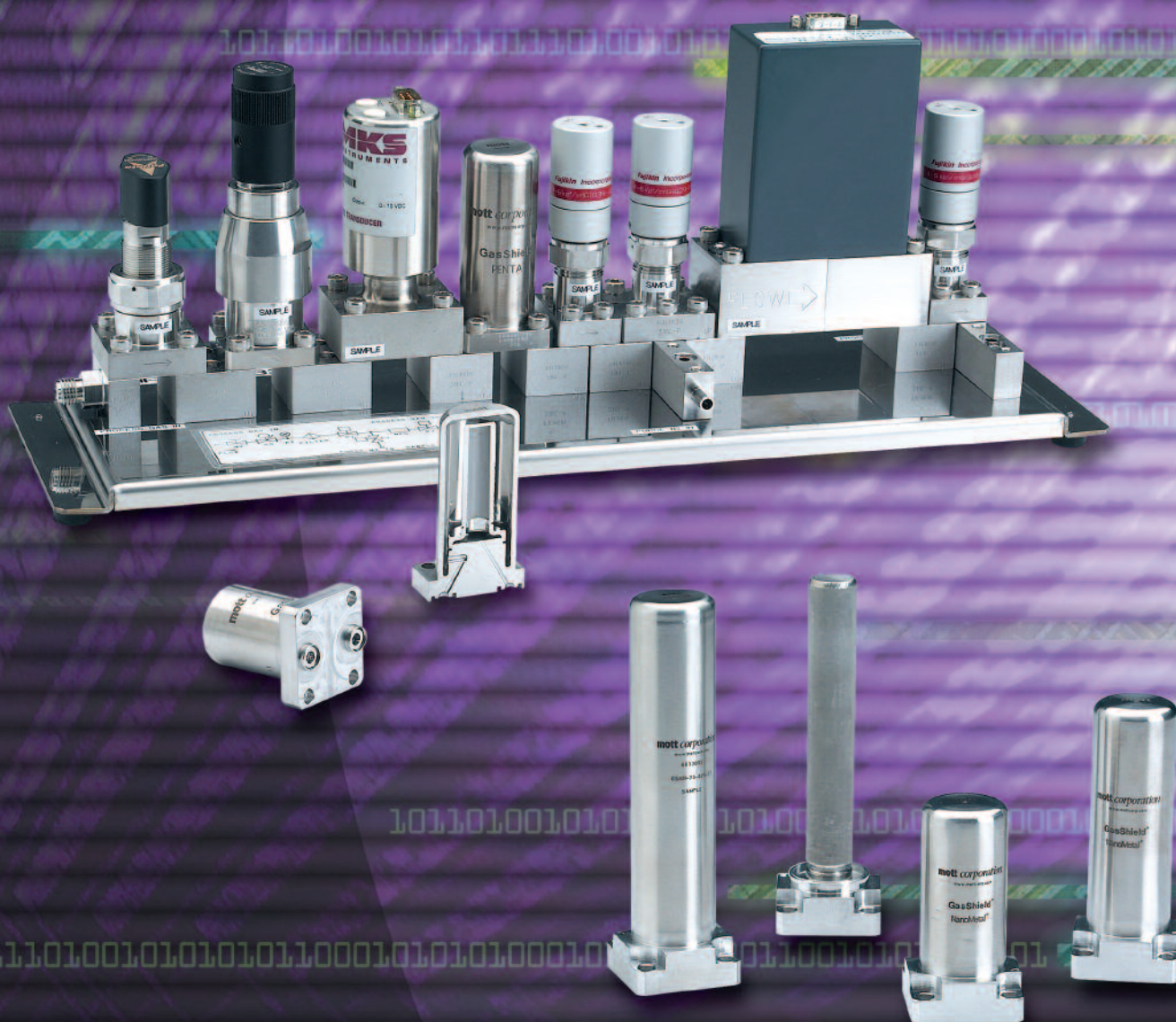


IGS Porous Metal Filters and Flow Restrictors.



IGS Porous Metal Filters and Flow Restrictors.

Integrating the best of high flow rates, material range and configuration options.

High-precision, high-flow, all-metal filtration engineered specifically for Integrated Gas System (IGS) assemblies.

Mott High Purity – who for years has provided the highest quality porous metal filters and flow restrictors for semiconductor manufacturing – also offers these same products in IGS-compatible designs. So now you can combine the ease of installation, stick component accessibility, ease of maintenance, reduced assembly time and compatibility between components that are typical of IGS, with the selection and performance benefits offered exclusively by Mott.

Mott's mission is to provide customers with unique filtration and flow control solutions using materials specifically designed for demanding operating conditions, 9 LRV efficiency and exacting flow control. Our full line of IGS filters and flow restrictor products is designed for compatibility with the gas system interfaces currently being specified on process tools, gas cabinets, and valve manifold box installations per SEMI 2787. As the challenges of the 300mm conversion have emerged, our technology has provided the necessary solutions.

- **High flow rates** – Mott porous metal media has unique properties that allow for the production of a wider range of flow, material and configuration options than our competitors. This flexibility in geometry provides filters with flow ratings of up to 100 slpm while meeting the envelope requirements of the industry.
- **Complete range of product configurations** – Mott's standard IGS modular mount offerings include the 1.125" configuration with C-Seal or W-Seal, as well as the 1.5" version with C-Seal or W-Seal. We have the design you need.
- **Wide choice of materials** – Mott IGS filters are constructed of 316L SS, Hastelloy® C-22 or PENTA® Nickel, the most comprehensive offering in the industry. This translates to chemical compatibility with virtually any gas used in semiconductor production today, without elastomers or other non-metallic materials which could flex or shed particles.
- **Flexible flow control** – Flow restrictors are available in IGS designs which exhibit the same reliability, quality and performance of the Mott In-line restrictors in wide use throughout the semiconductor industry.

| Features | Benefits |
|-------------------------|---|
| All-Metal Capabilities | Withstands high temperatures and pressures |
| All-Welded Construction | No mechanical seals |
| Standard Footprint | Easy retrofit |
| Mott Porous Media | Reliable 9 LRV filtration down to 0.003µm |
| Standard IGS Interface | Many configuration options |
| Compact IGS Design | Consumes less space than standard In-line designs |
| Design Flexibility | Wide range of materials, configurations and flow rates |
| Modular IGS Design | Ease of installation, reduced part variations and inventories |

Mott IGS Filter Configurations.

Mott offers a full line of filters and flow restrictors to support the integrated systems solutions for process tool gas systems and facility-wide gas distribution systems (including valve manifold boxes, gas interface boxes, modular gas sticks and purge panels).



1.125" filters (W-Seal shown; C-Seal also available).

1.125" designs

- Available in C-Seal and W-Seal configurations
- Flow passages equivalent to 1/4" tubing
- Standard flow rates up to 50 slpm
- Compatible with most popular compact modular substrate systems

1.5" footprint

- Available in C-Seal and W-Seal configurations
- Flow passages equivalent to 1/4" and 3/8" tubing
- Standard flow rates up to 100 slpm (higher flows up to 200 slpm – consult factory)
- Compatible with most popular standard modular substrate systems



1.5" filters (W-Seal shown; C-Seal also available).

Seal Configurations Available on all Mott IGS Filters.



C-Seal.

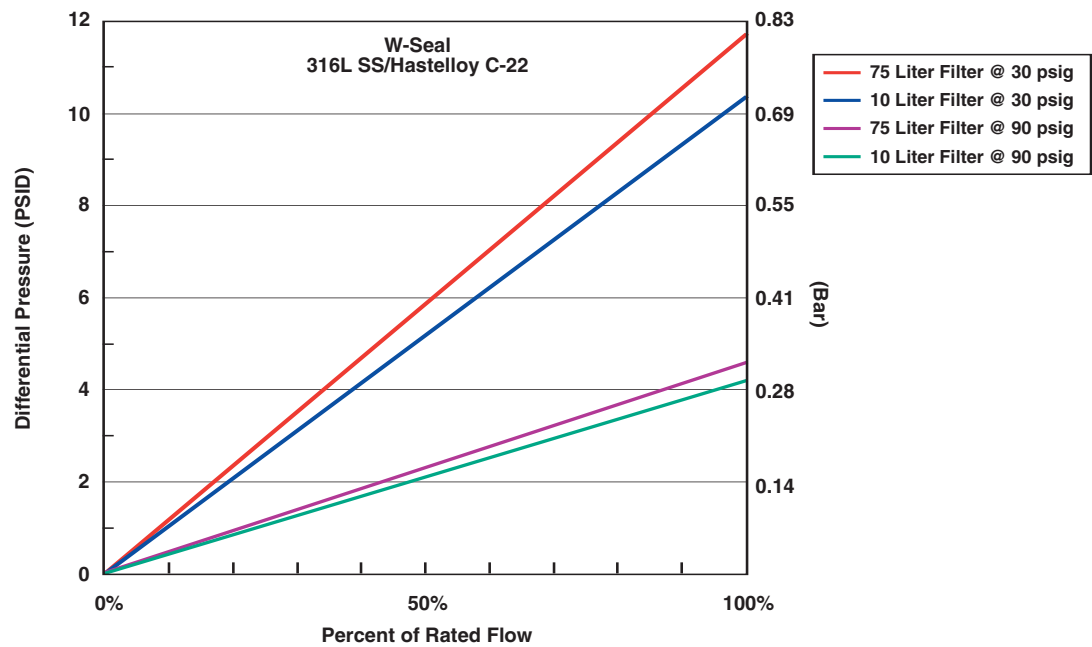
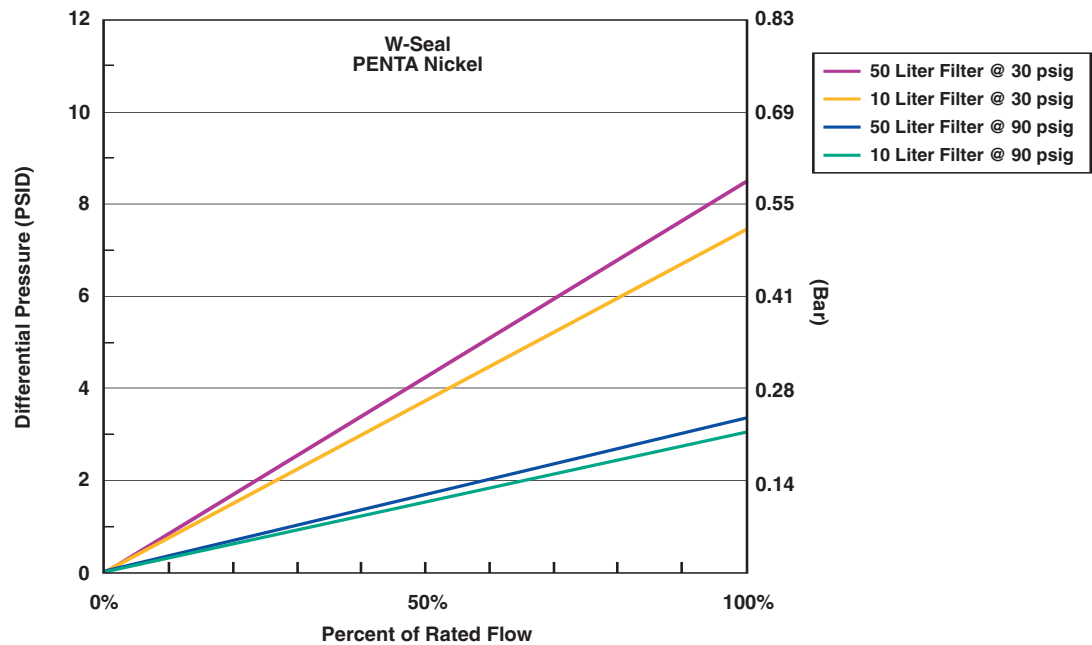


W-Seal.

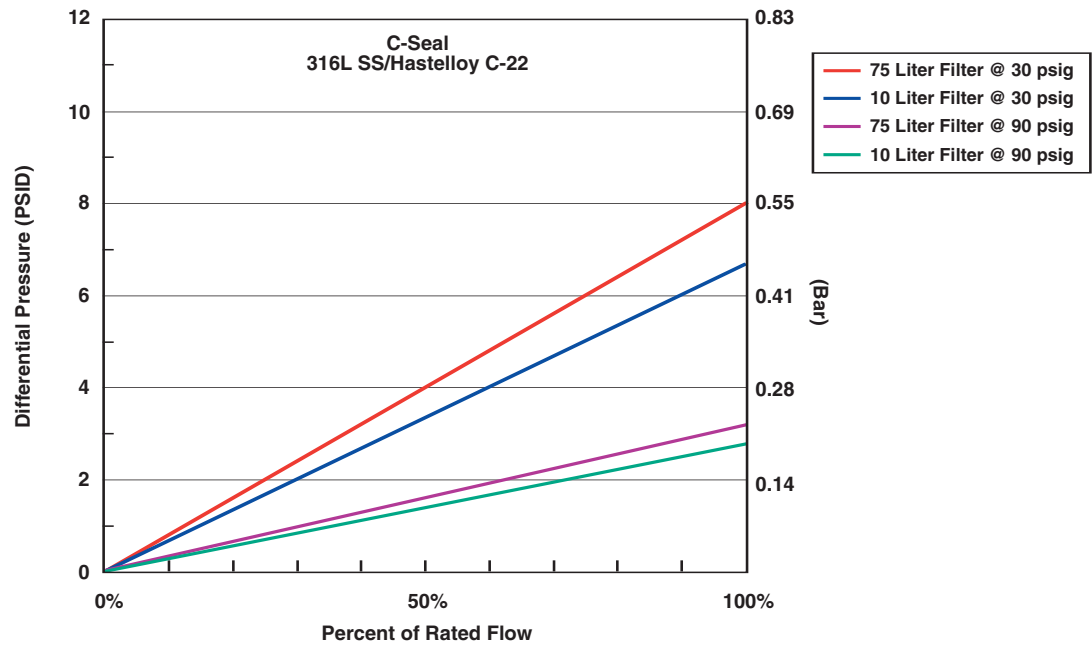
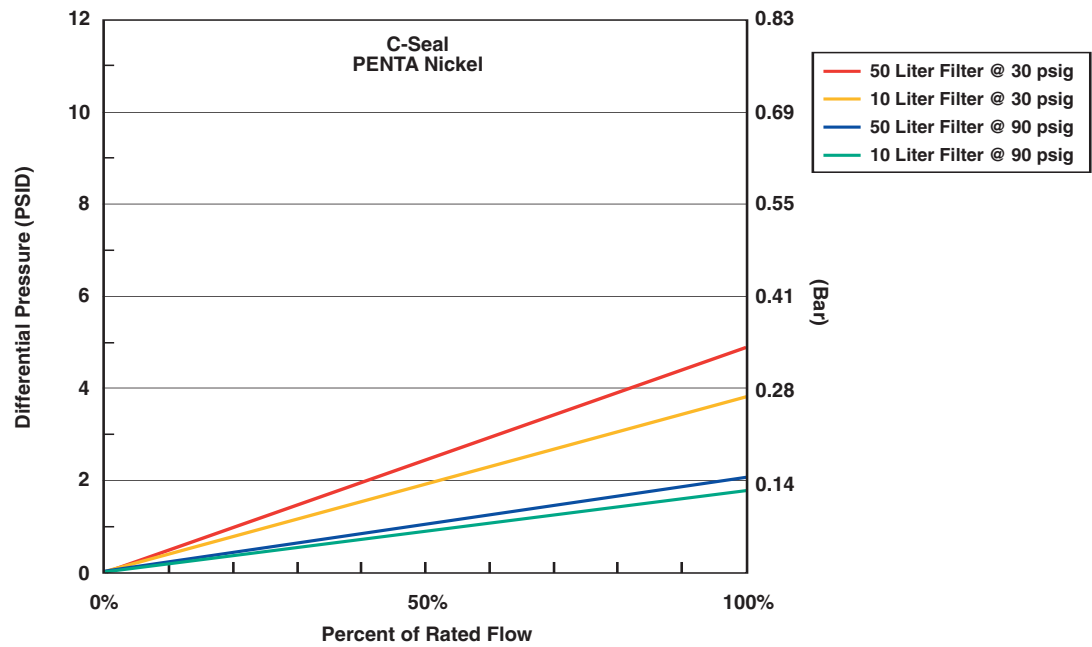
Materials of Construction: 316L SS, Hastelloy® C-22 or PENTA® Nickel

Typical Flow Curves for Mott 1.125" and 1.5" IGS Filters.

Typical Differential Pressure vs. Flow



Typical Differential Pressure vs. Flow



IGS Filters.

Mott IGS filters are available in the following standard configurations. Other configurations may be available on special order. Consult the factory.

| Catalog Number for Standard Configurations | Computer Part Number (CPN*) | Maximum Rated Flow (slpm) | Overall Height (inches) | Filter Element Material | Housing Material | Seal Configuration |
|--|-----------------------------|---------------------------|-------------------------|-------------------------|------------------|--------------------|
| 1.125" Filters | | | | | | |
| GSMM-75-020-12 | 6813032 | 20 | 1.6 | Nickel | 316L SS | C-Seal |
| GSMM-75-030-12 | 6813042 | 30 | 2.4 | Nickel | 316L SS | C-Seal |
| GSMM-75-050-12 | 6813053 | 50 | 4.0 | Nickel | 316L SS | C-Seal |
| GSMM-75-010-11 | 6813054 | 10 | 2.4 | 316L SS | 316L SS | C-Seal |
| GSMM-75-030-11 | 6813055 | 30 | 4.0 | 316L SS | 316L SS | C-Seal |
| GSMM-75-010-33 | 6813056 | 10 | 2.4 | Hastelloy C-22 | Hastelloy C-22 | C-Seal |
| GSMM-75-030-33 | 6813057 | 30 | 4.9 | Hastelloy C-22 | Hastelloy C-22 | C-Seal |
| GSMM-55-020-12 | 6813075 | 20 | 1.7 | Nickel | 316L SS | W-Seal |
| GSMM-55-030-12 | 6813076 | 30 | 2.6 | Nickel | 316L SS | W-Seal |
| GSMM-55-050-12 | 6813077 | 50 | 4.2 | Nickel | 316L SS | W-Seal |
| GSMM-55-010-11 | 6813078 | 10 | 2.6 | 316L SS | 316L SS | W-Seal |
| GSMM-55-030-11 | 6813079 | 30 | 4.0 | 316L SS | 316L SS | W-Seal |
| GSMM-55-050-11 | 6813082 | 50 | 4.0 | 316L SS | 316L SS | W-Seal |
| GSMM-55-010-33 | 6813080 | 10 | 2.5 | Hastelloy C-22 | Hastelloy C-22 | W-Seal |
| GSMM-55-030-33 | 6813081 | 30 | 5.0 | Hastelloy C-22 | Hastelloy C-22 | W-Seal |
| 1.5" Filters | | | | | | |
| GSMM-60-010-12 | 6813018 | 10 | 1.3 | Nickel | 316L SS | C-Seal |
| GSMM-60-050-12 | 6813009 | 50 | 2.6 | Nickel | 316L SS | C-Seal |
| GSMM-60-100-12 | 6813004 | 100 | 4.5 | Nickel | 316L SS | C-Seal |
| GSMM-60-010-11 | 6813011 | 10 | 2.2 | 316L SS | 316L SS | C-Seal |
| GSMM-60-020-11 | 6813023 | 20 | 3.2 | 316L SS | 316L SS | C-Seal |
| GSMM-60-075-11 | 6813005 | 75 | 5.8 | 316L SS | 316L SS | C-Seal |
| GSMM-60-010-33 | 6813010 | 10 | 2.2 | Hastelloy C-22 | Hastelloy C-22 | C-Seal |
| GSMM-60-020-33 | 6813039 | 20 | 3.2 | Hastelloy C-22 | Hastelloy C-22 | C-Seal |
| GSMM-60-075-33 | 6813040 | 75 | 6.1 | Hastelloy C-22 | Hastelloy C-22 | C-Seal |
| GSMM-50-010-12 | 6813036 | 10 | 1.3 | Nickel | 316L SS | W-Seal |
| GSMM-50-050-12 | 6813037 | 50 | 2.6 | Nickel | 316L SS | W-Seal |
| GSMM-50-100-12 | 6813038 | 100 | 4.5 | Nickel | 316L SS | W-Seal |
| GSMM-50-010-11 | 6813028 | 10 | 2.2 | 316L SS | 316L SS | W-Seal |
| GSMM-50-020-11 | 6813034 | 20 | 3.2 | 316L SS | 316L SS | W-Seal |
| GSMM-50-030-11 | 6813041 | 30 | 4.1 | 316L SS | 316L SS | W-Seal |
| GSMM-50-075-11 | 6813035 | 75 | 5.8 | 316L SS | 316L SS | W-Seal |
| GSMM-50-010-33 | 6813033 | 10 | 2.2 | Hastelloy C-22 | Hastelloy C-22 | W-Seal |
| GSMM-50-020-33 | 6813029 | 20 | 3.2 | Hastelloy C-22 | Hastelloy C-22 | W-Seal |
| GSMM-50-075-33 | 6813031 | 75 | 6.1 | Hastelloy C-22 | Hastelloy C-22 | W-Seal |

* Order by CPN.

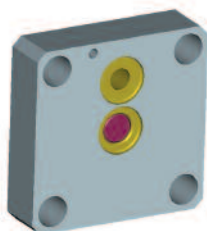
High Purity Porous Metal Flow Restrictors for Surface Mount Systems.

Porous metal restrictors for 1.125" surface mount applications.

Mott Corporation supports the 1.125" and 1.5" high-flow C-Seal configuration of integrated gas systems with a full line of porous metal flow restrictors. These products use the same sealing specifications as described in SEMI PR 3.1 and provide the same high-quality flow restriction presently available in our 5140 series restrictors with traditional face seal design. All GSMR restrictor products are assembled and tested in a class 100 clean room environment. For W-Seal configurations, consult factory for specifications.

Configuration

Our spool piece design (GSMR-20 and 30) allows the modular restrictor to be mounted between the substrate and another two-port surface mount component. Please specify at time of order which port (center or side port) requires the porous restrictor. The spool piece requires seals for both sealing surfaces on top and bottom.



GSMR-20 spool piece design.

Specifications

- Materials of construction: Media and housing are 316L SS with a 10 Ra surface finish on all wetted surfaces
- Temperature: Up to 450°C (Inert gases)
- Pressure: Up to 120 psig
- Standard downstream flow rates from 50 slpm – higher flows available
- Flow tolerance: $\pm 7\%$ of rated flow at rated pressure ($\pm 2\%$ available upon request)

Mott can meet your specific request

Please provide us with the following information:

- Specify the process gas to be used
Note that Mott GSMR restrictors are calibrated on the following actual gases: Argon, Nitrogen, Hydrogen, Oxygen, Helium and Air. All other gases are calibrated using viscosity curves
- Flow rate: sccm
- Inlet pressure: psig
- Outlet pressure (if other than atmosphere)

Modular Mount Flow Restrictors Model Translator

GasShield® Modular Mount Restrictors

| GSMR | Code | | Seal Type | |
|------|------|---|---|--|
| | 20 | C-Seal, 1.125 in. sq., spool piece (flow passage equivalent to 1/4" tubing) | | |
| | 30 | C-Seal, 1.5 in. sq., high flow (flow passage equivalent to 3/8" tubing) | | |
| | | Code | Housing Materials | |
| | | 1 | 316L SS VAR | |
| | | Code | Flow Rate | |
| | | XX | Flows from 0.000001 to 30,000 sccm (high flow up to 200,000 sccm) | |
| | | Code | Gas and Inlet Pressure | |
| | | XX@XX | Gas Name @ psi (psig) | |
| | | Code | Number of Ports | |
| | | 2 | Two Port | |
| | | | Restrictor Plug | |
| | | Code | Port Location | |
| | | S | Side Port | |
| | | C | Center Port | |
| | C | Typical Model Number | | |

Limited Warranty

Mott Corporation ("Mott") warrants its IGS gas filter will meet the specified retention and media integrity standards for a period of five years from the date of purchase, providing the filter is properly installed and used in accordance with the specified flow, pressure, temperature, and chemical compatibility as published by Mott. Mott will replace or grant a purchase price refund for any IGS filter which proves defective under the terms of this Limited Warranty. No other remedies apply. Mott disclaims all other warranties, either expressed or implied, including any warranty of merchantability or fitness for a particular purpose. Mott shall have no liability for consequential, incidental, special or punitive damages, lost profits or savings, or damages from lost production or damage to other materials.

mott *corporation*

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HPIGS Rev 3 0606 5C