



DAEJU CONTROL ACTUATORS

**Pneumatic Linear Actuators
Diaphragm Pneumatic Actuator**



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Spring Return, Pneumatic Linear Actuators

General

Linear Actuator consists of one pneumatic single acting cylinder designed to operate linear valves as globe or gate valves which require a fail-safe action to close by means of spring return. Linear Actuator is designed and manufactured so as to operate in the heaviest work condition in every environment according to ISO specification. Typical features are the particularly simple and reliable construction, the special care in components material selection in order to reduce corrosion phenomenon. Linear Actuator can be supplied with helicoidal springs. For long strokes and low thrusts (gate valve) helicoidal springs are preferred.

Standard Features

- Hard chromium plated and polished cylinder for corrosion resistance and minimum friction
- Hard chromium plated and polished piston rod in stainless steel for corrosion resistance and minimum friction
- Floating type piston rod seals and piston seals for low hysteresis and high sensitivity preventing sticking problems.
- Piston rod supported by bushing made of bronze
- Stroke adjustment with mechanical travel stop in one direction. The stroke adjustment for the opposite direction is made with the stem joint
- Factory totally enclosed spring cartridge, for single acting version, to prevent any damage to personnel during assembling or disassembling.
- Modular design which allows to transform the linear actuator, also in field, from spring to close action to spring to open action or vice versa, using the same pieces.
- Adapter spool in fabricated carbon steel, specifically designed for adaptation to any type of valve with provision for local indicator, limit switches and other accessories.
- Extensive range of accessories:
 - Jackscrew and hydraulic manual override
 - limit switches boxes, explosion proof, intrinsically.
 - safe and/or water proof, in different types according to Customer requirements



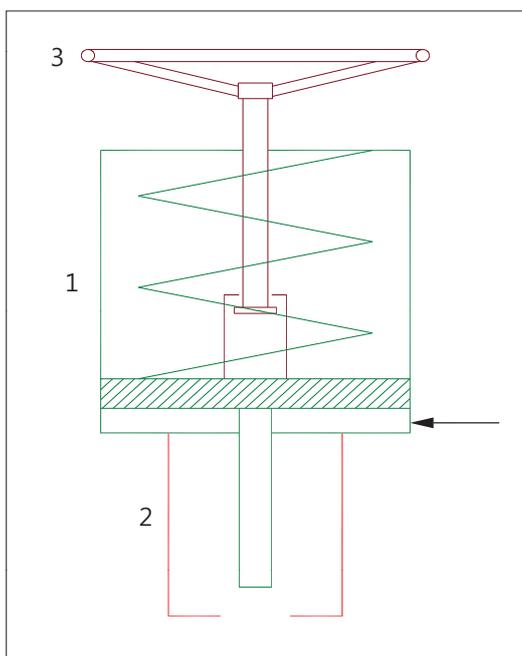
Spring Return, Pneumatic Linear Actuators

- Position transmitter, explosion proof, intrinsically safe and/or water proof.
- air filter and lubricator.
- air storage tanks available .
- Solenoid valves, explosion proof, intrinsically safe and/or waterproof.
- Base Actuators muscle will be
- Quick exhaust valves
- Pneumatic or electro pneumatic positioner
- Pneumatic or electro pneumatic pressure switch.
- Terminals enclosures, pushbutton panels, explosion proof or intrinsically safe and/or waterproof.
- Special coating for offshore or corrosive

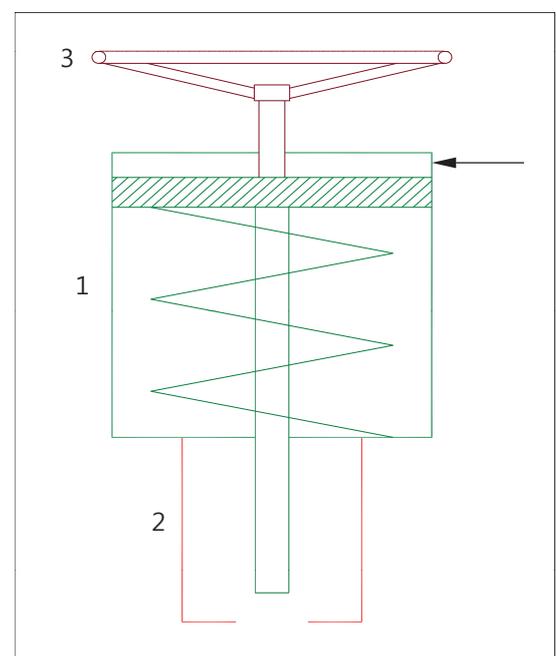
Technical Data

- Supply Pressure : 10.5 Bar Max.
- Supply medium : air, nitrogen or sweet gas
- Ambient Temp. : from -30°C to 100°C
- Applications : Gate, Globe valves

Manual overrides for linear actuator



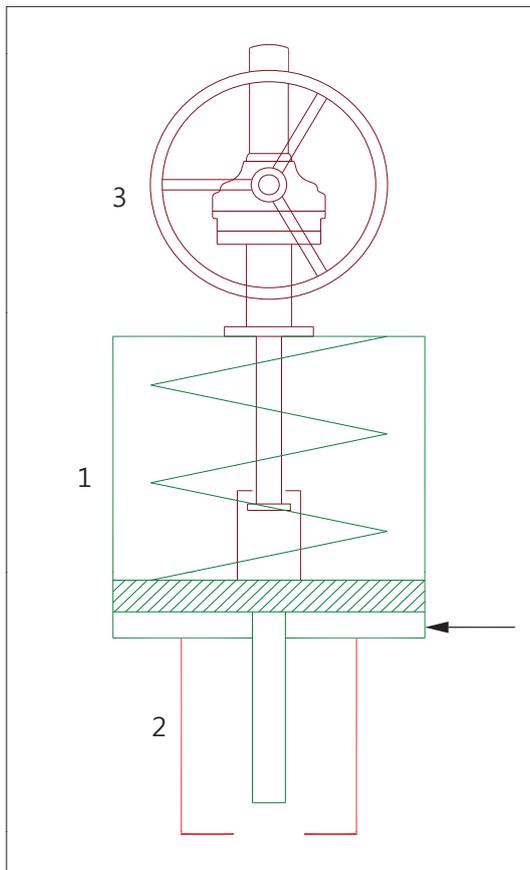
Jackscrew manual override for fail close



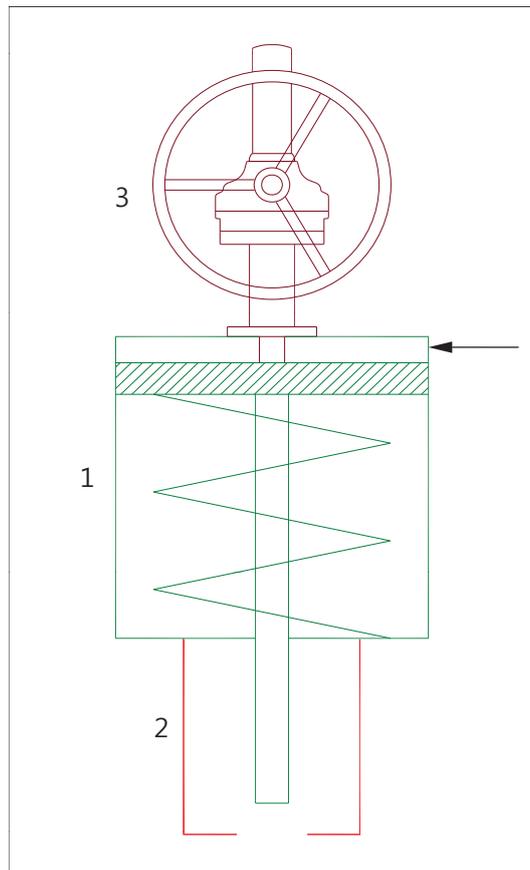
Jackscrew manual override for fail open

1. Cylinder 2. Yoke 3. Handwheel

Spring Return, Pneumatic Linear Actuators



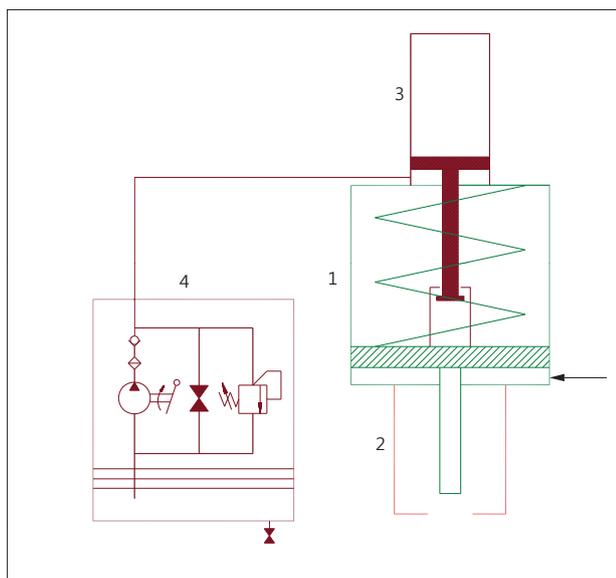
Jackscrew manual override for fail close



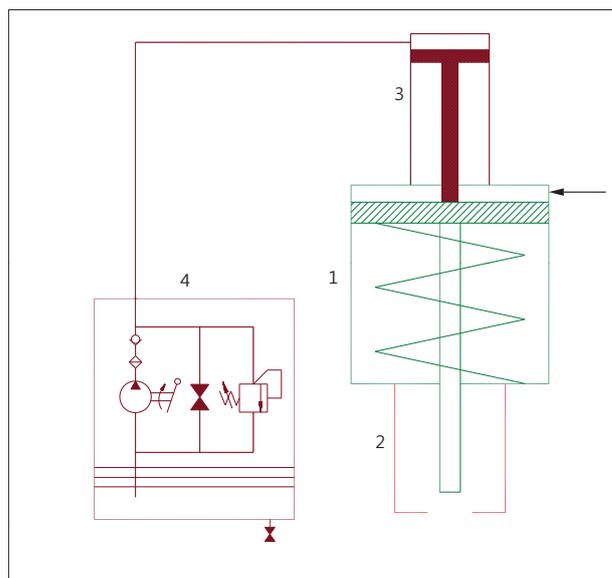
Jackscrew manual override for fail open

1. Cylinder 2. Yoke 3. Bevel gear A'ssy

Hydraulic manual override for fail close



Hydraulic manual override for fail open

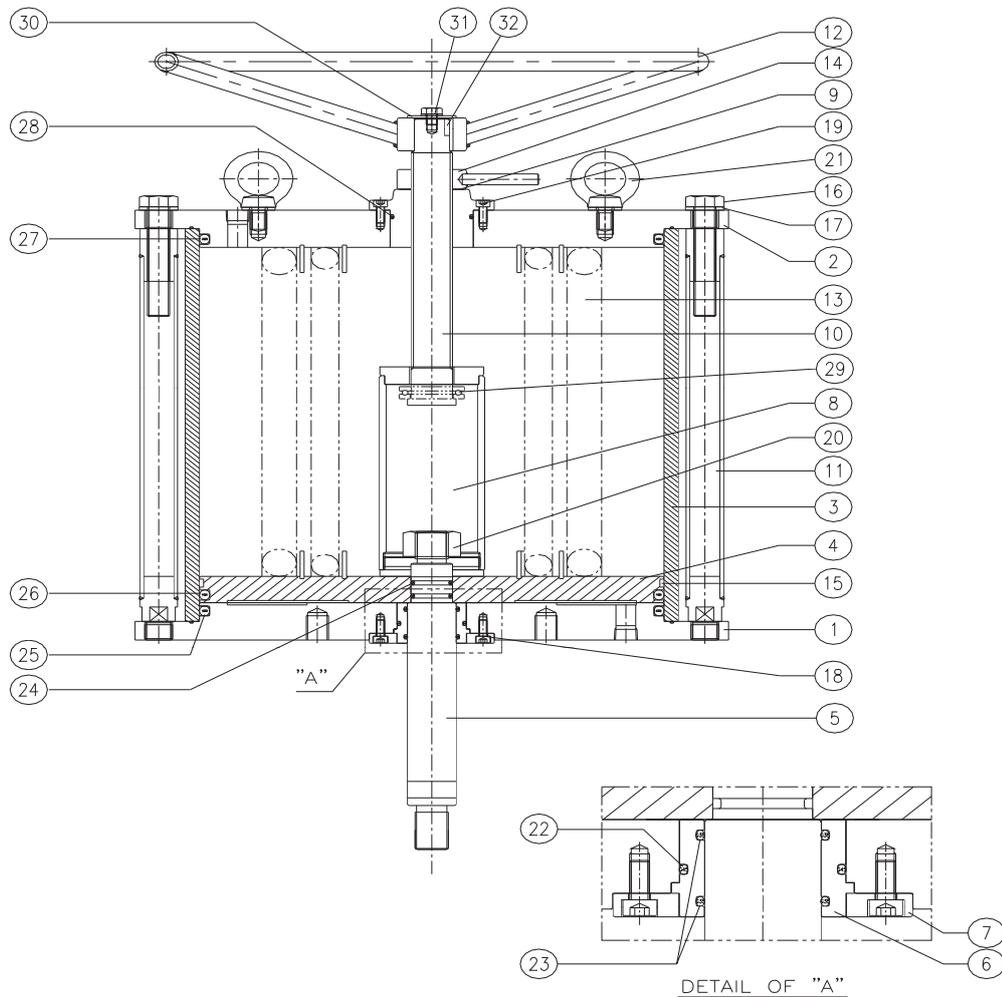


1. Cylinder 2. Yoke 3. Hydraulic cylinder 4. Hand pump unit

Spring Return, Pneumatic Linear Actuators

Spring Return, Pneumatic Linear Actuators Standard Construction

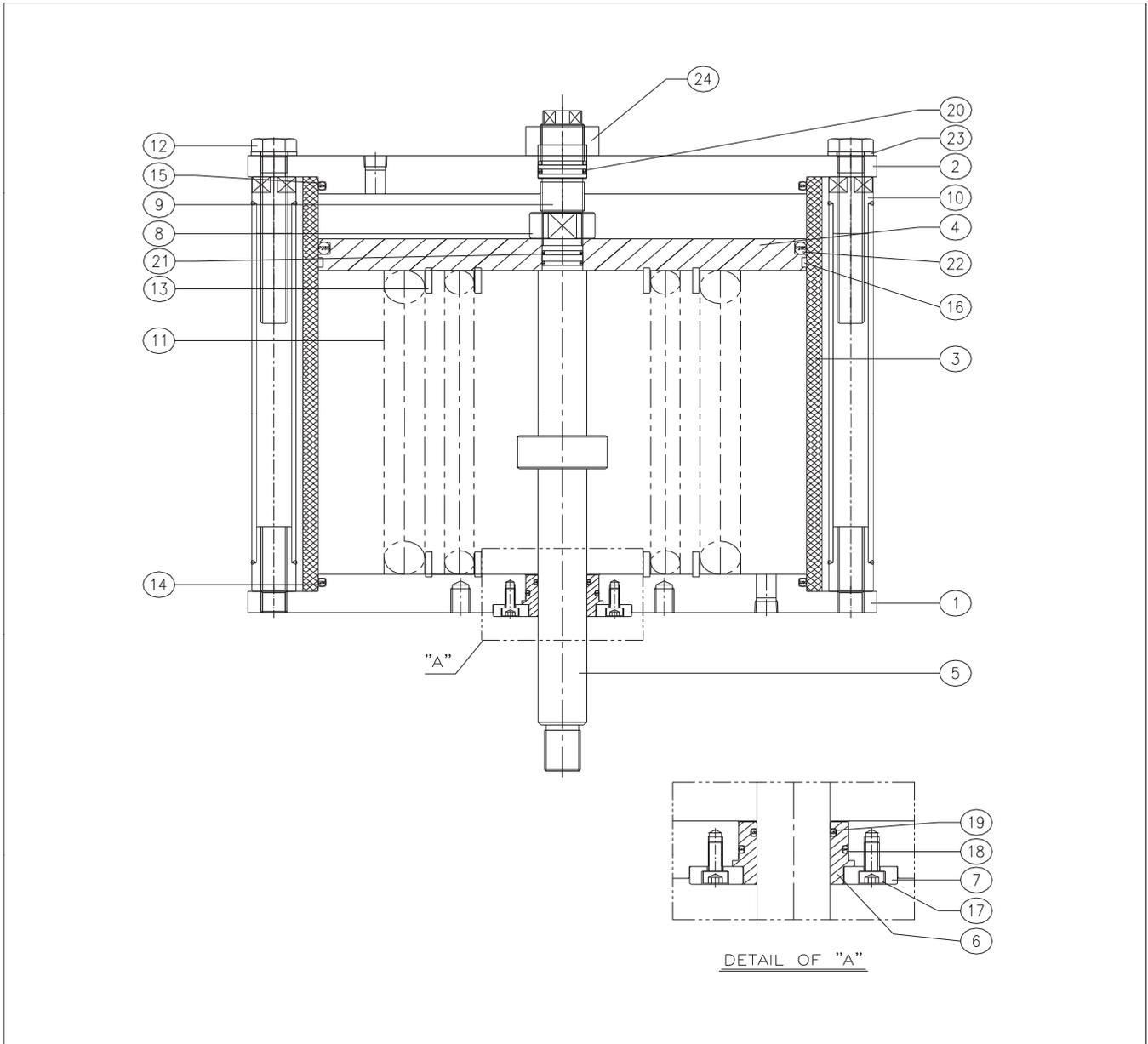
Fail Close



NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BOTTOM FLANGE	CARBON STEEL	17	WASHER	CARBON STEEL
2	TOP FLANGE	CARBON STEEL	18	SEAL COVER BOLT	STAINLESS STEEL
3	CYLINDER	CARBON STEEL	19	TOP FLANGE BUSH BOLT	STAINLESS STEEL
4	PISTON	CARBON STEEL	20	NYLON NUT (HEX.)	STAINLESS STEEL
5	PISTON ROD	STAINLESS STEEL	21	EYE BOLT	STAINLESS STEEL
6	SEAL BUSH	BRASS	22	SEAL BUSH O-RING	NBR
7	SEAL BUSH COVER	CARBON STEEL	23	SEAL BUSH O-RING	NBR
8	LIFT ASS'Y	CARBON STEEL	24	PISTON ROD O-RING	NBR
9	TOP FLANGE BUSH	CARBON STEEL	25	BOTTOM FLANGE O-RING	NBR
10	HANDLE ROD	CARBON STEEL	26	PISTON O-RING	NBR
11	TIE ROD	CARBON STEEL	27	TOP FLNAGE O-RING	NBR
12	HANDLE	CARBON STEEL	28	TOP FLANGE BUSH O-RING	NBR
13	SPRING	SPRING STEEL	29	THRUST BEARING	-
14	LOCK NUT	CARBON STEEL	30	INDICATOR	STAINLESS STEEL
15	BACK UP RING	TEFLON	31	HEX. BOLT & SPRING WASHER	STAINLESS STEEL
16	TIE BOLT	CARBON STEEL	32	KEY	CARBON STEEL

Spring Return, Pneumatic Linear Actuators

Fail Open



NO.	PART NAME	MATERIAL	NO.	PART NAME	MATERIAL
1	BOTTOM FLANGE	CARBON STEEL	13	PLAT BAR	CARBON STEEL
2	TOP FLANGE	CARBON STEEL	14	BOTTOM FLANGE O-RING	NBR
3	CYLINDER	CARBON STEEL	15	TOP FLANGE O-RING	NBR
4	PISTON	CARBON STEEL	16	PISTON GUIDE RING	TEFLON
5	PISTON ROD	STAINLESS STEEL	17	SEAL COVER BOLT	STAINLESS STEEL
6	SEAL BUSH	BRASS	18	SEAL BUSH O-RING	NBR
7	SEAL BUSH COVER	CARBON STEEL	19	SEAL BUSH O-RING	NBR
8	PISTON ROD NUT	CARBON STEEL	20	STOPPER BOLT O-RING	NBR
9	STOPPER BOLT	CARBON STEEL	21	PISTON ROD O-RING	NBR
10	TIE ROD	CARBON STEEL	22	PISTON O-RING	NBR
11	SPRING	SPRING STEEL	23	WASHER	CARBON STEEL
12	TIE BOLT	CARBON STEEL	24	HEX. NUT	CARBON STEEL

Diaphragm Pneumatic Actuators

A100 SERISE

A120 RA (Reverse Acting)

A140 DA (Direct Acting)

General

The A100 is a pneumatic, spring-opposed diaphragm actuator operating from plant air. Excellent long-term accuracy and reliability is achieved through the use of multiple springs in the actuator.

The rugged one-piece yoke, the pressed steel diaphragm case and the special nylon reinforced diaphragm provide dependable, high thrust performance. Additionally, the precision formed diaphragm eliminates friction and reduces variations in the effective area during operation which, in turn, results in exceptional linearity.

Five different sizes of the A100 actuators. An optional top or side-mounted manual override is available on both direct and reverse acting with various accessories can virtually satisfy all application requirements.

Standard Features

Excellent Performance : As a multi-spring type, operation is precise and repeatability is excellent minimizing the hysteresis error.

Fast Response : The pressure-tight chamber to which air pressure is connected has a small volume for fast response.

Rugged construction : All parts are engineered and tested for long life under millions of cycles.

Technical Data

Type : Multi-spring opposed rolling diaphragm

Action : Direct Acting(DA) A140
Reverse Acting(RA) A120

Materials : See Table 1
(Actuator Assembly Materials)

Operating Temperature : -20°F to 180°F
(-30°C to 80°C)

Operating Pressure : Max 3.6 kg/cm²G

Maximum Stroke : 20mm to 120mm

Manual Override : Top mounted (250, 290, 370) or Side mounted (all sizes)

Accessories : Positioner, filter regulator, solenoid valve, limit switches, Position transmitter, booster and transducer are available for actuator mounting.

Dimensions : See Table 2, 3, 4

Actuator Size	Effective Daphragm (cm ²)	Actuator Stem Size Diameter Φ(mm)	Maximum Stroke (mm)	Max Allowable Operating Pressure kg / cm ² G
250	270	24	20	3.6
290	390	24	30	3.6
370	650	24	40	3.6
480	1130	34	70	3.6
550	1520	34	90	3.6

Diaphragm Pneumatic Actuators

A100 SERISE

A120 RA (Reverse Acting)

A140 DA (Direct Acting)

TABLE - 1 Actuator Assembly Materials

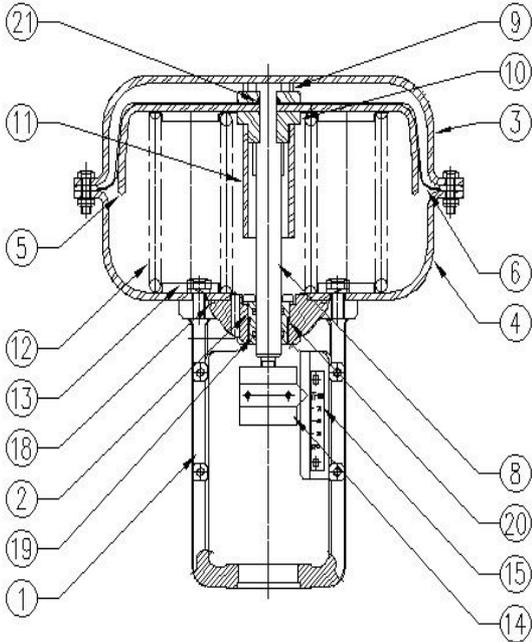


Figure 1 Direct Acting (DA)

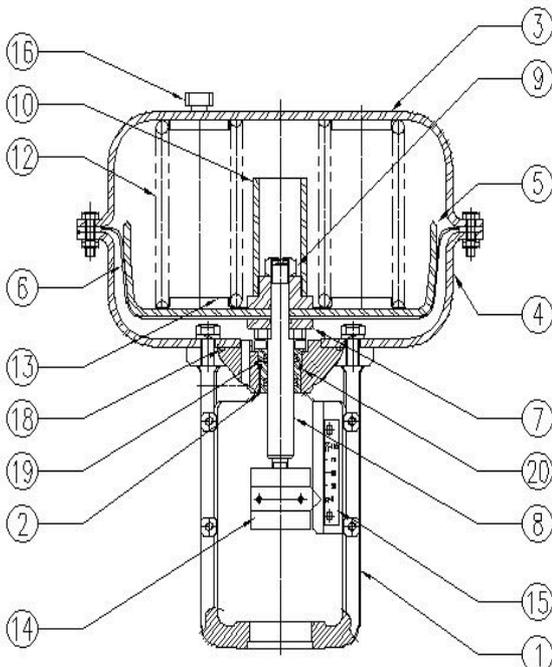


Figure 2 Reverse Acting (RA)

NO.	PART NAME	MATERIAL
1	Yoke	Carbon Steel (A216 WCB)
2	Guide Bushing	Steel + 316 SS
3	Upper Diaph. Case	Carbon Steel
4	Lower Diaph. Case	Carbon Steel
5	Diaph. Plate	Carbon Steel
6	Diaphragm	EPDM
7	Diaph. Washer	Steel + Zinc Plating
8	Actuator Stem	304 SS
9	Stem Nut	304 SS
10	Spacer	Steel + Zinc Plating
11	Stopper	Steel + Zinc Plating
12	Spring	Steel
13	Spring Guide	Steel + Zinc Plating
14	Stem Clamp	304 SS
15	Travel Indicator	304 SS
16	Venting Cap	304 SS
17	O-ring	NBR
18	O-ring	NBR
19	O-ring	NBR
20	O-ring	NBR
21	O-ring	NBR

Diaphragm Pneumatic Actuators

A100 SERISE

A120 RA (Reverse Acting)

A140 DA (Direct Acting)

TABLE - 2 Standard Actuator Dimensions

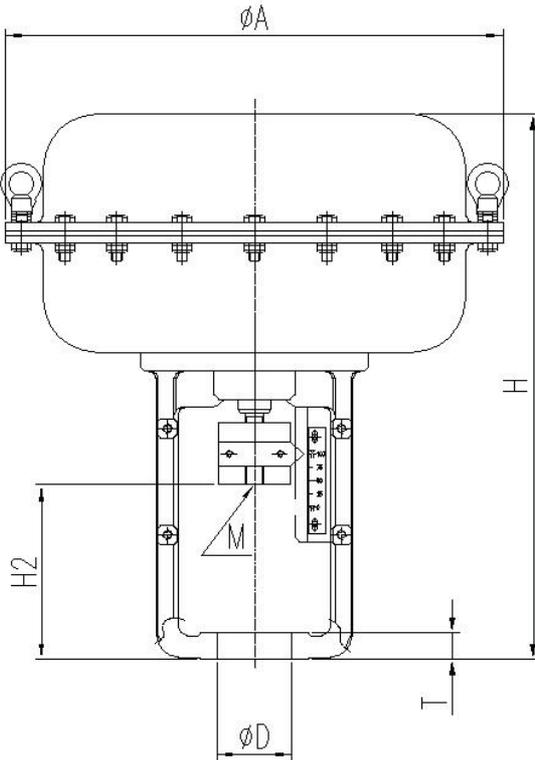


Figure 3 Direct Acting (DA)

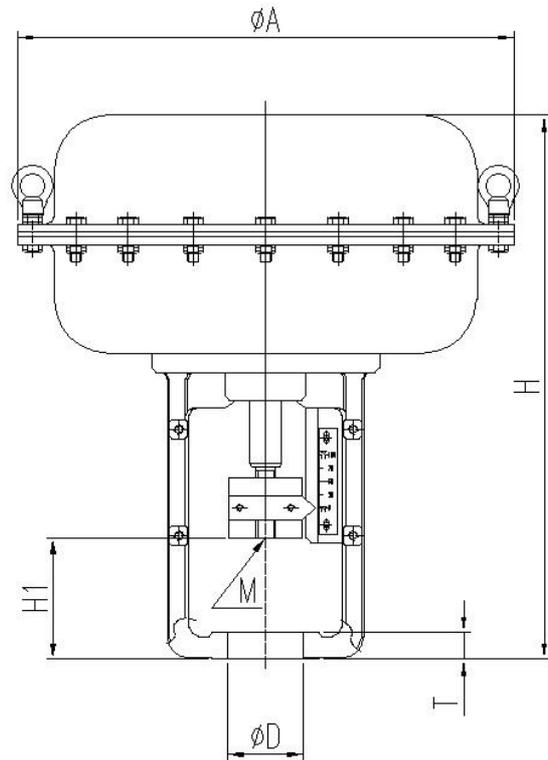


Figure 4 Reverse Acting (RA)

Unit : mm

Size	250	290	370	370L	480	480H	550	550H	550L
ϕA	250	290	370	370	480	482	550	550	550
H	332	369	410	460	629	629	678	678	708
H1	91				102	102	102	102	102
H2	111	121	131	131	172	152	192	152	222
ϕD	56				80				
T	20				30				
M	M14 * 1.5P				M24 * 1.5P				

Note : All dimensions are for reference only

Diaphragm Pneumatic Actuators

A100 SERISE

A120 RA (Reverse Acting)

A140 DA (Direct Acting)

TABLE - 3 Dimensions (With Top-Mounted Manual Override)

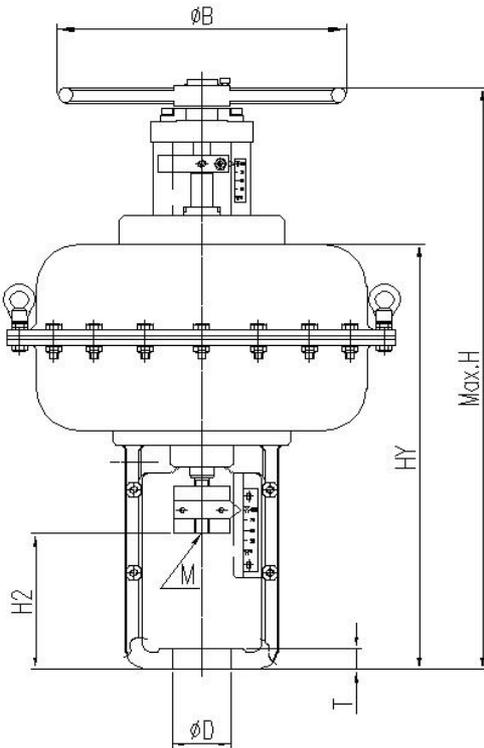


Figure 5 Direct Acting (DA)

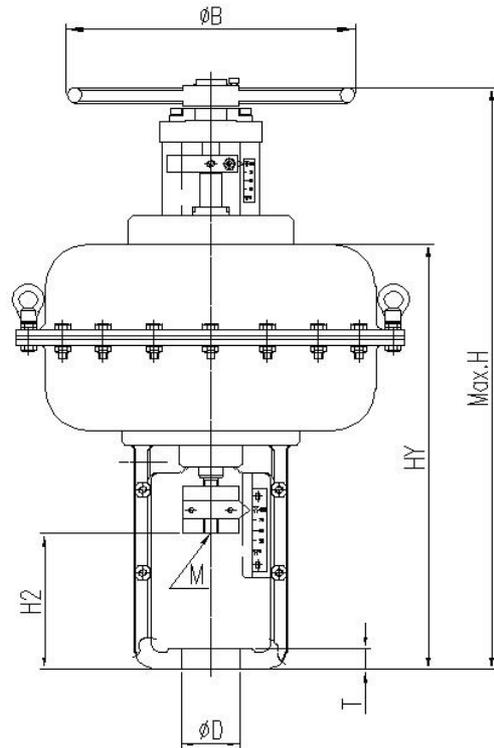


Figure 6 Reverse Acting (RA)

Unit : mm

Size	250	290	370	370L
ϕB	250	300	300	300
Max.H	430	520	560	643
H	332	369	410	460
H1	91			
H2	111	121	131	131
ϕD	56			
T	20			
M	M14 * 1.5P			

Note : All dimensions are for reference only

Diaphragm Pneumatic Actuators

A100 SERISE

A120 RA (Reverse Acting)

A140 DA (Direct Acting)

TABLE - 4 Dimensions (With Side-Mounted Manual Override)

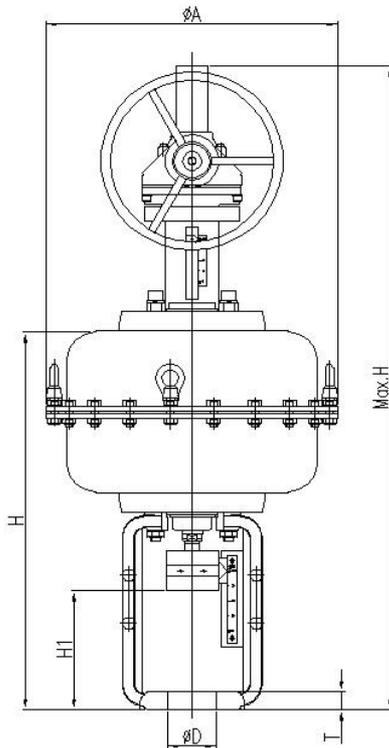


Figure 7 Direct Acting (DA)

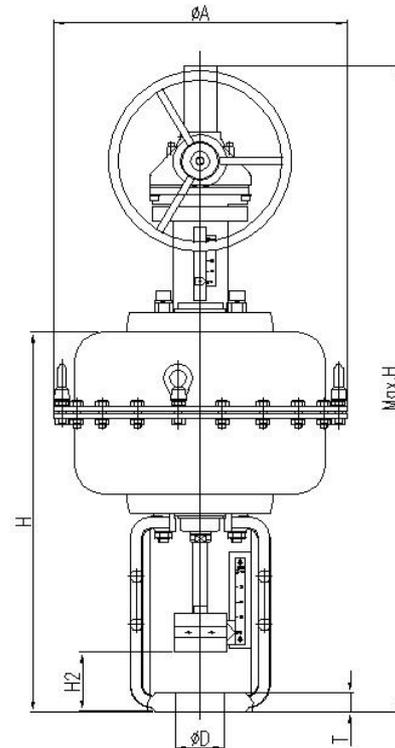


Figure 8 Reverse Acting (RA)

Unit : mm

Size	480	480H	550	550H	550L
ΦA	480	480	550	550	550
Max.H	1070	1070	1120	1120	1250
H	629	629	678	678	708
H1	102	102	102	102	102
H2	172	152	192	152	222
ΦD	80				
T	30				
M	M24 * 1.5P				

Note : All dimensions are for reference only

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