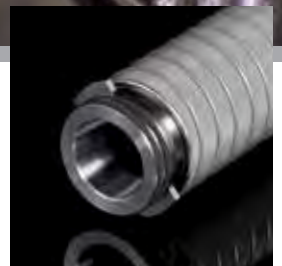
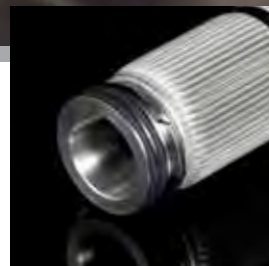
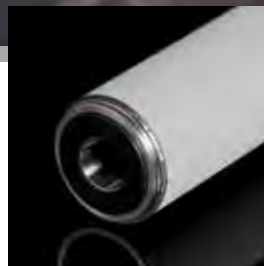
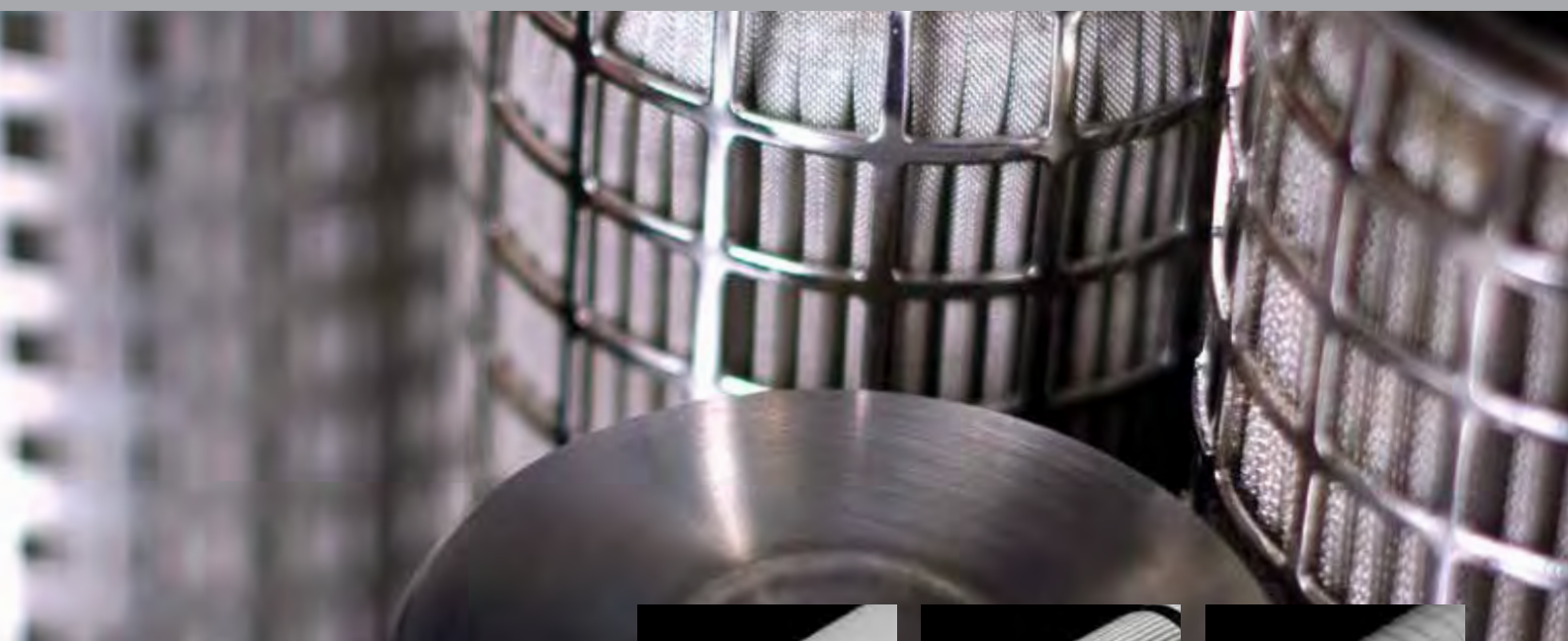


VAN BORSELEN FILTERS

# Metal Filter Cartridges and Element



World's greatest range metallic filters



[www.vanborselen.nl](http://www.vanborselen.nl)



Van Borselen Filters is an international leader in the development and supply of materials and products for applications in filtration and separation. Our expertise is wide and varied, with products used in markets such as:

- Aerospace and Defence
- Food and Beverage
- Gasification
- Life Sciences and Scientific
- Microelectronics
- Nuclear
- Pharmaceutical
- Porous Media and OEM Materials
- Printing
- Process
- Transportation
- Water

Our ongoing success is based on a dedication to technical excellence and superior customer service. Our future will be built on our investment in research and development to provide innovative new products that exceed the expectations of our customers in solving the challenges that they face.



# Metal Filter Cartridges and Elements



Van Borselen Filters Supplies a broad range of industry standard stainless steel filter cartridges suitable for use in a wide range of industries, including petrochemical. The robustness of design, that is provided by a fully welded metallic element or cartridge, is required to resist deterioration in harsh operating environments where the fluids present are aggressive, high temperatures are experienced or where the operating differential pressures are high. For some filtration applications, the use of a conventional disposable polymeric cartridge may simply be environmentally unacceptable and the use of a re-cleanable cartridge will often give more cost effective filtration.

These filter elements are offered in the following media configurations:

BorsoMetal-CF Sintered Metal Fibre  
 BorsoMetal-CP Sintered Metal Powder  
 BorsoMetal-PF Pleated Fibre  
 BorsoMetal-SMC Sintered Metal Composite  
 BorsoMetal-CM Cylindrical Mesh  
 BorsoMetal-PM Pleated Mesh

## Cartridge and Element Construction

The BorsoMetal range of filter cartridges and elements are constructed in stainless steel 316L as standard. These filters are available in a cylindrical element configuration. Giving  $0.55\text{ft}^2$  ( $0.05\text{m}^2$ ) of active filtration area per 10" length and pleated cartridge configuration. Giving  $1.40\text{ft}^2$  ( $0.13\text{m}^2$ ) of filtration area.



The cylindrical element design provides a sleeve of filter medium (protected and supported by woven meshes) around a support core. The pleated cartridge design uses a precision pleated pack (again comprising protection and support meshes either side of the filter medium) around a support core to provide nearly three times the effective filtration area of the cylindrical element.

In both designs the filter media and support meshes are TiG seam welded and the media support core and end fittings are fully TiG welded together. This method of construction guarantees cartridge integrity, eliminating the risk of bypassing and the presence of extractables derived from bonding agents. The method of construction and materials used allow for operation from  $-238^\circ\text{F}$  ( $-150^\circ\text{C}$ ) to  $572^\circ\text{F}$  ( $+300^\circ\text{C}$ ) and up to 367psi (25bar) differential pressure in normal flow direction. Higher operating temperatures and differential pressures can be accommodated by design.

In the double open ended configuration, in addition to the support core, there is a 1" (25mm) inner core to assist the location of multiple length units onto tie rods. The pleated cartridge style has an outer guard (optional for the cylindrical element design) for protection and to allow for back flushing up to 44psi (3bar).

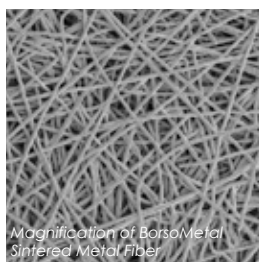


## BorsoMetal Sintered Metal Fiber



Manufactured from random laid metal fibers, sinter bonded to form a uniform high porosity filter medium, **BorsoMetal Fiber** offers:

- \*high permeability
- \*low clean and operating pressure drops
- \*excellent cleanability and dirt holding capacity
- \*long life
- \*minimal maintenance costs
- \*pleatable, offering higher filtration area per element
- \*available in 316L as standard with other alloys such as 304L stainless steel, Inconel® 601, Hastelloy® X, NiCrMo Alloy 59 and FeCrAl Alloy on request.



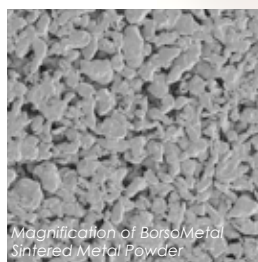
Magnification of BorsoMetal Sintered Metal Fiber

## BorsoMetal Sintered Metal Powder



A robust filter material manufactured from sinter bonded metal powders, **BorsoMetal Powder** offers:

- \*low permeability, but extremely robust construction
- \*depth filtration
- \*high resistance to corrosion
- \*self supporting construction eliminating the need for additional hardware
- \*efficient and cost effective
- \*available in 316L as standard with other alloys such as 304L stainless steel, Inconel® 600, Hastelloy® X and Monel® on request, as well as sintered powdered bronze.



Magnification of BorsoMetal Sintered Metal Powder



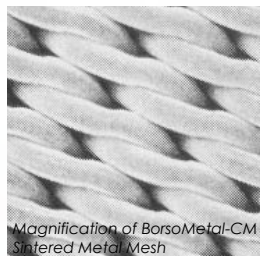


## BorsoMetal Sintered Metal Mesh



A multi layered, diffusion-bonded, precision stainless steel woven mesh, **BorsoMetal Mesh** offers:

- \*high permeability
- \*high strength
- \*available in both Lo Pass and Hi Pass media
- \* available in a wide range of mesh sizes and separation ratings
- \* available in a range of plate sizes and other shapes, this layered mesh can be custom designed for non-standard applications
- \* available in 316L stainless steel as standard with other alloys such as 304L stainless steel, Inconel®, Hastelloy® and Monel® on request.



Magnification of BorsoMetal-CM Sintered Metal Mesh



## BorsoMetal Sintered Metal Composite

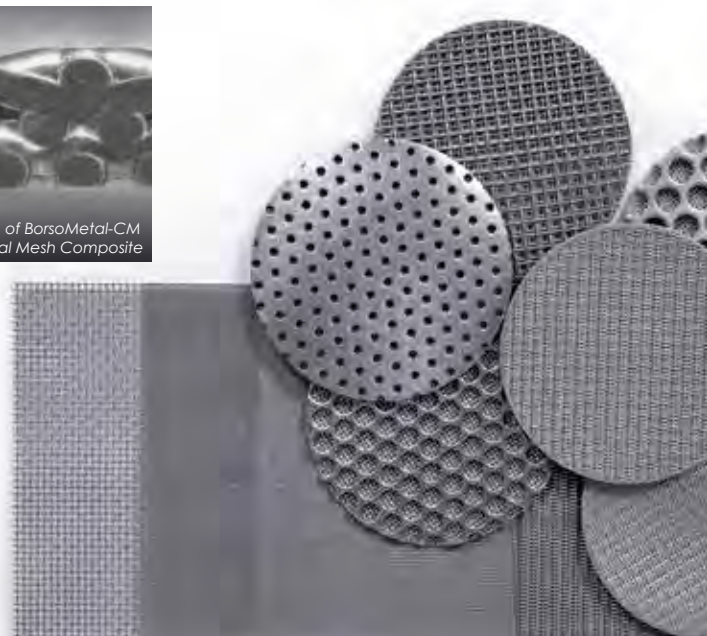


A multi-layer precision filter mesh that is produced using a novel sintering process, **BorsoMetal Composite** offers:

- \*a superior, mechanically strong structure
- \* fabricated shapes without expensive support structures or joining strips
- \* can be reused as the structure allows repeated cleaning, providing an economical choice.
- \* non-shedding media that provides resistance to mechanical abrasion
- \* easily custom-engineered to meet required specifications of materials, strength, flow requirements, thickness, micron rating and environment
- \* depending on atmospheric conditions, it can be used in temperatures up to 1004°F (540°C), with intermittent operating peaks up to 1202°F (650°C)
- \* primarily made from 316L stainless steel, it is also available in Inconel®, Hastelloy® and Monel® materials for use in the most aggressive environments
- \* resistance to most chemicals.



Cross section of BorsoMetal-CM Sintered Metal Mesh Composite





# Specifications

## Materials of Manufacture

316L stainless steel standard. 304L stainless steel, Inconel®, Hastelloy®, Monel®, NiCrMo Alloy 59 and FeCrAl Alloy on request or by process selection. Additional alloys are available on request.

## Cartridge Dimensions

Diameter\*: 2.6" (66mm) as standard.  
Lengths\*: 5" (125mm), 10" (250mm), 20" (498mm), 30" (745mm) and 40" (1012mm).

\*Other diameters and non-standard lengths available on request.

## Effective Filtration Area

Pleated cartridge: 1.40ft<sup>2</sup> (0.13m<sup>2</sup>)  
Cylindrical cartridge: 0.55ft<sup>2</sup> (0.05m<sup>2</sup>)

## Gaskets and O-Rings

EPDM as standard. Nitrile, PFTE, Silicone, Viton® and PFTE coated Viton® available on request or by process selection

\* FDA approved seals are available.

## Typical Maximum Differential Pressure\* (all lengths)

Normal flow direction: 218 to 367psi (15 to 25bar)

Reverse flow direction: 44 to 145psi (3 to 10bar)

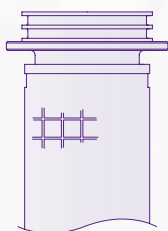
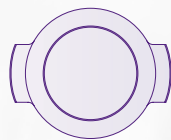
## Operating Temperature

Maximum continuous: From -195°C (-319°F) to 340°C (644°F) seal limiting,

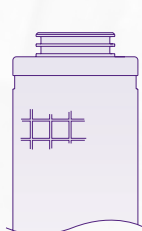
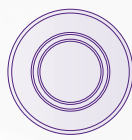
From -269°C (-452°F) to 1000°C (1832°F) alloy dependant.

## Cartridge End Fittings

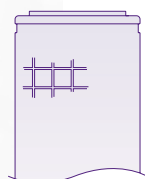
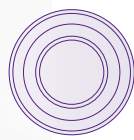
226 Fitting



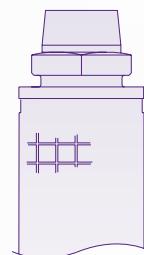
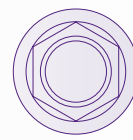
222 Fitting



Double Open Ended Fitting



Threaded End Fitting



# Product Innovation, Manufacturing, Testing and Quality



Van Borselen Filters has a policy of continuous improvement in all areas of its business. Listening to the customers' present and future requirements is a vital part of our operations and a key part of driving change. We understand that product development involves building multidiscipline teams, not only within the company, but often in partnership with our customers, improving project efficiency and ensuring complete customer satisfaction. This continuous development of products and materials is vital, to enable us to offer new and better solutions to applications. Van Borselen Filters has implemented various methodologies to drive out waste and process variance across the company to achieve the ultimate goal of zero defects.

We have a dedicated team of scientists, engineers, production and quality professionals working towards the best possible filtration solutions for our customers. We have access to a fully equipped test house and laboratory, and our experienced design engineers use the latest AutoCAD® technology, with 3D solid modelling, integrated with a finite element analysis system to give full structural assurance capability.

Quality is at the heart of every stage of our operation and a fundamental part of our culture.





## Additional Information

### Range

Van Borselen Filters Supplies a full range of filtration products: e.g.: Filtercartridges (Meltblown/ Membranes/ Activated Carbon) Filter housings, Filterbags, Lenticular Module Filters, Self Cleaning Filters, Filter Sheets, Sieving Machines, Porous Sintered Metal, Oilskimmers, Strainers and many more..

### Product innovation

We understand that product development involves building multidiscipline teams, not only within the company, but often in partnership with our customers, improving project efficiency and ensuring complete customer satisfaction. This continuous development of products and materials is vital, to enable us to offer new and better solutions to applications. Our manufacturing facility has implemented various methodologies to drive out waste and process variance across the company to achieve the ultimate goal of zero defects.

### Quality control

Our factories are all located in Western Europe and are accredited to ISO 9001-2008.

All our filters are fully traceable and manufactured under clean room conditions.

### Engineering capacities

One of our strengths is developing filter vessels for critical applications in the chemical industry.

We have a wide experience in supplying filter vessels, like Duplex (UNS S31803), Super-Duplex (UNS S32750/60), Titanium, RvS316L, CS (optionally with a coating or lining).

Our filter vessels comply with the necessary design codes (ASME VIII, EN13445, U-stamp and PD5500) and comply to ATEX and PED 97/23/ EC standards. Both liquids and gases PED classes I, II, III, IV, all modules

### Manufacturing and Testing

We have a dedicated team of scientists, engineers, production and quality professionals working towards the best possible filtration solutions for our customers. We have a fully equipped test house and laboratory, and our experienced design engineers use the latest AutoCAD® technology, with 3D solid modelling, integrated with a finite element analysis system to give full structural assurance capability.



APPROVED



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