

## Type 754

## 1/4" and 1/2" Standard Air to Open Actuator Assembly RESEARCH® Control Valves

# Technical Brief

### DESCRIPTION

The Type 754 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" valve and a larger version to fit the 1/2" through 1" valves. It provides smooth linear retraction of the valve stem upon an increasing instrument signal. A decrease in instrument signal causes the stem to extend and close the valve. Downward closing force is generated by the spring, bearing on the diaphragm plate. An increasing pressure in the diaphragm cavity opposes the force of the spring and retracts the stem, opening the valve. The unit is designed to extend the stem, closing the valve, should the instrument signal fail.

### FUNCTION

The 1/4" size 754 actuator normally operates in response to a 3-15 psi change in instrument signal, or a 12 psi range. This signal range causes the valve to stroke a distance of approximately 7/16". The standard spring has a deflection rate of 25 lbs. per 1/8" and operates against an effective diaphragm area of approximately 7.3 sq. inches. The 1/2" size 754 actuator also normally operates in response to a 3-15 psi change in instrument signal, or a 12 psi range. This signal range causes the valve to stroke a distance of approximately 9/16". The standard spring in the 1/2" unit has a deflection rate of 30 lbs. per 1/8" and operates against an effective diaphragm area of approximately 11.25 sq. inches.

### MATERIALS OF CONSTRUCTION

Basic superstructure: Die cast aluminum

Paint: Epoxy

Spring: Steel (painted)

Stem "O" Ring: Silicone rubber

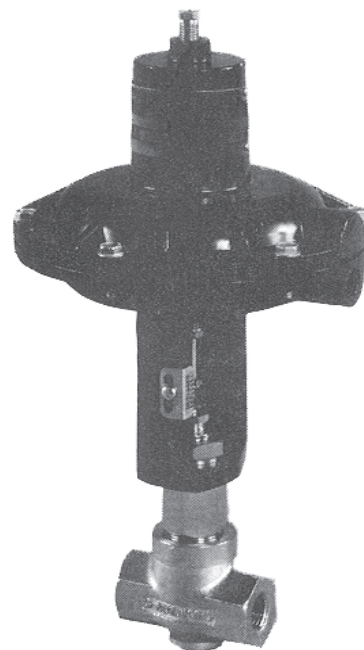
"O" Ring follower: TFE

Diaphragm: Buna on Nylon fabric

Diaphragm Plate: Zinc pl. steel

All External Hardware: 300 s/s\*

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



### STANDARD FEATURES

- Compact lightweight design  
1/4" unit = 2.05 lbs. (excluding handwheel and body-bonnet assembly)  
1/2" unit = 3.76 lbs. (excluding handwheel and body-bonnet assembly)
- Stainless steel external hardware
- Epoxy paint 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" unit only- refer to actuator Type 891)
- Manual handwheel for operation without air; can also be used as a down travel stop.
- Manual handwheel for use as an up travel stop
- Side mounted positioner (for top mounted positioner, refer to Type 766)

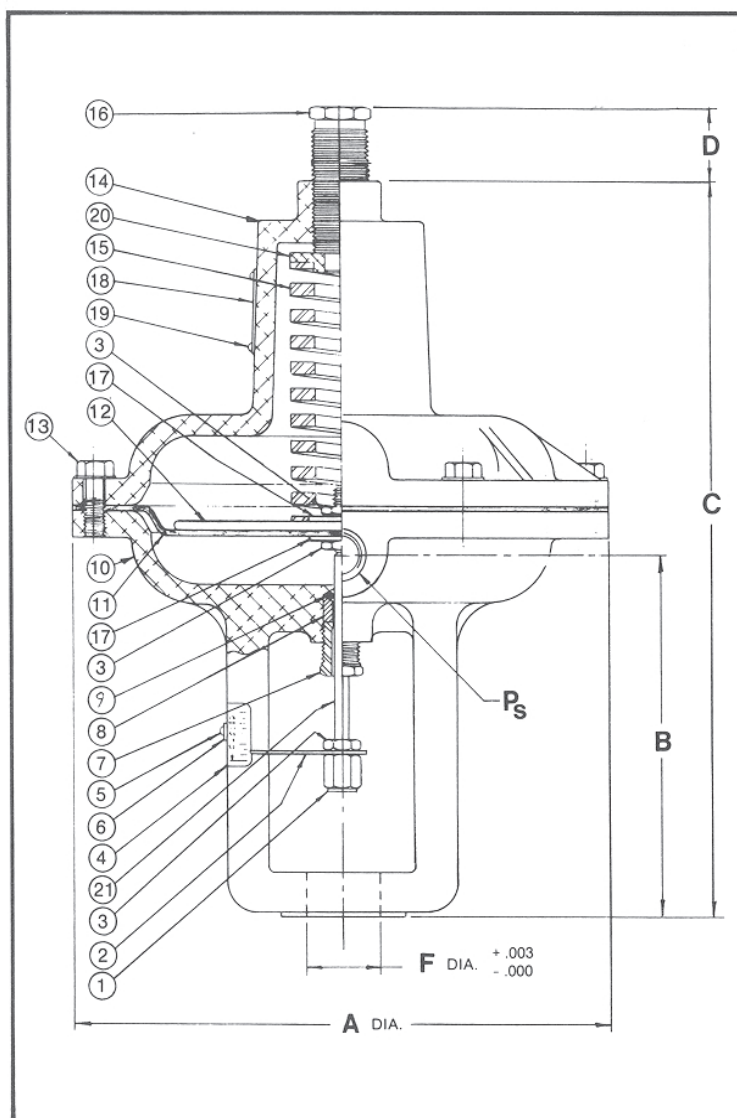
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# Technical Information

## ACTUATOR SIZE

DIMENSIONS	1/4"	1/2"
Ps _____	1/8" npt	1/4" npt
A _____	5.12"	6.43"
B _____	3.34"	4.29"
C _____	6.59"	8.56"
D _____	.18-.31"	.25-.37"
F _____	.625"	.875"

## Diaphragm Effective Area

1/4" unit - 7.3 sq. in.

1/2" unit - 11.3 sq. in.

## Pressure Rating - Max. Press. 60 psi

Caution: Do not exceed the signal range stamped on the nameplate.

## Temperature Limit:

With Buna diaphragm at < 30 psi

Lower limit-minus 20° F

Upper limit-plus 160° F

## Spring Ranges

Standard: 3-15 psi-throttling

Optional: 6-30 psi-throttling

Optional: 3-27 psi-throttling

Optional: 0-15 psi-On/Off

Optional: 0-30 psi-On/Off

Note: For outdoor use, a solid spring adjuster is available to preclude water from entering the spring cavity. Please specify when ordering.

## Description of Items

No.	Description	Standard Material	Material Size	
			1/4"	1/2"
1.	Stem connector	300 s/s	1/4" hx	3/8" hx
2.	Travel pointer	300 s/s		
3.	Stem nut (3 ea)	300 s/s	1/4" hx	3/8" hx
4.	Travel scale	300 s/s		
5.	Screw	300 s/s		
6.	Washer	300 s/s		
7.	Gland	300 s/s	5/16" hx	7/16" hx
8.	Follower-"O" ring	TFE		
9.	"O" ring	Silicone		
10.	Press. case & yoke	Aluminum		
11.	Diaphragm	Buna on Nylon		

## Description of Items

No.	Description	Standard Material	Material Size	
			1/4"	1.2"
12.	Diaphragm plate	Steel-Zn/PI		
13.	Rim screws (6 ea)	300 s/s	5/16" hx	3/8" hx
14.	Spring case	Aluminum		
15.	Spring	Steel		
16.	Spring adjuster	300 s/s	5/16" hx	5/8" hx
17.	Washer (stem) 2ea	300 s/s		
18.	Nameplate	s/s		
19.	Drive screw (2 ea)	s/s		
20.	Spring seat	Aluminum		
21.	Stem (actuator)	316 s/s	1/8" rnd	3/16" rnd



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