

GASSHIELD® FLOW CONTROL SERIES VACUUM FLOW RESTRICTOR (VFR)

mott
MISSION CRITICAL PRECISION

The VFR is the **COST-EFFICIENT FLOW SETTING DEVICE** with **HIGH ACCURACY** and **REPEATABILITY** for **VACUUM APPLICATIONS**

DESCRIPTION

The Vacuum Flow Restrictor (VFR) is a reliable flow setting device for vacuum applications. Completely customized to your conditions, the VFR sets a repeatable flow rate from 0.1 sccm to 40 slpm based upon your gas type and pressure or vacuum conditions. High flow rate accuracy and repeatability is achieved through proprietary porous metal technology and NIST traceable primary standard equipment.



BENEFITS

1. Customization to exact flow specified
2. Reliable and robust design in custom hardware options
3. Tamper-proof flow rate set to your conditions
4. Long-life, anti-clog technology
5. Compact design saves critical space
6. Manufactured in ISO Class 5 cleanroom

FEATURES

- » Correlated vacuum conditions ranging down to mtorr
- » Flow accuracy precision to +/- 2% at the set point flow conditions available
- » +/- 0.1% flow repeatability
- » Significant cost advantage over standard flow controllers
- » No need for expensive re-calibrations

SPECIFICATIONS

Flow Ranges Available	0.1 sccm to 40 slpm* *Condition specific
Max Inlet Pressure / Max Differential Pressure	1500 psig
Accuracy	+/- 7.5% Base* *Up to +/- 2% of reading available
Repeatability	+/- 0.1% of reading
Operating Temperature	Up to 460°C
Warm-up Time	N/A
Wetted Hardware	316L Stainless Steel
Wetted Surface Finish	10 Ra (average)
Leak Integrity (External)	1 x 10 ⁻⁹ atm cc/sec Helium Leak Rating
Fittings (compatible with)*	1/4" Face Seal / IGS 1.125" C-Seal *Other Fittings Available on Request

OPERATING CONDITIONS

Upstream

Positive pressure
ATM
Vacuum

Downstream

Vacuum
Vacuum
Vacuum

The applications for Vacuum Flow Restrictors cover a wide range of upstream and downstream pressure conditions. These 3 Figures illustrate typical flow curves where the upstream and downstream pressure (vacuum) conditions can be:

- Figure 1: Pressure to Vacuum (partial to full)
- Figure 2: Atmospheric Pressure to Vacuum (partial to full)
- Figure 3: Vacuum to Vacuum

The actual flow performance of your Vacuum Flow Restrictor will be dependent on specific operating conditions for your application, i.e., gas type, pressure, and temperature conditions.

Figure 1: Typical Flow Performance Curves for Case of Downstream Conditions at Full Vacuum

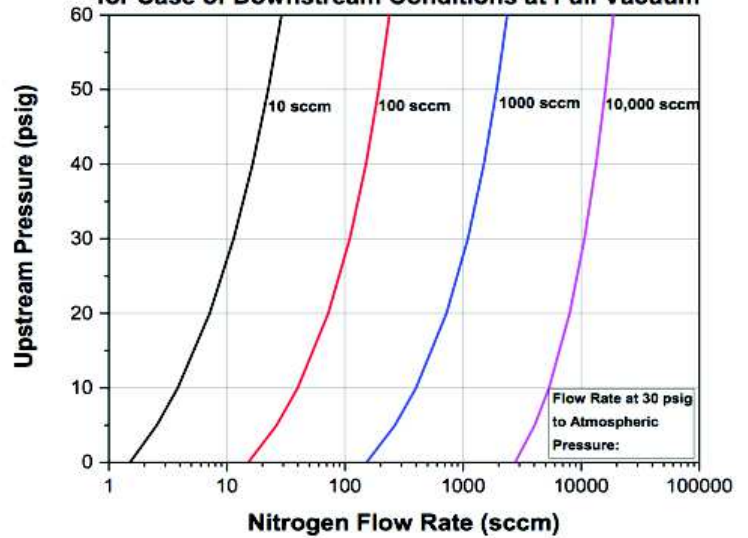


Figure 2. Typical Flow Performance Curves for Case of Upstream Conditions at Atmospheric Pressure

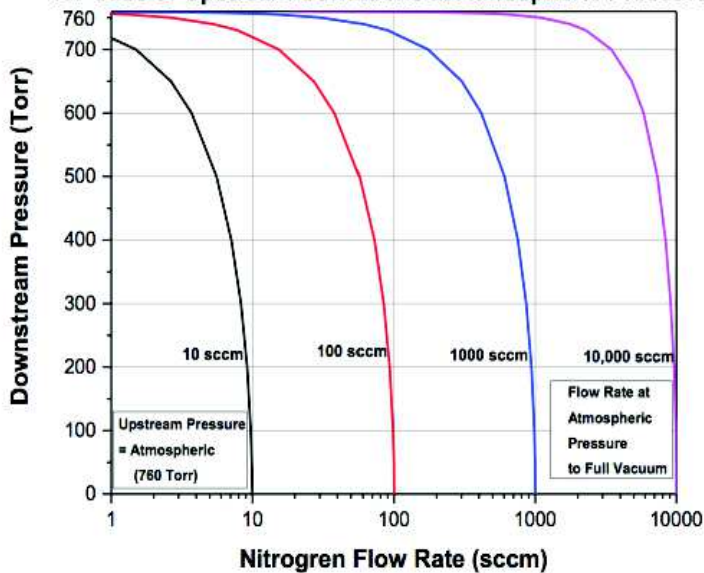
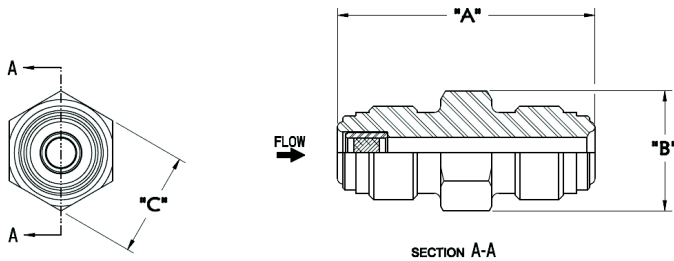
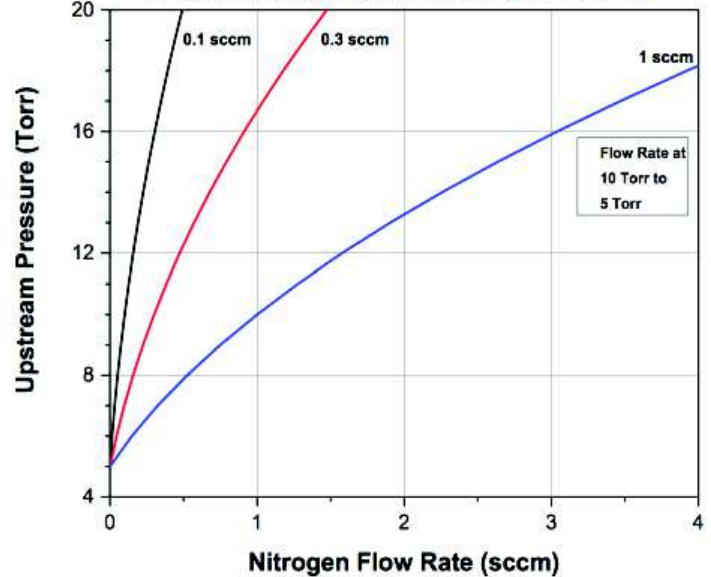


Figure 3. Typical Flow Performance Curves for Case of Downstream Conditions at 5 Torr



NECESSARY SPECS FOR ORDER

1. Desired flow rate (in sccm or slpm)*
2. Specify gas (ex. Nitrogen)
3. Upstream pressure (in psi or torr)
4. Downstream pressure (in psi or torr)
5. Specify hardware configuration (custom optional)
6. Specify operating gas temperature (°C or °F)

ORDERING INFORMATION

Part Description	Fitting Type	A Inches/mm	B Inches/mm	C Inches/mm
5140V-1/4-SS-FLOW-GAS-PRESSURE	1/4 Inch Male VCR	1.55/39.37	0.75/19.05	5.00/8.00

*Custom designs and fittings available. Contact a Mott representative for more information.