CIRCLE SEAL CONTROLS

# IR10 Series

***Brass Pressure Regulator***
***Inlet to 4,000 psig & Outlet to 2,500 psig***

## Features

- Medium pressure and high flow
- Balanced poppet provides precise control
- Soft seat for dead-end service
- Pressure relief valve for extra safety

## Applications

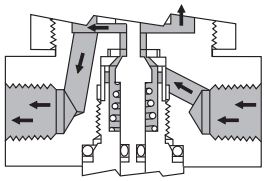
- Chromatography
- Manifold & cylinder regulation
- Bubbling operations
- Hydrogenation
- Research laboratories
- Pressure testing

## Technical Data

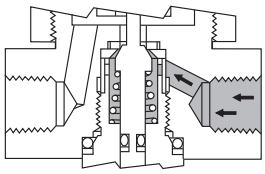
| | |
|---|---|
| **Body Construction Material** | Brass |
| **Seat Material** | Nylatron® |
| **Seal Material** | Neoprene |
| **Diaphragm Material** | Stainless steel |
| **Gauge Material** | Brass, 2½″ diameter |
| **Trim Materials** | Brass or stainless steel |
| **Port Size** | ¼″ NPT female, CGA inlet fitting optional |
| **Pressure Ratings** | Inlet: 0 to 4,000 psig (276 BAR)<br>Outlet: 0 to 2,500 psig (172 BAR) |
| **Temperature Range** | –40° F to +160° F (–40° C to +71° C) |
| **Flow Capacity** | Cv = 0.42<br>Orifice diameter = 0.15″ |
| **Weight** | Approximately 4 lbs |

*Note: Proper filtration is recommended to prevent damage to sealing surfaces.*

## How it Works



**Closed**
Balanced poppet is spring-loaded against the seat. When full upstream pressure is applied, a slightly unbalanced force is developed which enhances sealing.



**Regulating**
As the downstream process demands flow, the pressure acting on the bottom of the diaphragm decays, allowing the adjusting spring force to push the poppet down. This in turn unseats the poppet, allowing flow to begin and pressure under the diaphragm to increase until balance is achieved between adjusting spring force and downstream pressure. This condition continues until process demand ceases. At this point, increasing pressure overcomes the spring force, moving the diaphragm up, allowing the poppet to close.

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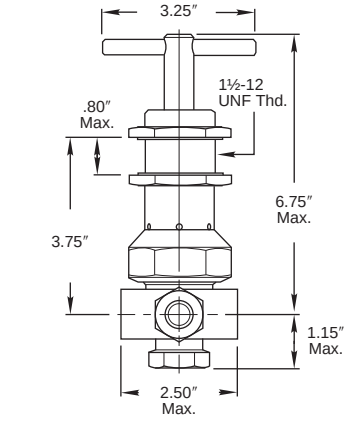
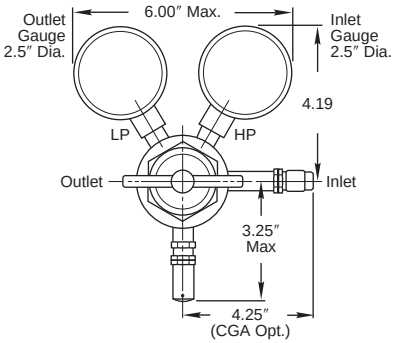
pressure regulators

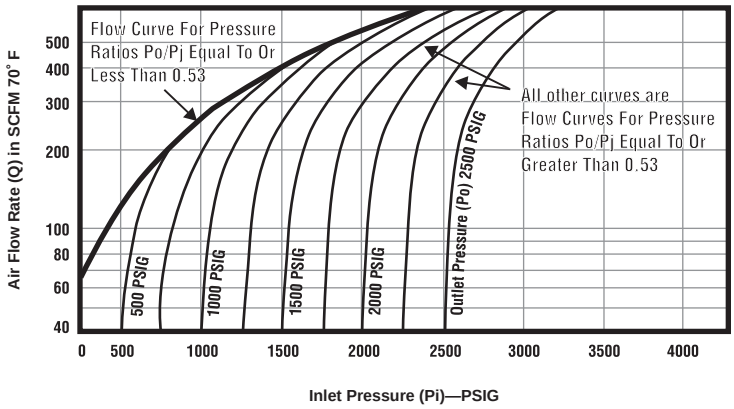
# IR10 Series

## Dimensions & Flow Curves




**Air Flow Chart**




**Correction factors for gases other than air:**

| Gas | Correction Factor |
|---|---|
| Air | 1.000 |
| Helium | 2.690 |
| Hydrogen | 3.795 |
| Nitrogen | 1.016 |
| Oxygen | 0.951 |

**Flow rates for gases other than air:**
Air Flow Rate (Q) × correction factor

## How to Order

**K/ IR1 0 250 G**

***REPAIR KIT***

***OUTLET PRESSURE RANGE***
- **0** 0 to 500 psig (0 to 34 BAR)
- **1** 0 to 1,000 psig (0 to 70 BAR)
- **2** 0 to 2,500 psig (0 to 172 BAR)

***INLET PORT***
- **250** ¼″ NPT female
- **xxx** Specify CGA fitting number

***OPTIONS***
- **G** Inlet & outlet gauges
- **P** Panel mounting provisions

*Outlet pressure rise per 100 psi pressure decay: 0.1 psi max. Maximum inlet pressure: 4,000 psi*

*If this regulator is to be used in oxygen service, specify "GENERAL OXYGEN SERVICE" when ordering or furnish the factory with a copy of the special requirements.*

*Fluid media: non-corrosive gases and liquids.*

Please consult your Circle Seal Controls distributor, representative, or the factory for information on special connections, operating pressures and temperature ranges.

**Inlet/Outlet Ranges**

| Model | Outlet Pressure Range | Inlet Gauge Range | Outlet Gauge Range | Safety Valve Set Pressure | Max. Air Flow |
|---|---|---|---|---|---|
| IR10 | 0–500 psig | 0–5,000 psi | 0–600 psi | 0–600 psi | 200 scfm |
| IR11 | 0–1,000 psig | 0–5,000 psi | 0–1,500 psi | 0–1,400 psi | 400 scfm |
| IR12 | 0–2,500 psig | 0–5,000 psi | 0–3,000 psi | 0–2,900 psi | 1,000 scfm |

## For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.

*Nylatron® is a registered trademark of DSM Engineering Plastic Products.*