

# 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

#### 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



**ControlAir Inc.**

# Type 300 Series

## Rugged and reliable instrument air filtration and regulation

### 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.

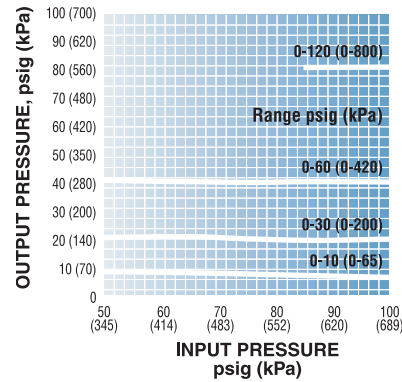
### Type 320 Filter

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.

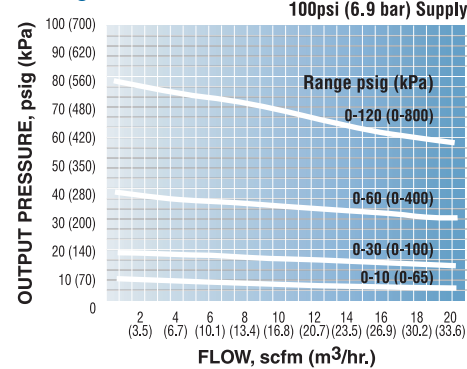
## S P E C I F I C A T I O N S

	Type 300	Type 310	Type 320
<b>Port Size</b>	In/Out/Gauge: 1/4" NPT	In/Out/Gauge/Exhaust: 1/4" NPT	In/Out/Gauge: 1/4" NPT
<b>Output Ranges</b>	0-10 psig (0-.7 BAR), 0-30 psig (0-2 BAR), 0-60 psig (0-4 BAR), 0-120 psig (0-8 BAR)	0-30 psig (0-2 BAR), 0-60 psig (0-4 BAR), 0-100 psig (0-7 BAR)	N/A
<b>Maximum Supply Pressure</b>	250 psig (17 BAR)		
<b>Mounting</b>	Pipe, panel, bracket or through body	Pipe or through body	Pipe, bracket or through body
<b>Filter</b>	40 micron (optional 5 micron)		
<b>Flow Capacity</b>	22 scfm at 100 psig supply with 20 psig output	20 scfm at 100 psig supply with 20 psig output	30 scfm (849 NI/min) at 100 psig supply
<b>Exhaust Capacity</b>	0.1 scfm with downstream pressure 5 psig above set point		N/A
<b>Sensitivity</b>	1" of water		N/A
<b>Air Consumption</b>	Less than 5 scfh		N/A
<b>Effect of Supply Pressure Variation</b>	Less than 0.2 psig for 25 psig change		N/A
<b>Temperature Limits</b>	0° to 160° F (-18° C to 71° C) Low Temperature: -40° to 51° C	-20° F to 180° F (-29° C to 82° C) Low Temperature: -40° to 51° C	-20° F to 150° F (-29° C to 66° C) Low Temperature: -40° to 51° C
<b>Weight</b>	1.6 lb.		1.3 lb.
<b>Cv</b>	0.4		

Effects of Upstream Pressure Variations on Regulated Pressure

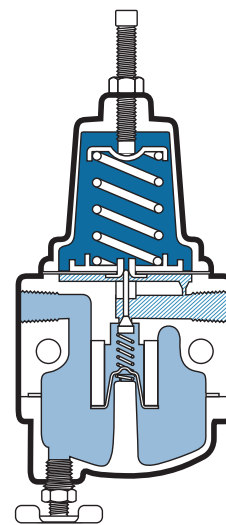


Effect of Changes in Flow on Regulated Pressure



### Type 300 and 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.



- Atmospheric Pressure
- Regulated Pressure
- Supply Pressure

## M A T E R I A L S

### Type 300

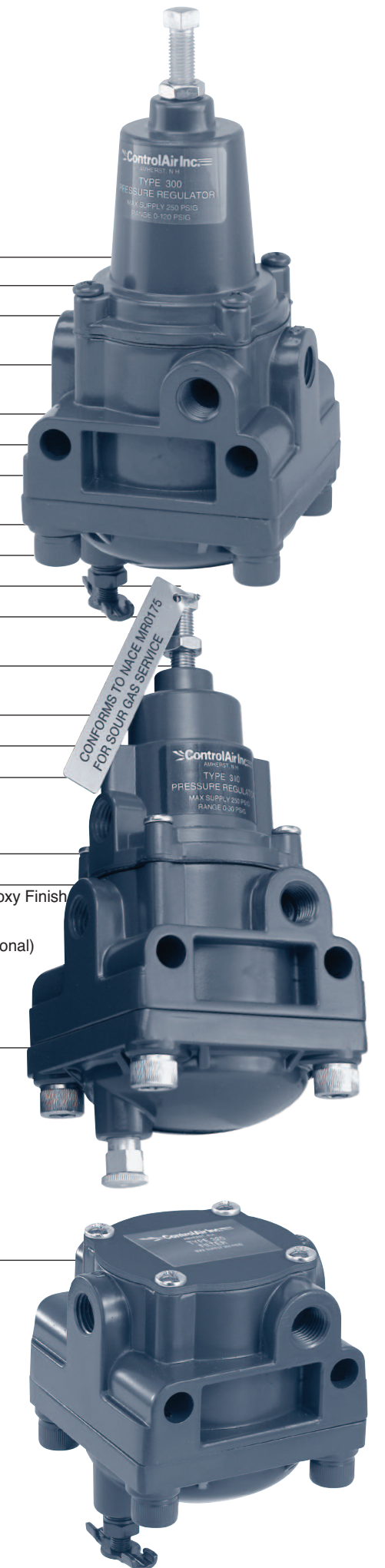
Body:	Diecast Aluminum Alloy, Irridite and Baked Epoxy Finish
Filter:	Phenolic Impregnated Cellulose
Diaphragm:	Nitrile Elastomer and Nylon Fabric (Viton® optional)
Valve Seat Plug:	Nitrile Elastomer (Viton® optional)
Additional Materials:	Brass, Zinc Plated Steel, Acetal

### Type 310

Body:	Diecast Aluminum with Baked Epoxy Finish
Filter:	Phenolic Impregnated Cellulose
Pintle:	316 Stainless Steel
Drain Valve:	Aluminum
Diaphragm, Gasket, Pintle:	Viton®
Spring:	316 Stainless Steel
Trim:	Heat treated plated steel and stainless steel

### Type 320

Body, Filter Cap:	Aluminum
Filter:	Phenolic Impregnated Cellulose
Gasket:	Nitrile
Additional Materials:	Plated Steel, Brass





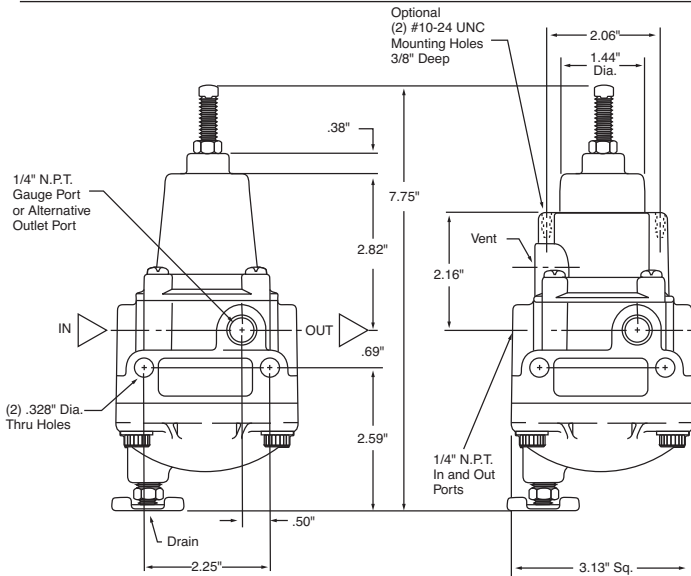
# Type 300 Series

## Dimensions

# Type 300 Series

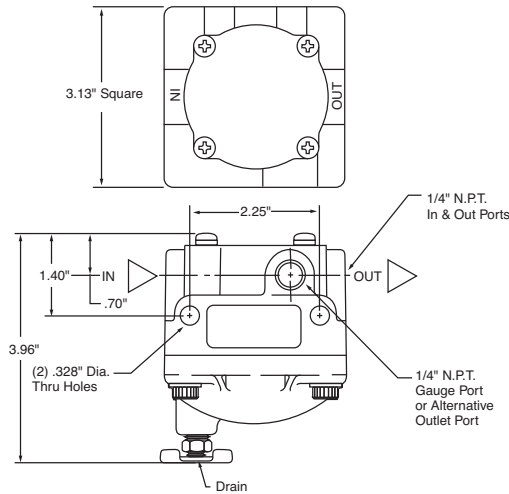
## Ordering Information

### Type 300 & Type 310 Dimensions

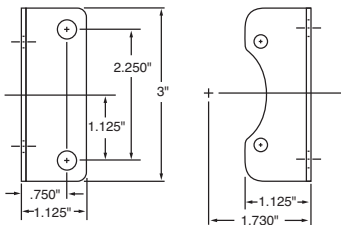


Note: This view shown with optional panel mount capability. See "Options" for ordering information.

### Type 320 Dimensions



### Optional Mounting Bracket



### 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.'s liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir, Inc.'s sole option, of any products proved defective. 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.

Type	Model Number	Port Size (NPT)	Output Range (psi)	Output Range (BAR)
Filter Regulator	300-BD	1/4"	0-10	0-.7
Filter Regulator	300-BA	1/4"	0-30	0-2
Filter Regulator	300-BB	1/4"	0-60	0-4
Filter Regulator	300-BC	1/4"	0-120	0-8
NACE Filter Regulator	310-BA	1/4"	0-30	0-2
NACE Filter Regulator	310-BB	1/4"	0-60	0-4
NACE Filter Regulator	310-BC	1/4"	0-100	0-7
Filter Only	320-BX	1/4"	-	-

### Options

Add proper letter at end of model number.

- \*\*E - Tapped Exhaust** allows captured exhaust. 1/4" NPT
- F - 5 Micron Filter** 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 -40° to +125° F (-40° to +51° 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 Trim** stainless steel external hardware (adjust stem, drain valve, fasteners). Stainless steel internal pintle.
- \*T - Tamperproof Cover** prevents casual adjustment of output pressure.
- \*\*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.

### 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



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