Hall Pyke

Stainless Steel Filters

Suggested Cleaning Procedures for Porous Metallic Elements

The SMART choice for filtration

Suggested Cleaning Procedures for Porous Metallic Elements

Reverse Flow

In applications where the majority of the contaminant is larger than the pore size of the filter media, most of the contaminant will remain on the surface or very near to it. In these instances, the elements may be cleaned by simply reverse flowing liquid or gas through the element. This can be done while the element is in the housing or it can be done externally. Typically, a high reverse flow (at least 2 times the forward flow) for a short duration provides good cleaning. The fluid used to reverse flow must be clean or filtered so as not to plug the filter media from the reverse flow direction.

For fibre and mesh cartridges, reverse flow differential pressure should not exceed 1bar unless a backflushing guard is provided, when it can be increased to 3bar. Pleated cartridges are provided with a backflushing guard as standard and the cylindrical cartridge has an optional guard. Due to their robust construction, powder cartridges can tolerate reverse flow differential pressures up to 50bar.

Ultrasonic Cleaning

This is a satisfactory method for cleaning elements contaminated with hard, non-deformable particulate caught on or near the surface of the media. Deeply embedded particulate may not be completely removed. The element should be rotated in the bath containing 0.1% commercial detergent. The cleaning solution should then be replaced with filtered or distilled water and the element rinsed for at least 2 minutes. A repeat rinse may then be required.

High Temperature Burnout

This procedure is typically used with contaminant that hardens on exposure to air such as polymer, paint, adhesives, tape coatings etc. The element is placed in an oven and the contaminant is incinerated. Following incineration, the element then goes through a liquid chemical cleaning process that may involve a series of cleanings with a variety of chemicals and a final neutralisation, if required, and filtered water rinse. This is both an expensive and lengthy procedure. A few large customers will have in-house facilities, but for the most part, this procedure is contracted out to independent specialised cleaning companies.

For woven wire mesh cartridges, we do not recommend exceeding a temperature of 300°C during burnout. Great care must be taken if there is to be any furnacing of stainless steel fibre cartridges to avoid any possibility of chromium carbide precipitation and consequent enbrittlement of the fibre. In general, we do not recommend furnacing of stainless steel fibre.

Chemical Cleaning

In this procedure, a variety of chemicals (solvents, acids, caustic, etc.) are used to dissolve the contaminant or the process fluid (such as paint or polymer) if it has hardened on exposure to air.

This procedure can remove contaminant not only from the surface, but can also remove extremely fine particulate that may be caught in the depth of the media. The element can be cleaned either by reverse flowing the chemical, as indicated in the above procedure, or by removing the element and immersing it in the chemical with periodic agitation. Following cleaning, the residual chemical solution on the element should be neutralised and the element flushed with filtered or distilled water until a neutral or acceptable situation is achieved. In all applications, the customer should be consulted regarding information as to which chemical is best suited to dissolve his contaminants and is compatible with his process. Chemicals used to clean the metallic element should be compatible with the filter media.

Integrity Testing

Following cleaning, the elements should be checked for cleanliness and/or damage by either a bubble point or air flow permeability check. Base values with a new, unused element should be established by the customer to serve as a measurement against values obtained following cleaning. It is also advisable to check the weight of the element after cleaning and compare it with the virgin data.
Typical Flow Rates in Steam
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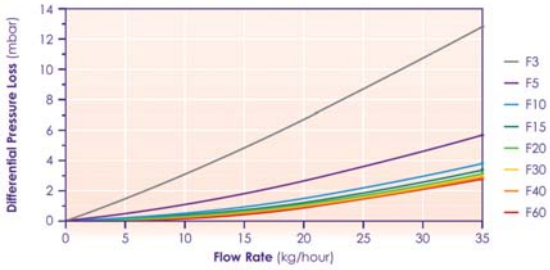
Typical Flow Rates in Steam

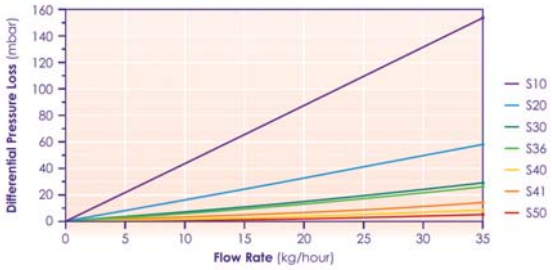
Flow Characteristics

The flow rates in the graphs below are calculated using a 10" pleated element for fibre and mesh, and a 10" cylindrical element for powder. The conditions are referenced at a temperature of 100°C and a pressure of 1 bar absolute. Please contact Hall Pyke for information on other steam conditions.

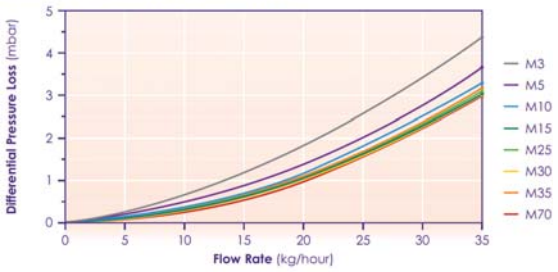
Sinterflo® F Sintered Metal Fibre



Sinterflo® P Sintered Metal Powder



Sinterflo® M Sintered Metal Mesh



Hall Pyke The SMART Choice

for Filter Housings

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