mott corporation

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Porous Metal Flame Arrestor Media

Flame Arrestors are safety devices that allow flow of combustible gases while preventing ignition. The Flame Arrestor prevents the flame from transferring to a different area of a device by cooling or quenching a flame front or by dampening a combustion wave. It is designed to absorb and dissipate the heat of a flame for specific operating and flow conditions. *Integrating Mott's sintered metal media provides high strength and durability allowing these critical devices to perform precisely.*

Applications:

Process and Analytical Gas Applications:

- Venting for Explosion Proof Enclosures
- Pressure Equalization for Combustible Gas Pressure Regulators
- Handling of Combustible Sample Gas for Analyzers and Monitors
- Flashback Prevention for Welding Torches
- Ignition Prevention in Gas Stacks and Storage Tank Vents
- Inhibit the Spread of Fire or Explosions in Ductwork and Process Piping
- Backfire Flame Arrestor for Marine Engines and Motors
- Oxygen Service – Special Processing Available

Features:

- Superior Mechanical Strength
- Precise Flow Control and Pressure Restriction
- Uniform Porosity
- Excellent Joint Strength and Sealing Integrity (joined to other parts)
- Media maintains integrity at high temperatures

Benefits of Porous Metal:

Sintered porous metal materials are a popular media choice because these highly engineered materials consist of a uniform, interconnected porosity that can be fabricated to allow precise gas flow control while providing a mechanically sound media to quench the flame front. Sintered porous metal provides cost effective solutions for high volume devices, especially for applications that require the prevention of a flame front in the event that an intense explosion occurs. Sintered porous metal media can also be formed into net shapes and easily joined to hardware to create unique assemblies.

Sintered Porous Metal Design:

Although Mott does not offer a standard product line of flame arrestors, we do manufacture flame arrestor media to customers' individual specifications. It is recommended that customers validate porous metal for use in their equipment in order to obtain proper approval in their target market. While Media Grades 20, 40 and 100 are typically used, tighter grades are also available.

Flame arrestor media is typically designed to meet specific flows, pore sizes and density characteristics and can vary widely in size and shape. This allows greater flexibility in meeting constraints of custom designed devices.

For devices destined to European markets, Mott offers a Declaration of Conformity Appendix B1 to the European Community's ATEX DIRECTIVE 94/9/EC. For more information, visit the European Commissions website http://ec.europa.eu/.

Below please find information for your reference when researching your custom flame arrestor designs.

International Standards for Flame Arrestors:

- Underwriters Laboratories (UL)
- Factory Mutual (FM)
- CENELEC

Applicable ISO Specifications and Sampling Plan References:

- ISO 2738 (Density)
- ISO 4022 (Permeability)
- ISO 4003 (Bubble Point / Pore Size)

Mott Technical Information:

Mott has developed pore size and permeability data for standard sintered metal media grades as shown in Table 1 (below). Mott can also provide samples and additional engineering data as required. This allows designers to submit technical information to a test agency for approval of their custom made flame arrestors in order to meet special flow conditions in more critical performance applications.

Table 1: Typical Properties of Standard Mott Porous 316LSS Flame Arrestor Media*

Filter Porous Media Grade	Maximum Pore Size (Micrometers)	Minimum % Density
5	30	52
10	50	50
20	70	45
40	110	40
100	500	35

*Above data from test results generated from 316L SS sheet material.

Filter Media Grade is Calculated from ASTM E128-99 Bubble Point Test Method.

Maximum Pore Size is Determined by PMI Capillary Flow Porometer and Correlates to ISO 4003.

Density can be Measured by ISO 2738 (wet method) or by Dry Weighing and Volume Calculation.

For other media grades or materials, consult factory for information.