

DESCRIPTION

The Type 755 actuator is a pneumatically operated, spring opposed diaphragm actuator designed specifically to fit the Research Control Valve body-bonnet assembly. The unit is available in two sizes: one to fit the 1/4 in. (6 mm) valve and a larger version to fit the 1/2...1 in. (12...25 mm) valves. It provides smooth linear extension of the valve stem upon an increasing instrument signal. A decrease in instrument signal causes the stem to retract and open the valve. Downward closing force is generated by instrument air on top of the diaphragm. An increasing pressure in the diaphragm cavity opposes the force of the spring and extends the stem, closing the valve. The unit is designed to retract the stem, opening the valve, should the instrument signal fail.

FUNCTION

The 1/4 in. (6 mm) size 755 actuator normally operates in response to a 3...15 psi (0.2...1 bar) change in instrument signal, or a 12 psi (0.8 bar) range. This signal range causes the valve to stroke a distance of approximately 7/16 in. (11 mm). The standard spring has a deflection rate of 25 pounds per 1/8 in. (3 mm) and operates against an effective diaphragm area of approximately 7 in.² (4516 mm²). The 1/2 in. (12 mm) size 755 actuator also normally operates in response to a 3...15 psi change in instrument signal, or a 12 psi (0.8 bar) range. This signal range causes the valve to stroke a distance of approximately 9/16 in. (14 mm). The standard spring in the 1/2 in. (12 mm) unit has a deflection rate of 30 pounds per 1/8 in. (3 mm) and operates against an effective diaphragm area of approximately 11 in.² (7096 mm²).

MATERIALS

Basic Superstructure	Die cast aluminum
Paint	Powder
Spring	Steel (painted)
Diaphragm	Buna on Nylon fabric
Diaphragm Plate	Zinc-plated steel
All External Hardware	300 stainless steel*

*Prior to 8-1-86 some external hardware may be either zinc-plated steel or aluminum



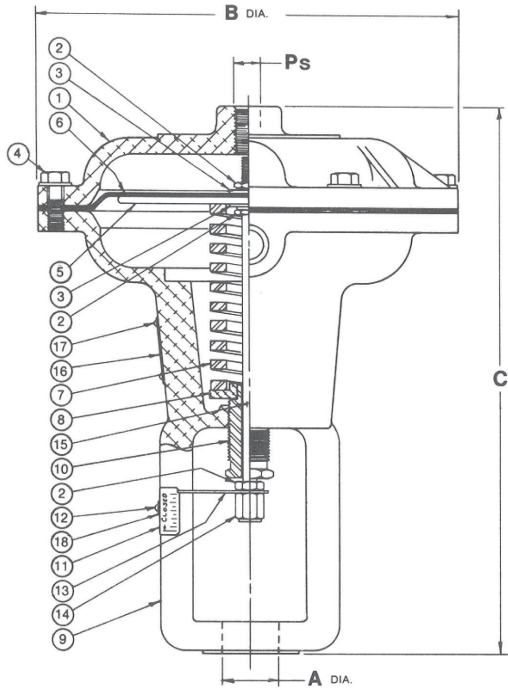
STANDARD FEATURES

- Compact lightweight design
1/4 in. (6 mm) unit = 1.81 pounds (excluding handwheel and body-bonnet assembly)
1/2 in. (12 mm) unit = 4.01 pounds (excluding handwheel and body-bonnet assembly)
- Stainless steel external hardware
- Powder coated for increased corrosion resistance
- Simple design for easy maintenance

OPTIONAL FEATURES

- Choice of other signal ranges: 3...27#, 6...30#
- All stainless steel housing, 1/2 in. (12 mm) unit only, see actuator Type 890
- Manual handwheel for operation without air; can also be used as an up travel stop
- Side mounted positioner, for top mounted positioner, see Type 759

DIMENSIONS



Dimensions	Actuator Size	
	1/4 in. (6 mm)	1/2 in. (12 mm)
Ps	1/8 in. (3.2 mm) NPT	1/4 in. (6.4 mm) NPT
A	0.625 in. (15.9 mm)	0.875 in. (22.2 mm)
B	5.12 in. (130.0 mm)	6.43 in. (163.3 mm)
C	6.62 in. (168.1 mm)	8.40 in. (213.4 mm)

SPECIFICATIONS

Diaphragm Effective Area	1/4 in. (6.4 mm) unit; 7.3 in. ² (4709.7 mm ²) 1/2 in. (12.7 mm) unit; 11.25 in. ² (7258.1 mm ²)
Pressure Rating	Max. pressure 60 psi (4.1 bar)
Temperature Limit	With Buna diaphragm at < 30 psi (2.1 bar) -20...160° F (-28.9...71.1° C) (Consult factory for higher temperatures)
Spring Ranges	Standard: 3...15 psi (0.2...1.0 bar), throttling Optional: 6...30 psi (0.4...2.1 bar), throttling Optional: 3...27 psi (0.2...1.9 bar), throttling Optional: 0...15 psi (0...1.0 bar), On/Off Optional: 0...30 psi (0...2.1 bar), On/Off

Description of Items

Item	Description	Standard Material	Material Size	
			1/4 in. (6.4 mm)	1/2 in. (12.7 mm)
1	Pressure case	Aluminum	—	—
2	Stem nut	300 stainless steel	1/4 in. (6.4 mm) hx	3/8 in. (9.5 mm) hx
3	Washer (2 ea.)	300 stainless steel	—	—
4	Rim screw (6 ea.)	300 stainless steel	5/16 in. (7.9 mm) hx	3/8 in. (9.5 mm) hx
5	Diaphragm plate	Steel-Zn/Pi	—	—
6	Diaphragm	Buna or Nylon	—	—
7	Spring	Steel	—	—
8	Spring seat	Aluminum	—	—
9	Spring case & yoke	Aluminum	—	—
10	Spring adjuster	300 stainless steel	5/16 in. (7.9 mm) hx	5/8 in. (15.9 mm) hx
11	Travel scale	300 stainless steel	—	—
12	Screw	300 stainless steel	—	—
13	Travel pointer	300 stainless steel	—	—
14	Stem connector	300 stainless steel	1/4 in. (6.4 mm) hx	3/8 in. (9.5 mm) hx
15	Stem	316 stainless steel	1/8 in. (3.2 mm)	3/16 in. (4.8 mm)
16	Nameplate (2 hole)	Stainless steel	—	—
17	Drive screw (2 ea.)	Stainless steel	—	—
18	Washer	Stainless steel	—	—

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