

Series 6500 Pneumatically Operated Spring Opposed Diaphragm Actuators

Series 6500 Features

Performance:

- Reliability.
- High Power.
- Full response.
- Low Hysteresis.

Design Flexibility :

- Reversible fail action without extra parts.
- Wide selection of optional accessories available, many without modification of standard unit.
- Involute rolling diaphragm simplifies actuator design.
- Variable stroke up to 100mm

Design Integrity :

- One piece spindle on top and bottom dry bushing guide
- spring of stability design.

Quality Manufacturing :

- High quality material trace ability throughout manufacture.
- Quality Assurance systems in accordance with ISO9001 certificate
- Comprehensively tested to ensure specified performance on site.

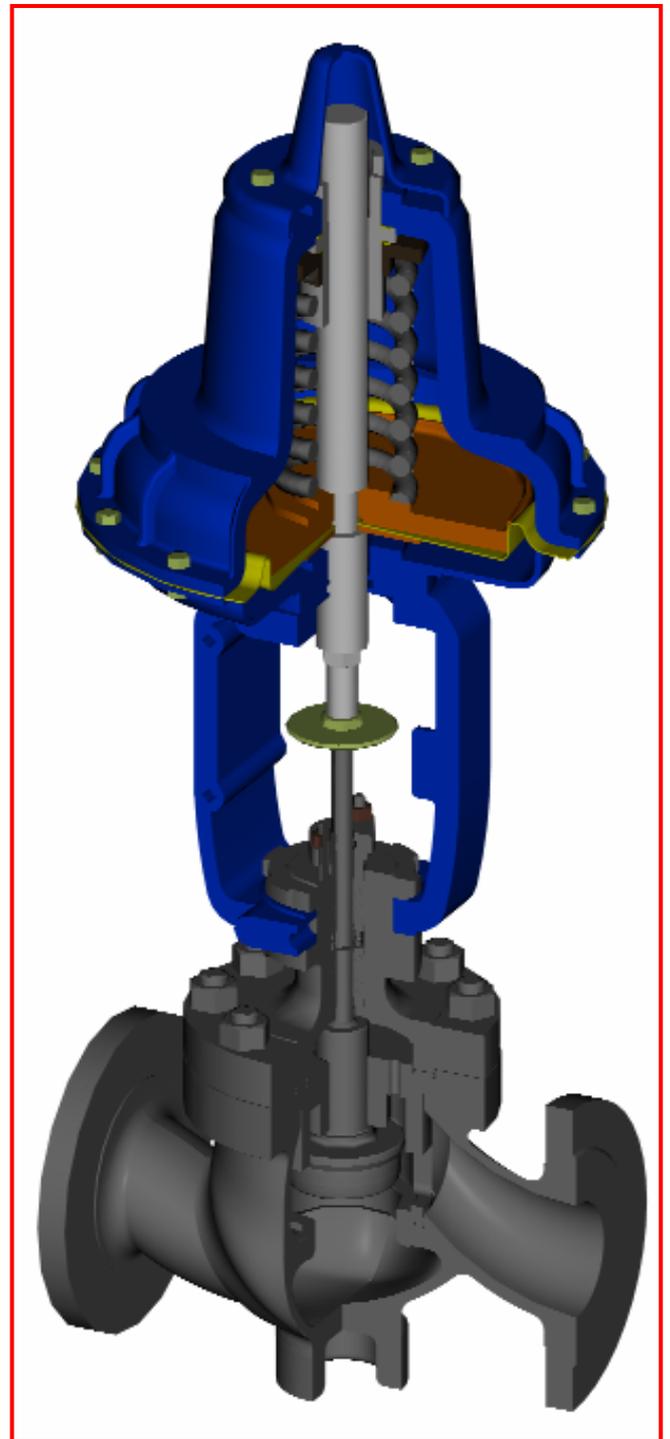


Figure 1. 6500 Series Spring Opposed Diaphragm Actuator.

General

The 6500 Series diaphragm has been developed to accurately control the flow and pressure of fluid in responses to the demand of fine process control as well as various plant systems. Compact designed actuators are minimized the space of installation and the cost, and are maximized fine controls and running time with maintenance free. The spindles, supper finished-hardened by supper rolling press, are supported by special bearing at top and bottom, it can be assure low hysteresis in reverse action and zero hysteresis in direct action. For standard applications the diaphragm actuator offers the following advantages over the conventional type.

- Simple cost effective design.
- Increased life and reliability, accurate rolling pressed spindle sealing systems are increased the efficiency..
- Low cost, simple maintenance.
- High performance, low friction rolling diaphragm gives comparable hysteresis with piston types.

Table 1. Standard Materials of construction.

Part Description	Material
York	Cast Iron
Diaphragm Cover	Steel
Spring case	Die-casting Aluminum
Diaphragm	EPDM Rubber
Seals	Nitrile Rubber
Spring	Carbon steel
Spindle	Stainless steel

Alternative material combinations suitable for offshore and extremely corrosive duties are available. Consult factory for details.

Table 2. Actuator Working Conditions.

Max. working Pressure	5.0 Kgf/Cm ² G
Min. working Temp.	- 40 °C
Min. Storage Temp.	- 55 °C
Max. working Temp.	90 °C

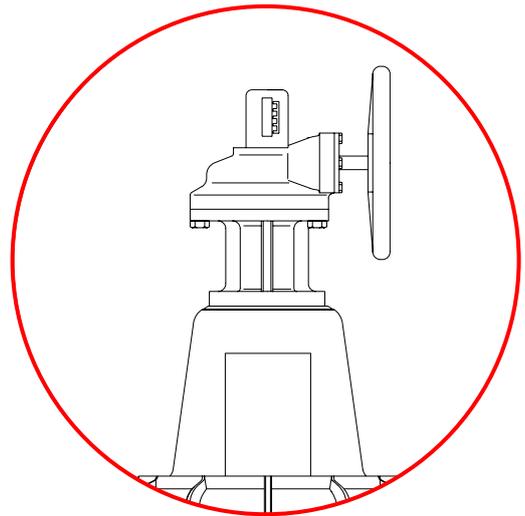


Figure 2. Top Side Mounted Manual Handwheel Unit. (T-1, T-2, T-3)

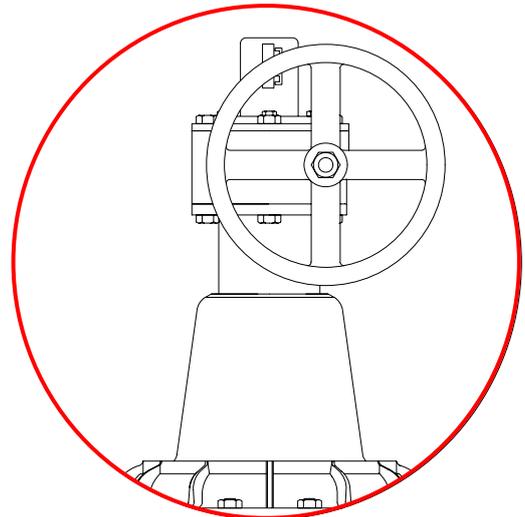


Figure 3. Top Side Mounted Manual Handwheel Unit. (T-4, T-5)

Guide to Accessory Options

Top Mounted Handwheel (Fig. 2)

The top mounted handwheel is of the continuously connected design. It is available for the T-0, T-1 actuators and may be fitted retrospectively without any modification of the standard unit. The handwheel is capable of providing operating forces in either direction and does not rely on the actuator spring to provide return motion. The handwheel can also act as a limit stop to limit either the amount of valve opening and closing.

Gearing Handwheel Unit(Fig. 3 & 4)

This unit is available for all sizes of actuator with travels up to and including 130mm. The arrangement operates through a permanently lubricated bevel gear or worm gear, which is conveniently located on the top of actuators. The gearing has been selected to ensure easy operation even with the maximum actuator power.

Table 3. Operating Time.

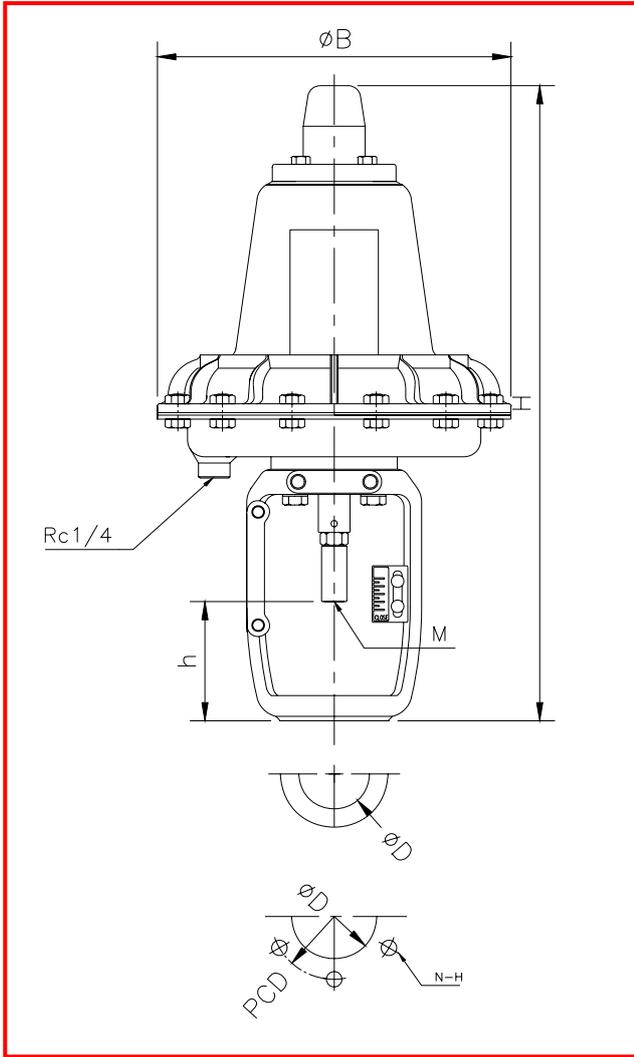
Actuator size	Stroke(mm)	Operation Time(sec)	
		On - Off	Positioner
T-1	15	1.0	2.0
T-2	20	1.5	3.5
T-3	38	3.5	7.5
T-4	50	5.5	15
T-5	100	17	45

Table 4. Actuator Power

Actuator size	Effective area (Cm ²)	Max. Travel (mm)	Max. Op. Press (Kgf/Cm ² G)	Spring range (Kgf/ Cm ² G)	Thrust (Kgf)
T-1	270	15	5.0	0.2 ~ 1.0	54
				0.4 ~ 1.2	108
				0.2 ~ 2.0	108
				0.8 ~ 2.4	216
T-2	350	25		0.2 ~ 1.0	70
				0.4 ~ 1.2	140
				0.4 ~ 2.0	140
				0.8 ~ 2.4	280
T-3	515	38		0.2 ~ 1.0	103
				0.4 ~ 1.2	206
				0.4 ~ 2.0	206
				0.8 ~ 2.4	412
T-4	725	50		0.2 ~ 1.0	145
				0.4 ~ 1.2	290
				0.4 ~ 2.0	290
				0.8 ~ 2.4	540
T-5	1210	100	0.2 ~ 1.0	242	
			0.4 ~ 1.2	484	
			0.4 ~ 2.0	484	
			0.8 ~ 2.4	968	

Standard Diaphragm Actuator (Reverse Action)

From T-1 to T-5



Standard Diaphragm Actuator (Direct Action)

From T-1 to T-5

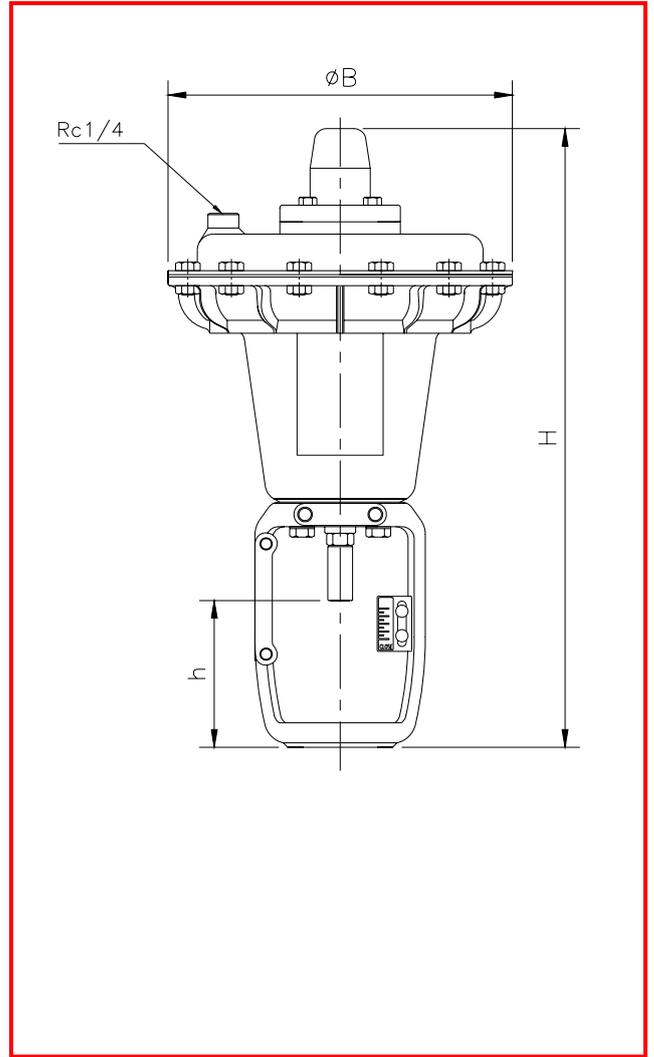


Table 5 Standard Dimension

Acuator Size	H		H		ØB	M	ØD	PCD	N-H	Weight (kgf)
	RA	DA	Rh	Dh						
T-1	474	474	116	136	240	M12	60	-	-	15
T-2	495	495	97	122	280	M12	60	-	-	19
T-3	604	604	97	135	330	M12	60	-	-	27
T-4	800	800	145	195	400	M18	100	135	6-Ø19	58
T-5	990	990	154	254	500	M27	100	135	6-Ø19	115