

Data Sheet

Steelgard™ and Meshgard™ Cartridges

Multi-use stainless steel cartridges for industrial applications

Steelgard™ and Meshgard™ cartridges are designed to handle a wide range of industrial applications including: steam, gas, fluids with very high temperature and viscosity, as well as cryogenics. These filters are made entirely of 316L stainless steel and assembled using microplasma weld. The filtration media consists of wires woven to form a uniformly spaced fabric, providing up to twice the surface area.

Benefits

- Very good temperature resistance, high chemical compatibility
- Possible to pleat fabric, providing up to twice the surface area
- Low load loss thanks to very high porosity
- High retention capacity
- Limited release thanks to cleanliness of the stainless steel material used
- Finishes: stripped and passivated

Wide Range of Configurations Available

Steelgard™ and Meshgard™ cartridges are available in standard or custom end fittings, enabling you to easily select the right filter for your process needs.

Sizing for the Filtration of Liquids

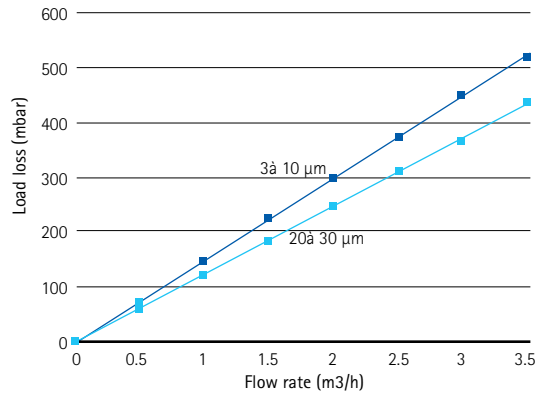


Figure 1. Pressure drop versus flow of water at 20 °C for 10 cartridges in Code 7 Media Cylindrical

Changes related to codes are:

- Code 0, Flow x ~ 0.75
- F Code, Flow x ~ 0.60

These values are applied to previous values (date with Code 7).

- The pleated cartridge has a throughput gain from 20 to 30% relative to the cylindrical cartridge of the same height.
- The correction factors for viscous liquids are:
 - From 10 to 100 cP
 - 100 1000 cP
- The establishment cartridge 30 N brings no gain term. Lowering loss initial charge against the latter by grow more slowly during the filtration capacity being proportional to the filtration surface used.

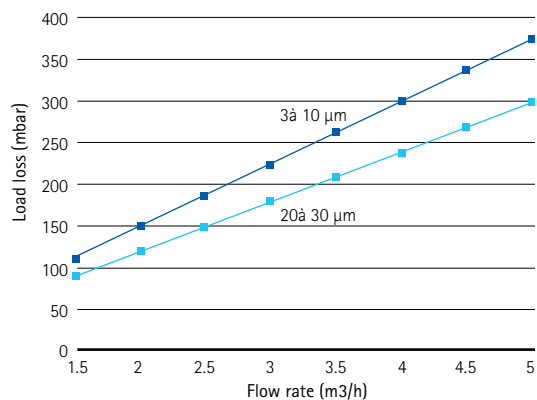


Figure 2. Pressure drop versus flow of water at 20 °C for 20 cartridges in Code 7 Media Cylindrical

Sizing for the Filtration of Steam and Gas

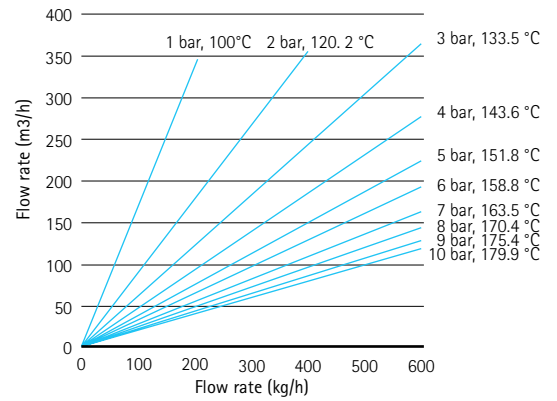


Figure 3a. Processing steam output kg/h m³/h at different pressures

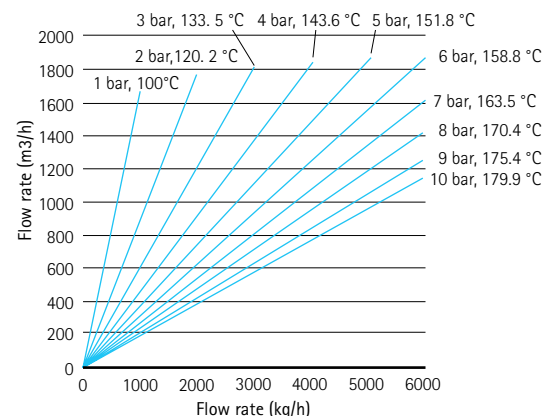


Figure 3b. Processing steam output kg/h m³/h at different pressures

Determining the Area in cm² of the Filter Medium

The loss is inversely proportional to the area of the filtration. Data for a threshold of 1 µm. The loss is 9 times for a threshold lower than 5 µm and 18 times lower threshold for 10 µm.

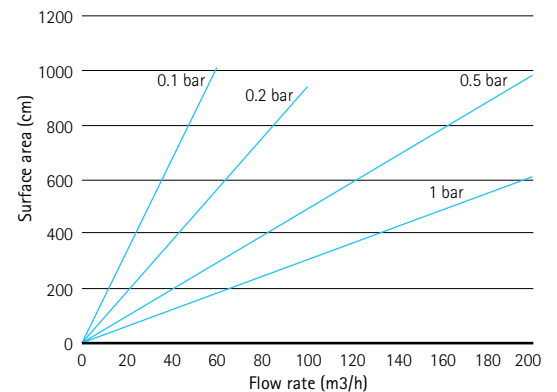


Figure 4a. Determining the area in cm² of the filter medium

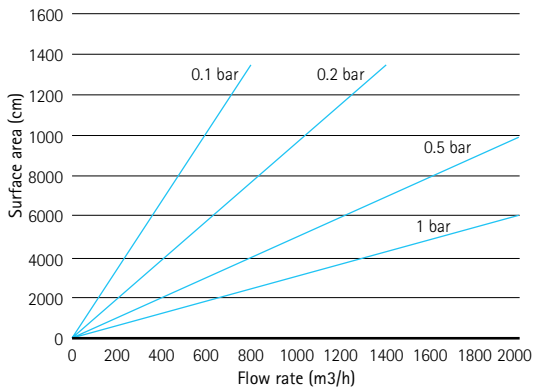


Figure 4b. Determining the area in cm² of the filter medium

Principle

Regeneration of a Meshgard™ or Steelgard™ cartridge takes place in two ways—actively via counter-current, in cold water, hot water and/or with a cleaning agent or statically—dissolution bath or by ultrasound. A combination of these two operating methods may prove to be more effective.

Regeneration of a cartridge is more effective performing an operation as a preventive measure; namely, when the generated load loss is low: three to four times the initial load loss.

Beyond an increase of eight times the initial load loss, cleaning becomes ineffective and unlogging is impossible.

Meshgard™ and Steelgard™ Cartridge Regeneration Procedure

The cleaning efficiency of the filtration elements depends on the:

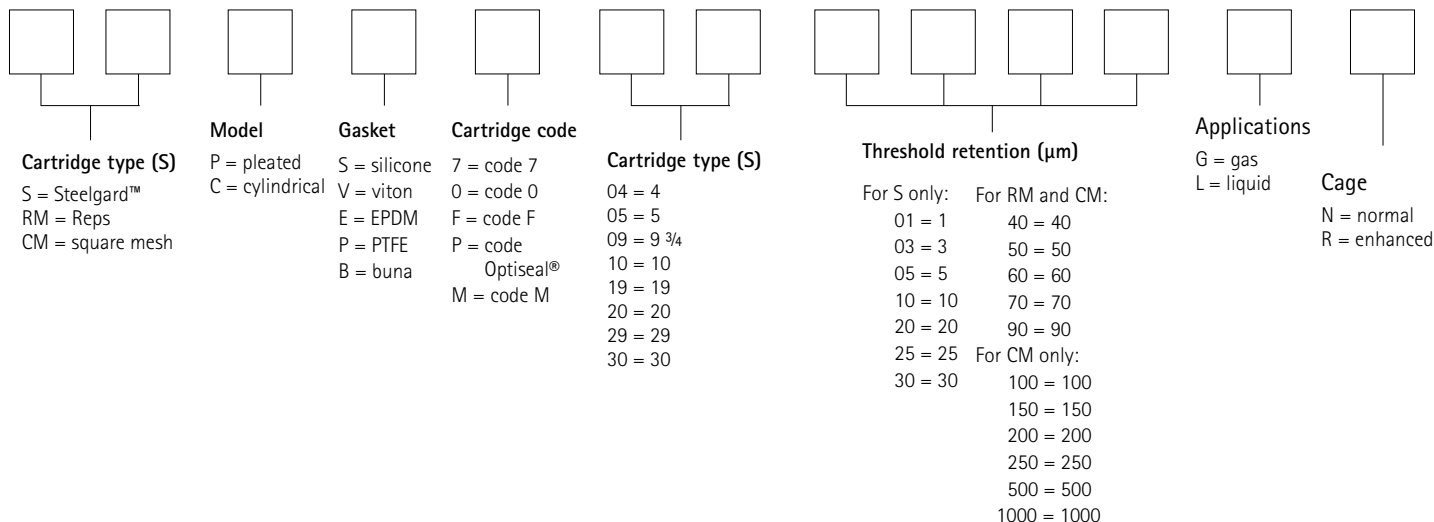
- Nature and type of clogging particles
- Incrustation of these particles in the media
- Differential pressure reached before cleaning

Specifications

Compliance with Pressure Equipment Codes; CFR Compliance; USP Class VI Compliance

Specifications	Meshgard™ Cartridges	Steelgard™ Cartridges
Operating conditions	-250 °C to 350 °C	
	Differential pressure with external cage: 10 bar at co-current flow, 3 bar at counter-current flow	
	Differential pressure without external cage: 10 bar at co-current flow, 1 bar at counter-current flow	
Materials of construction – wetted parts (All metal surfaces in contact with the product)	SST 316L	SST 316L
	The filtration media, made of 316L stainless steel, consists of wires woven to form a uniformly spaced fabric. Two types of weave are available (the choice of weave depends on the required level of retention efficiency).	
	Reps (crossed mesh): Efficiency rating of 99.99% from 40 to 100 µm	
	Square mesh: Efficiency rating of 98% from 100 µm and above	
Materials of construction – Elastomers	Silicon, fluoroelastomer, EPR, PTFE, Buna	
Cartridge code	7,0,F, P, M	
Cartridge filtration surface area	See ordering information	
Cartridge size/type (in.)	4–30"	
Quality	The product is delivered with certificates of conformity, scouring/passivation, Material 3.1B, minutes control, and minutes bubble point test	

Ordering Information



For fluid direction of flow from inside to outside, or in both directions, it is imperative that cartridges with external cages and code 7 end fittings are used.

For a filtration rate lower than 30 µm, we recommend to use Steelgard™ cartridges.

For a filtration rate more than 40 µm, we recommend to use Meshgard™ cartridges.

Within a normal use, these cartridges are cleanable until 10 times.

The o-rings have to be changed every 100 steam cycles

Above 200 µm, it is recommended to use cylindrical media (the use of pleated cartridges provides no specific advantages).

Steelgard™/Meshgard™ Cartridge Filtration Surface Area

Cartridge size (inches)	Surface area with Pleated Media (cm ²)	Surface area with Cylindrical Media (cm ²)	Max. external diameter (mm)
4	400	220	60
5	500	250	73
10	980	515	73
20	1960	1030	73
30	2960	1545	73

The diameter 73 mm refers to cartridges with external cages. Without an external cage, the maximum diameter is 70 mm.

4" cartridges are code P or M. These cartridges do not have external cages as standard equipment.

Other configurations are available: do not hesitate to contact your technical department.

To Place an Order or Receive Technical Assistance

In the U.S. and Canada, call toll-free **1-800-645-5476**

For other countries across Europe and the world, please visit www.millipore.com/offices

For Technical Service, please visit www.millipore.com/techservice



www.millipore.com

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