

## GasPro™ IFR

Ultra High-Purity  
Sintered Porous Media  
In-line Flow Restrictors



When a set flow rate is required, Porvair's GasPro™ In-line Porous Metal Flow Restrictors are the low-cost alternative that can replace your flow controllers, needle valves, and calibrated orifices.

Flow limiting devices are often installed in compressed gas supply lines and gas distribution manifolds to prevent unintentional high gas flow caused by ruptured gas lines, or malfunctioning valve or pressure regulators.

### Features and Benefits

- Improved gas safety management**  
 Porous metal flow restrictors are in-line devices that precisely limit the gas flow in case of catastrophic failure of a valve, pressure regulator, distribution manifold or gas supply line. They can be used in a wide range of inert, highly toxic and pyrophoric gases to reduce the handling risk.
- Semiconductor industry, building & fire code compliance**  
 Porous metal flow restrictors can assist in complying with SEMI S5-0310 Safety Guidelines for sizing and identifying flow limiting devices for gas cylinder valves, NFPA 318 Standard for Protection of Semiconductor Fabrication Facilities, CGA G-13 Storage and Handling of Silane and other gas safety standards.
- Cost reduction of exhaust venting systems**  
 With the option of installing porous metal flow restrictors, gas delivery systems can be designed with smaller, lower flow exhaust for significant capital investment savings.

- Reliable, tamper proof flow control**  
 Porous metal flow restrictors have no moving parts and do not require any power. They will continue to provide accurate, fixed flow without adjustment over the product's lifespan.
- Sintered porous media provides laminar flow**  
 Engineered to have enormous numbers of micro-scale, interconnected passageways that restrict and limit flow in a gas line. Unlike single bore orifice flow restrictors, porous metal flow restrictors have greater resistance to plugging, decrease flow turbulence, and reduce flow burden for a longer lasting product.
- Pressure stabilization**  
 Prevention of pressure surges and pressure shock protects and improves dynamic flow control performance downstream.

### Design flexibility

Porvair's porous metal flow restrictors accommodate a wide range of flow requirements. For technical data on a specific flow restrictor, or help on selecting the best flow restrictor for your application, contact the Porvair sales team with the following information, to discuss product availability:

1. Gas type and operating temperature
2. Inlet pressure
3. Downstream pressure
4. Desired downstream flow rate
5. Fitting size, type, and material.

## Specifications

### All metal construction

A stainless steel porous element is fitted into a standard 1/4" stainless steel face seal fitting. Other materials and fitting configurations are available.

Calibrated using N2, He, H2, Air, O2 or Ar. Other density gases will be calibrated using N2 as a correlation.

All internal wetted surfaces are 5µin Ra (0.13µm Ra).

### Wide range of operating conditions

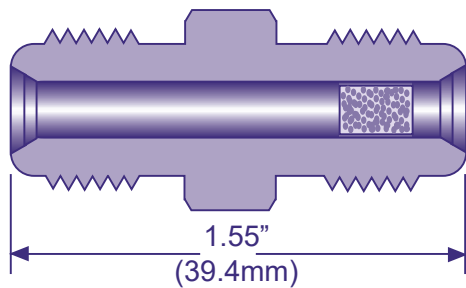
Standard flow tolerance of 7.5% of the rated flow at the rated pressure and gas type.

Down stream flow rates from 60 SLPM down to 1 SCCM.

Operating pressures up to 90 psig (standardising to atmosphere).

Sustained operating conditions in temperatures up to 450°C in inert gas applications.

### Dimensions: 1/4" face seal



## Ordering Guide

Product Code: **1** **2** **3** **4** **5** **6** **7** Eg: IFR4SS20N-250

1. Part Number	2. Face Seal Size	3. Porous Material	4. Inlet Pressure (psig)	5. Calibration Gas Type	Flow Rate	Outlet Pressure (psig)
IFR	4 1/4"	SS Stainless Steel 316L	Up to 110psig	N2 Nitrogen He Helium H2 Hydrogen O2 Oxygen Ar Argon CDA Air	1- 60,000 SCCM	None Atmospherre - 15 Vacuum

Note: The following table does not represent all available flow restrictor options. Contact a Porvair sales representative for requests.

## Single Orifice Flow Restrictor Device

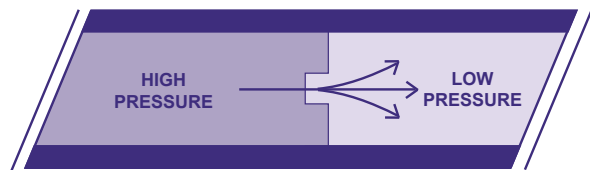
High gas velocity, pressure, heat causing erosion



Particulate fowling changes gas flow volume



Downstream turbulent gas flow



## Porvair GasPro™ IFR Porous Flow Restrictor

Low gas approach velocity, virtually no effect on performance



Sinterflo® P media with multiple pathway resists particulate fowling



Low velocity gas flow creates laminar downstream flow

