Type 300 Series
Instrument Air Filter and Filter Regulators
Type 300 Filter Regulator, Type 310 NACE compliant
Filter Regulator and Type 320 Filter

Series Features
• Corrosion-Resistant and NACE Compliant Construction
  Types 300 and 320 feature aluminum die-castings, finished with irridite and baked epoxy. Materials in the Type 310 meet NACE MR-01-75 requirements.

• Depth Filter
  Units come equipped with high capacity 40 micron depth filter housed in dripwell

• Two Outlet Connections
  Provides piping versatility

Regulator Features
• Stable Output and Repeatability
  Provides constant control under variable flow rates and supply pressures

• Low Droop At High Flow Levels
  Aspirator design helps maintain set pressure at higher flow levels

• Tight Shutoff
  A soft, rubberized valve provides a positive shutoff and compensates for dirt and other foreign matter

• Low Air Consumption
  Decreases operating cost

• Tapped Exhaust
  Allows captured exhaust
**Type 300 Filter Regulator**

The Type 300 Instrument Air Filter Regulator is designed to provide clean, accurate air pressure to instruments, valves, and other automatic control equipment. This filter regulator has been proven to provide accurate operating characteristics under variable conditions. Durable materials and a standard epoxy paint finish provide long lasting corrosion resistance in harsh industrial environments. The Type 300 is a quality unit that is ideal as an economical alternative for control of process applications.

**Type 310 NACE Filter Regulator**

This unit incorporates all of the operating features of the Type 300 filter regulator, but is constructed of materials that meet NACE specification #MR-01-75 for sulfide stress cracking. Designed specifically for corrosive sour gas environments, the Type 310 NACE is ideal for oil field applications.

**Type 320 Filter**

The Type 320 Filter unit is a 40-micron depth filter that removes dirt, moisture and other particles from air and gas lines. Robustly constructed of die-cast aluminum with a baked epoxy finish, this unit stands up in corrosive operating conditions. This filter is an economical alternative for air supply line applications that don't require a pressure reducing regulator.

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Type 300</th>
<th>Type 310</th>
<th>Type 320</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port Size</strong></td>
<td>In/Out/Gauge: 1/4&quot; NPT</td>
<td>In/Out/Gauge/Exhaust: 1/4&quot; NPT</td>
<td>In/Out/Gauge: 1/4&quot; NPT</td>
</tr>
<tr>
<td><strong>Output Ranges</strong></td>
<td>0-10 psig (0-7 BAR), 0-30 psig (0-2 BAR), 0-60 psig (0-4 BAR), 0-120 psig (0-8 BAR)</td>
<td>0-30 psig (0-2 BAR), 0-60 psig (0-4 BAR), 0-100 psig (0-7 BAR)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Maximum Supply Pressure</strong></td>
<td>250 psig (17 BAR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Pipe, panel, bracket or through body</td>
<td>Pipe or through body</td>
<td>Pipe, bracket or through body</td>
</tr>
<tr>
<td><strong>Filter</strong></td>
<td>40 micron (optional 5 micron)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flow Capacity</strong></td>
<td>22 scfm at 100 psig supply with 20 psig output</td>
<td>20 scfm at 100 psig supply with 20 psig output</td>
<td>30 scfm (849 Nl/min) at 100 psig supply</td>
</tr>
<tr>
<td><strong>Exhaust Capacity</strong></td>
<td>0.1 scfm with downstream pressure 5 psig above set point</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>1&quot; of water</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Air Consumption</strong></td>
<td>Less than 5 scfh</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Effect of Supply Pressure Variation</strong></td>
<td>Less than 0.2 psig for 25 psig change</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Limits</strong></td>
<td>0° to 160° F (-18° C to 71° C) Low Temperature Option (J): -62° to 194° F (-52° to 90° C)</td>
<td>-20° F to 180° F (-29° C to 82° C)</td>
<td>-20° F to 160° F (-29° C to 71° C) Low Temperature Option (J): 69° to 194° F (-52° to 51° C)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>1.6 lb.</td>
<td>1.3 lb.</td>
<td></td>
</tr>
<tr>
<td><strong>Cv</strong></td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Type 300 & Type 310 Principles of 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 assembly. 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.

### Materials

#### Type 300
- **Body:** Diecast Aluminum Alloy, Irridite and Baked Epoxy Finish
- **Filter:** Sintered Polyethylene
- **Diaphragm:** Nitrile Elastomer and Nylon Fabric (Viton® optional)
- **Low Temperature Option:** Silicone and Nitrile
- **Valve Seat Plug:** Nitrile Elastomer (Viton® optional)
- **Additional Materials:** Brass, Zinc Plated Steel, Acetal

#### Type 310
- **Body:** Diecast Aluminum with Baked Epoxy Finish
- **Filter:** Sintered Polyethylene
- **Pintle:** 316 Stainless Steel
- **Drain Valve:** Aluminum
- **Diaphragm, Gasket, Pintle:** Viton®
- **Low Temperature Option:** Silicone and Nitrile
- **Spring:** 316 Stainless Steel
- **Trim:** Heat treated plated steel and stainless steel

#### Type 320
- **Body, Filter Cap:** Aluminum
- **Filter:** Sintered Polyethylene
- **Gasket:** Nitrile
- **Low Temperature Option:** Silicone and Nitrile
- **Additional Materials:** Plated Steel, Brass
Type 300 Series

Type 300 & Type 310 Dimensions

Type 300 & Type 320 Dimensions

Ordering

<table>
<thead>
<tr>
<th>Type</th>
<th>Model Number</th>
<th>Port Size (NPT)</th>
<th>Output Range (psi)</th>
<th>Output Range (BAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Regulator</td>
<td>300-BD</td>
<td>1/4&quot;</td>
<td>0-10</td>
<td>0-.7</td>
</tr>
<tr>
<td>Filter Regulator</td>
<td>300-BA</td>
<td>1/4&quot;</td>
<td>0-30</td>
<td>0-2</td>
</tr>
<tr>
<td>Filter Regulator</td>
<td>300-BB</td>
<td>1/4&quot;</td>
<td>0-60</td>
<td>0-4</td>
</tr>
<tr>
<td>Filter Regulator</td>
<td>300-BC</td>
<td>1/4&quot;</td>
<td>0-120</td>
<td>0-8</td>
</tr>
<tr>
<td>NACE Filter Regulator</td>
<td>310-BA</td>
<td>1/4&quot;</td>
<td>0-30</td>
<td>0-2</td>
</tr>
<tr>
<td>NACE Filter Regulator</td>
<td>310-BB</td>
<td>1/4&quot;</td>
<td>0-60</td>
<td>0-4</td>
</tr>
<tr>
<td>NACE Filter Regulator</td>
<td>310-BC</td>
<td>1/4&quot;</td>
<td>0-100</td>
<td>0-7</td>
</tr>
<tr>
<td>Filter Only</td>
<td>320-BX</td>
<td>1/4&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Options

Add proper letter at end of model number.

** E - Tapped Exhaust
Allows captured exhaust. 1/4" NPT
Standard 40 micron filter is replaced with 5 micron filter for more complete air filtration (available for Type 300 and Type 320 only)

*** J - Low Temperature
Temperature range -62° to +194° F (-52° to +90° C)

* K - Knob:
To replace square head adjust screw

N - Non Relieving
For constant flow or downstream pressure relief applications

** P - Panel Mount
Option allows panel mounting (see dimensional drawing)

S - Stainless Steel
Stainless steel external hardware (adjust stem, drain valve, fasteners)
Stainless steel internal pintle

** V - Viton® Elastomers
Used where elements in the supply air are particularly destructive to standard Buna-N pintle and diaphragm material

X - ATEX
94/9/EC

* Options for Type 300 only

*** Standard features for Type 310 NACE

*** Low Temperature Option not available for Type-310 NACE

Accessories

Mounting Bracket: P/N 446-707-028

Gauges: 1/4" NPT back-mount, 2" face
0-15 psi P/N 446-725-003
0-30 psi P/N 446-725-004
0-60 psi P/N 446-725-001
0-160 psi P/N 446-725-002

Warranty
ControlAir, Inc. products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir, Inc. recommended usages. ControlAir, Inc. reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user. Drawing downloads available at www.controlair.com

ControlAir
8 Columbia Drive / Amherst, NH 03031 USA / www.controlair.com / sales@controlair.com / 603-886-9400 / FAX 603-889-1844
An ISO-9001:2015 Certified Company

P/N 441-625-003 11/17