

Series 3600

Pneumatically Operated Multi-Spring Diaphragm Actuators

Series 3600 Features

Easy Maintenance

- Easy to assemble and disassemble. Reduce the maintenance cost by simplified the design of components.

Good Performance

- Provide the maximum strength and reliable high performance.

Field Reversible

- Actuator air action can be changed in the field for increased flexibility and reduced inventory.

Flexibility

Wide selection of optional accessories available including override.

Compact Design

- More compact and lighter than other existing actuators. Designed for easy installation and convenient maintenance on site.

Multiple Spring Design

- Available to insert three springs to six springs maximum. Suitable for various working pressure from low to high instrument air pressure.

Quality Assurance

- Quality Assurance system in accordance with ISO 9001.

Separate Handwheel

- Adapting independent spindle, it does not damage the connected parts between handle spindle and worm gear

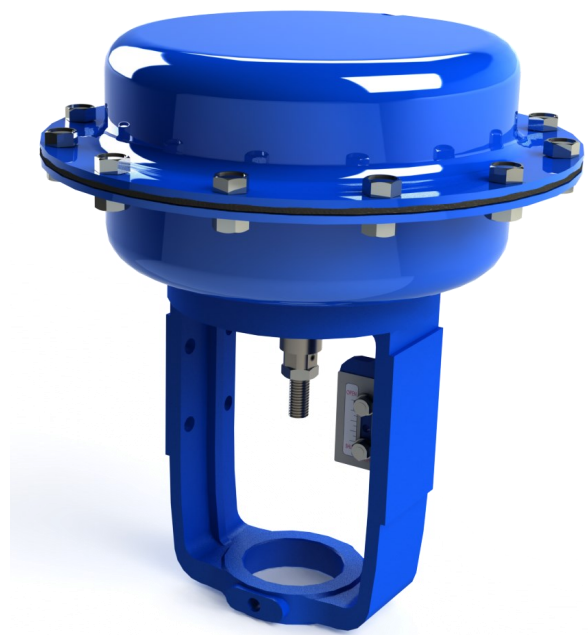


Figure 1.
AO-3600 Multi-Spring Diaphragm Actuator

Diaphragm Actuator Specifications

Actuator Type	Multi-spring Diaphragm Actuator				
Actuator Size	T-1	T-2	T-3	T-4	T-5
Stroke (mm)	30	38	38/50	50	100
Eff. Ares (cm)	270	350	515	725	1210
Thrust (Kgf)	256	332	489	688	1149
Air Supply Range	Standard: 4.0 kg/cm ² G, Range: 3.5~5.0kg/cm ² G				
Spring Range	1.0 ~ 3.0 kg/cm ² G				
Environment Conditions	Max. working pressure: 4.0 kgf/cm ² G, Max. working temperature: -40 ~ 90°C				
Action	Direct or Reverse				
Movement	Reciprocate, Rotary (with rotary box)				
Option	Hand wheel, Positioner, Filter Regulator, Solenoid valve, Limit Switches, Speed controller, etc.				

General

The AO-3600 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.

- Simple cost effective design
- Long stroke and wide application.
- Strong seating force.
- Compact and light weight.

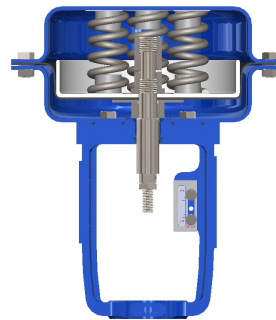


Figure 2. Cross Sectional Drawing AO-3600 Diaphragm Actuator (Direct Acting)



Figure 3. Cross Sectional Drawing AO-3600 Diaphragm Actuator (Reverse Acting)

Table 1. Standard Materials of Construction

Part Description	Material
Yoke	Ductile Iron / Carbon Steel
Diaphragm Cover	Carbon Steel
Spring Case	Carbon Steel
Diaphragm	EPDM / NBR
Seals	NBR
Spindle	Stainless Steel

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

Table 2. Actuator Working conditions.

Max. working pressure 5.0kgf/cm ² G
Max. working temp. 90degC
Minimum working temp. -40degC
Minimum storage temp. -55degC

Standard actuators are suitable for air operation. Actuators for low temperature or high temperature applications are available on request.

Guide to Accessory Options

Top / Top-side Mounted Handwheel (Fig. 4 and 5)

The top mounted handwheel is of the continuously connected design. It is available for 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.

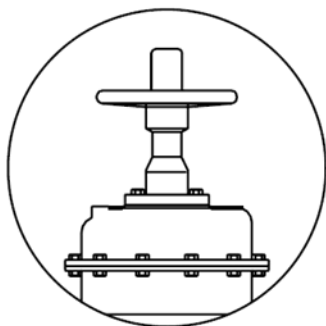


Figure 4. Top Mounted Manual Handwheel Unit (T-1 ~ T-3)

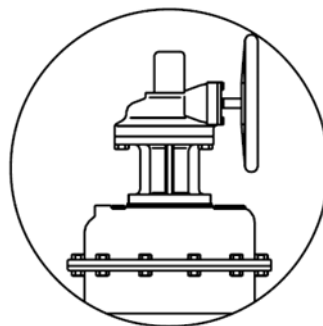
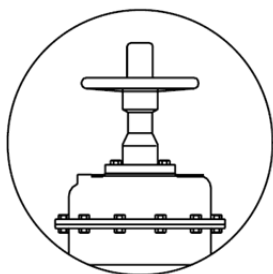
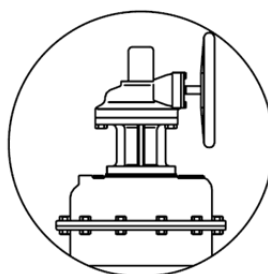


Figure 5. Top side Mounted Manual Handwheel Unit (T-1 ~ T-5)

Manual Handwheel



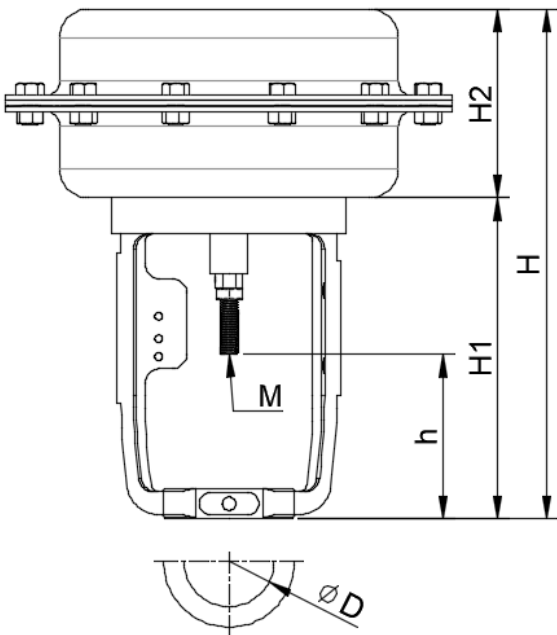
T-1 ~ T-3



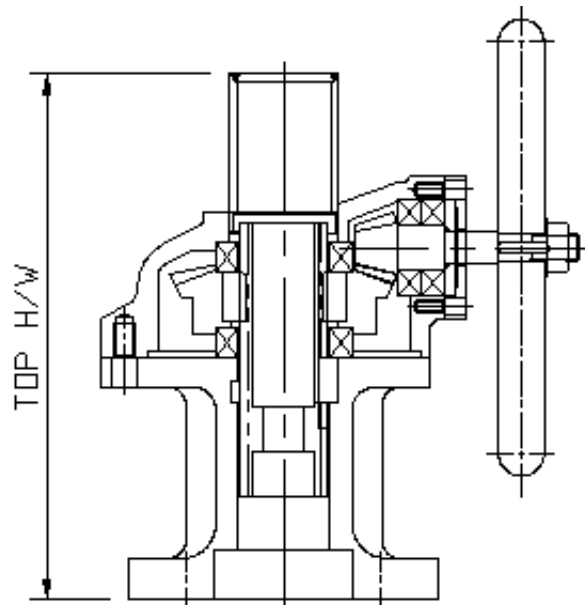
T-1 ~ T-5

AO-3600 Dimension Table (Linear)

Standard Diaphragm Actuator from T-1 to T-5



Standard Handwheel



AO-3600 Dimension

(Unit: mm)

SIZE	H	H1	H2	h	M	ØD	STROKE	H/W<D>	H/W<R>
T1	322.4	214	118.4	116	M12xP1.75	Ø61.5	20	250	250
T2	340	214	126	118	M12xP1.75	Ø61.5	25	250	250
T3S	473	281	192	120	M12xP1.25	Ø61.5	38	286	355
T3	492.5	300.5	192	146	M18xP1.5	Ø105, Ø101.5	50	286	355
T4	633	347	286	143.3	M20xP1.5	Ø105, Ø101.5	50	320	355
T5	691	391	300	169.5	M27xP3.0	Ø105, Ø101.5	100	524	595

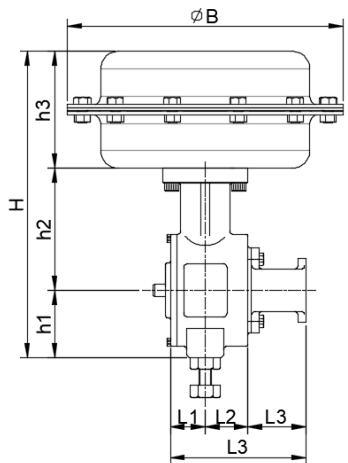
AO-3600 Dimension Table (Rotary)

(Unit: mm)

Series 6110 Dimension Table (Rotary)

(Unit : mm)

SIZE	B	h1	h2	h3	H	L1	L2	L3	L
T-3	348	110	200	192	502	85	75	90	250
T-4	414	160	300	286	746	107	95	110	312
T-5	526	160	300	300	760	107	95	110	312



AO-3600 Actuator Power

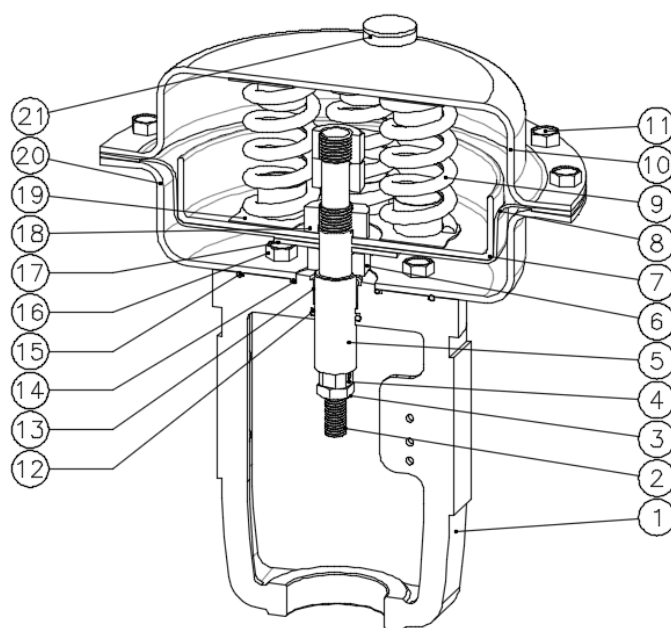
Linear
Spring Range 1~3kgf/cm²G

Size	T-1	T-2	T-3	T-4	T-5
Max. Stroke (mm)	20	25	38/50	50/100	100/130
Eff. Area (cm ²)	270	350	515	725	1210
Thrust (kgf)	256	332	489	688	1149

Rotary

Size		T-2	T-3	T-4	T-5
Max. Stroke (mm)		38	50	50/100	100/130
Eff. Area (cm ²)		350	515	725	1210
Thrust (kgf)	Max.	20.0	38.1	107.2	178.9
	Non Air	6.7	12.7	35.7	59.6

AO-3600 Actuator Assembly Drawing (Parts List)



21	VENT CAP	PVC	1
20	DIAPHRAGM CASE	SS400	1
19	SPRING SEAT PLATE	SS400	2
18	SPACER NUT	SUS304	1
17	BACK PLATE	SS400	1
16	HEX BOLT+SP WASHER	SUS304	6
15	O-RING	NBR	1
14	O-RING	NBR	1
13	DU BUSH	SPCE	1
12	O-RING	NBR	1
11	HEX BOLT+WASHER	SUS304	10
10	SPRING CASE	SS400	1
9	SPRING	SW0SC-B	6
8	DIAPHRAGM RUBBER	EPDM	1
7	DIAPHRAGM PLATE	SS400	1
6	SPACER	SS400	1
5	STEM	SUS303	1
4	SET SCREW	SUS304	1
3	HEX NUT	SUS304	1
2	SET BOLT	SUS304	1
1	YOKE	FCD450	1
No.	NAME OF PARTS	MATERIALS	Q'TY

Warranty / Remedy

Korea Motoyama Inc. warrants goods of its manufacture as being free of defective materials and faulty workmanship for 12 months from the date of shipment, unless otherwise specified. In this period, all of our products claimed by original defects may be returned to our factory after notice and authorization by us. If warranted goods are returned to Korea Motoyama Inc. during the period of coverage, it will be repaired or replaced without charge for those items it finds defective. Such defects shall be exclusive of the effects of corrosion, erosion, normal wear or improper handling and storage. In case our engineers have field service, the user shall detach and install valves by his cost. Determination of the suitability of the Products for the use contemplated by the buyer or buyer's customer(s) is the sole responsibility of the buyer in connection therewith. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

Specifications are subject to change without notices.

 **KOMOTO**
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KOREA MOTOYAMA INC.