PMF
POROUS METAL FILTERS

Toll Free: 866-288-2522

SinterPore® Fluidizing Media

SinterPore media is ideal for fluidized transport and handling of bulk powder materials

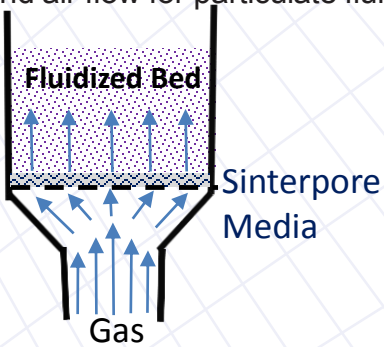
.

SinterPore laminates are permanently bonded under precise diffusion bonding (sintering) conditions to yield robust monolithic materials used in a wide variety of fluidizing applications.

Applications

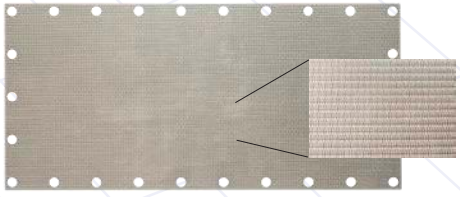
- Fluidizing Beds
- Aerator for Hoppers
- Air Slides, rolls and bearings
- Spargers
- Resin and Catalyst Beds
- Vacuum Forming and Molding
- Air Gravity Conveyors
- Flame and Spark Arrestors
- Air Gravity Conveyors
- Flame and Spark Arrestors

Features and benefits: The Sinterpore multilayer laminate construction results in a strong product with precisely controlled porosity, uniform pore sizes and distribution. The media provides uniform distribution of gas and air flow for particulate fluidization and aeration.



Advantages

- Cleanable
- Heat Resistant
- Abrasion Resistant
- Easily Fabricated
- Uniform Flow
- Fixed Pore Geometry



Porous Metal Filters Inc.
19994 Hickory Twig Way Spring TX 77388
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www.pmfilter.net **sales@pmfilter.net**

DORSTENER DRAHTWERKE
Group of Companies

CERTIFIED ISO 9001 COMPANY

Please note Technical information subject to change

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Sinterpore sheets can be ordered in most common alloys for corrosion resistance and can be easily cut, punched, sheared, welded, and formed like any other sheet steel product to custom fit most any application.

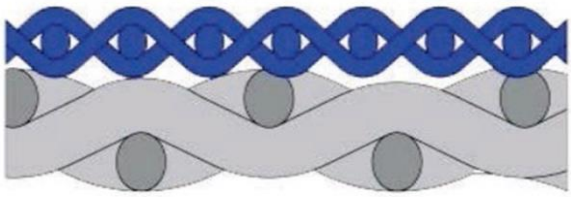
Specifications:

- Standard Alloys: 304, 304L, 316, 316L, Alloy20 also available in Inconel 600 and 625, Monel, and Hastalloy upon request..
- Operating temperature 1000^0 F
- Standard Sheet Sizes: 18" x 48", 24" x 48" Custom sizes available upon request. Maximum laminate size without welding is 24" x 60" (larger sheets available with welds, maximum panel width with welds 120").

Multi-Layer Media Diffusion-Bonded Structure

Sinterpore is available in 2-layer and 3-layer composite structures depending upon flow requirements. Each layer in the laminate performs a specific function in the structure. Heavy meshes provides strength and support to finer meshes which provide flow distribution and particle barriers.

2-Layer Sinterpore Media Structure



	Part Number	Number of Layers	Mean Air Flow (SCFM/SF @ 2" W.C.)	Max Thickness (inches)
Lo-Perm	F-PMF-316L-SP-LF-05	3	5	0.064"
	F-PMF-316L-SP-LF-10	3	10	0.069"
	F-PMF-316L-SP-LF-25	3	25	0.073"
Hi-Perm	F-PMF-316L-SP-HF-100	2	100	0.052"
	F-PMF-316L-SP-HF-200	2	200	0.060"
	F-PMF-316L-SP-HF-400	2	400	0.072"

Engineered Pore Structure and Flow Dynamics

In addition to the standard **Sinterpore** Low perm and High Perm media, custom designs can be specified for almost any application. Strength, pore size, porosity, tortuosity, permeability and edge flow resistance all can be designed to a given specification.

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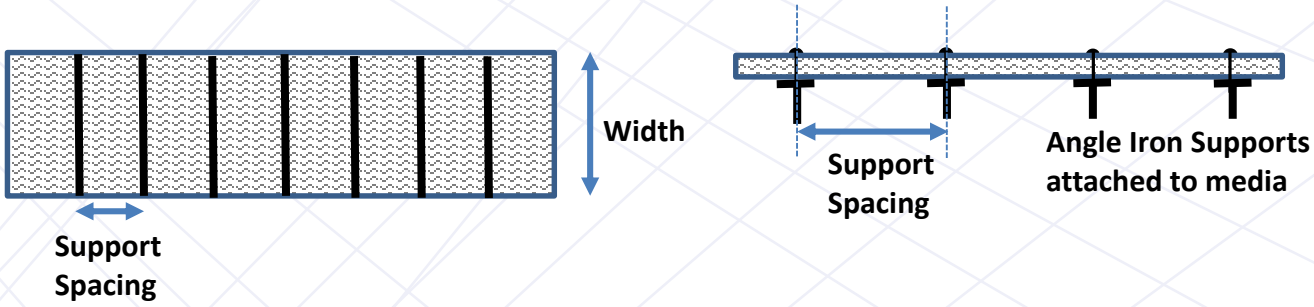
Media Support

For applications requiring support from dropped loads, such as a conveyor, the media should be shielded from direct high-intensity drops with a deflector plate and supported underneath by a ladder frame or ribs under the media. The figure below shows the recommended support spacing based upon the media width and air supply pressures.



The spacing requirements to support the media are highly dependent upon the operating conditions. Temperature, particle density, mass flow rates and operating pressures are all important in determining the media strength and support requirements.

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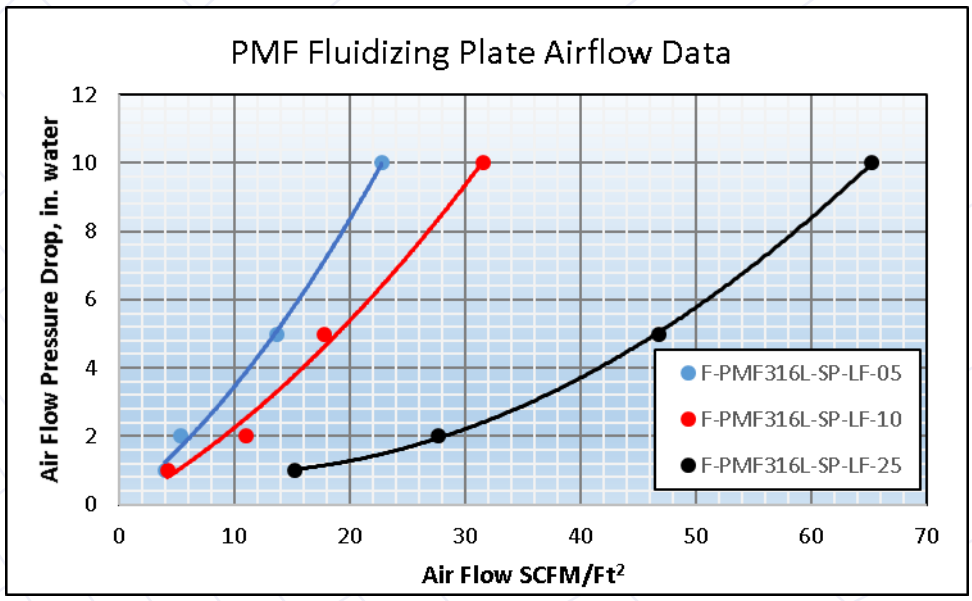
Media Flow Characteristics

Media flow characteristics can be obtained from Air Flow data. Standard data is reported for airflow over a 1 square foot media sample with 2" upstream water column pressure. Pressure drop of the media at other flow rates (but still at standard temperature) can be calculated from the following equations using flow coefficients derived from multi-rate flow tests like those shown in the figure below.

$DP = A_i \times Q + B_i \times Q^2$ incompressible fluid

$P_1^2 - P_2^2 = A_c \times Q + B_c \times Q^2$ compressible fluid

Where A is the viscous flow coefficient, B is the inertial flow coefficient, and Q is airflow in SCFM/ft^2 (standard conditions 70^{0}F and 1 atm). The incompressible fluid equation is applicable to low velocity flow where density variations of the fluid are minimal. The compressible fluid equation takes into account the effects of fluid density changes with pressure where P1 is the upstream pressure and P2 is the downstream pressure. This is important for high velocity conditions, conditions where the upstream and downstream pressures and/or temperatures are significantly different. These coefficients are shown for the Low Perm SinterPore media in the table below.



	Flow SCFM/Ft2 @ 2 in. water column	Gas Incompressible		Gas Compressible	
		A_i	B_i	A_c	B_c
F-PMF316L-SP-LF-05	5.4	0.2631	7.50E-03	211	6.45
F-PMF316L-SP-LF-10	11	0.1900	4.10E-03	153	3.51
F-PMF316L-SP-LF-25	27	-0.0478	2.80E-03	-41.8	2.36
F-PMF 316L SP HF 100	91.7	0.0133	1.11E-04	10.3	9.40E-02
F-PMF 316L SP HF 200	195	0.0075	2.36E-05	5.83	2.00E-02
F-PMF316L-SP-HF-400	442	0.0028	5.00E-06	2.13	4.50E-03

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Media Flow Characteristics

For Pressure drop estimates at temperatures other than standard temperature, and for gasses whose density or viscosity differ significantly from air, a more generalized equation must be used:

$DP = A_i \times \mu \times V + B_i \times \rho \times V^2$ incompressible fluid

$P_1^2 - P_2^2 = A_c \times \mu \times (T/M) \times Q + B_c \times \rho \times (T/M) \times Q^2$ compressible fluid

Where μ is the absolute viscosity (in centipoise), ρ is the density (lb/ft^3), V is actual flow (cfm/ft^2), T is the temperature (^0R), and M is the molecular weight.

Temperature (F)	Air Viscosity (cp)	Air Density@ 1 atm (lb/Ft^3)
50	0.0179	0.078
70	0.0182	0.075
80	0.0187	0.074
100	0.0192	0.071
150	0.0205	0.065
200	0.0218	0.060
300	0.0242	0.052
400	0.0264	0.046
500	0.0285	0.041
600	0.0305	0.038
700	0.0323	
800	0.0341	
900	0.0359	
1000	0.0375	

Some Useful Relationships

$$^0R = {}^0F + 459.67$$

$$\rho_1 = \rho_0 \times \frac{P_1 \times T_0}{P_0 \times T_1}$$

The impact of pressure on viscosity can be neglected to first approximation. The correction is less than 10% for pressures up to 500 psi (Crane, 1988).

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Fluidization Media Questionnaire

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Company: _____ Telephone: _____

Contact: _____ Fax: _____

Address: _____ Mobile: _____

Website:_____ Email: _____

Description of Media:

_____

_____

Media Details:

Micron rating: _____ Dimensions: _____

Alloy: _____ Laminate Type: _____

Volume/Potential: New Product Existing Product

RFQ Quantity: _____ Annual Volumes: _____

Current Supplier: _____ Target Price: _____

Current Product: _____

Reason for product/vendor change: _____

_____

Description of Application (Circle One): Cooling/heating/drying

Other system or additional details_____

Operating Data [include all units to avoid confusion]:

Mass Flow dry (kg/h):_____ Solids description: _____

Particle size: _____ Particle density:_____

Bulk Density:_____ Operating pressure:_____

Maximum Pressure:_____ Intake Moisture:_____

Intake Temperature: _____ Operating Temperature: _____

Additional notes and/or sketches on back