

# FINE CONTROLS (UK) LTD



Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product range representing leading technologies & brands:

**Flow:** Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

**Temperature:** Temperature Probes & Thermowells, Temperature transmitters, Temperature Regulators & Temperature Displays

**Level:** Level Transmitters & Switches

**Pressure:** Pressure Gauges & Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

**Precision Pneumatics:** Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

**Valves:** Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

**Services:** Repair, Calibration, Panel Build, System Design & Commissioning

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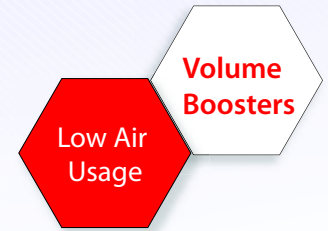


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Volume boosters are normally used to reproduce pneumatic signals in 1:1 ratio whenever input isolation or increased flow capacity is required. These high capacity Volume Boosters, with a fixed minimum deadband, are designed to substantially improve the stroking speeds of large actuators.

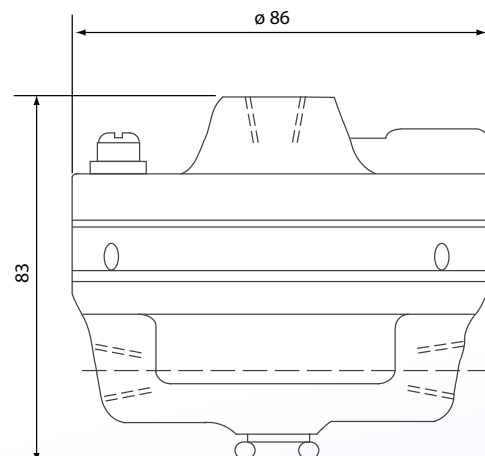
Actuators retain their normal slow and stable responses as long as their signal fluctuations remain within the deadband limits that are determined by adjustment of the equalizing / bypass valve within the Booster.

### Design Features :

- Built-in adjustable by-pass valve with fine control
- Capable of using high pressure plant air suppliers
- Various sizes available to suit wide range of actuator sizes
- Robust parts for trouble free service
- Main internal air supply valve with soft seat insert
- Highly corrosion resistant with external stainless steel retaining screws and internal wear parts
- Stainless Steel and Aluminium construction available



Model 1000



Model 1000 - Overall Dimensions

### Performance Features :

- Low air consumption, soft seat insert gives tight shut-off
- Quick response with increased actuator stroking speeds
- Maintains correct actuator positioning at high stroking speeds
- Adjustable bypass valve provides good operational sensitivity
- High stability which allows normal slow actuator response to the slow signal changes produced by usual process control variations

### Associated Benefits :

- Rigorously proven on-site performance
- Minimal inspection and maintenance costs
- Low cost of ownership
- Assured product quality



Severe & Hazardous Area Experts

**Application :**

The Volume boosters are normally used to reproduce pneumatic signals in 1:1 ratio whenever input isolation or increased flow capacity is required. These units can substantially increase the stroking speeds of large actuators while maintaining the normal stable responses, providing the signal fluctuations remain within the levels determined by the deadband limits which are adjustable, via an equalising/bypass valve fitted on both sizes of booster.

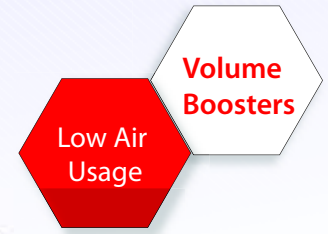
**Operation :**

In operation during normally steady state process conditions, with small variations in the controller or positioner signals, the signal input flow to the booster will pass through the integral equalizing/bypass valve and into the actuator. Both booster ports remain tightly shut with the soft seating inserts preventing unnecessary air consumption. With large or faster variations in signal flow the equalizing/bypass valve setting causes them to be registered sooner on the booster inlet than on its outlet which is connected to the actuator. When the differential pressure obtained exceeds the deadband value of the booster, set by the adjustable equalizing/bypass valve, the diaphragm assembly will move as to open one or other booster port and allow rapid change of pressure within the actuator. When the pressure balance is restored, with the positioner or controller sensing that the corrective action is completed, the booster closes and allows the system to resume normal operation with the actuator being fed via the equalizing/bypass valve flow.

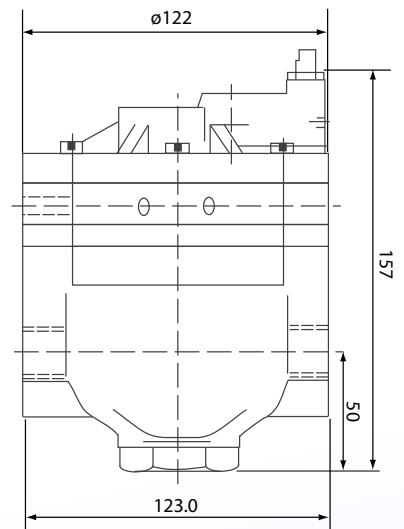
**Specifications :**

Supply / Output connection: ¼", ½" or ¾" NPT (F)  
Signal Connection: ¼" NPT (F)  
Supply Pressure: Up to 150 psig (10.3 bar)  
Pressure Ratio: 1 : 1  
Ambient Temperature: -40°C to + 70°C  
(-40°F + 160°F)  
Deadband Width: 1psig (0.7 bar) or 5% of output span, whichever is greater

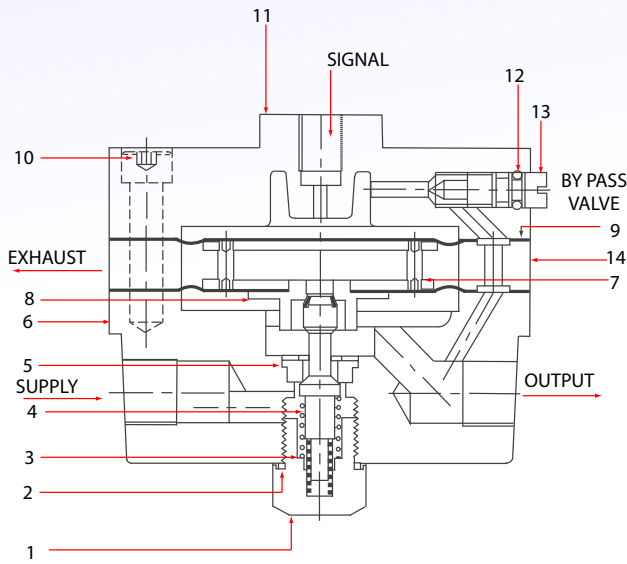
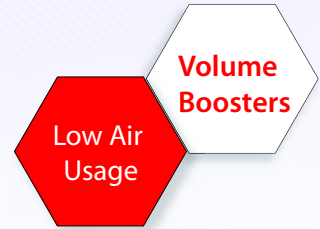
Operating Supply Gases: Air, Nitrogen,  
Methane (Natural Gas)  
Flow Capacity: Series 1000  
Cv (In-Out) - 0.5  
CV (Out - exhaust) - 0.5  
Series 3000  
Cv (In-Out) - 3.5  
CV (Out - exhaust) - 2.5



Model 3000



Model 3000 - Dimensions

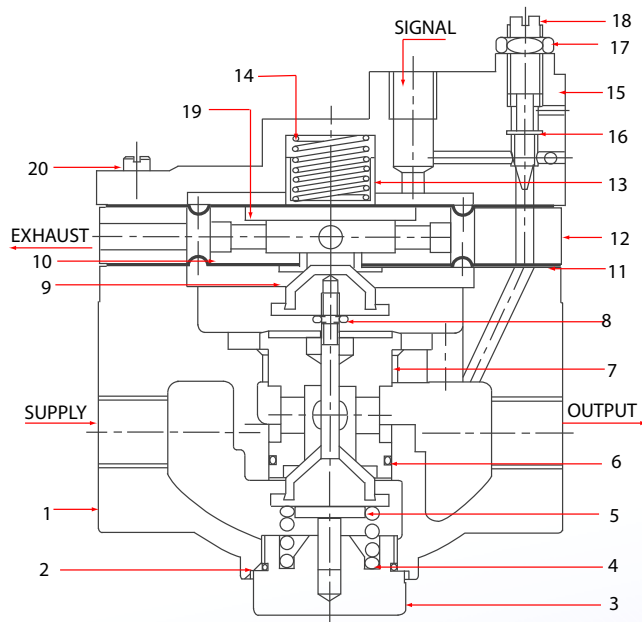


Sectional View Model 1000

| Item | Description         | Materials       |
|------|---------------------|-----------------|
| 1    | Bottom Nut          | Brass*          |
| 2    | Body Gasket         | Neoprene        |
| 3    | Spring              | Stainless Steel |
| 4    | Plug                | Stainless Steel |
| 5    | Soft Seat           | Teflon          |
| 6    | Body                | Aluminium       |
| 7    | Area Plate Assembly | Aluminium       |
| 8    | Soft Seat           | Teflon          |
| 9    | Diaphragm           | Neoprene        |
| 10   | Socket Head Screw   | Stainless Steel |
| 11   | Top Cover           | Aluminium       |
| 12   | O Ring              | Nitrile         |
| 13   | Adjusting Screw     | Stainless Steel |
| 14   | Spacer              | Aluminium       |

\*Stainless Steel construction can be supplied

| Item | Description     | Materials         |
|------|-----------------|-------------------|
| 1    | Body            | Aluminium*        |
| 2    | Gasket O Ring   | Nitrile           |
| 3    | Blind Nut       | Brass*            |
| 4    | Spring          | 304 St. Steel     |
| 5    | Plug            | St. Steel/Nitrile |
| 6    | O Ring          | Nitrile           |
| 7    | Seat Ring       | Brass             |
| 8    | Lock Nut        | Stainless Steel   |
| 9    | Exhaust Seat    | Aluminium*        |
| 10   | Diaphragm Plate | Aluminium*        |
| 11   | Diaphragm       | Nitrile/Nylon     |
| 12   | Spacer          | Aluminium*        |
| 13   | Spring Housing  | Stainless Steel   |
| 14   | Spring          | 304 St. Steel     |
| 15   | Cover           | Aluminium*        |
| 16   | O Ring          | Nitrile           |
| 17   | Lock Nut        | Stainless Steel   |
| 18   | Adjusting Screw | Stainless Steel   |
| 19   | Backing Plate   | Aluminium*        |
| 20   | Cover Screw     | Stainless Steel   |



Sectional View Model 3000

\*Stainless Steel construction can be supplied

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