

Series 3500 Pneumatically Operated Spring Opposed Diaphragm Actuators

Series 3500 Features

Performance

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

Design Flexibility :

- Wide selection of optional accessories available.
- Compact and simple design.
- Inviolable rolling diaphragm simplifies actuator design.

Design Integrity :

- Multi spring construction.
- One piece spindle on top and bottom dry bushing guide.
- Low stressed alloy steel springs.

Quality Manufacturing :

- High quality material with trace ability throughout manufacture.
- Quality Assurance system in accordance with ISO 9001.
- Comprehensively tested to ensure specified preference on site.

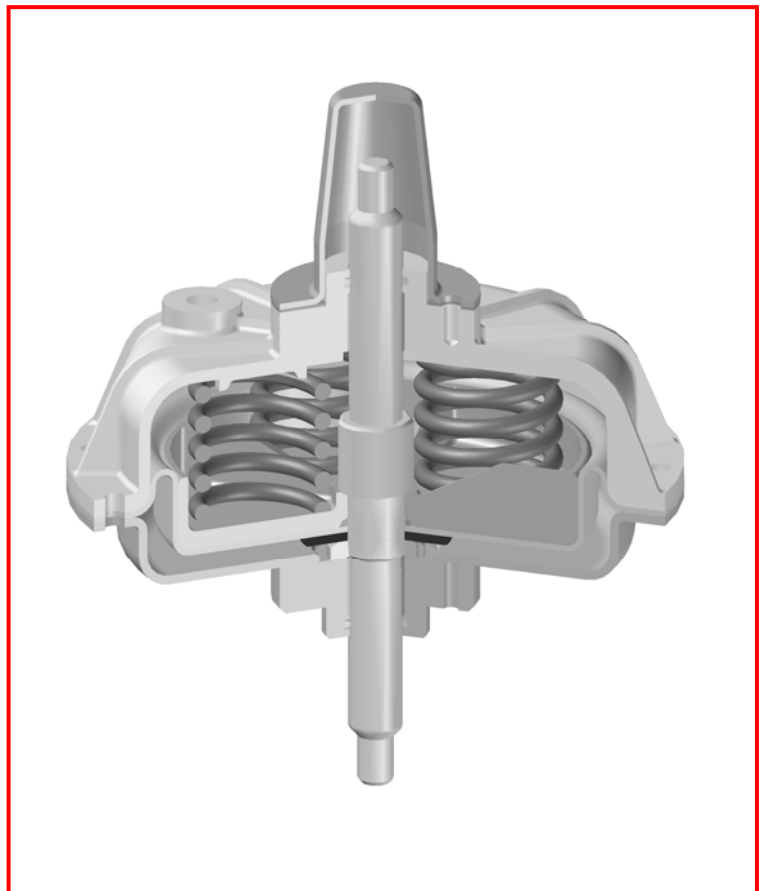


Figure 1. 3500 Series Spring Opposed Diaphragm Actuator.

General

The 3500 Diaphragm actuators has been designed to control accurately the flow and pressure of fluid in response to demand of fine process control as well as various plant systems. These actuators have been developed for powerful and high performance pneumatic actuating of linear motion valves as well as rotating valves. It consist of four spring which are produced for high stiffness that is defined as the ability of the actuator to with stand suddenly changing dynamic force of fluids acting on the valve stem. The action of valves can be changed by removing of the cap and four mounting bolts, turning the actuator over, and replacing the cap.

- Simple cost effective design.
- Strong seating force.
- Compact and light weight.

Table 1. Standard materials of construction

Part Description	Material
Yoke	Cast iron
Diaphragm cover	Die-cast aluminum
Spring case	Die-cast aluminum
Diaphragm	EPDM / NBR
Seals	NBR
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
Max working temp.	90 °C
Minimum working temp.	-40 °C
Minimum storage temp.	-55 °C

Standard actuators are suitable of air operation.

Actuators for low temperature or high temperature applications are available on request.

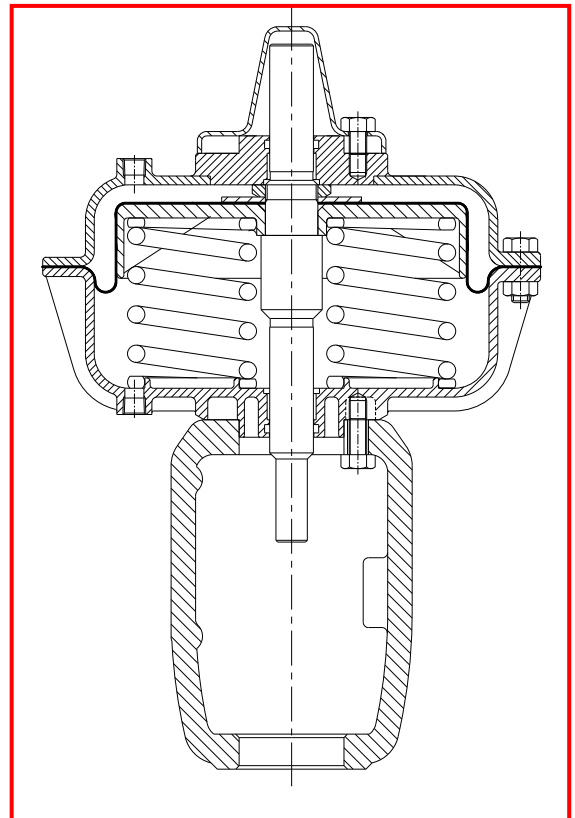


Figure 2. Cross sectional drawing 3500 series diaphragm actuator (Direct Acting).

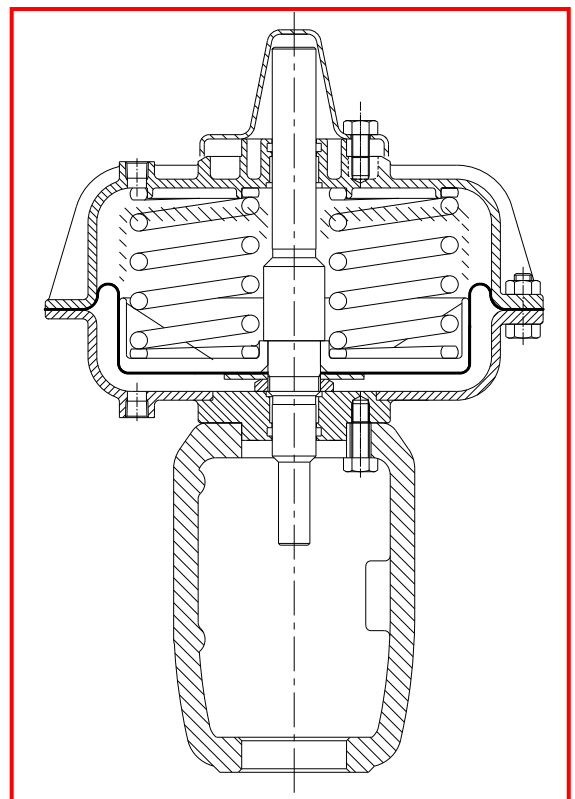


Figure 3. Cross sectional drawing 3500 series diaphragm actuator (Reverse Acting).

Guide to Accessory Options

Top Mounted Handwheel (Fig. 4 to 6.)

The top mounted handwheel is of the continuously connected design. It is available for T-0 and 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 or closing.

For the T-2, T-3, T-4 and T-5 actuators, the top mounted handwheel are continuously connected by permanently lubricated bevel gear or worm gear box. The gearing has been selected to ensure easy operation even with the maximum actuator power.

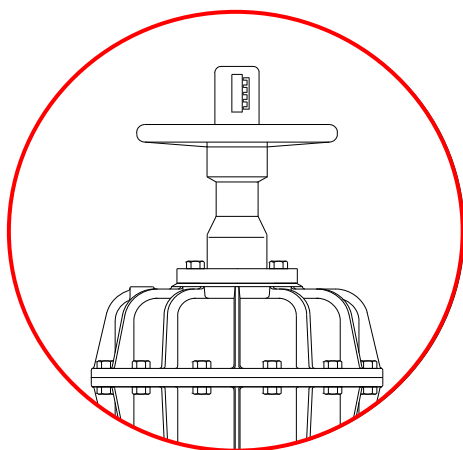


Figure 4. Top mounted manual handwheel unit
(T-0, T-1)

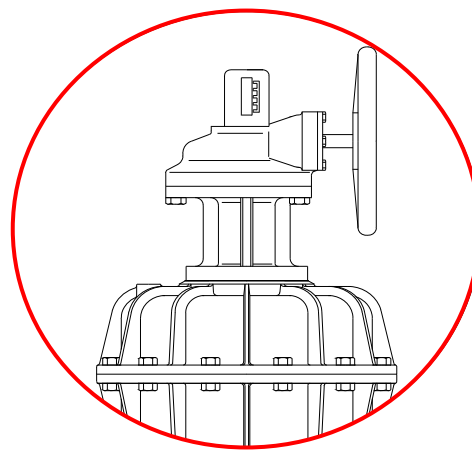
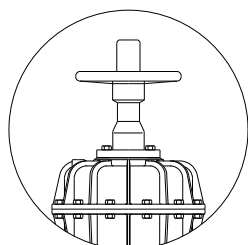
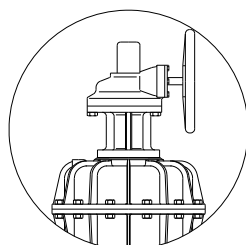


Figure 5. Top side mounted manual handwheel unit
(T-1, T-2, T-3)

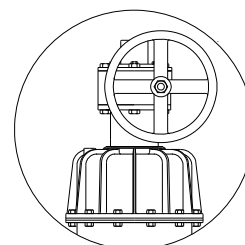
Manual Hand Wheel



T-0, T-1

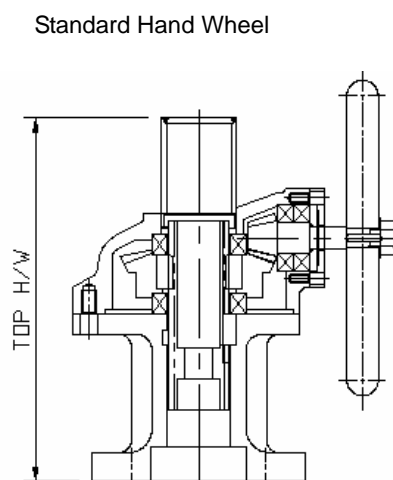
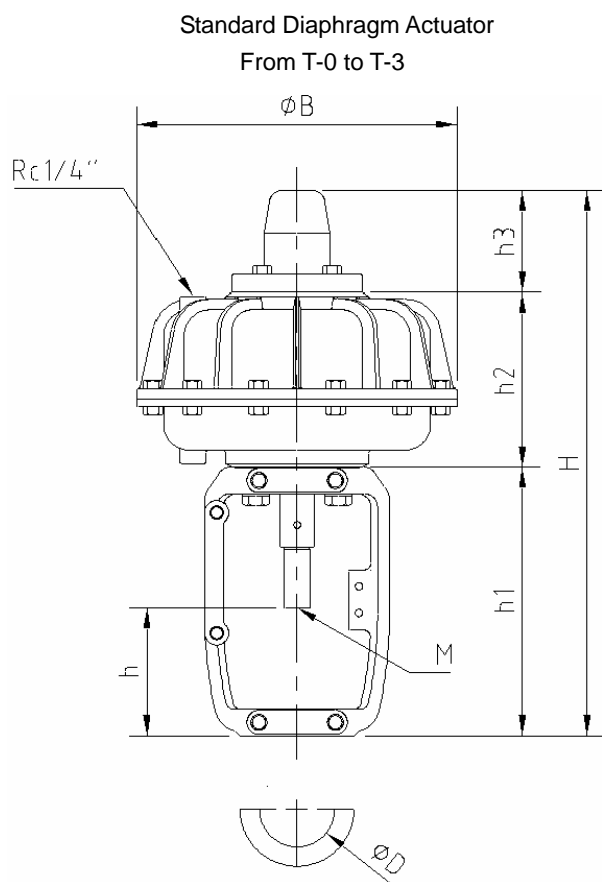


T-1, T-2



T-3, T-4, T-5

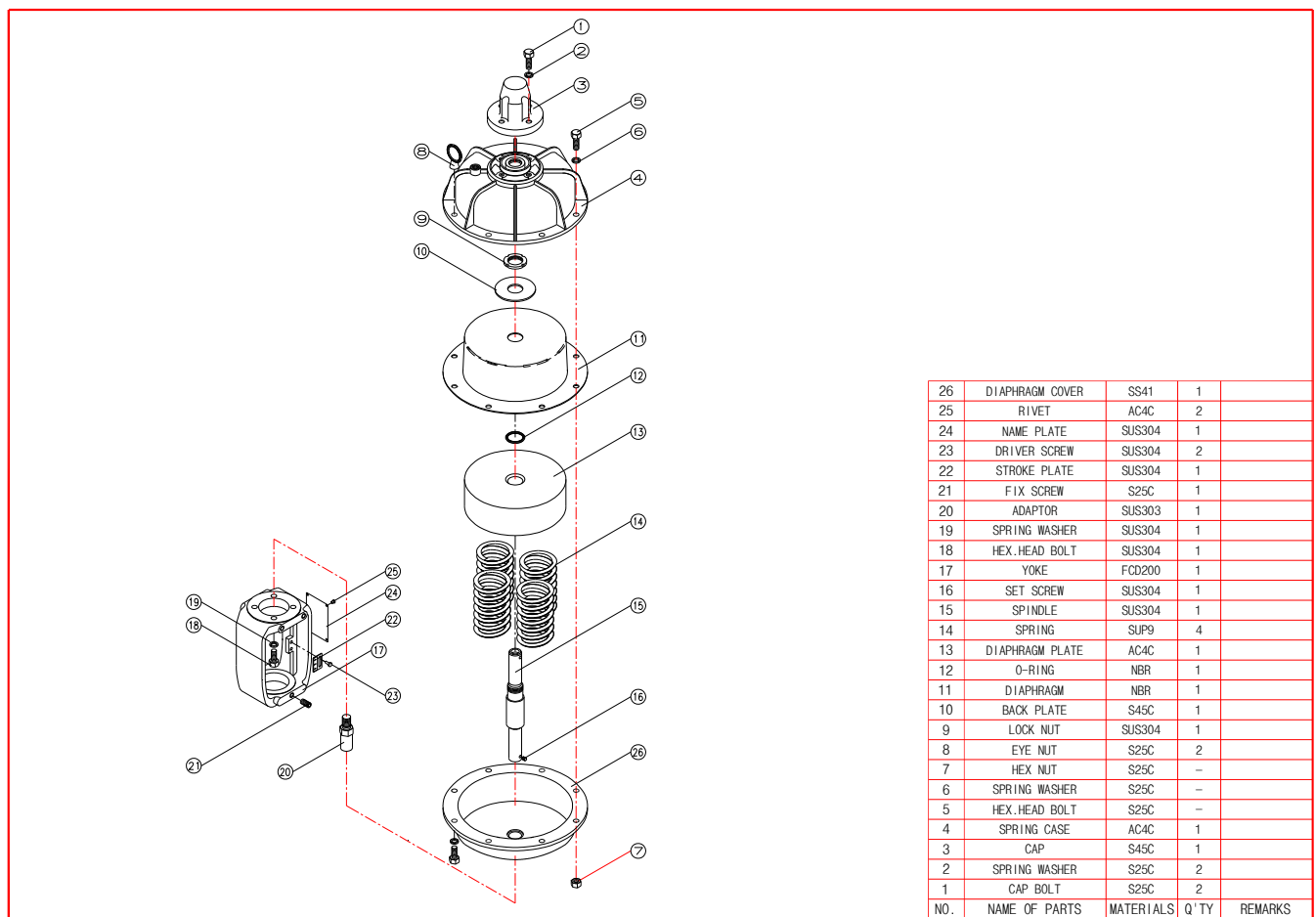
AO-3500 Dimension Table



3500 Dimension

SIZE	ØB	ØD	h [R]	h [D]	h1	h2	h3	H	H/W	STROKE	H/W + H	M
T-0	200	60	117	141	177	129	60	366	180	15	486	M12 X 1.5P
T-1	245	60	95	130	200	144	83	427	230	20	574	M12 X 1.5P
T-2	285	60	86	130	200	157	83	440	230	25	587	M12 X 1.5P
T-3	335	60	141	198	270	196	94	560	368	38	834	M12 X 1.5P
T-4	400	100	140	197	335	248	114	697	368	50	951	M18 X 1.5P
			145	245		300	181	816		100	635	M18 X 1.5P
T-5	500	100	170	283	350	335	236	921	368	100	1053	UNF7/8-9THD

3500 Drawing (Part list)



Actuator

3500 Linear
Spring Range 1~3kgf/cm2G

Size	T-0	T-1	T-2	T-3	T-4	T-5
Max. Stroke (mm)	20	30	38	50	50/100	100
Eff. Area (cm ²)	175	270	350	515	725	1210
Thrust (Kgf)	166	256	332	489	688	1149

MOTOYAMA

Korea : KOREA MOTOYAMA INC.

457-11 Changgi-dong, Kimpo-city, Korea.Kyunggi-Do,Korea

Tel : 82-31-985-8947 Fax : 82-31-985-1110

E-mail : motoyama@unitel.co.k

Web : <http://www.komoto.co.kr>

Japan : MOTOYAMA INC.

14-26, 1-Chome, Haginaka, Ohtaku, Tokyo, Japan

Tel : 81-03-3732-3696

Fax : 81-03-3738-9371