FluoroSeal Inc.

Type DO/DC Midget Diaphragm Actuator

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FEATURES

Application Versatility

With eight different configurations available, there is an actuator size to meet your needs. multi-spring combinations allow for accurate selection of actuator thrust and valve for accurate selection of actuator thrust and valve thravel.

Reversible Action

The simple design allows the change of action from direct to reverse acting without the requirement for extea parts.change of action can be easily made in the field. high thrust capability the moulded diaphragm and high strength casings allow for a maximum casing pressure of 6 bar,enabling a high stem thrust foe a given size diaphragm.

Positive Connections

Split block stem connection provides a solid transfer of motion while allowing easy mounting and no linkages that create lost motion or inaccurate valve positioning.

Rugged

Construction-the cast steel yoke and heavy duty steel casings provide stability, protection against corrosion, longevity, and resistance against misuse.

Severe Temperature Applications

Through careful selection of construction materials, this actuator can be used for a wide range of ambient temperature conditions from a minimum of -40 °C to a maximum of +82 °C.

Compact Design

The compact size minimizes weight and space needed.

AVAILABLE CONFIGURATIONS

refer to figure 2

Direct Action

With the direct action mode, applying air pressure to the upper side of the diaphragm forces the actuator stem downward while, at the same time, compressing the springs on the underside of the diaphragm. when this pressure is reduced, the opposing spring force moves the actuator stem upwards. Should the loading pressure fail, the springs force the stem to the extreme upward position, thereby providing fail-open action for a push-down-to-close valve.

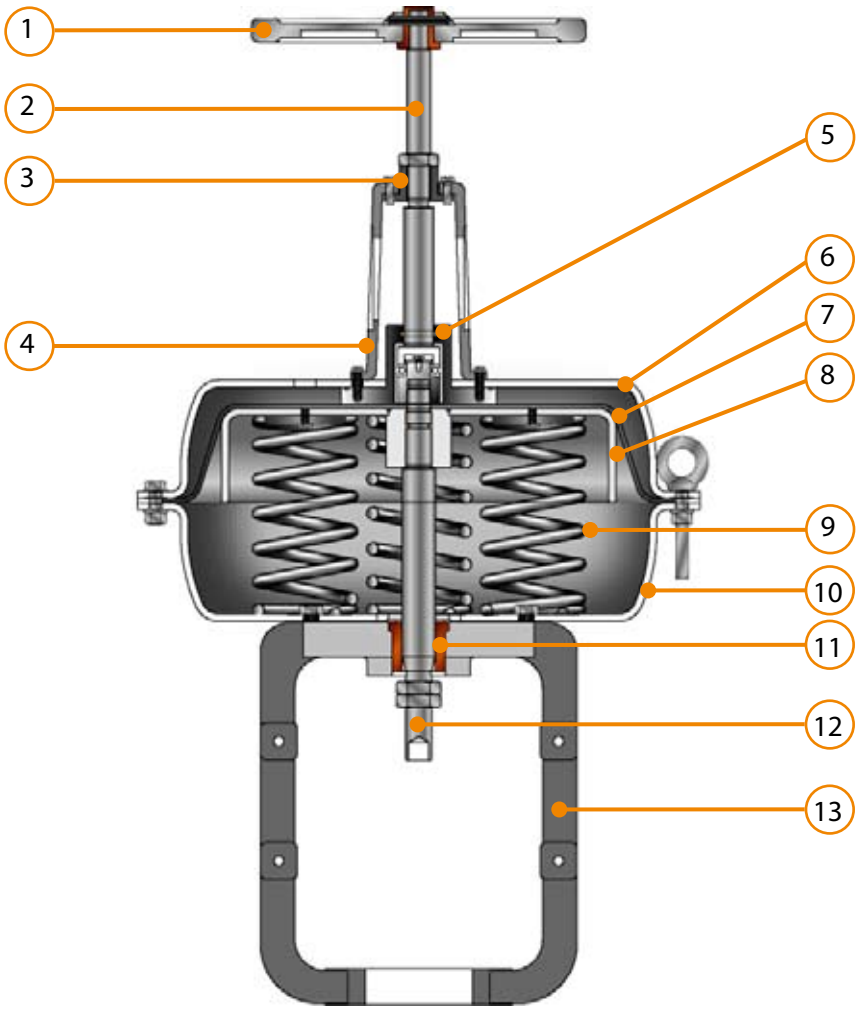
Reverse Action

With the reverse action mode, air is applied on the underside of the diaphragm while opposing spring force is on the top side. increasing sir pressure will force the stem upwards. when the loading pressure is reduced, the stem moves downwards. should loading pressure

fail, the springs force the stem to the extreme upward position, thereby providing fail-closed action for a push-down-to-close valve.

Valve Compatibility

with the availability of both metric and imperial threaded stem connectors, the type DO/DC can be used with a range of valve body assemblies.



MAIN COMPONENTS

1. Handwheel
2. Rotated Stem
3. Stem Nut
4. Yoke
5. Sealing Cover
6. Upper Casing
7. Diaphragm
8. Diaphragm Plate
9. Spring
10. Lower Casing
11. Guide Bushing
12. Actuator Stem
13. Yoke

CONSTRUCTION MATERIALS

Diaphragm Casings: Steel
Diaphragm: Nitrile
Diaphragm Plate: Aluminium
Springs: Steel
spring locator: Steel
Actuator Stem: Stainless steel
O-Rings: Nitrile
Yoke: Cast steel
Nameplate: Stainless steel
Travel Indicator Scale: Stainless steel

SPECIFICATION AND PARAMETERS

Table 1 Specification and parameters

Parameter / Model		DO/DC-23 DO/DC-23H	DO/DC-34 DO/DC-34H	DO/DC-45 DO/DC-45H	DO/DC-56 DO/DC-56H
Effective Area Diaphragm	in^2	54.3	86.8	139.5	217
	cm^2	350	560	900	1400
Rated Stroke	in	1	1.6	2.4	4
	mm	25	40	60	100
Spring Range	psi	11.5 ~ 34.5			
	kpa	80 ~ 240			

ACCESSORIES

Handwheels

An optional side-mounted handwheel can be fitted to all sizes of actuator with travel up to 32 mm(1.25 inch) and where the maximum actuator thrust is less than actuator, turning the handwheel clockwise always moves the stem downwards. when mounted on a reverse action actuator, turning the handwheel clockwise moves the stem upwards. disengagement clockwise moves the stem upwards. disengagement of the handwheel to enable automatic operation is simply accomplished by rewinding the handwheel.

Adjustable Travel Stops

Top mounted adjustable up travel stops are available for all actuators from size 30 to 40e.for the larger sizes 45 and 45e,an adjustable stop can be fitted to the actuator stem below the diaphragm casings. both constructions give total variable adjustment of the travel of the actuator by limiting movement in the upward direction.

Others

Accessories such as transducers, intelligent electropneumatic valve positioner, position transmitters, air relays, volume boosters, switching valves, lockup valves, limit switches, and solenoid valves, lockup valves, limit switches, and solenoid valves are also available for actuator mounting. they are described in separate publications. contact your emerson process management sales office for details.

ORDERING INFORMATION

When ordering please specify the following information:

Application Details:

1. On-off or throttling service
2. Input signal range
3. Maximum supply pressure
4. Valve body type and size with which the actuator will be used
5. Valve plug travel
6. Actuator thrust required with the actuator stem both fully retracted and fully extended
7. Stroking time requirement, if critical
8. Ambient temperature range

Actuator and positioner

Be sure to specify the actuator type number required, whether a positioner is needed, whether a handwheel is required and whether an sdjustable travel stop is required. refer to the specification under each specification and in the referenced tables and figures. specify the referenced tables and figures. specify the desired choice wherever there is a selection to be made.

Valve Body and Accessories

Refer to the separate valve body bulletin and bulletins covering accessories for ordering information.

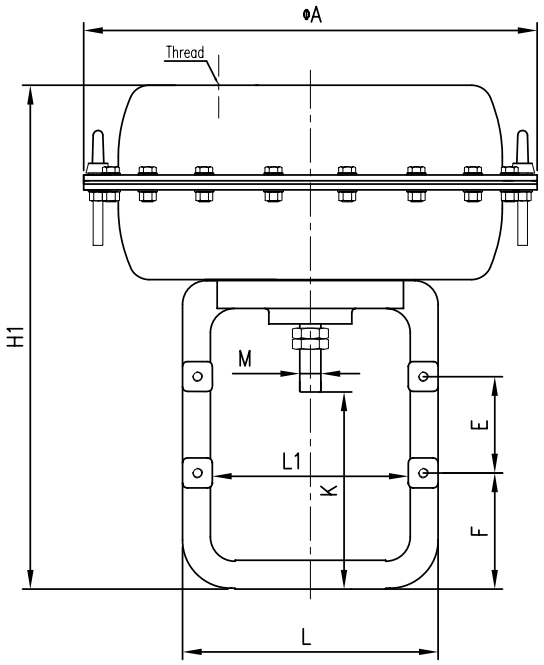


Figure 1. Actuator dimensions without handwheel (see table 2)

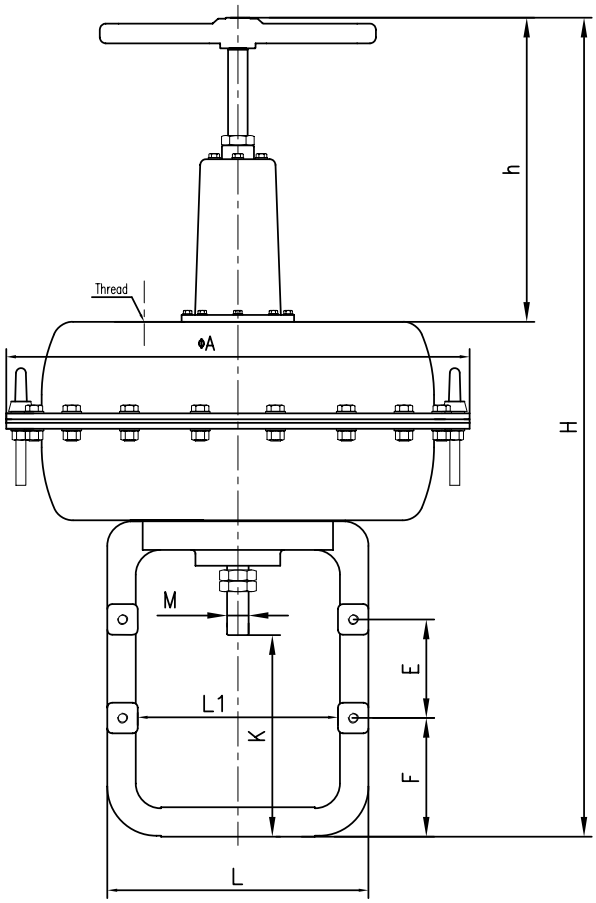


Figure 2. Actuator dimensions with handwheel (see table 3)

ACTUATOR DIMENSIONS

Table 2 External dimensions of actuator without handwheel

Model	Φ A		H1		L		L1		E		F		K		M	Thread	Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm			lb	kg
DO-23 DC-23	11.2	285	11.7	297.5	6.4	162	4.8	122	3.1	80	2.0	50	4.3	108	M16×1.5	⅜ -18 NPT	39.7	18
DO-34 DC-34	14.2	360	14.9	377.5	7.6	192	5.5	140	3.5	90	3.4	87	6.1	156	M20X1.5	⅜ -18 NPT	61.8	28
DO-45 DC-45	18.5	470	20.6	522.5	10.4	265	8.0	203	3.9	100	4.8	121	8.1	204.5	M22×1.5	½ -14 NPT	147.9	67
DO-56 DC-56	22.8	580	28.4	722.5	12.0	304	9.1	232	3.9	100	6.0	153	10.7	271	M30×2	½ -14 NPT	335.5	152

Table 3 External dimensions of actuator with handwheel

Model	Φ A		H		h		L		L1		E		F		K		M	Thread	Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm			lb	kg
DO-23H DC-23H	11.2	285	20.3	516	8.6	218.5	6.4	162	4.8	122	3.1	80	2.0	50	4.3	108	M16×1.5	⅜ -18 NPT	46.4	21
DO-34H DC-34H	14.2	360	23.4	593.5	8.5	216	7.6	192	5.5	140	3.5	90	3.4	87	6.1	156	M20×1.5	⅜ -18 NPT	68.4	31
DO-45H DC-45H	18.5	470	32.7	831	12.2	308.5	10.4	265	8.0	203	3.9	100	4.8	121	8.1	204.5	M22×1.5	½ -14 NPT	170	77
DO-56H DC-56H	22.8	580	43.6	1107	15.1	384.5	12.0	304	9.1	232	3.9	100	6.0	153	10.7	271	M30×2	½ -14 NPT	379.7	172

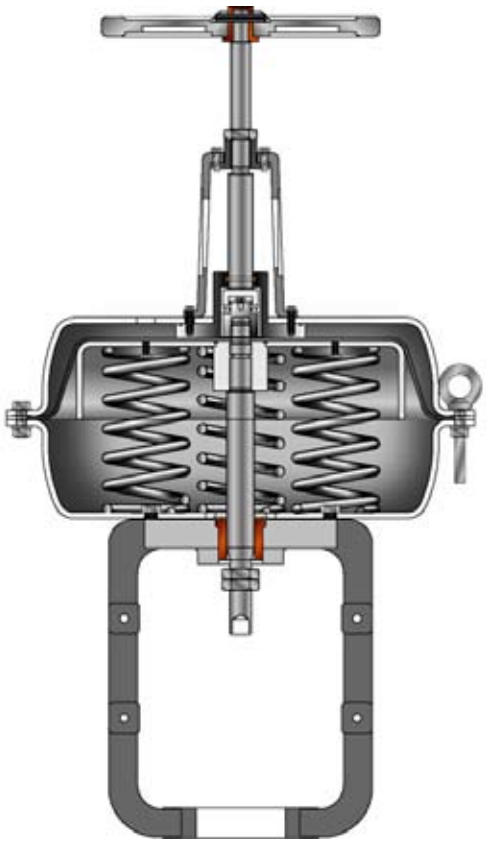


Figure 3
Type DO - Direct Action (normal open)

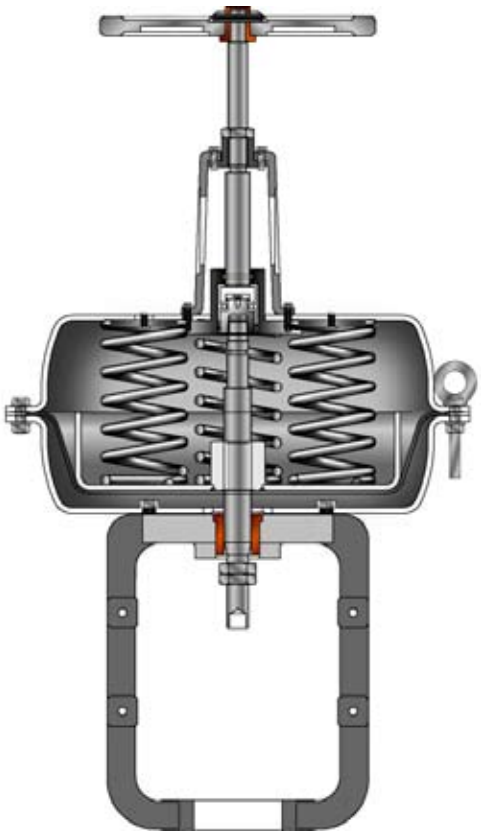


Figure 4
Type DC - Reverse Action (normal close)

HOW TO ORDER

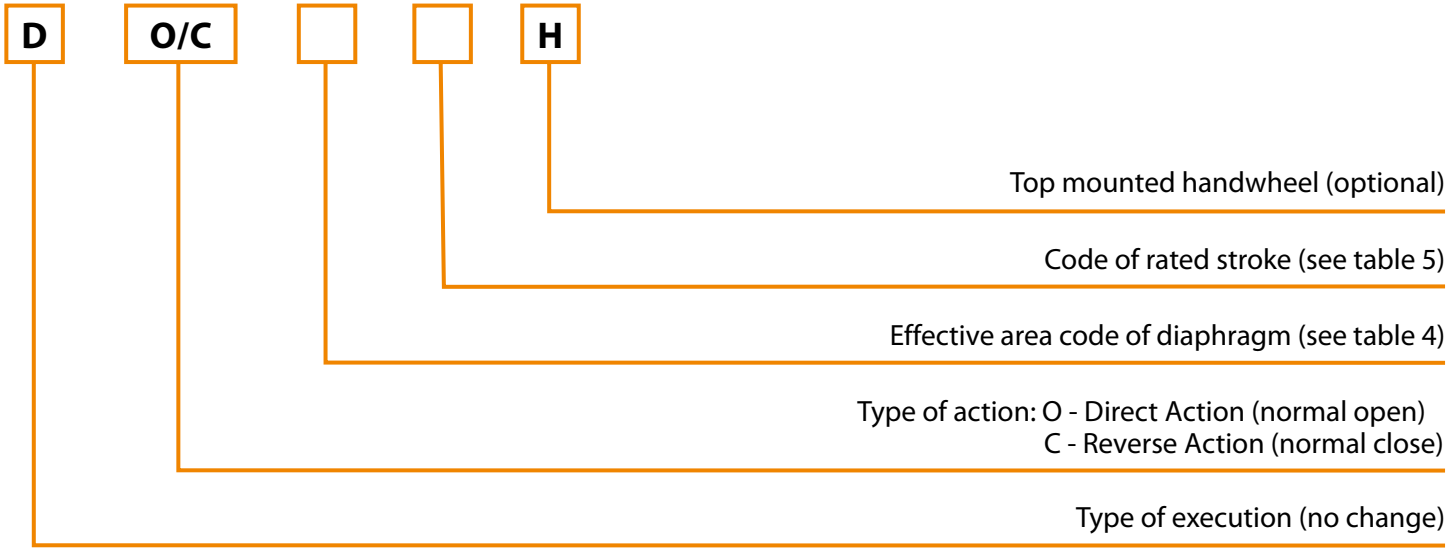


Table 4 Effective area of diaphragm

Code	Effective Area of Diaphragm	
	in^2	cm^2
2	54.3	350
3	86.8	560
4	139.5	900
5	217	1400

Table 5 Code of rated stroke

Code	Rated Stroke	
	in	mm
3	1.0	25
4	1.6	40
5	2.4	60
6	3.9	100

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