



# Type 600 Ratio Relay Volume Booster

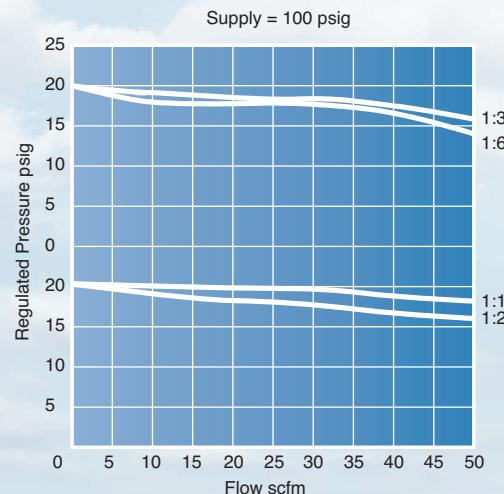
Meet high flow requirements with a low flow pneumatic signal.

The Type-600 ratio relay volume booster is designed to use a pneumatic signal to produce an output pressure which has high flow capacity and can be amplified. This unit is most useful for systems requiring the conversion of a low flow control signal to the higher flow requirements of an operating system. Using an independent supply pressure for greater volume, the Type-600 relays up to 50 SCFM (1,400 NI/min) flow capacity to a final control element such as a valve actuator. The standard signal to output ratio is 1:1, however, the Type-600 is also available with an amplified signal to output ratio of 1:2, 1:3 and 1:6.

## Features

- High Flow Capacity**  
Allows flows up to 50 SCFM (1,400 NI/min)
- Amplified Output**  
Available in a signal to output pressure ratio of 1:1, 1:2, 1:3 and 1:6
- Stable Output**  
Venturi aspirator maintains output pressure under varying flow conditions
- Multiple Port Sizes**  
Available in 1/4", 3/8" and 1/2" NPT/BSP
- Balanced Supply Valve**  
Rolling diaphragm design makes unit insensitive to supply pressure variation
- Optional Negative Bias**  
4 psi (0.3 bar) negative bias option allows "zero" of I/P's

## Flow Characteristics

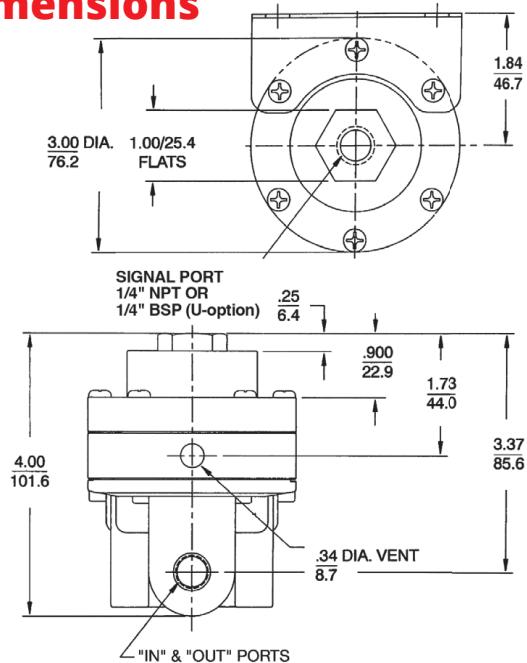


## Applications

The Type-600 is used extensively for increased flow capacity, pressure amplification, or remote pressure control applications. This includes web tensioning, roll loading, control valve actuators, I/P volume boosting, cylinder actuation, clutch and brake control, and gas flow control.

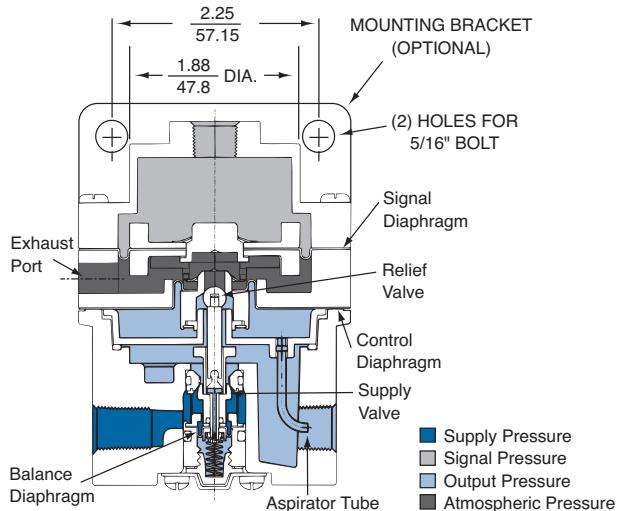
# Type 600 Ratio Relay Volume Booster

## Dimensions



## Principle of Operation

When pressure is introduced through the signal port of the Type-600, a downward force on the upper diaphragm area is created. This force is balanced by the output pressure acting against the lower control diaphragm area. The ratio of signal pressure to output pressure is determined by the ratio of the effective areas of the upper and lower diaphragms. If signal pressure is increased above the output pressure there is a net downward force on the diaphragm assembly causing the supply valve to open. Output pressure increases until equilibrium is achieved. When signal pressure is decreased below the output pressure, the diaphragm assembly rises, allowing output air to exhaust through the vent on the side of the relay.



## Specifications

Ratio	1:1	1:2	1:3	1:6
<b>Flow capacity, SCFM (NI/min)</b> 100 psig (7 bar) supply, 20 psig (1.4 bar) output		50 (1,415)		
<b>Exhaust capacity, SCFM (NI/min)</b> Downstream 5 psig (0.34 bar) above set pressure	15 (425)	15 (425)	15 (425)	10 (283)
<b>Maximum Flow Coefficients (Cv)</b>		1.0		
<b>Sensitivity, inches water (cm)</b>	.25 (.64)	.50 (1.3)	.75 (1.9)	1.50 (3.8)
<b>Ratio accuracy (%)</b> - % of output span with 3-15 psig (0.21-1.05 bar) signal	1.0	1.12	1.25	2.0
<b>Zero error (%)</b> - % of output span with 3-15 psig (0.2-1.05 bar) signal	2.0	2.12	2.25	3.0
<b>Effect of supply pressure change of 50 psig (3.5 bar)</b>	0.1 psi	0.2 psi	0.3 psi	0.6 psi
<b>Air Consumption, maximum</b>	Steady state: 1.0 to 10.0 scfh (0.5 to 5 NI/min), depending on output pressure range			
<b>Max. supply pressure, psig (bar)</b>	250 (17.5)			
<b>Max. signal pressure, psig (bar)</b>	150 (10.34)	75 (5.17)	50 (3.44)	25 (1.72)
<b>Ambient temperature limits,</b>	-40 to 160°F (-40 to 71°C)			
<b>Weight, lbs. (gm)</b>	1.4 (635)			
<b>Port sizes</b>	1/4", 3/8", 1/2" NPT/BSP			
<b>Mounting options</b>	Pipe, panel or bracket			
<b>Materials</b>	Body: Internal Components: Diaphragm:	Diecast aluminum Stainless steel, brass, plated steel, acetal Nitrile elastomer & polyester fabric		

## Ordering

Part Number	Port Size NPT	Ratio
600-BA, 600-CA, 600-DA	1/4", 3/8", 1/2"	1:1
600-BB, 600-CB, 600-DB	1/4", 3/8", 1/2"	1:2
600-BC, 600-CC, 600-DC	1/4", 3/8", 1/2"	1:3
600-BD, 600-CD, 600-DD	1/4", 3/8", 1/2"	1:6

**Options** (Add proper letter at end of model number)

- Z - Negative Bias:  $-4 \pm 1$  psi bias
- E - Tapped Exhaust: Allows captured exhaust. 1/8" NPT port
- U - BSP Porting (1/4", 3/8", 1/2")
- X - ATEX 2014/34/EU

## Accessories

- G - Pressure Gauge: 2" face, back mounted. Dual scale  
0-15 psi range: P/N 446-725-003  
0-30 psi range: P/N 446-725-004  
0-60 psi range: P/N 446-725-001  
0-160 psi range P/N 446-725-002
- B - Mounting Bracket: P/N 446-707-025



**Warranty** ControlAir LLC 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 LLC recommended usages. ControlAir LLC's liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir LLC's sole option, of any products proved defective. ControlAir LLC 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](http://www.controlair.com)



8 Columbia Drive / Amherst, NH 03031 USA / [www.controlair.com](http://www.controlair.com) / sales@controlair.com / 603-886-9400 / FAX 603-889-1844

An ISO 9001:2015 Registered Company