

## **STEAM FILTRATION TECHNICAL BROCHURE**

Filtered steam is required whenever steam comes in direct contact with food product or product contact surfaces.

It is also necessary to protect sterile filter integrity when using steam to sterilize filter elements. Filtered steam is recommended for the protection of precision modulating system components like pressure reducing valves, and to maintain efficiency of any heat transfer equipment.

TFI is offering replacement elements equivalent to  
Parker Domnick Hunter, Sartorius, Millipore, Pall

In many applications steam comes in contact with the product itself. For example, direct injection of steam into large vats of processed foods is one method used to cook those foods. In other cases, steam is used to clean or sterilize surfaces, tools and containers used in processing and packaging of various products such as pharmaceuticals. In all cases, steam is being generated and distributed in piping systems, and these often end in small orifices or nozzles that can be easily fouled by contaminants in the steam.

Filtration of steam is essential to avoid product contamination and equipment downtime. Particulate contaminants found in steam can include rust, scale, dirt and sediments carried over from the water source.

### **• APPLICATION :-**

There are several terms used for steam. Process steam is used in process applications as a source of energy for process heating, pressure control and mechanical drives. Culinary steam can be direct injected during food processing. Culinary steam needs to meet 3-A Culinary Standards for the dairy industry. Process steam does not generally come in contact with the final product whereas culinary steam can, and often does, come in direct contact with the final product

- Direct Steam Injection
- Recycle / heat exchanger
- Sterilization in place – Food usage
- Cleaning in place – Food & Pharma usage
- Humidification & Control
- Pasteurisation Cycles
- Steam Sanitisation & Disinfectioning
- Bio-Film Removal
- Rust prevention to food contacts
- Steam Spraying



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An ISO 9001-2008 Certified Company

**FILTRATION (INDIA) PVT. LTD.**

CIN No. : U52330GJ2012PTC069849

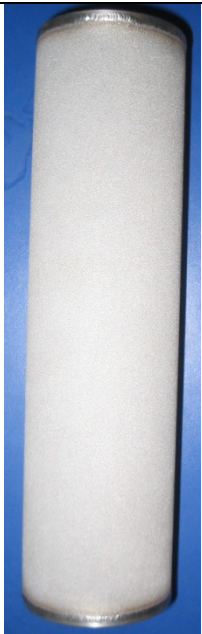




**For Purification, Clarification, Separation & Cleanliness**

• **STEAM FILTRATION MEDIA :-**

Sr.	Media	Micron rating	Type of cartridges	Porosity
1.	SS 316L Wire mesh filter media	Suitable upto 25 micron and above	Cylindrical & Pleated Type	30 to 55%
2.	SS 316L Sintered Non Woven Fiber Media	Suitable upto 10 micron to 25 micron	Cylindrical & Pleated Type	80 to 85%
3.	SS 316L Sintered Powder filter media	Suitable upto 0.2 micron to 10 micron	Cylindrical Type with 50 mm OD/ 64 mm OD & 76 mm OD	30 to 50%

**NOTE : High dust holding capacity & Low DP Due to lower wall thickness**

• **FILTER CARTRIDGES END CONNECTION :-**

DOE	1" BSP Threaded	Code II	Code VII	Flanged End
				



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• **FEATURES :-**

1	Length available upto 1590 mm, Diameter range 14 mm to 130 mm, Micron rating 0.2 $\mu$ to 40 $\mu$ .	➤ Achieving a large range of requirement for air, gas, steam & liquids
2	100% SS 316L sintered powder in seamless cartridges	➤ Excellent resistance to corrosion with steam & aggressive chemicals
3	Wire mesh and sintered non woven fiber Cartridges Pleated or cylindrical type are 100% welded construction	➤ Longer life cycle
4	Sintered powder filter element are supporting all requirement for culinary grade steam as per 3-A documentation & culinary steam Norms as per 609-03	➤ All components are mating FDA requirement for food application in accordance with code of FDA – CFR (21)
5	Regeneration By Reverse Cleaning, backwashing, ultrasonic cleaning, Solvent Cleaning, H <sub>2</sub> O <sub>2</sub> & Chemical Cleaning	➤ Longer Filtration Cycle ,Life Cycle & Low operating cost

• **SPECIFICATIONS :-**

• **Max. Operating Temperature**

1	<b>SS 316 Media</b>	<b>300 Deg C</b>
2	<b>EPDM</b>	upto 160° C
3	<b>SILICON</b>	upto 180° C
4	<b>PTFE</b>	upto 190° C
5	<b>Viton F</b>	upto 200° C



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- **PRESSURE :-**
  - Customised Design Up to 25 -30 bar
  - Pressure more than 20 Bar –Cartridges are inserted Spring Support Inside.
- **CONFIGURATION :-**
  - Refer End Connection Segment with photographs
- **MAX. DP :-**
  - Up To 3 bar with 2 mm wall thk. Of Filter Element
  - Up To 5 bar with 3 mm wall thk. Of Filter Element
- **Life :-**
  - Purely Depending on Cleaning Frequency
  - Element Replacement Only When No Bubble Found After the Cleaning cycle when complete Choking of pores
- **FLOW CAPACITY :-**

SATURATED STEAM with 10" long Filter cartridge x 64 mm OD					
Retention Efficiency			Operating Pressure		
Pore size	AS Per ASTM F 795 98%	AS Per ASTM F 1295 100%	@2 kg/cm <sup>2</sup>	@3-4 Kg/cm <sup>2</sup>	@ 7 kg/cm <sup>2</sup>
1 Micron	0.5 Micron	1 Micron	100 kg/hr	150 kg/hr	175 kg/hr
5 Micron	1 Micron	5 Micron	150 kg/hr	200 kg/hr	225 kg/hr
10 Micron	5 Micron	10 Micron	175 kg/hr	250 kg/hr	250 kg/hr

**Note : ASTM F 795 - Single pass test**

**ASTM F 1295 - Multi pass test**



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### **Quality Orientation & Assurance**

- All components are manufacturing from FDA approved material and listed for use in food contact as per Code of Federal Regulation (CFR -21)
- All products are inspected and released for dispatch after clearance from quality team
- All Element Manufacturing in 100% welded Construction and Fabricated without use of adhesives, Additional binders and glue.
- All Filter Elements are assembled, fabricated & welded packed according to ISO -9001.

### **• REGENERATION & CLEANING PROCEDURE**

- Steam flow direction is out – to – in, the Sintered SS 316L Powder filter cartridge can be cleaned by Pressurized filtered compressed air, hot water, Steam at 2 – 2.5 Kg/cm<sup>2</sup> pressure in reverse direction By applying Shock Wave from in – to - Out direction.
- The element can be also be cleaned by sonication in filtered water (open end must be closed) before dipping in water or cleaning solvent.
- After drying the element it can be reinstalled in the filter housing.
- Normally these filters are cleaned every week to avoid microbial growth on element surface.
- Sometimes dilute nitric acid 0.05% in filtered water is also used if any sticky mass is found on the element surface.