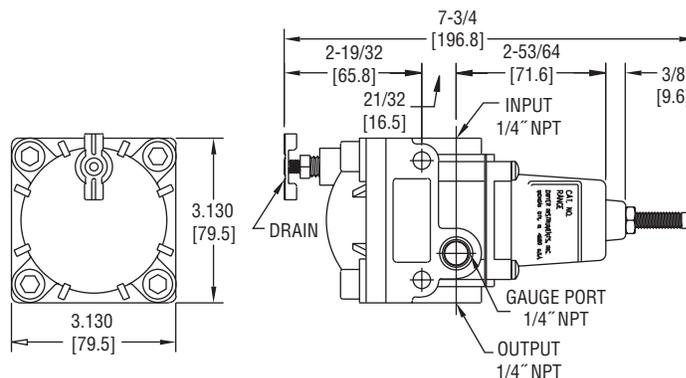




## Series AFR Air Filter Regulator

### Specifications - Installation and Operating Instructions



The Series AFR Air Filter Regulators are designed to provide clean, accurate air pressure to instruments, valves and other automatic control equipment under variable conditions. The regulators are designed for air service only. Maximum allowable inlet pressure is 250 psi. Operating temperature is 0 to 160°F. The Series AFR has a low capacity internal relief which provides very limited down stream over pressure protection. To avoid exceeding outlet pressure limits in service, a pressure relieving or pressure limiting device should be used.

#### INSTALLATION

Install the regulator as close as possible to the instrument or tool it is to service. For best filter drainage, orient the valve so it is at the lowest point on the dripwell housing. The words "IN" and "OUT" are cast into the body to indicate the direction of flow.

#### OPERATION

Turning the adjusting screw changes the force exerted by the range spring on the diaphragm assembly. In equilibrium of set pressure, the force exerted by the range spring is balanced by the force from the output pressure acting underneath the diaphragm.

An unbalanced state between the output pressure and the set pressure causes a corresponding reaction in the diaphragm and supply valve assemblies. If the output pressure rises above the set pressure, an upward force is exerted on the diaphragm assembly causing the relief seat to lift and open. Excess pressure is vented to atmosphere until equilibrium is reached. If the output pressure drops below the set pressure, the unbalanced force of the range spring causes a downward force on the diaphragm assembly. The supply valve then opens until the pressure builds up once more to the equilibrium condition.

Under forward flow conditions, the range spring force is balanced by the diaphragm pressure force, with the supply valve open just enough to maintain the required equilibrium pressure. When high flow occurs, a specially designed aspirator helps maintain downstream pressure and compensates for droop.

Prior to turning on supply air, back off adjusting screw until there is no compression of the range spring. After turning supply pressure on, turn the adjusting screw clockwise to increase outlet pressure.

#### SPECIFICATIONS

**Service:** Air only.

**Output Ranges:** 0 to 10 psi (0 to 70 kPa), 0 to 30 psi (0 to 200 kPa), 0 to 60 psi (0 to 400 kPa), and 0 to 120 psi (0 to 800 kPa).

**Maximum Supply Pressure:** 250 psig (1700 kPa).

**Port Size:** 1/4" NPT(F) in, out, and gage.

**Mounting:** Pipe or through body.

**Flow Capacity:** 20 SCFM (33.0 m<sup>3</sup>/hr) at 100 psig (700 kPa) supply with 20 psig (140 kPa) output.

**Exhaust Capacity:** 0.1 SCFM (0.17 m<sup>3</sup>/hr) with downstream pressure 5 psig (35 kPa) above set point.

**Sensitivity:** 1" (2.5 cm) of water.

**Air Consumption:** Less than 6 SCFH (0.17 m<sup>3</sup>/hr).

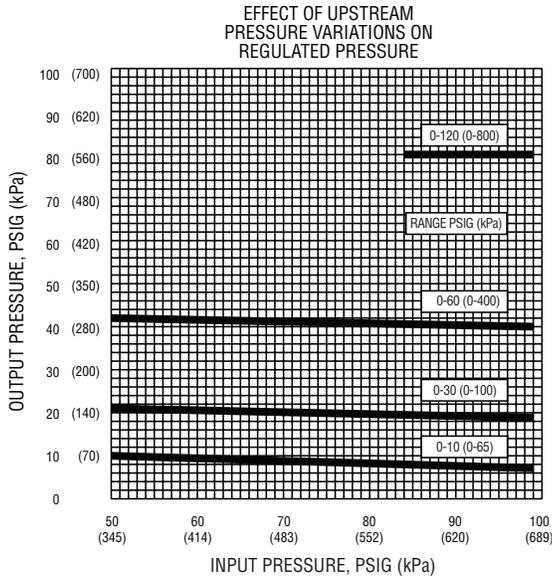
**Filter Size:** 40 micron.

**Effect of Supply Pressure Variation:** Less than 0.2 psig (1.4 kPa) for 25 psi (170 kPa) change.

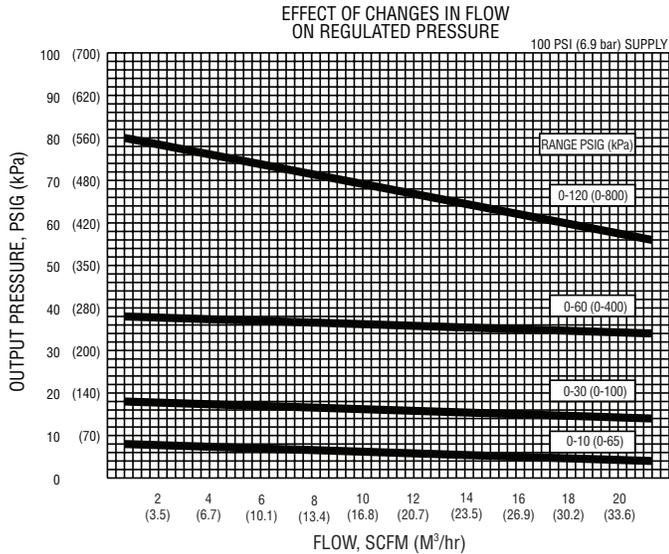
**Materials of Construction:** Body: Aluminum Alloy, Irridite, and baked epoxy finish; Filter: Phenolic Impregnated Cellulose; Diaphragm and Valve seat Plug: Nitrile Elastomer.

**Weight:** 1.6 lb (725 g).

See Figures 1 and 2 below for additional performance characteristics.



**Figure 1**



**Figure 2**

**WARNING**

The Series AFR Air Filter Regulator is intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under specifications.

Before using these products with fluids other than air, for non-industrial applications, life-support systems, or other applications not within published specifications, contact Dwyer Instruments, Inc.

**MAINTENANCE**

**To Remove Condensate**

Slowly open drain valve and bleed accumulated liquid.

**To Clean Filter Element**

- 1) Shut off air supply.
- 2) Drain condensate.
- 3) Remove four corner bolts from bottom of unit.
- 4) Remove dripwell housing and filter.
- 5) Clean parts and reassemble in reverse order.

**MAINTENANCE**

Upon final installation of the Series AFR Air Filter Regulator, no routine maintenance is required. A periodic check of the system calibration is recommended. This Series AFR is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.