mott *corporation*
Porous Metal Products

Porous metal flow control.

Where the only variation is in design.



Mott porous metal.
The most reliable means of restricting gas flow.

Mott precision porous metal flow restrictors are reliable, cost-effective replacements for orifices, capillaries, or micrometering valves. A porous metal flow restrictor is, in effect, a multiple orifice device with many very small holes, creating a vast number of random pathways. Typically, a Mott porous metal restrictor has a porous surface area 500 times that of an equivalent orifice.

Less friction, longer life – Mott flow restrictors channel gas through hundreds of pores instead of just one, reducing gas exit velocity. Because gas and particulate move slower through the element, porous metal flow restrictors incur less wear, and last longer.

Repeatable performance – As gas and particulate erode and enlarge an orifice, flow increases in proportion to the square of the increase in size. Mott porous metal resists such physical change because of the lower velocities and virtual absence of erosion, resulting in more consistent, reliable flow restriction.

Clog-free operation – A single grain of foreign matter can easily clog an orifice. Mott media, on the other hand, can tolerate a significant build-up of particulate before flow is affected – the low gas velocity and high media surface area enable gas to find its way around obstructions.

Greater corrosion resistance – Mott offers a wide variety of metals and alloys to accommodate special needs, such as corrosion resistance. Standard construction consists of stainless steel but Mott flow restrictors can also be made from Inconel®, Monel®, Hastelloy®, Alloy 20, nickel, gold, silver and titanium.

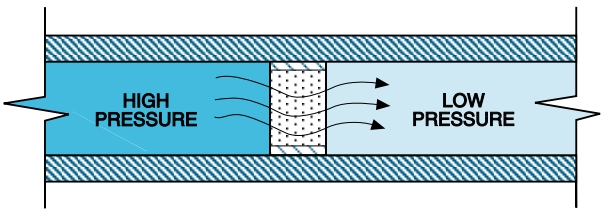
Design flexibility – Mott flow restrictors accommodate virtually any flow requirement, with ratings greater than 1 Standard Cubic Foot per Minute (scfm) to 1 x 10^{-6} Standard Cubic Centimeters per Second (scc/sec). Porous metal elements encapsulated in sleeves measuring $^1/_4$" or $^1/_8$" outside diameter, or mounted within a variety of standard fittings are also available.

For technical data on a specific Mott flow restrictor, or to help identify the best design for your application, contact us with the following parameters:

1. Type of gas 2. Upstream pressure
3. Downstream pressure
4. Desired flow rate (positive pressure, ATM or vacuum)
5. Fitting (if applicable) a. Type b. Size c. Material

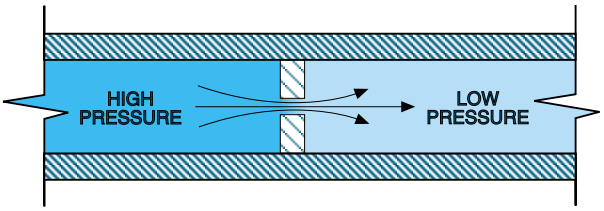
Application examples – Gas flow control in breathing apparatus • flow control of liquid medicine • flow control of gas chromatographs • safety devices on anesthesia equipment • gas mixing into beverages • fuel metering in space probes.

Mott Flow Restrictor



Gas moves uniformly through Mott porous metal element with minimal friction due to viscosity.

Orifice



Speed, pressure and heat increase as gas moves through the single opening, causing wear and tear.

Custom flow restrictors.

Mott can design and manufacture flow restrictors to meet virtually any special requirement. For applications involving exotic materials, high pressures and flows, non-stocked standard fittings and special hardware, Mott will accurately fulfill customer-directed specifications. Or, you can request assistance from Mott to help create the best design. Either way, Mott offers the experience and quality in manufacturing to provide a reliable solution.

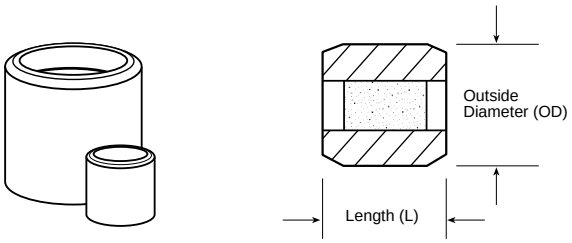
High-purity flow restrictors.



For applications with ultra-pure gases, Mott offers a distinct line of high-purity flow restrictors. Standard materials of construction are 316L SS porous media and 316 SS or 316L SS housing. High-purity units are cleaned and bagged in Mott's Class100 clean room environment to ensure maximum out-of-box cleanliness. For information on these types of restrictors, contact Mott for additional literature or technical assistance.

Hastelloy is a registered trademark of Haynes International, Inc.
Inconel and Monel are registered trademarks of Special Metals Corporation.

Standard encapsulated flow restrictors.



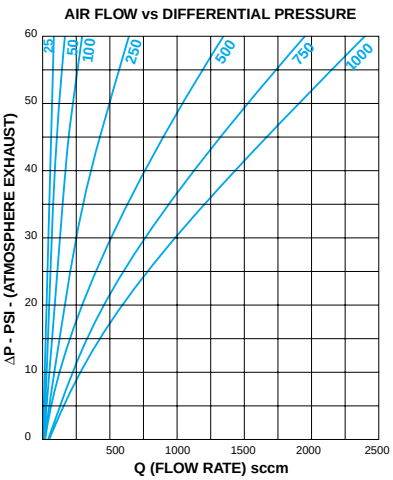
A precision Mott flow plug in a metallic outer sleeve.

Specifications.

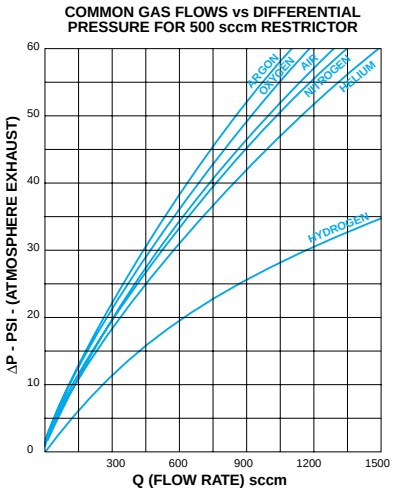
- Available in ⅛" OD x ⅛", and ¼" OD x ¼" sizes
- Standard materials of construction: 316L stainless steel, 300 Series stainless steel sleeves. For other materials, consult factory.
- Flow tolerance: +/- 7.5%. Consult factory to confirm flow tolerances for non-standard restrictors.
- Hole for press fit – ⅛"-diameter restrictors: 0.1243/0.1247" ream, 32 RMS finish
- Hole for press fit – ¼"-diameter restrictors: 0.2506/0.2510" ream, 32 RMS finish
- Maximum test pressure – 1500 psig

Standard flows (scc/min. nitrogen at 30 psig to atmosphere)

1	10	25	50	100	250	500	750	1000	2500	5000	10000	1 scfm



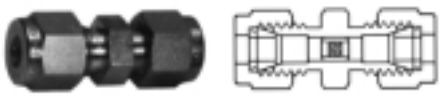
Mott ¹/₄" x ¹/₄"
Encapsulated Flow Restrictor



Fitting flow restrictors.

The same Mott flow restrictor elements available in encapsulated sleeves are also offered in standard fittings – tube union, male adapter and hex nipple. Flow restrictor/fitting combinations are available for virtually any flow, gas and pressure requirement.

- Standard compression fittings: tube union, male adapter and hex nipple with flow restrictor installed and calibrated
- Materials of construction: 316L SS porous with 300 SS sleeve, 316L SS or brass fittings
- Available in standard nitrogen flows calibrated at 30 psig to atmosphere @ standard temperature and pressure
- Maximum test pressure: 1500 psig
- Flow tolerance: +/- 7.5%

	Type & Size	Fitting Material
5100 Series	**Tube Union**	
	1/8" x 1/8"	Brass 316 SS
	1/4" x 1/4"	Brass 316 SS
5110 Series	**Male Adapter**	
	1/8" Tube – 1/8" NPT	Brass 316 SS
	1/4" Tube – 1/8" NPT	Brass 316 SS
	1/4" Tube – 1/4" NPT	Brass 316 SS
5120 Series	**Hex Nipple**	
	1/8" NPT x 1/8" NPT	Brass 316 SS
	1/4" NPT x 1/4" NPT	Brass 316 SS

Fittings other than above – consult factory.

www.mottcorp.com

Established in 1959, Mott Corporation coordinates engineering, sales, service and manufacturing from two adjacent facilities totalling 90,000 square feet. Mott's skilled workforce, along with strategically located overseas affiliates, services thousands of customers all over the world, in virtually every major segment of industry.

Need a product? Need advice?

Call us either way. Whether you need a stock solution, a customized design, or simply guidance, we welcome your call. Contact the experts at Mott Corporation today.

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