



# Installation, Operation and Maintenance Instructions

## TYPE 6500/6600 Large Flow Capacity Volume Booster

The Type 6500 aluminum and Type 6600 stainless steel volume boosters are 1:1 signal to output relays that are utilized in applications that require high flow capacity. Typically, they are used to increase throttling speed of large volume valve actuators. They are suitable for either diaphragm or piston actuators. A fixed deadband and adjustable bypass valve combine to allow small incremental downstream adjustment without opening the main booster valve. The bypass valve is used to adjust dynamic response to provide stable operation over a wide range of actuator sizes.

### 1. SPECIFICATIONS

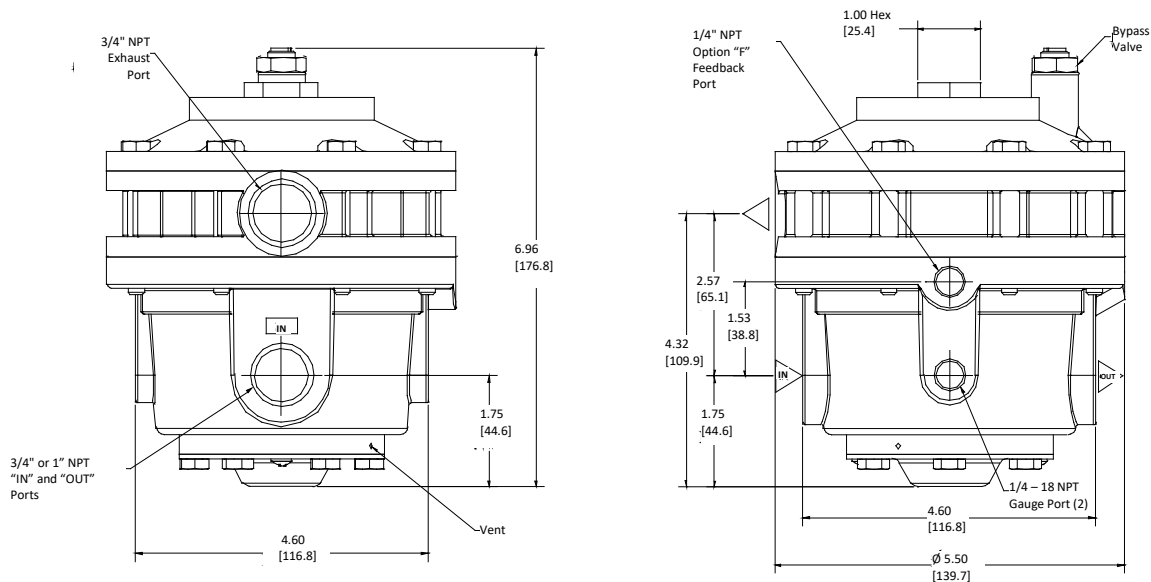
#### Functional Specifications

<b>Signal / Output Ratio</b>	1:1									
<b>Supply Pressure</b>	250 psig (17.0 BAR) Maximum									
<b>Signal Pressure</b>	150 psig (10 BAR) Maximum									
<b>Maximum Flow Coefficients (Cv)</b>	<table border="1"> <thead> <tr> <th></th> <th>Forward</th> <th>Exhaust</th> </tr> </thead> <tbody> <tr> <td>3/4"</td> <td>8.0</td> <td>8.0</td> </tr> <tr> <td>1"</td> <td>9.0</td> <td>8.0</td> </tr> </tbody> </table>		Forward	Exhaust	3/4"	8.0	8.0	1"	9.0	8.0
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3/4"	8.0	8.0								
1"	9.0	8.0								
<b>Exhaust Capacity</b> 5 psig (0.35 BAR) above a 20 psig (1.37 BAR) setpoint	<table border="1"> <tbody> <tr> <td>3/4"</td> <td>150 scfm (4,245 NL/min)</td> </tr> <tr> <td>1"</td> <td>150 scfm (4,245 NL/min)</td> </tr> </tbody> </table>	3/4"	150 scfm (4,245 NL/min)	1"	150 scfm (4,245 NL/min)					
3/4"	150 scfm (4,245 NL/min)									
1"	150 scfm (4,245 NL/min)									
<b>Output Accuracy</b>	2.0% of span									
<b>Deadband</b>	Under 0.2 psig (0.01 BAR)									
<b>Supply Pressure Effect</b>	0.3 psig (0.02 BAR) for a 100 psig (7 BAR) change									
<b>Temperature Limits</b> Low temperature option	-40 to 200°F (-40 to 93°C) -62 to 194°F (-52 to 90°C)									

#### Physical Specifications

<b>MATERIALS</b> <b>Housing:</b> <b>Bolting:</b> <b>Other Trim:</b> <b>Internal Components:</b> <b>Elastomers:</b>	<b>TYPE 6500</b> Aluminum Zinc Plated Steel Aluminum Aluminum Nitrile	<b>TYPE 6600</b> 316 Stainless Steel 316 Stainless Steel 316 Stainless Steel Stainless Steel Nitrile
<b>Weight</b> Type 6500 Aluminum Type 6600 Stainless Steel	6.5 lbs (2.95 kg) 15 lbs (6.80 kg)	
<b>Signal Port</b>	1/4" NPT	
<b>Supply / Output Port</b>	3/4" or 1" NPT	
<b>Exhaust Port</b>	3/4" NPT	
<b>Gauge Port (2)</b>	1/4" NPT	
<b>Feedback Port (Option)</b>	1/4" NPT	

## 2. DIMENSIONAL DRAWING



(Drawing downloads available at <http://www.controlair.com>)

## 3. INSTALLATION



**WARNING:** Only qualified personnel should install or service a volume booster. Volume Boosters should be installed, operated, and maintained in accordance with international and applicable codes and regulations, and ControlAir instructions. If the booster vents fluid or a leak develops in the system, it indicates that service is required. Failure to take the booster out of service immediately may create a hazardous condition. Personal injury, equipment damage, or leakage due to escaping fluid or bursting of pressure-containing parts may result if this booster is over pressured or is installed where service conditions could exceed the limits given in the Specifications section, or where conditions exceed any rating of the adjacent piping or piping connections. To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding limits. Additionally, physical damage to the booster could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the booster in a safe location.

### 3.1 Pre-Installation Requirements

- 3.1.1 The Type 6500 and Type 6600 require a source of clean, oil-free dry instrument grade air filtered to 40 microns.
- 3.1.2 Air should be free of all contaminants and hazardous gases, flammable or toxic.
- 3.1.3 Clean all pipelines of dirt and scale prior to installation.

#### NOTE

**Failures attributable to instrument air supply contamination are not covered by the warranty.**

#### CAUTION

**This instrument vents to atmosphere. The use of supply gas other than air can create a hazardous environment.**

- 3.1.4 Apply a minimum amount of pipe compound to the male threads of the fitting only. Do not use thread sealant tape on pipe fittings as it tends to contaminate the valve causing the booster to malfunction.

## 3.2 Installation

3.2.1 Install the booster so that direction of flow is from Inlet to Outlet as labeled “IN” and “OUT” marked on the body. Inlet and outlet porting is 3/4" NPT or 1" NPT. The signal port is 1/4" NPT. Tighten all connections securely.

3.2.2 Booster can be mounted in any position and is typically nipple-mounted between the pneumatic supply source and the actuator. See figure 2 for a typical installation illustration.

### CAUTION

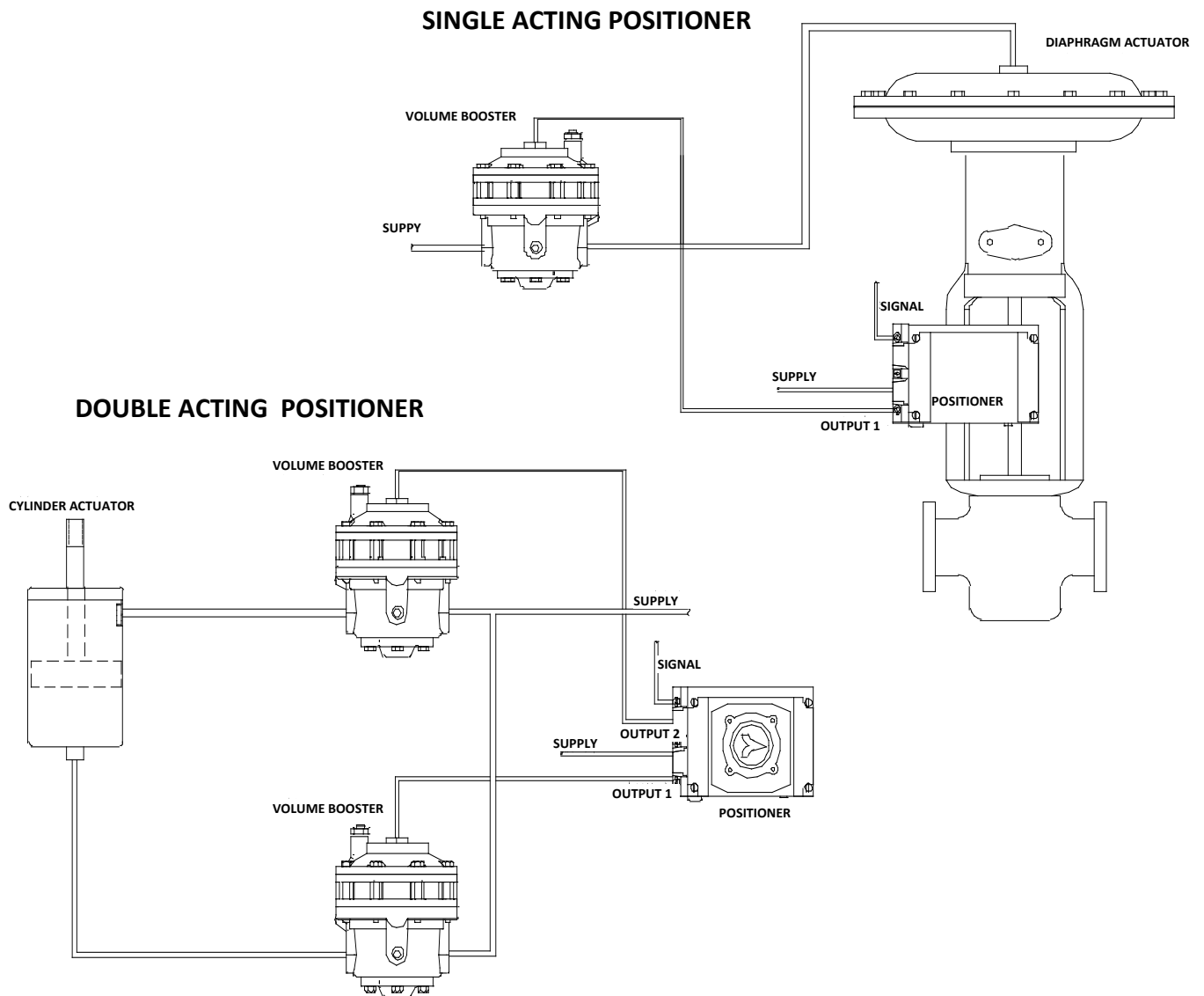
*Do not use separate pressure supplies for the volume booster and associated positioner as this may prevent the booster from exhausting immediately when there is loss of positioner supply pressure, but not loss of booster supply pressure.*

3.2.3 Ensure that piping to and from the booster is of proper size to meet the capacity demands of the booster and that the downstream actuator has properly sized input connections so as not to limit flow.

### CAUTION

*Keep exhaust port free of any obstructions. Excessive exhaust restriction can damage the booster. High flow capacity exhaust silencers and full size exhaust piping must be used to limit back pressure during the exhaust cycle in operation.*

Figure 2 – Typical Installations



## 4. OPERATION

- 4.1 Prior to applying supply pressure to the booster, open the bypass valve approximately one turn by turning counterclockwise. After applying supply pressure, note response of actuator to open and close commands from the positioner. If excessive overshoot or hunting is seen, open bypass valve until stable operation is obtained. If valve becomes too slow to react to signal change from the positioner, close needle valve until more responsive.

Turning the bypass valve clockwise (closing) speeds response but can lead to instability. Turning the bypass valve counterclockwise (opening) aids stability but will slow down the actuator's response. Proper setting provides stable operation and acceptable response time. **Please do not turn the screw more than 4 full rotations (counterclockwise) from the fully closed position.**

## 5. MAINTENANCE AND REPAIRS

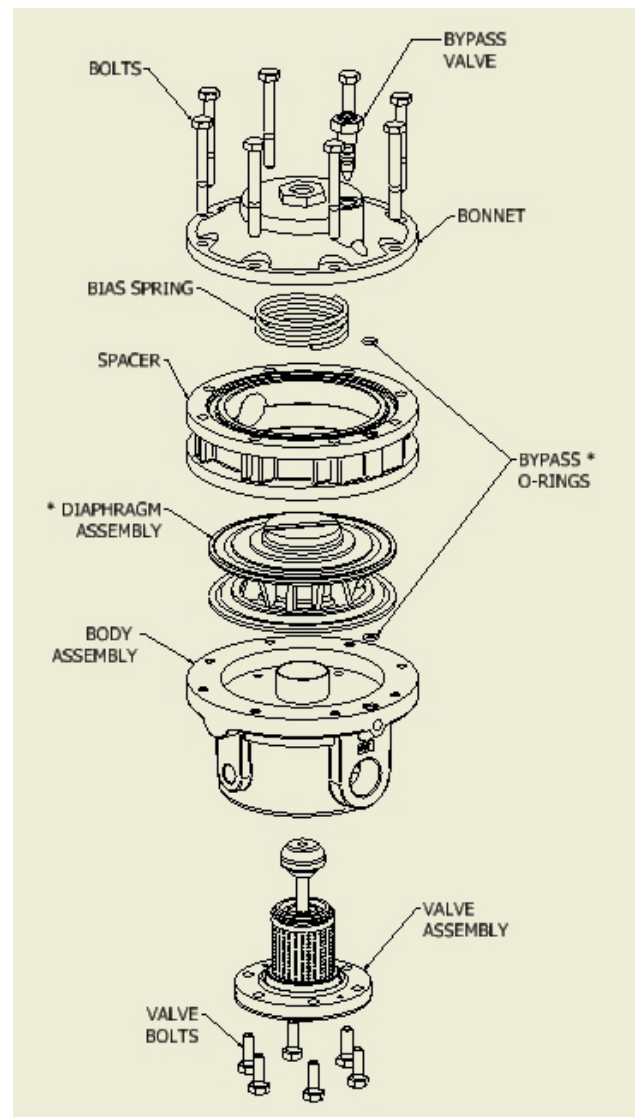
### NOTE

*Under normal circumstances, no maintenance should be required.*

### 5.1 Repairs

- 5.1.1 In the event of unit failure, the Type 6500 and Type 6600 can be returned to the factory through point of purchase for warranty repair if the warranty period has not expired.
- 5.1.2 All units returned for repair must be authorized prior to receipt at the factory. Contact a representative at the point of purchase to receive a Return Authorization Number
- 5.1.3 Repair kits for the Type 6500 and Type 6600 are available. Part numbers listed below:
- Type 6500 Standard: P/N 449-871-129  
Type 6500 Low Temp.: P/N 449-871-168  
Type 6600 Standard: P/N 449-871-130  
Type 6600 Low Temp: P/N 449-871-169

Repair Kit includes: \* Items



## 6. WARRANTY & DISCLAIMER

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.

### WARNING

***These products are intended for use in industrial compressed-air systems only. Do not use these products where pressures and temperatures can exceed those listed under Specification.***