °C with cycles of 60 minutes /20 hours at 121 °C
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C—2,5 bar 80 °C—0,3 bar 135 °C
- recommended change out differential pressure	2,0 bar at 25 °C
- recommended rinse up volume	2 liters

CODE	ABSOLUTE FILTRATION RATING IN LIQUIDS	BACTERIAL RETENTION OF MICRO-ORGANISM >10 ¹⁰ CFU PER CARTRIDGE *	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST WITH WATER (ml/min)
CY	0,2 µm	Brevundimonas diminuta	≤ 8 @ 2,1 bar
CT	0,45 µm	Serratia marcescens	≤ 8 @ 1,5 bar
*as per ASTM F838			

WATER FLOW RATE



STERINYL MINI ORDERING INFORMATION



POLYSAN MINI-CARTRIDGES

- High dirt holding capacity
- Steamable and sanitizable
- EC-listed materials for Food contact
- FDA-listed materials per CFR21
- Validation guide on request (only PH grade)



POLYSAN MINI-CARTRIDGE is obtained by pleating up to 5 polypropylene layers of decreasing porosity to achieve high effective filtration area, high dirt holding capacity with efficiency higher than 99.98%.

All the components in polypropylene are assembled by thermowelding process. MINI-CARTRIDGE is well suited in all applications where small flow rate is involved and precision filter rating is required; PH grade is prefluxed with non-pyrogenic water and suitable for pharmaceutical applications.

MATERIALS OF CONSTRUCTION

Filter media	polypropylene
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal core	polypropylene
External cage	polypropylene
End caps/adapters	polypropylene

FOOD-SAFETY

POLYSAN filter element materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics.

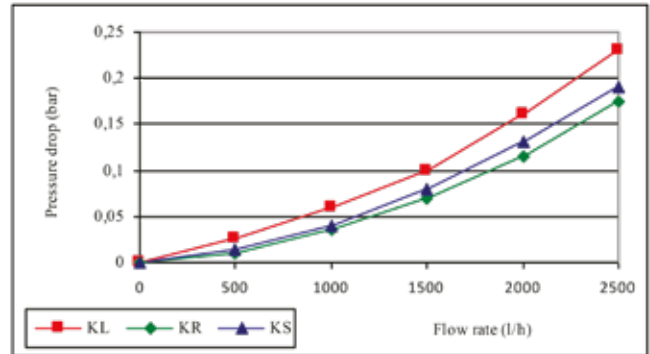
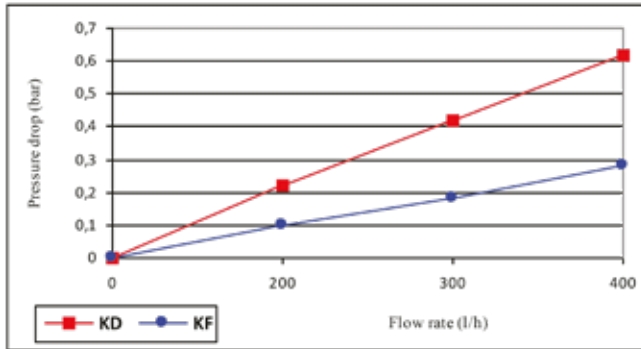
Specific for "PH" grade: the filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

OPERATING CONDITIONS

- max. continuous temperature	65 °C
- regeneration	2% NaOH solution at room temperature
- sterilization with steam	continuously with cycles of 20 minutes at 121 °C
- sanitization with hot water	80 °C max
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	FILTRATION RATING µm	MAX WATER FLOW RATE FOR CARTRIDGE l/h
KD	0,6	130
KF	1,2	200
KG	2,5	500
KL	4,5	750
KR	6,5	1000
KS	10,0	1000
KT	20,0	1000

WATER FLOW RATE FOR CARTRIDGE SIZE 1001



POLYSAN 1001 ORDERING INFORMATION

PKP - 100 1 -

END FITTING	CODE
S.O.E.: open end with internal o-ring 2.116	100
S.O.E.: open end with threaded 1/2" adapter	120

NOMINAL LENGTH	CODE
135 mm	1
142 mm Threaded end included	05

FILTRATION RATING μm	CODE
0,6	KD
1,2	KF
2,5	KG
4,5	KL
6,5	KR
10,0	KS
20,0	KT

KR -

CODE	DESCRIPTION
No code	General Grade
PH	Prefluxed with non-pyrogenic water; Quality Certification in the box.

CODE	GASKETS	
No code	Standard	Silicone
E	On request	EPDM
T	On request	TEFLON

STERYFLON Plus MINI CARTRIDGES

- Intrinsically Hydrophobic PTFE membrane
- High permeability versus gas
- Thermic cycles resistant
- Repeatedly steamable in situ or in autoclave
- Thermowelded construction
- FDA-listed materials per CFR21
- Bio-Safety per USP-Plastics
- Validation Guide available on request



STERYFLON Plus mini cartridges are an important advance in membrane filter cartridge technology. These mini cartridges are specifically designed for sterile filtration of compressed air and gas in pharmaceutical, bioengineering and food & beverage applications, and also for filtering high purity solvents in microelectronics. The filter media is a hydrophobic expanded PTFE with liquid absolute filtration rating of 0.1 and 0.2 micron, pleated with upstream and downstream support layers in nonwoven polypropylene.

STERYFLON Plus mini cartridge is manufactured within a controlled environment and each cartridge is integrity tested and validated for bacterial retention correlated with microbiological challenge test.

The retention is checked on regular sampling.

MATERIALS OF CONSTRUCTION

Filter media	PTFE hydrophobic membrane
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps/Adapters	polypropylene

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics.

The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

- max. continuous temperature in air	65 °C
- max. cumulative time of steam sterilization	150 hours at 140 °C with cycles of 30 minutes
- sanitization with chemicals	can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	ABSOLUTE FILTRATION RATING		3) BACTERIAL RETENTION >10 ⁷ CFU/cm ²	ACCEPTABLE LIMIT FOR INTEGRITY TEST
	IN LIQUID	IN DRY GAS		
SH	0,1 µm	< 0,01 µm	Acheleoplasma laidlawii in liquid	1) ≤ 13 ml/min @ 1,0 bar
SL	0,2 µm	< 0,01 µm	Bacteriophage T1 in aerosol	1) ≤ 6 ml/min @ 0,8 bar
SLA	0,2 µm	< 0,01 µm	Brevundimonas diminuta in liquid	2) ≤ 8 Nml/10min @ 2,5 bar

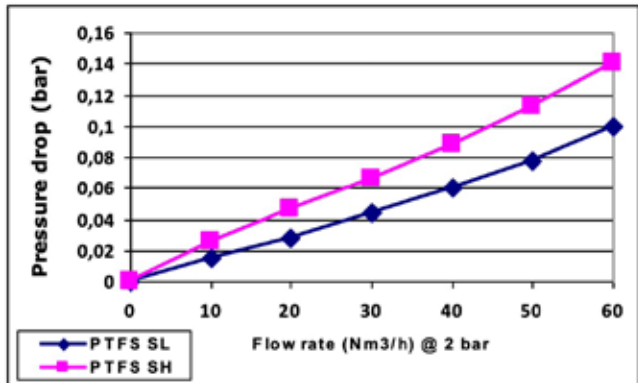
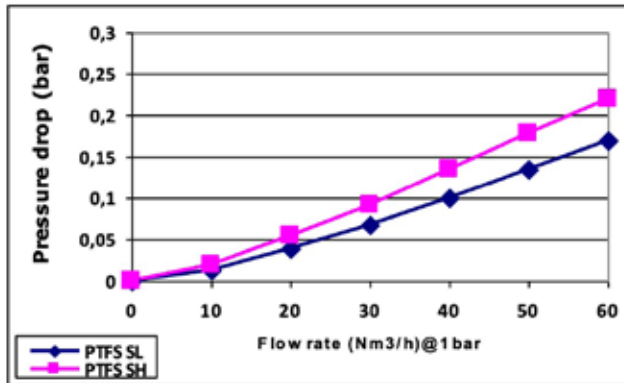
Note:

1- The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting liquid.

2- The integrity is verified by WATER FLOW INTRUSION TEST.

3- Cartridges are validated for retention of the microorganism reported in the table according to ASTM F838

AIR FLOW RATE CURVES



STERYFLON Plus MINI CARTRIDGES ORDERING INFORMATION

PTFS - 100 1 - SL -

END FITTING	CODE
SOE: single open end with internal o-ring 2.116	100
SOE: single open end with threaded 1/2" (available only for code rating "SL")	120

ABSOLUTE FILTRATION RATING micron	CODE
0,1	SH *
0,2	SL *
0,2	SLA **

*Integrity by IPA diffusion test
**Integrity by water intrusion test

CODE	PRODUCT GRADE
No code	Biological Grade
PH	Non-pyrogenic Grade. Quality Certification in the box
PHH	Non-pyrogenic Grade. Quality Certification, with serial number, in the box

CODE	NOMINAL LENGTH
1	135 mm
05	142 mm Threaded end included

CODE	GASKETS
No code	Standard Silicone

STERYFLON Plus 1440 MINI FILTERS

- Intrinsically Hydrophobic PTFE membrane
- High permeability versus gas
- Repeatedly steamable in situ or in autoclave
- Thermowelded construction
- FDA-listed materials per CFR21
- Bio-Safety per USP-Plastics
- Validation Guide available on request



STERYFLON Plus 1440 mini filters are an important extension of PTFE membrane filter line. These mini filters are specifically designed for sterile filtration of compressed air and gas in pharmaceutical, bioengineering and food & beverage applications, and also for filtering high purity solvents in microelectronics. The filter media is a hydrophobic expanded PTFE with liquid absolute filtration rating of 0.1 and 0.2 micron, pleated with upstream and downstream support layers in nonwoven polypropylene. STERYFLON Plus 1440 mini filters are manufactured in a controlled environment and each filter is integrity tested and validated for bacterial retention correlated with microbiological challenge test.

MATERIALS OF CONSTRUCTION

Filter media	PTFE hydrophobic membrane
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps/Adapters	polypropylene

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics.

The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

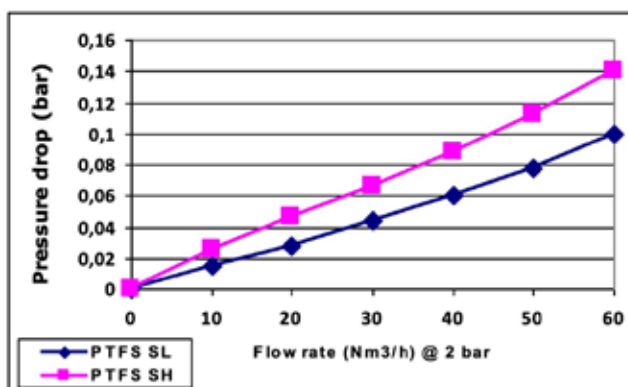
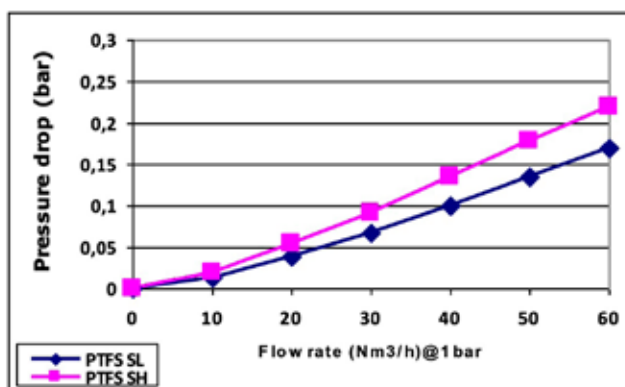
OPERATING CONDITIONS

- max. continuous temperature in air	65 °C
- max. cumulative time of steam sterilization	100 hours at 125 °C with cycles of 60 minutes
- sanitization with chemicals	can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

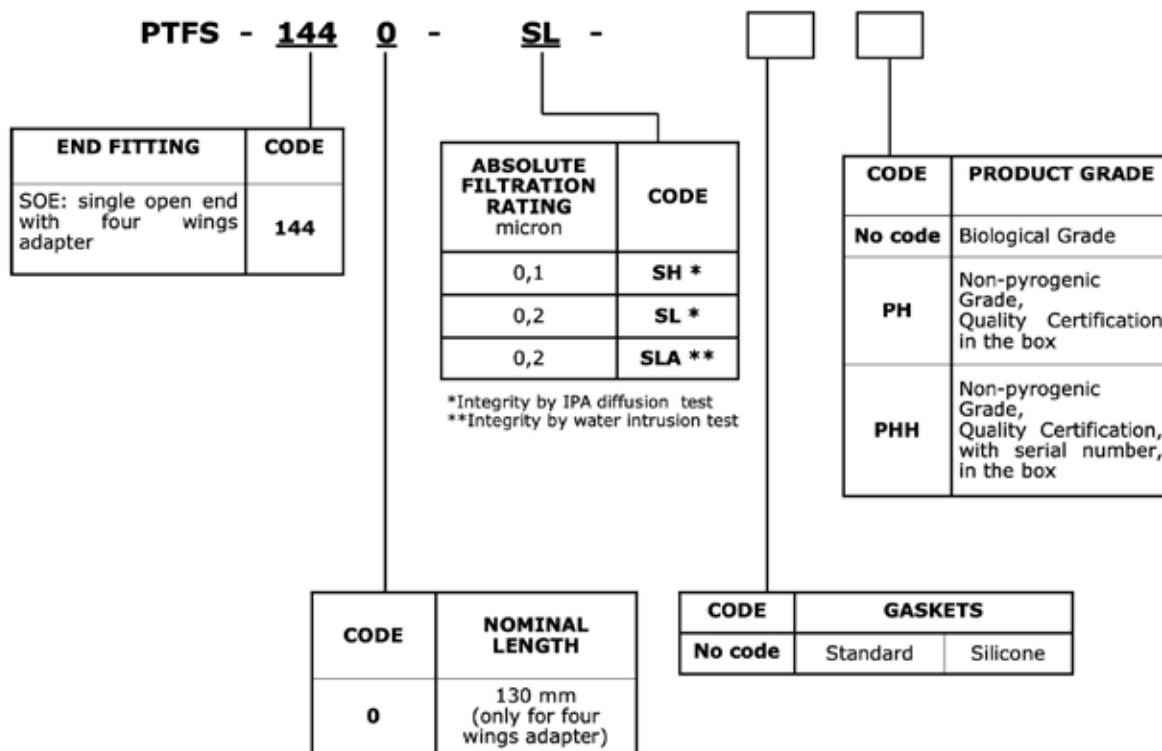
CODE	ABSOLUTE FILTRATION RATING		3) BACTERIAL RETENTION >10 ⁷ CFU/cm ²	ACCEPTABLE LIMIT FOR INTEGRITY TEST
	IN LIQUID	IN DRY GAS		
SH	0,1 µm	< 0,01 µm	Acheleoplasma laidlawii in liquid	1) ≤ 13 ml/min @ 1,0 bar
SL	0,2 µm	< 0,01 µm	Batteriofago T1 in aerosol	1) ≤ 6 ml/min @ 0,8 bar
SLA	0,2 µm	< 0,01 µm	Brevundimonas diminuta in liquid	2) ≤ 8 Nml/10min @ 2,5 bar

Note:
 1- The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting liquid.
 2- The integrity is verified by WATER FLOW INTRUSION TEST.
 3- Mini filters are validated for retention of the microorganism reported in the table according to ASTM F838

AIR FLOW RATE CURVES

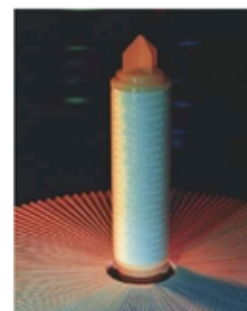


STERYFLON Plus 1440 MINI FILTERS ORDERING INFORMATION



STERYFLON Plus

- Intrinsically Hydrophobic PTFE membrane
- High permeability versus gas
- Thermic cycles resistant
- Repeatedly steamable in situ or in autoclave
- Thermowelded construction
- FDA-listed materials per CFR21
- Bio-Safety per USP-Plastics
- Validation Guide available on request



STERYFLON Plus is a filter element designed, manufactured and submitted to severe controls for applications in processes where the effluent is required to be free from particellar and biological contaminants.

The expanded PTFE membrane, intrinsically hydrophobic, allows superior performances both in gas filtration and non-aqueous liquid filtration. Bio-tech pharmaceutical, electronic, food & beverage industries can rely on a product with high standard of quality suitable to solve contamination issues on critical applications.

STERYFLON is manufactured within a controlled environment and each cartridge is integrity tested and is validated for bacterial retention correlated with microbiological challenge test. The retention is checked on regular sampling.

MATERIALS OF CONSTRUCTION

Filter media	PTFE membrane
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	polypropylene
External Cage	polypropylene
End caps / Adapters	polypropylene

FOOD-SAFETY

STERYFLON Plus filter elements meet regulation (EC) 1935/2004 for indirect food contact.

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml).

QUALITY STANDARDS

Produced under a certified Quality System to guarantee traceability of manufacturing records and integrity testing results.

OPERATING CONDITIONS

- max. continuous temperature of fermentation inlet and exhaust air	70 °C
- max. continuous temperature for vent filter in recirculation loop	83 °C
- max. cumulative time of steam sterilization	150 hours at 140 °C with cycles of 30 minutes
- sanitization with chemicals	can be sanitized by standard chemical agents
- max. differential pressure	5,0 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	ABSOLUTE FILTRATION RATING		3) BACTERIAL RETENTION >10 ⁷ CFU/cm ²	ACCEPTABLE LIMIT FOR INTEGRITY TEST FOR 10" CARTRIDGE
	IN LIQUID	IN DRY GAS		
SH	0,1 µm	< 0,01 µm	Acheleoplasma laidlawii in liquid	1) ≤ 25 ml/min @ 1,0 bar
SL	0,2 µm	< 0,01 µm	B. Diminuta in liquid / Batteriofago T1 in aerosol	1) ≤ 12 ml/min @ 0,8 bar
SLA	0,2 µm	< 0,01 µm	Brevundimonas diminuta in liquid	2) ≤ 16 Nm/10min @ 2,5 bar

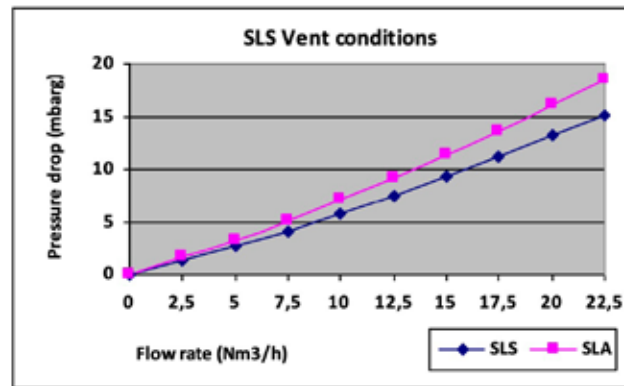
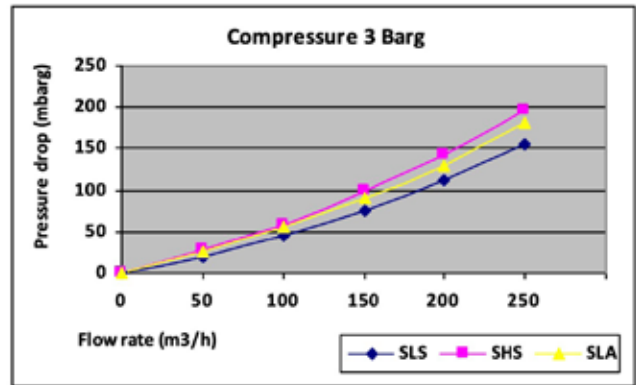
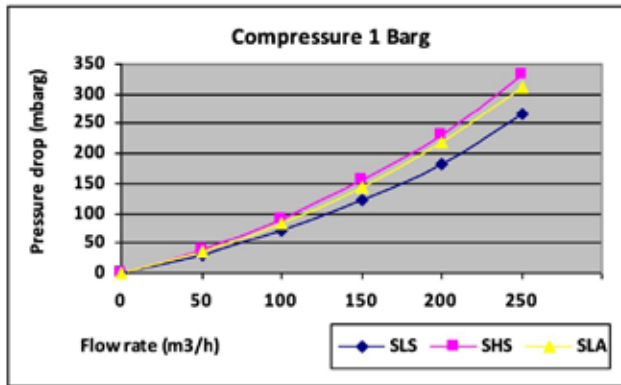
Note:

1- The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting liquid.

2- The integrity is verified by WATER FLOW INTRUSION TEST.

3- Cartridges are validated for retention of the microorganism reported in the table according to ASTM F838.

AIR FLOW RATE FOR 10" CARTRIDGE



STERYFLON Plus ORDERING INFORMATION

PTFS -

207

1 -

SL -

-

PH

END FITTING	CODE
DOE: double open end with flat gaskets	200
SOE: open end with (2) O-Ring 2.222. Blind end with flat top.	203
SOE: open end with (2) O-Ring 2.226 and 2 bayonet locks. Blind end with fin.	207
SOE: open end with (2) O-Ring 2.222. Blind end with fin.	208
SOE: open end with (2) O-Ring 2.222 and 3 bayonet locks. Blind end with fin.	212

ABSOLUTE FILTRATION RATING micron	CODE
0,1	SH *
0,2	SL *
0,2	SLA **

* Integrity by IPA diffusion test
** Integrity by water intrusion test

CODE	NOMINAL LENGTH
05	5"
1	10"
2	20"
3	30"
4	40"

CODE	PRODUCT GRADE
No code	Biological Grade
PH	Non-pyrogenic Grade. Quality Certification in the box
PHH	Non-pyrogenic Grade. Quality Certification, with serial number, in the box

CODE	GASKETS		END FITTING
No code	Standard	EPDM	200
T	On request	Teflon	
No code	Standard	Silicone	All the others
V	On request	Viton	
E	On request	EPDM	
F	On request	FEP	207

STERYTEMP Plus WHP

HIGH SERVICE LIFE FOR HOT AIR FILTRATION

- Intrinsically Hydrophobic PTFE membrane
- High effective enhanced filtering area
- Repeatedly steamable in situ or in autoclave
- Integrity testable
- Bio-Safety per USP-Plastics
- Validation Guide available on request



STERYTEMP Plus filter element is specifically designed for the sterilizing filtration of hot air up to 221 °F (105°C) to feed the reactors in aerobic fermentation processes. The filter media is a hydrophobic expanded PTFE membrane pleated with a specific Polyaramid non-woven support resisting to continuous operating high temperature; the design optimises the flow distribution between the filter media and the internal core in order to exploit the full area of the cartridge generating higher throughput and increases service life. STERYTEMP PLUS is manufactured in a controlled environment and each cartridge is integrity tested and is validated for bacterial retention correlated to microbiological challenge test. The retention is checked on regular sampling. PH and PHH grade are supplied with Certification of quality in the box.

MATERIALS OF CONSTRUCTION

Filter media	PTFE expanded membrane
Upstream supports	Polyphenylene Sulfide
Downstream supports	Polyphenylene Sulfide
Internal Core	Polypropylene
External Cage	Polypropylene
End caps/Adapters	Polypropylene

BIO-SAFETY

Filter media and components pass USP Biological Reactivity and Chemical-Physical tests for CLASS VI plastics. The filter meets USP "Water for injection" requirements for particle release and the effluent is Non-Pyrogenic per USP Bacterial Endotoxins (< 0,25 EU/ml). The materials meet FDA CFR 21 requirements

OPERATING CONDITIONS

- max. continuous temperature	221°F (105°C)
- max. cumulative time of steam sterilization	80 hours at 284°F (140°C) with cycles of 60 minutes
- sanitization with chemicals	can be sanitized by standard chemical agents
- max. differential pressure	73 psi at 77°F (5,0 bar at 25 °C)
- recommended change out differential pressure	29 psi at 77°F (2,0 bar at 25 °C)

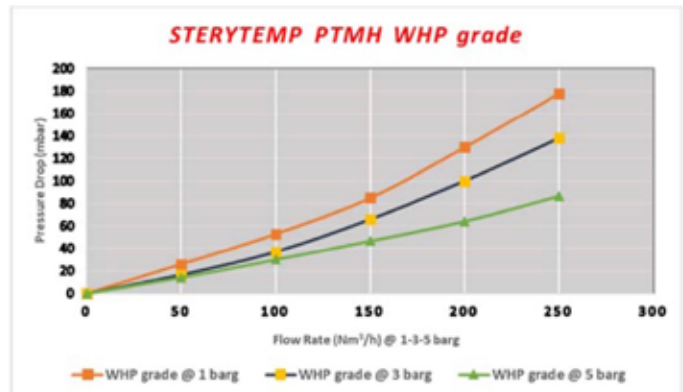
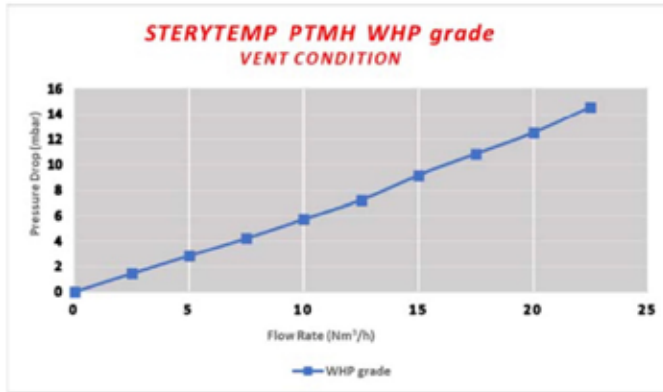
CODE	ABSOLUTE FILTRATION RATING		BACTERIAL RETENTION >10 ⁷ CFU/cm ² (1)	ACCEPTABLE LIMIT FOR DIFFUSION FLOW TEST FOR 10" CARTRIDGE (2)
	IN LIQUID	IN DRY GAS		
WHP	0,2 µm	< 0,01 µm	Brevundimonas diminuta in liquid	≤35 ml/min @ 0.8 barg (11.6 psi)

Note:

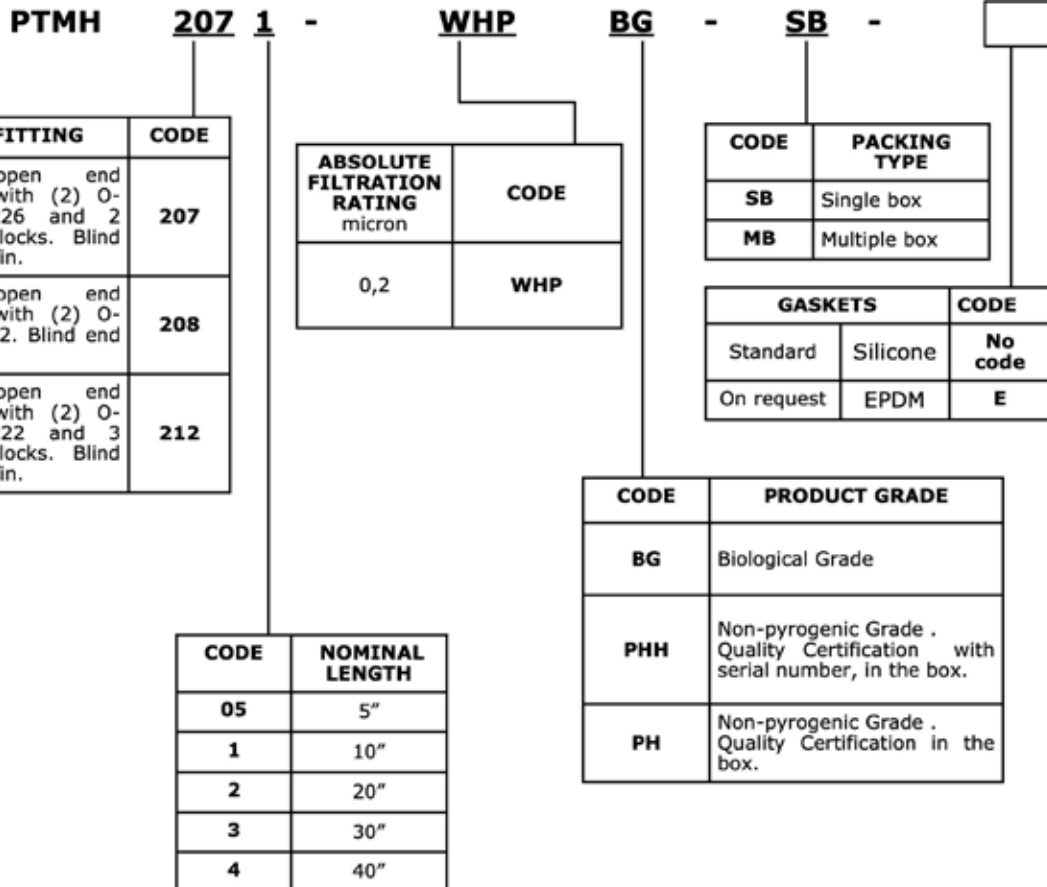
1- BACTERIAL RETENTION TEST as per ASTM F838.

2- The integrity is verified by DIFFUSION TEST using an aqueous solution of isopropyl alcohol (IPA 60/40 V/V) as wetting agent.

AIR FLOW RATE FOR 10" CARTRIDGE



STERYTEMP Plus ORDERING INFORMATION



STEELPORE-SLP

Filter elements with sintered metallic fiber

Manufactured in all stainless steel, **STEELPORE-SLP** filter elements incorporate depth media manufactured from sintered stainless steel fibres. These fibres create a porous media matrix optimised for particle retention down to 0.5 microns. The depth media is sandwiched between stainless steel wire mesh and then pleated. The wire mesh provides extra mechanical strength and facilitates dispersed liquid flow to achieve excellent filtration performance with minimal initial pressure drop. STEELPORE-SLP seams and fittings are precision welded to perform in high pressure and high temperature applications. STEELPORE-SLP filter elements are designed to assure excellent cleaning and regeneration from backflushing, steam or chemical sanitization.



APPLICATIONS

FOOD & BEVERAGE	Water, wine, beer
CHEMICALS	Solvents, polymeric solutions
COSMETICS	Essential oils, perfumes, soaps
PAINTS	Liquid resins, aqueous paints
HYDRAULICS	Hydraulic and diathermic oils
AUTOMOTIVE	Electrophoretic solutions
WATER TREATMENT	Ultrafiltration and reverse osmosis

WATER FLOW RATE ON 10" CARTRIDGE

CODE	FILTRATION GRADE micron	RECOMMENDED MAX FLOW RATE (l/h)
005	0,5	2000
010	1,0	2000
020*	2,0	2000
050	5,0	3000
100	10,0	4000
200	20,0	4000
400	40,0	4000

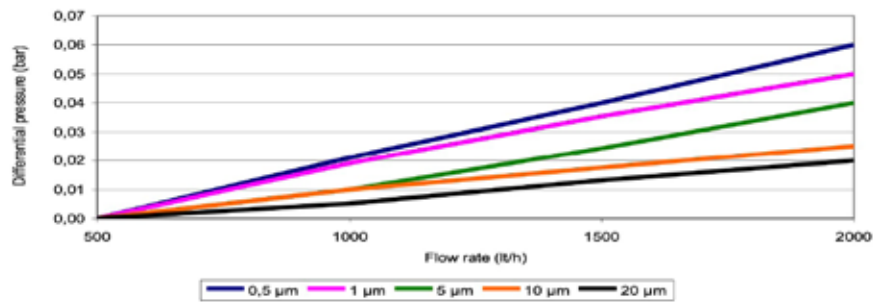
CONSTRUCTION MATERIAL

FILTER MEDIA	316L Stainless Steel sintered fibers
INTERNAL CORE	316L Stainless Steel
END CAPS	316L Stainless Steel

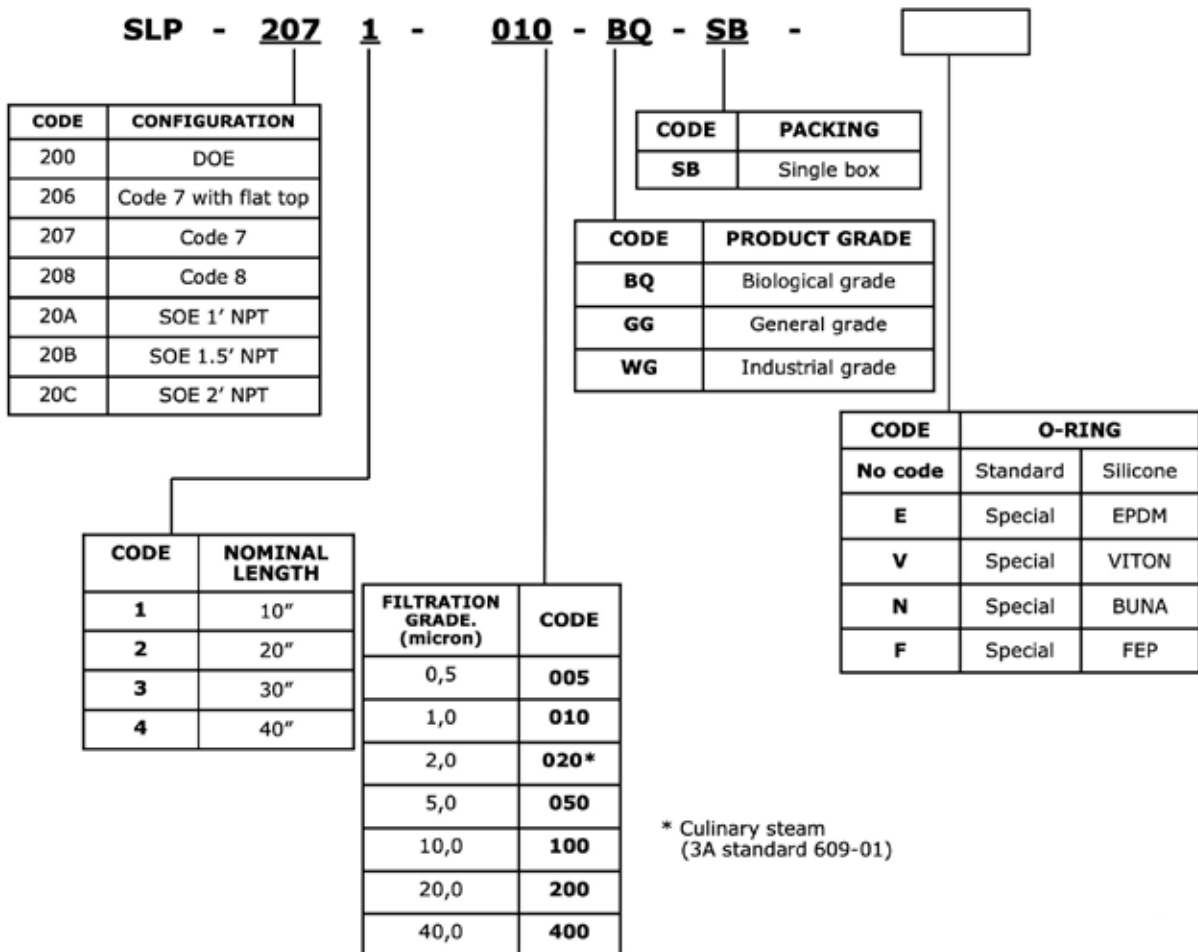
OPERATING SPECIFICATION

- max. continuous temperature	350 °C
- steam sterilization cumulative time	Repeatedly sterilizable with cycles of 30' at 135°C
- chemical sanitization	Can be regularly sanitized by chemical agents
- pressure drop recommended for replacement	10 bar at 25°C
- max. pressure drop	15 bar at 25 °C
- regenerability	Steam, chemical agents or in backwashing

PRESSURE DROP WITH WATER ON 10" CARTRIDGE



STEELPORE—SLP ORDERING INFORMATION



BIOMAGNEX

- High dirt holding capacity
- High effective filtering area using SE-TECH technology
- Time reduction in change out operation
- EC-listed materials for Food contact
- Hot-melt assembling process



BIOMAGNEX is designed to obtain a substantial bio-burden reduction or to protect sterilizing cartridges in order to enhance their "service life".

The filtering media is made with PES (polyethersulfone) hydrophilic membrane. The PES membrane gives a precise filtration retention, the SE-TECH technology allows to reach 10 m² per filter element, the high flow rate and low pressure drop increases service life and reduces the cost per liter of the filtered liquid, the reduction time in change out comparing to the time needed to change cartridges with the equivalent surface area.

The materials of construction are chemically and biologically inert and meet international requirements for Food contact.

Manufacturing is performed in a controlled environment to guarantee high standards of quality.

MATERIAL OF CONSTRUCTION

Filter media	PES
Upstream supports	polypropylene
Downstream supports	polypropylene
Internal Core	extruded polypropylene
External Cage	extruded polypropylene
End caps / Adapters	polypropylene

DIRETTIVE EC FOOD-SAFETY

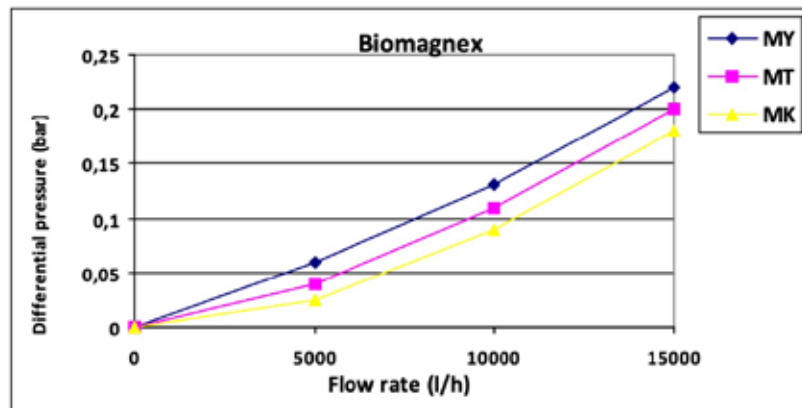
BIOMAGNEX filter elements materials meet (EU) regulation 10/2011 and its amendments, regulations (EC) 1935/2004 and 1895/2005

OPERATING CONDITIONS

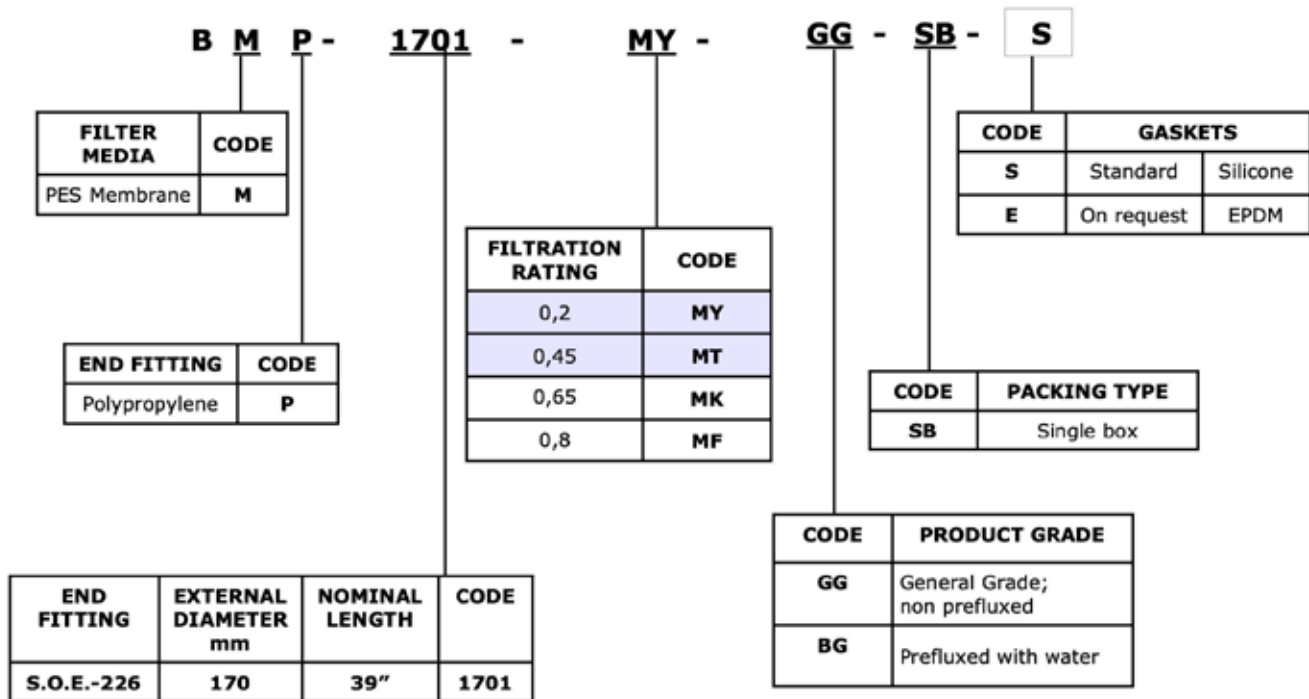
- max. continuous temperature	65 °C
- sanitization with chemicals	Can be sanitized by standard chemical agents
- max. differential pressure	3,5 bar at 25 °C
- recommended change out differential pressure	2,0 bar at 25 °C

CODE	FILTRATION RATING IN LIQUIDS	MAX. FLOWRATE l/h
MY	0,2 µm	8.000
MT	0,45 µm	8.000
MK	0,65 µm	10.000
MF	0,8 µm	10.000

WATER FLOW RATE FOR 39" CARTRIDGE



BIOMAGNEX ORDERING INFORMATION



PNT-R

Sanitary housings for the filtration of dangerous fluids

Stainless steel housings with sanitary finishes for the filtration and sterilization of dangerous fluids and gases in the food and pharmaceutical industries.

The PNT-R series is made with Tri-Camp type process connections, available in various configurations to install from 1 to 8 SOE filter elements (open on one side only).



Main features

- Versions with or without side vent port.
- Double bolt clamp closure system for single-cartridge housings and screw clamps for multi-cartridge housings
- Sterilizable in line with steam.

Construction materials

Housing: stainless steel AISI 316L.

Clamp Closure: clamp stainless steel AISI 304 per single-cartridge.

Screw clamps AISI 316 for multi-cartridge.

Gaskets: silicone.

Finishing

External: mechanical polishing.

Internal: fine brushed.

Filtered side roughness: $Ra \leq 0,8 \mu m$ / optional $Ra \leq 0,4 \mu m$

Design and construction

In accordance with PED e ATEX European Directive .

Suitable for fluids group 1 and 2 in accordance with CE 1227.

Certification

UE declaration of conformity PED / ATEX and user manual.

Models	Filter element		IN-OUT connections ASME BPE	Drain	Vent	Weight	PED	
	Q.ty	Size				Kg.	PED	Fluid group
PNT-R25RR-0105B7-L8-S	1	20705	1"TC	1"TC	1½"TC	6,5	art.4 par 3	Group 1 (dangerous) & Group 2 (not dangerous)
PNT-R25RR-0110B7-L8-S	1	2071				7	I	
PNT-R25RR-0120B7-L8-S	1	2072				8	I	
PNT-R25RR-0130B7-L8-S	1	2073				9	II	
PNT-R40RR-0110B7-L8-S	1	2071	1½" TC	1½"TC		7	I	
PNT-R40RR-0120B7-L8-S	1	2072				8	I	
PNT-R40RR-0130B7-L8-S	1	2073				10	II	
PNT-R40RR-0310B7-L8-S	3	2071				18	II	
PNT-R40RR-0320B7-L8-S	3	2072				21	II	
PNT-R40RR-0330B7-L8-S	3	2073				23	II	
PNT-R50RR-0520B7-L8-S	5	2072	2" TC	1½"TC		22	II	
PNT-R50RR-0530B7-L8-S	5	2073				24	III	
PNT-R50RR-0820B7-L8-S	8	2072				30	III	
PNT-R50RR-0830B7-L8-S	8	2073				34	III	
PNT-R65RR-0820B7-L8-S	8	2072	2"½ TC			30	III	
PNT-R80RR-0830B7-L8-S	8	2073	3"TC			34	III	

Note: the models indicated refer to standard versions, for different configurations see the options indicated in the description of the product code.

Description of the product code

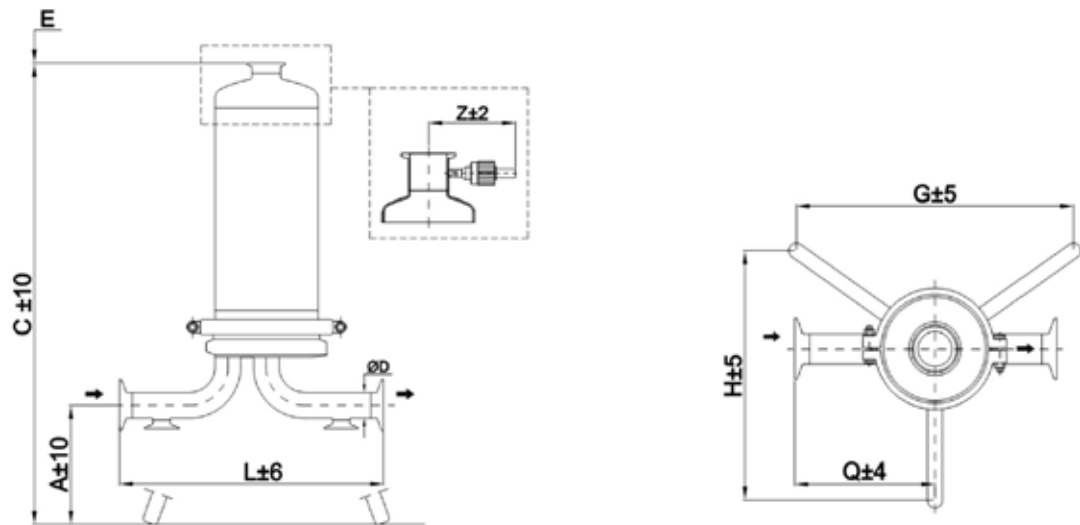
Serie	-	IN—OUT connections	Vent connection	Drain connection	-	Cartridge Q.ty	Cartridge size	-	Filtered side roughness	-	O-Ring material
PNT		R25 1" TC R40 1"½ TC R50 2" TC R65 2"½ TC R80 3" TC	R TC	R TC X None		01 1 03 3 05 5 08 8	05B7 5" 10B7 10" 20B7 20" 30B7 30" 40B7 40" 05B8 5" 10B8 10" 20B8 20" 30B8 30" 40B8 40"		L8 Ra ≤ 0,8		S Silicone E EPDM FS FEP/Silicone

Example code

PNT — **R50RR** — **0320B7** — **L8** — **S**

Operating limits			Classificazione ATEX 2014/34/EU	
Fluid state	Min/Max temperature	Min/Max pressure	GAS	DUST
Liquid/ Gas	-20°C /+ 150 °C	-1/10 bar	II -/2 G Ex h IIC T3....T6-/GbX	II-/2 D Ex h IIIC 150°C 85°C-/DbX

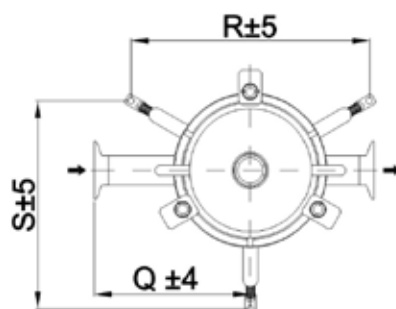
PNT-R SINGLE CARTRIDGE



Nominal dimensions mm

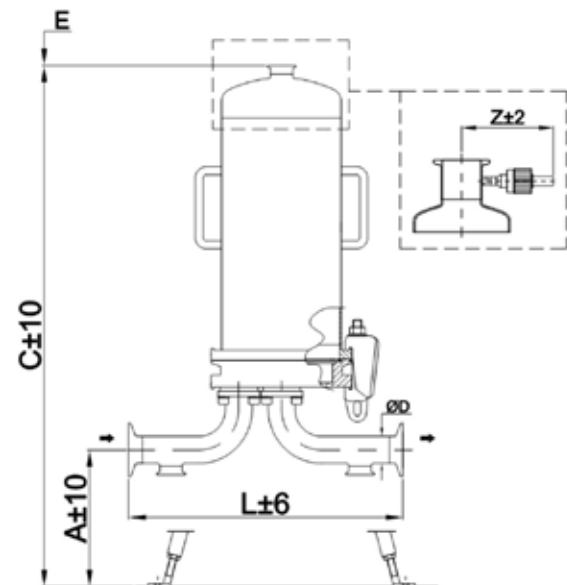
IN OUT connections	A	Ø D	L	G	H	Q
TC 1"	375	25,4	270	339	326	154
TC 1-½"	370	38,1	198			

Cartridge Size	C	E	Z
5"	690	230	96
10"	790	330	
20"	1040	580	
30"	1290	830	
40"	1540	1080	



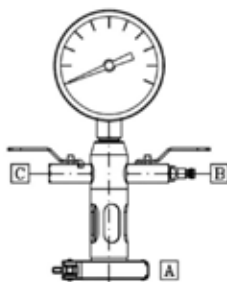
Nominal dimensions mm

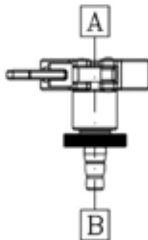
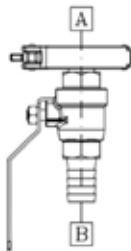
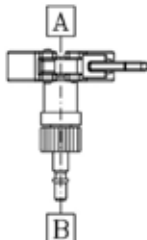
Cartridge size	n° 3 cartridges		n° 5 cartridges		n° 8 cartridges	
	C	E	C	E	C	E
10"	816	330	828	330	875	380
20"	1065	580	1078	580	1116	630
30"	1314	830	1328	830	1375	880
40"	1564	1080	1578	1080	1625	1130



PNT-R MULTI-CARTRIDGE

IN OUT connections	n° cartridges	A	Ø D	L	S	R	Q	Z
TC 1-½"	3	313-363	38,1	385	313-333	340-362	223	96
	5			405			243	
TC 2"	5	285-333	50,8	445	342-362	395-417	263	NA
	8			471			289	
TC 2-½"	8	255-303	63,5	547	383-431	442-490	323	NA
TC 3"	8	228-275	76,2	603			351	

Accessories		KC-M-M-R40-XS-SGL	KC-M-M-R40-XS-STB	*KC-M-D-R40-XS **KC-M-P-R40-XS	KC-M-D-R40-XS-SGS
Manometri					
	Manometro with sight glass and ball valve	Manometer with sanitary valve	Manometer with diaphragm	Manometer with diaphragm, sight glass and 2 sanitary valves	
Materials:	AISI 316 / AISI 304		AISI 316 / AISI 304	AISI 316 / AISI 304	AISI 316 / AISI 304
Gasket material:	Silicone		Silicone	Silicone	Silicone
Manometer diameter:	100 mm	100 mm	* 100 mm ** 63 mm	100 mm	
Pressure range:	0-10 bar				
Max temperature:	100°C				
Connections:	A-clamp 1½"	A-clamp 1½"	A - clamp 1½"	A - clamp 1½"	
Valve:	B- ball valve innesto RECTUS 21KA ø9mm	B-sanitary valve innesto Staubli RBE 03	-	B- n°2 sanitary valves innesto Staubli RBE 03	

Accessories	KC-V-S-R40-XS-HSB-PN18	KC-V-B-R40-XS-HSB-PN64	KC-V-T-R40-XS-XX-XX	KC-V-S-R40-XS-STB
Vents and drains				
	Sanitary drain valve	Ball valve	Clamp cap	Sanitary sampling valve
Materials:	AISI 316 / AISI 304	AISI 316 / AISI 304	AISI 316 / AISI 304	AISI 316 / AISI 304
Gasket material:	silicone	silicone	silicone	silicone
Operating pressure:	18 bar	64 bar	18 bar	10 bar
Max temperature:	150 °C			
Connections:	A- clamp 1½"	A- clamp 1½"	clamp 1"½"	A- clamp 1½"
	B-hose nozzleØ 12 mm	B-hose nozzle Ø 21 mm		Staubli RBE 03

PFS

Small sanitary housings

Sanitary stainless steel housings suitable for use in food and pharmaceutical industries for filtration and sterilization of small volumes of liquids and gases.

PFS housings provide sanitary connections for process, vent and drain valves with or without sampling valve.



Main features

- Tri-clamp connections.
- Filter elements size 1001.
- Sanitary drain valves and sampling with Staubli connectors.

Construction materials

Housing : Stainless steel AISI 316L
Clamp closure : Stainless steel AISI 304
Gaskets : standard Silicone

Surfaces finishing

Internal: polishing — Ra 0,4 µm
External: polishing — Ra 0,8 µm

Design and construction

In accordance with PED European Directive.
Suitable for fluids of group 1 and 2 in accordance with CE 1272/2008.

Certification

Declaration of conformity and user manual.

Model	In-Out connections	Filter element size	Weight Kg	Volume L	Sanitary valve connections			Nominal size (mm)		
					Vent	Drain	Sampling	A	B	C
PFS-R20-1001-L-B-S	3/4" TC	1001	1,8	0,30	Staubli RBE 03	Staubli RBE 03	Without port	135	246	73
PFS-R25-1001-L-B-S	1" TC		1,9	0,35						
PFS-R40-1001-L-B-S	1½" TC		2,1	0,40			Staubli RBE 03	135	246	73
PFS-R25-1001-L-C-S	1" TC		2,0	0,35						
PFS-R40-1001-L-C-S	1½" TC		2,2	0,40						

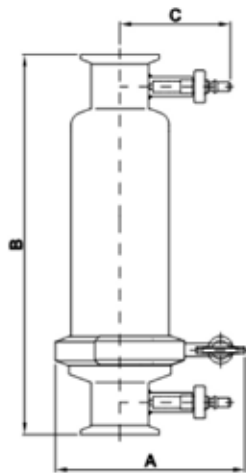
Note: the models indicated refer to the most used versions; for different configurations see the options indicated in the code description product.

Code information

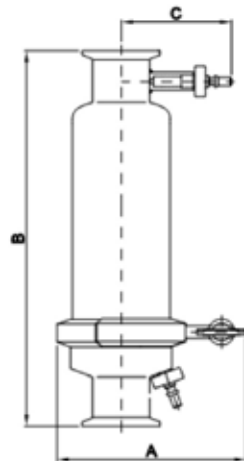
Serie	IN-OUT connections	Filter element size	Finishing	Ports with sanitary valves	O-ring material
PFS	R20 3/4" TC R25 1" TC R40 1½" TC	1001 Length 135 mm	L Mechanical polishing E Electrical polishing	* Vent - Sampling B Vent - Drain C Vent - Drain- Sampling	S Silicone std E EPDM T Teflon

Example code

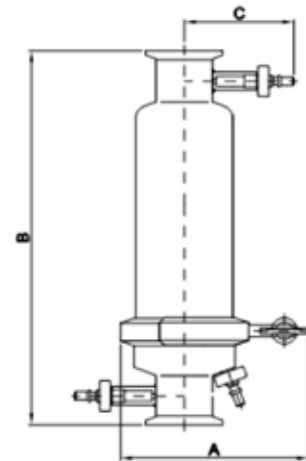
PFS	-	R40	-	1001	-	L	-	B	-	S
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Option code *



Option code B



Option code C

Operating limits

Max pressure	Max temperature	In accordance with PED Directive		
		Fluid state	Fluid group	PED
10 bar	150°C	Liquid and Gas	1 (dangerous) 2 (not dangerous)	Art.4 par.3

PFC

In line connections sanitary housings

Stainless steel housings with in line connections suitable for use in the food and pharmaceutical industries for filtration and sterilization of liquids and gases.

The PFC series is complete with sanitary valves for venting and drainage.

The geometry of the housing is designed to reduce the overall dimensions, avoid stagnation areas and minimize the pressure drops.



Main features

- Fit filter elements size 20705 and 2071.
- Drain and vent valves with staubli connections.
- Tri-clamp in line connections.

Construction materials

Housing : stainless steel AISI 316L
Clamp closure : stainless steel AISI 304
Gaskets: standard silicone

Surface finishing

Internal: polished— $Ra \leq 0,4 \mu m$
External: polished— $Ra \leq 0,8 \mu m$

Design and construction

In accordance with PED European Directive.
Suitable for fluids group 1 and 2 in accordance with CE 1272/2008.

Certification

Declaration of conformity and user manual.

Model	In-Out connections	Filter element size	Weight Kg	Volume L	Sanitary vent valve	Sanitary drain valve	Nominal dimensions (mm)		
							A	B	C
PFC-R15-05-B7-L-S	1/2"TC	20705	3	1,3	Staubli RBE 03	Staubli RBE 03	232	170	132
PFC-R20-05-B7-L-S	3/4"TC	20705	3	1,3					
PFC-R25-05-B7-L-S	1" TC	20705	3,2	1,5					
PFC-R40-05-B7-L-S	1 1/2" TC	20705	3,5	1,6					
PFC-R40-10-B7-L-S	1 1/2" TC	2071	4,5	2,8			280		

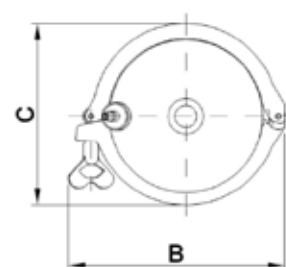
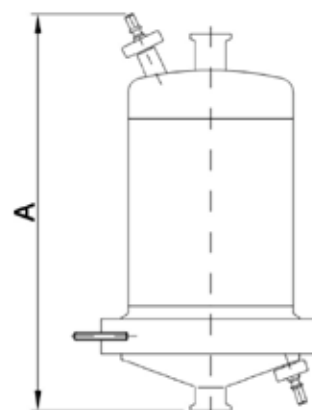
Note: the models indicated refer to the most used versions; for different configurations see the options indicated in the code description product.

Code information

Serie	-	IN-OUT Connections	-	Filter element length	-	Filter element connection	-	Finishing	-	O-ring material
PFC		R15 1/2" TC		05 5"		B7 Code 7 ORing 226		L Mechanical polishing		S Silicone std
		R20 3/4" TC		10 10"				E Electrical polishing		E EPDM
		R25 TC 1"								
		R40 TC 1 1/2"								

Example code

PFC	-	R40	-	05	-	B7	-	L	-	S
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Operating limits

Max pressure	Max temperature	In accordance with PED Directive		
		Fluid state	Fluid group	PED
10 bar	150°C	Liquid and Gas	1 (dangerous) 2 (not dangerous)	Art.4 par.3

CFS / CFL

Stainless steel filters

Small stainless steel housing designed for filtration and sterilization of liquid and gas.

Housing is available with two different surface finishing; polished for critical applications and silk finish for industrial use.

Fast and easy opening is achieved by screw thread between head and the bowl of the housing.

Housings are suitable for installing a wide range of filter elements type SOE 1001 available in various filtration rating for liquids, gases and vapors.



Main features

- Inlet / outlet standard connections 1/2" BSPP .
- Design Pressure 50 barg (725 psig).
- Vent safety, depressurizes the filter in case of accidental opening of the housing with residual internal pressure.

Construction materials

Housings : 316L Stainless Steel

Gaskets : Silicon or Viton according to the model

Surface finishing

Model CFL: external / Internal : polished

Model CFS : external / Internal : satinized

Design and construction

In compliance to PED European Directive

Certifications

Declaration of conformity PED and user guide are supplied with the product

Specifications

Model	In-Out Connections BSPP	Drain plug BSPP	Size filter element	Weight Kg	Volume L	Dimensions mm				
						A	B	C	D	E
CFL-F15-S	1/2" GAS	1/4" gas	SOE 1001	2,7	0,5	213	80	100	85	M6
CFS-F15-V										

Code information

CFL	—	F15	—	S
Model	Connections	Body seal		
CFL Polished	F15 1/2" BSPP	S	Silicon	
CFS Satinized		V	Viton	

Operating limits

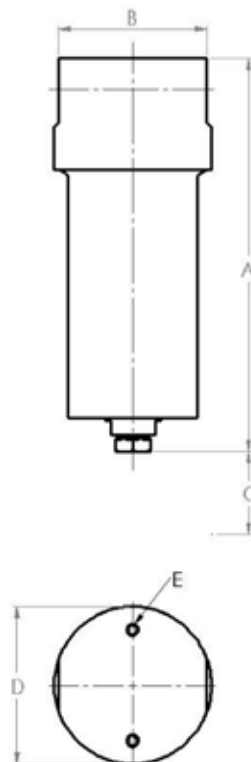
Fluid state	Temperature Min/Max	Pressure Max.
Liquid/Gas	-40 °C / 150 °C -40 °F / 302 °F	50 bar 725 psi
Steam	150 °C 302 °F	4 bar 58 psi

PED Conformity Assessment Category

Fluid group	PED
Group 1 (Dangerous)	CE marking exempt

Accessories

Description	Model
Ball drain valve 304 S.S. 1/4" BSPP	KC-V-B-M8-XX-GF-PN60



WTP-R

Housings for air and gases sterilization

Housings in stainless steel for filtration and sterilization of compressed air and gases in food and biopharmaceutical applications. Internal geometry is designed to avoid turbulence as well stagnation areas in order to minimize the pressure drops and to meet the requirements demanded by the applications.

WTP-R housings have in-out clamped connections. Vent and drain connections are available threaded or clamped, vent with or without lateral port.



Main features

- Suitable to fit filter elements code 7, size 10", 20" and 30".
- Suitable for in-line steaming.
- Traceability of materials linked to serial number.
- Compliant with Directive "PED" & "ATEX".

Materials

Housing: AISI 316L stainless steel
Body clamp: AISI 304 stainless steel
Gasket: silicon

Surface finishing

Inside: fine brushed with round welds
Standard rugosity: $Ra \leq 0,8$ mm downstream the filter element
Optional rugosity: $Ra \leq 0,4$ mm downstream the filter element
External: polished with round welds

Design and construction

According to PED and ATEX Directives

Certification

UE PED / ATEX declaration of conformity and user guide.
3.1 EN10204 material certificates supplied upon request.

Model	IN-OUT Connections	Filter elements Size	Weight Kg.	Volume L
WTP-R25-01-705-S-XX-S-8	TC 1"	20705	2,6	2,2
WTP-R25-01-71-S-XX-S-8		2071	3,0	3,0
WTP-R25-01-71-S-XX-B-8		2071	3,0	3,0
WTP-R25-01-72-S-XX-S-8		2072	4,0	4,5
WTP-R40-01-71-S-XX-S-8	TC 1½"	2071	3,0	3,0
WTP-R40-01-72-S-XX-S-8		2072	4,0	4,5
WTP-R40-01-73-S-BC-S-8		2073	5,0	6,0
WTP-R50-01-71-S-BC-S-8	TC 2"	2071	3,0	3,0
WTP-R50-01-72-S-BC-S-8		2072	4,0	4,6
WTP-R50-01-73-S-BC-S-8		2073	5,0	6,0
WTP-R50-01-71-S-XX-S-8		2071	3,0	3,0
WTP-R50-01-72-S-XX-S-8		2072	4,0	4,6

Note: for different configurations, see the selection table for ordering

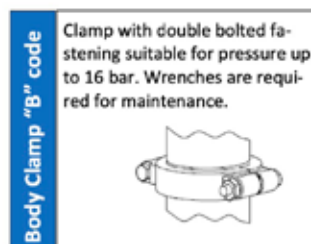
Selection table for ordering

Range	IN—OUT Connections	Qty Cartridges	Cartridges size	O-Ring Material	Vent Connections	Drain Connections	Body Clamp closure	* Finishing grade
WTP	R25 1" TC R40 1½" TC R50 2" TC	01 1	705 5" 20705 71 10" 2071 72 20" 2072 73 30" 2073	S Silicone	X ¼" GAS F B 1½" TC 2 1½" TC & Hosebarb 3 1½" TC & Rectus 21 4 1½" TC & Staubli RBE03	X ¼" GAS F C ½" TC	S max 10 bar B Double Bolted max 16 bar	4 Ra ≤ 0,4 µm 8 Ra ≤ 0,8 µm

Example code to order

WTP	-	R40	-	01	-	71	-	S	-	BC	-	S	-	4
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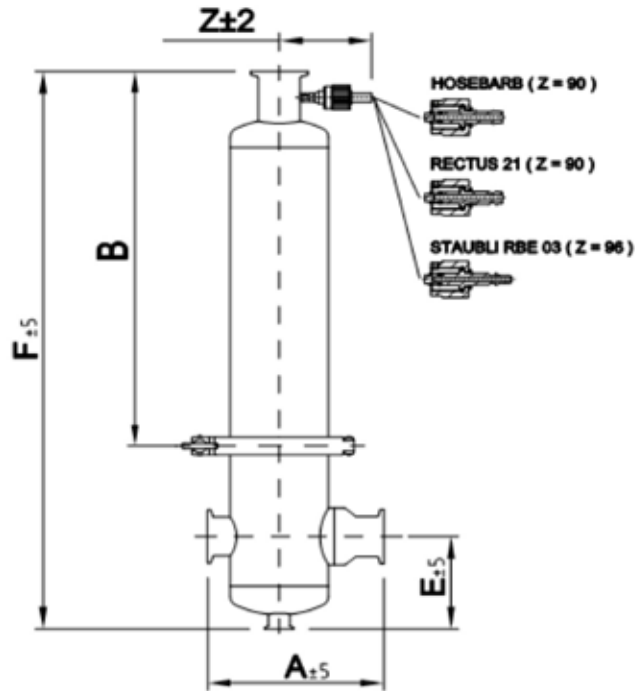
* downstream filter element



Operating limits		
Fluid state	Min/Max. Temperature	Min/Max. Pressure
Gas	-20°C /+ 150 °C	-1/10 bar (clamp S code) -1/16 bar (clamp B code)

PED & ATEX Conformity Assessment Category			
PED		ATEX	
Fluid group	Category	GAS	DUST
-1/10 bar—Non dangerous Group 2	Art.4 par.3 > 20" Cat.I	II 2 G Ex h IIC T3 Gb	II 2 D Ex h IIC 150°C Db
Fino a 16 bar—Non dangerous Gruppo 2	Art.4 par.3 > 10" Cat.I		

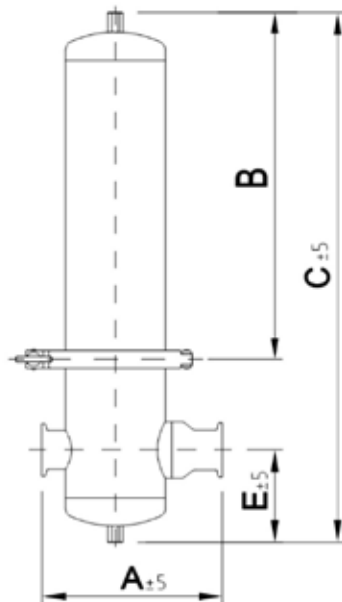
ALL CONNECTION CLAMP + LATERAL PORT



Nominal dimensions mm

Filter element size	A			B	F	E
	R25	R40	R50			
5"	139	137	148	230	398	90
10"				350	518	
20"				632	800	
30"				850	1018	

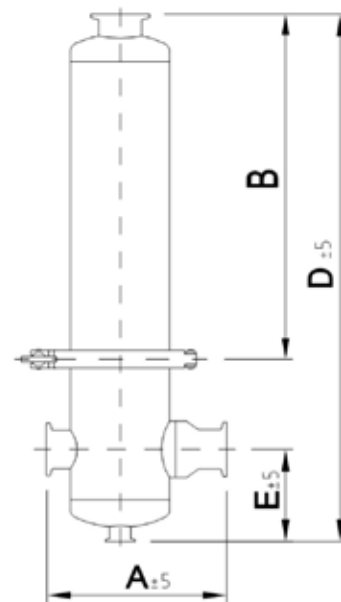
VENT/DRAIN THREADED



Nominal dimensions mm

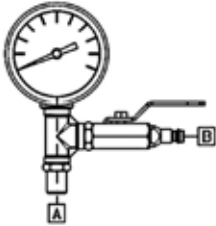
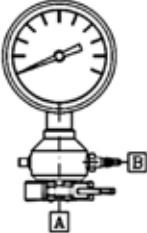
Filter element size	A			B	C	E
	R25	R40	R50			
5"	137	139	148	232	400	99
10"				352	520	
20"				602	770	
30"				852	1020	

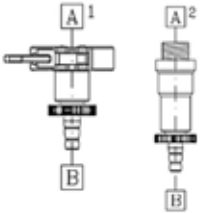
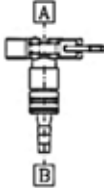
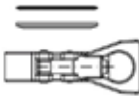
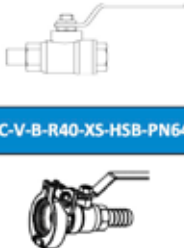
ALL CONNECTIONS CLAMP



Nominal dimensions mm

Filter element size	A			B	D	E
	R25	R40	R50			
5"	137	139	148	212	380	90
10"				332	500	
20"				582	750	
30"				832	1000	

Accessories	KC-M-H-M8-XX-STR	KC-M-M-R40-XX-STB	KC-M-N-R40-XX KC-M-P-R40-XX	KC-M-H-M8-XX
Pressure gauge				
	Pressure gauge	Pressure gauge & sanitary valve	Sanitary pressure gauge with diaphragm	Pressure gauge
Material:	AISI 316 / 304	AISI 316 / 304	AISI 316 / 304	AISI 316 / 304
Gasket material:	-	Silicone	Silicone	-
Windows diameter:	DN 63 / 2,5"	DN 100 / 4"	DN 100 / 4" DN 63 / 2,5"	DN 63 / 2,5"
Pressure range:	0-10 bar / 0 -145 psi			
Process Temp:	100°C / 210 °F			
Process connection:	A - 1/4" gas M	A-clamp 1½"	A - clamp 1½"	A - 1/4" gas M
Valve:	B- ball valve RECTUS 21KA Ø9mm	B-sanitary valve Staubli RBE 03	-	-

Accessories	¹ KC-V-S-R40-XX-HSB-PN18 ² KC-V-S-M8-XX-HSB-PN18	KC-V-S-R15-XX-HSB	³ KC-V-T-R15-XX-XX-XX ⁴ KC-V-T-R40-XX-XX-XX	⁵ KC-V-B-M8-XX-GF-PN40
Vent and drain				
	Vent sanitary valve	Sampling test sanitary valve	End cap / clamp	Ball valve
Material:	AISI 316/clamp AISI 304	AISI 316/clamp AISI 304	AISI 316 /clamp AISI 304	AISI 316 /clamp AISI 304
Gasket material:	¹ A- Silicone	Silicone	Silicone	⁶ Silicone
Pressure range:	18 bar / 261 psi	10 bar / 145 psi	18 bar / 261 psi	⁵ 40bar / 580 psi ⁶ 18bar / 261 psi
Max Temperature :	150 °C / 302°F			
Process connection:	¹ A- clamp 1½" ² A- 1/4" gas M	A - clamp ½"	³ clamp ½" ⁴ clamp 1"½"	⁵ 1/4" gas MF ⁶ clamp 1"½"
Valve:	B - hosebarb Ø 12mm	B -hosebarb Ø 6 mm		⁶ hosebarb Ø 12 mm



The cartridge configuration Tab



BEA CODE 207



BEA CODE 20705 (5" Length only)



BEA CODE 200



BEA CODE 203



BEA CODE 212



BEA CODE 208



BEA CODE 12005 (Junior Style)



BEA CODE 1001 (Junior Style)



BEA CODE 1440 (Junior Style)

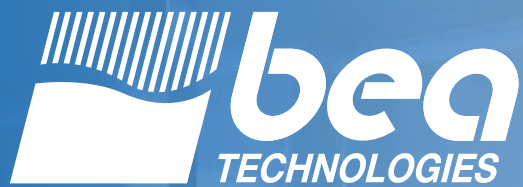


BEA CODE 209









Filtration Systems

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