

► Mott porous metal diffusers can reduce vent times?

Semiconductor Industry – Gas Filtration Update

You probably know that Mott provides all-metal point-of-use and bulk filters designed exclusively for high-purity applications. After all, Mott's Porous Metal has been in the field for more than 45 years now. But filtration isn't the only thing we do. We also manufacture **Mott GasShield® Diffusers** to control and optimize gas flow.

Gas Diffusion

Mott GasShield® Diffusers

The ideal solution for optimizing gas flow

Mott offers the widest variety of choices in media material and pore size available in the industry. All-metal Mott diffusers are high-performance alternatives to drilled plate showerheads and/or standard 1/4" open-ended inlet lines. By eliminating the adverse "jet" effect that plagues other methods, Mott diffusers can substantially reduce vent times of load lock or vacuum process chambers.



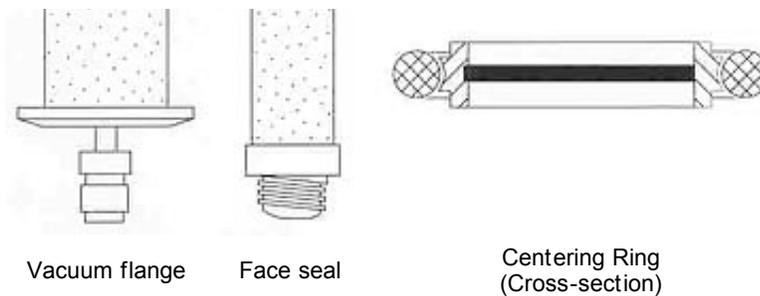
Mott Porous Metal Diffusers

Mott diffuser benefits include:

- **Improved process performance, higher productivity** – When properly applied, gas diffusers can reduce the vent times, ensure optimal gas flow, reduce particle contamination and allow for increased wafer throughput for almost any semiconductor process.
- **Designs matched to your application** – Mott porous all-metal gas diffusers are available in 316LSS, Hastelloy® C-22, and nickel with a wide variety of nominal pore sizes from 0.2 μm to 40 μm . Diffusers with 9 LRV filtration to 0.003 μm are also available. By mating the correct nominal pore size, material thickness and diffuser geometry, you optimize flow for any variation of pressure differentials.

Common Diffuser Configurations





- **Uniform gas flow** – You also ensure complete saturation of process or purge gases gas across the entire wafer surface or load lock area while reducing turbulence or jetting effects associated with open-ended gas entry ports.
- **High-efficiency filtration** – If you want to filter your process or purge gases, Mott also offers the widest variety of porous metal filters/diffusers to fit any flow rate. Mott filter diffusers can provide 9 LRV (99.999999%) reduction in particles down to 0.003 um size particulate.
- **Additional benefits** include:
 - Back pressure can be utilized to ensure proper gas blending
 - Temperature capacities up to 450°C
 - Non-flexing self-supported media



Mott Porous Metal Diffuser Discs in Typical Centering Rings

Mott porous metal is the key to diffuser performance

The most important feature of Mott diffusers is the uniform porosity inherent in Mott porous metal. This is made possible by a strictly controlled sintering process, which enables Mott to produce uniformly sized and distributed pores. The resulting media characteristics ensure:

- Full diffusion of the gas stream across the entire face of the diffuser media
- Elimination of concentrated gas flow hot spots
- Ensures full saturation of gas throughout the chamber
- The ability to engineer back pressure to ensure proper gas mixing
- Reduces flow turbulence and associated particle dispersion

In addition, Mott offers custom engineering because not all diffuser requirements are the same.



packaging

Mott manufacturing methods reduce any potential contamination from moisture, hydrocarbons or oxidation. We manufacture and test our diffusers in Class 100 clean room environment. And to ensure high out-of-box quality even further, diffuser packaging includes a Nylon 6 inner bag with clean polypropelene outer bag – for a double layer of protection against contaminants.

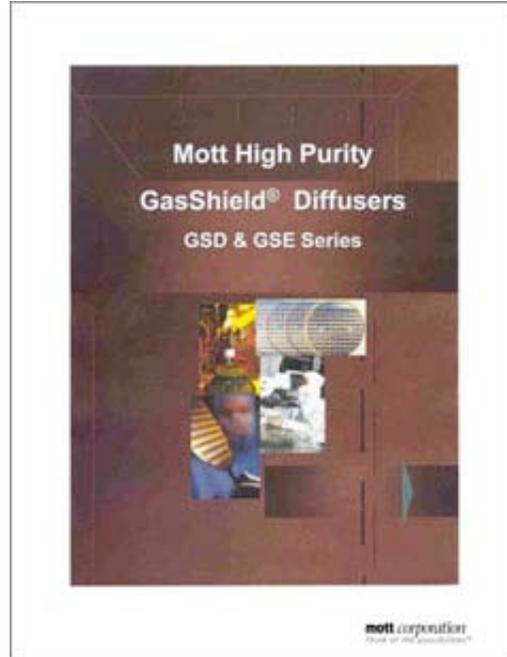


Mott Corporation – the all-metal pioneer

Founded in 1959, Mott was the first company to introduce porous metal media to semiconductor manufacturing – in 1989. We are an ISO 9001-2000 certified company offering worldwide sales and support, all of which is focused on providing standard and custom-engineered solutions based on Mott porous metal and fiber metal media.

For more information

Click on the images below to download our [4-page GasShield® POU Diffusers Data Sheet](#). You may also contact us at High Purity Sales, Mott Corporation, 84 Spring Lane, Farmington, CT 06032, 1-860-747-6333 or Toll-Free 1-800-BUY-MOTT. E-mail: quest@mottcorp.com.



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