

# Masoneilan\* Model BR200 / BR400 High Capacity Volume Booster Relays

# fact sheet

## Booster Relays For Fast Stroking Speed Applications

### Product Description

The Masoneilan BR200 and BR400 instruments are high capacity volume boosters for applications that require fast stroking speeds using pneumatic actuators. Stable operation over a wide range of actuator sizes can be obtained by adjusting the bypass valve on the booster to modify the dynamic response. The models BR200 and BR400 are equally suitable for use on diaphragm or piston actuators.

### Features and Benefits

- Short stroking times with consistently stable operation for use on high-volume actuators or on very demanding stroking time control valve applications
- Flow characteristics suitable for control valves
- Built-in bypass valve with locking screw to adjust sensitivity and dynamic response
- Filters on both the supply and signal pressure ports to protect instrument from particles in air supply
- Corrosion resistant finish and stainless assembly hardware to permit use in corrosive atmosphere



# Model BR200 / BR400 Booster Relays

## Numbering System

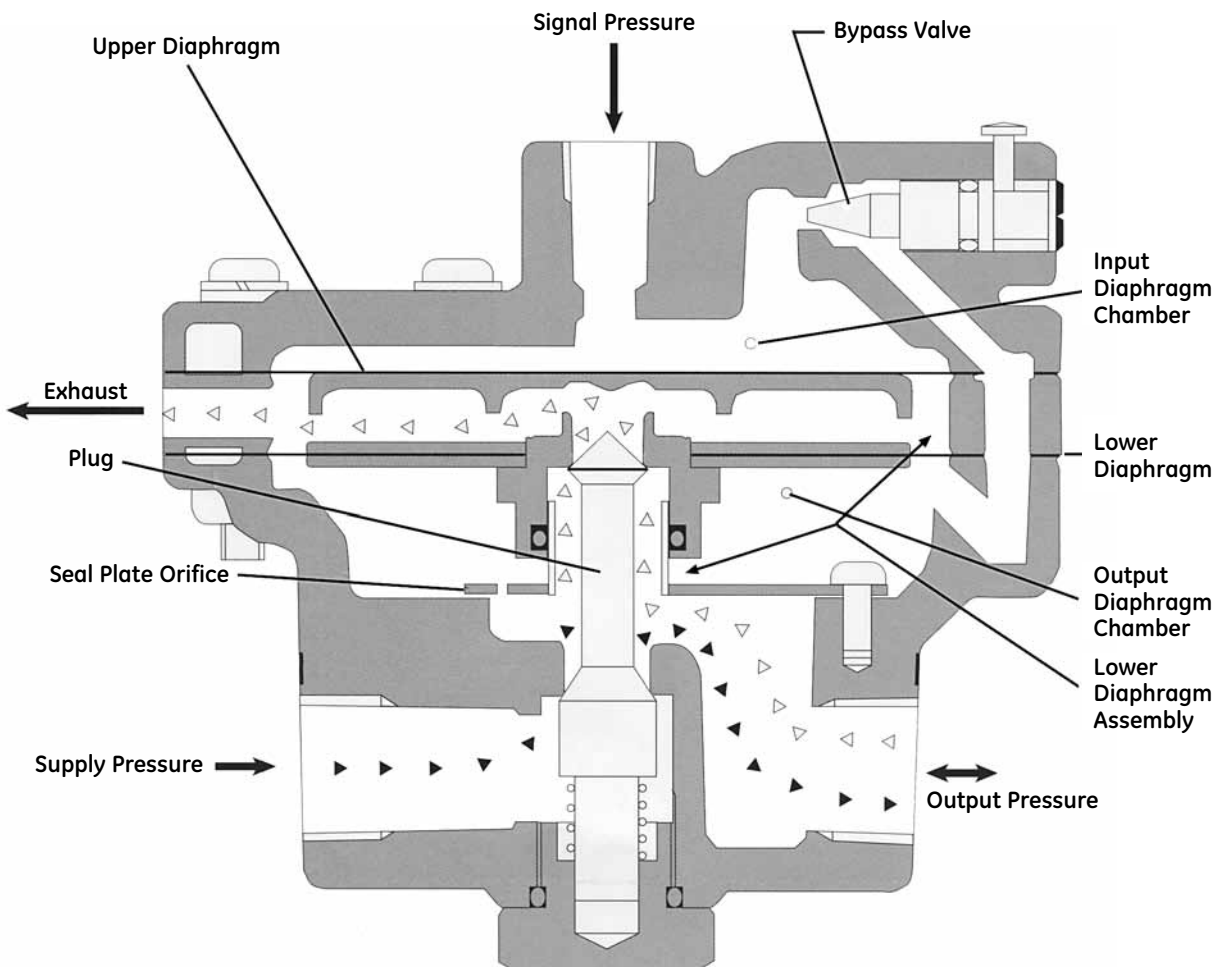
<b>BR200</b>	Maximum $C_v$ (Supply): 1.2 Maximum $C_v$ (Exhaust): 1.2
<b>BR400</b>	Maximum $C_v$ (Supply): 2.6 Maximum $C_v$ (Exhaust): 2.4

## Principle of Operation

The input signal pressure is applied to the upper diaphragm to produce a force that is opposed in a 1:1 ratio by the output pressure acting on the lower diaphragm through the seal plate orifice. An increase in the input signal pressure will depress the top diaphragm and open the pilot valve, allowing supply pressure to the output until the output pressure action on the lower diaphragm re-balances the forces. Conversely, a decrease in the input signal pressure allows the exhaust valve to open until the output pressure falls to the same value as the input signal pressure.

A bypass valve allows a controlled flow of input signal direct to the output to obtain stable control for small or slow changing input signals.

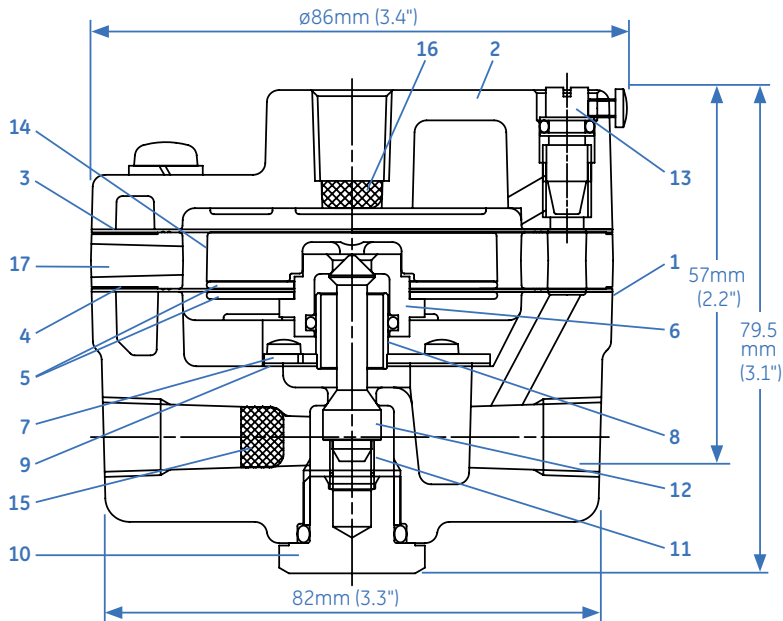
## Cut-away View of BR400 Booster Relay



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## Materials of Construction and Dimensions

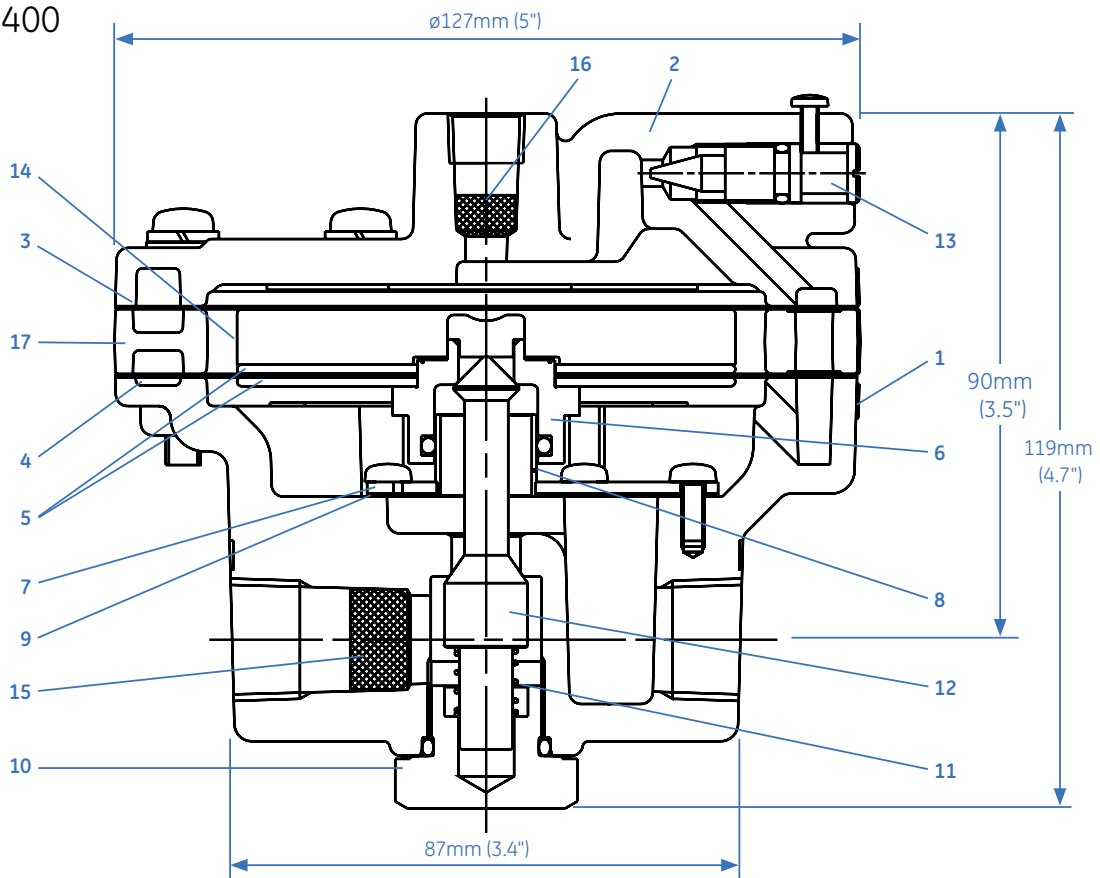
### Model BR200



No.	Part	Standard Material
1	Body	Aluminium Alloy Die Casting
2	Case	Aluminium Alloy Die Casting
3	Upper Diaphragm	Chloroprene / Polyester
4	Lower Diaphragm	Chloroprene / Polyester
5	Lower Diaphragm Plate	Aluminium Alloy Plate
6	Exhaust Seat	Copper Alloy
7	Seal Plate	Austenitic Stainless Steel
8	Exhaust Seal Guide	Copper Alloy
9	Seal Plate Gasket	Inorganic Fiber/Oil Resistant Synthetic Rubber
10	Plug Cap	Copper Alloy
11	Coil Spring	Austenitic Stainless Steel
12	Plug	Austenitic Stainless Steel
13	Bypass Valve Plug	Austenitic Stainless Steel
14	Piston	Glass Fiber Reinforced Thermoplastic Polyester
15	Supply Filter	Austenitic Stainless Steel
16	Signal Filter	Austenitic Stainless Steel
17	Bleed Ring	Aluminium Alloy Die Casting

Note: model BR400 is available in stainless steel for marine offshore applications.

### Model BR400



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## Specifications

Features	Specifications
Maximum $C_v$ (supply)	1.2 (BR200) and 2.6 (BR400)
Maximum $C_v$ (exhaust)	1.2 (BR200) and 2.4 (BR400)
Maximum Signal Pressure	150 psi (10.3 bar)
Operating Temperature Limits	-30°C to +83°C (-22°F to +181°F) Low Temperature: -55°C to +60°C (-67°F to +140°F) High Temperature: 0°C to +100°C (32°F to +212°F)
Input / Output Ratio	1:1
Supply and Output Connections	1/4" NPT or Rc (BR200) and 1/2" NPT or Rc (BR400)
Signal Connection	1/4" NPT or Rc
Approximate Weight	0.7 kg (1.5 lbs) for BR200 and 1.4 kg (3 lbs) for BR400

## Pneumatic Supply Requirements

Features	Specifications
Maximum Supply Pressure	150 psi (10.3 bar)
Dew Point	At least 10°C (50°F) below minimum anticipated ambient temperature
Contaminants and Particulate Matter	Clean and dry air Free of all corrosive contaminants and hazardous gasses, flammable or toxic
Oil Content	Less than 1 ppm w/w or v/v



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