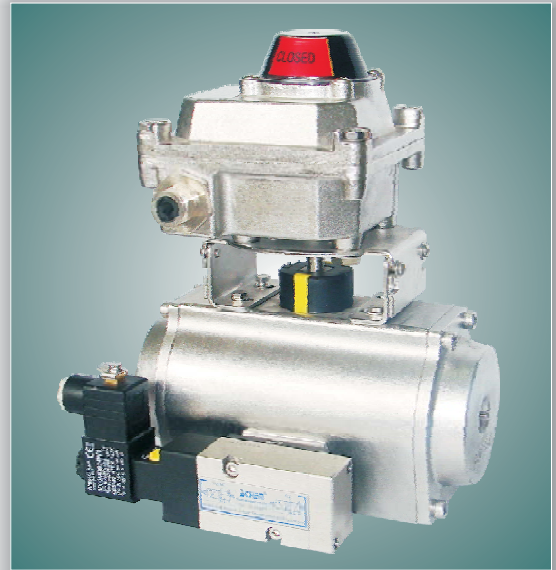
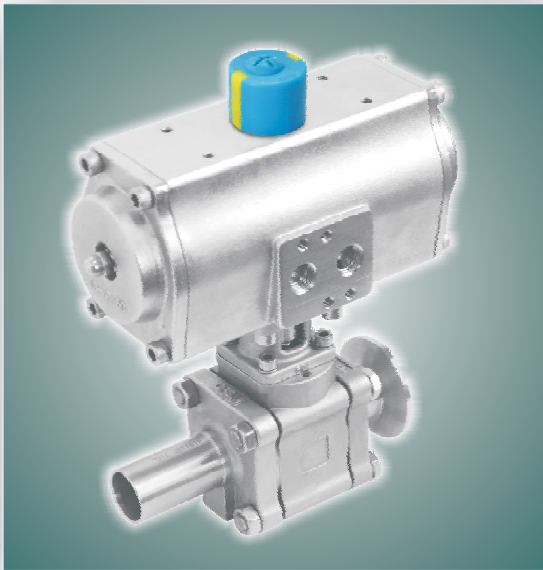




**STAINLESS STEEL
PNEUMATIC ACTUATOR**



**STAINLESS STEEL
VALVE MONITOR**



**STAINLESS STEEL
SOLENOID VALVE**

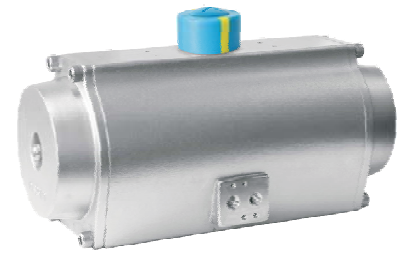


**STAINLESS STEEL
ACCESSORY**

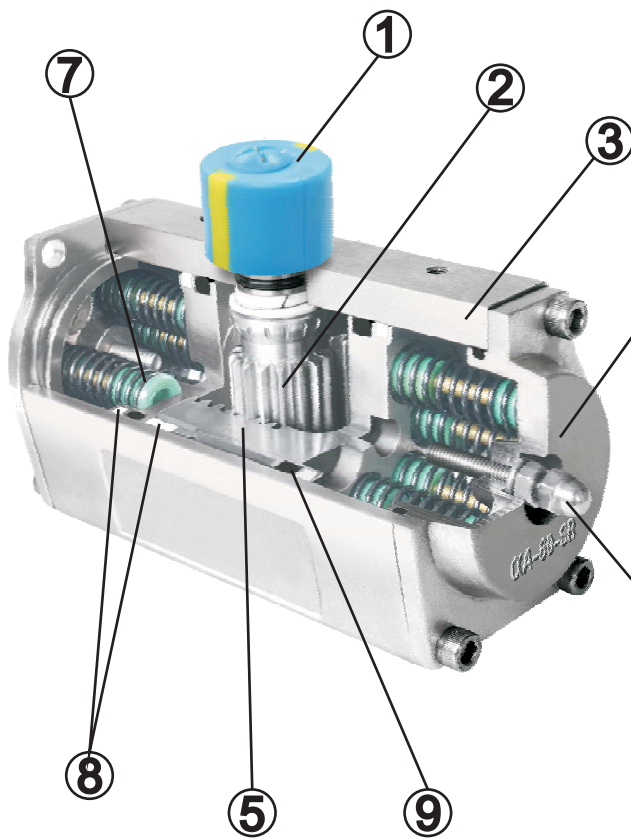
STAINLESS STEEL Pneumatic Actuators

Design

A Series pneumatic actuators are stainless steel actuator which incorporate latest mechanical technology and our patented technology, through designing, developing, testing and engineering application, we have obtained a high grade product with the characteristics of reliability, high performance, long cycle life, large adjustment, highest levels of corrosion protection, wide selection of model with easy and economy.



Structure



1. Indicator

Position indicator with NAMUR is convenient for mounting accessories such as limit switch box, positioner and so on.

2. Pinion

The pinion is high-precision and integrative, made from nickel alloy steel, full conform to the latest standards of ISO5211, DIN3337, NAMUR. The dimensions can be customized and the stainless steel is available.

3. Actuator body

According to the different requirements, the stainless steel body with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.

4. End caps

The stainless steel end-cap body with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.

5. Pistons

The twin rack pistons are made from investment casting stainless steel resistance to most corrosive chemicals as well as industrial atmospheres.

6. Travel adjustment

External stroke adjustment screw can adjust $\pm 4^\circ$ at the position of 90° .

7. High performance springs

Preloaded coiled springs are made from the high quality material for resistant to corrosion and longer cycle life, which can be demounted safely and conveniently to satisfy different requirements of torque by changing quantity of springs.

8. Bearings & guides

Made from low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

9. O-rings

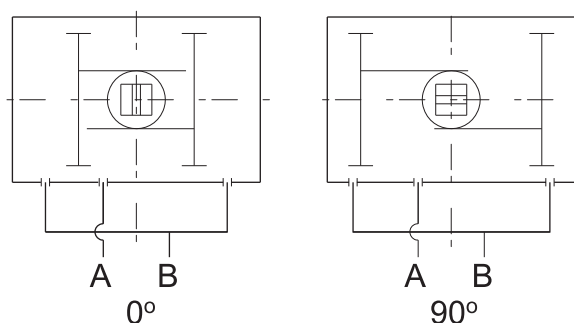
NBR rubber o-rings provide trouble-free operation at standard temperature ranges. For high and low temperature, viton or silicone is used.

STAINLESS STEEL Pneumatic Actuators

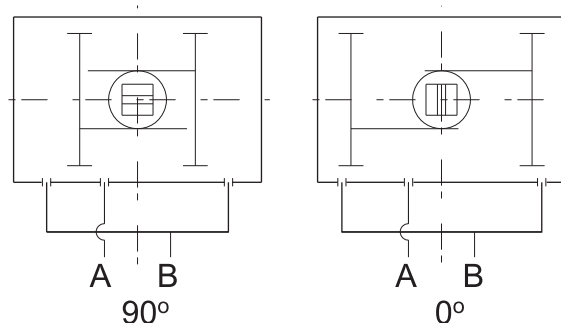
Operating Principle

Double acting

Standard rotation



Reverse rotation



Standard Rotation:

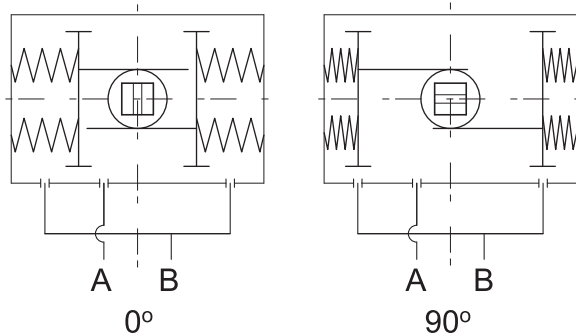
Air to port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from port B. Air to port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from port A.

Reverse Rotation:

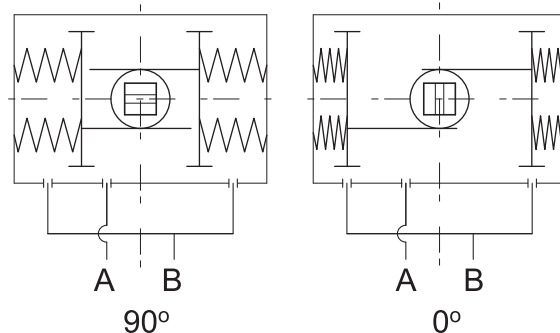
Air to port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from port B. Air to port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from port A.

Spring return

Standard rotation



Reverse rotation



Standard Rotation:

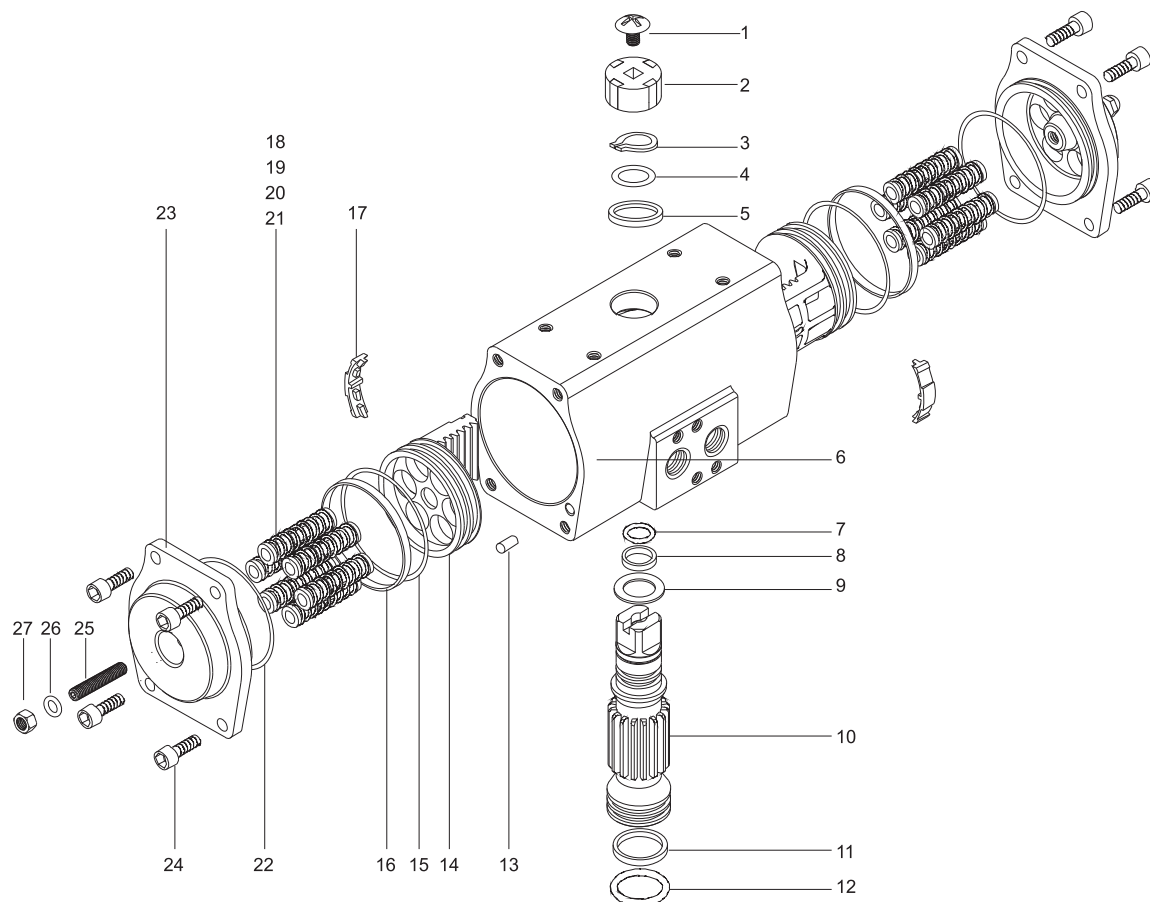
Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns counterclockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

Reverse Rotation:

Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns clockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns counterclockwise while air is being exhausted from port A.

STAINLESS STEEL Pneumatic Actuators

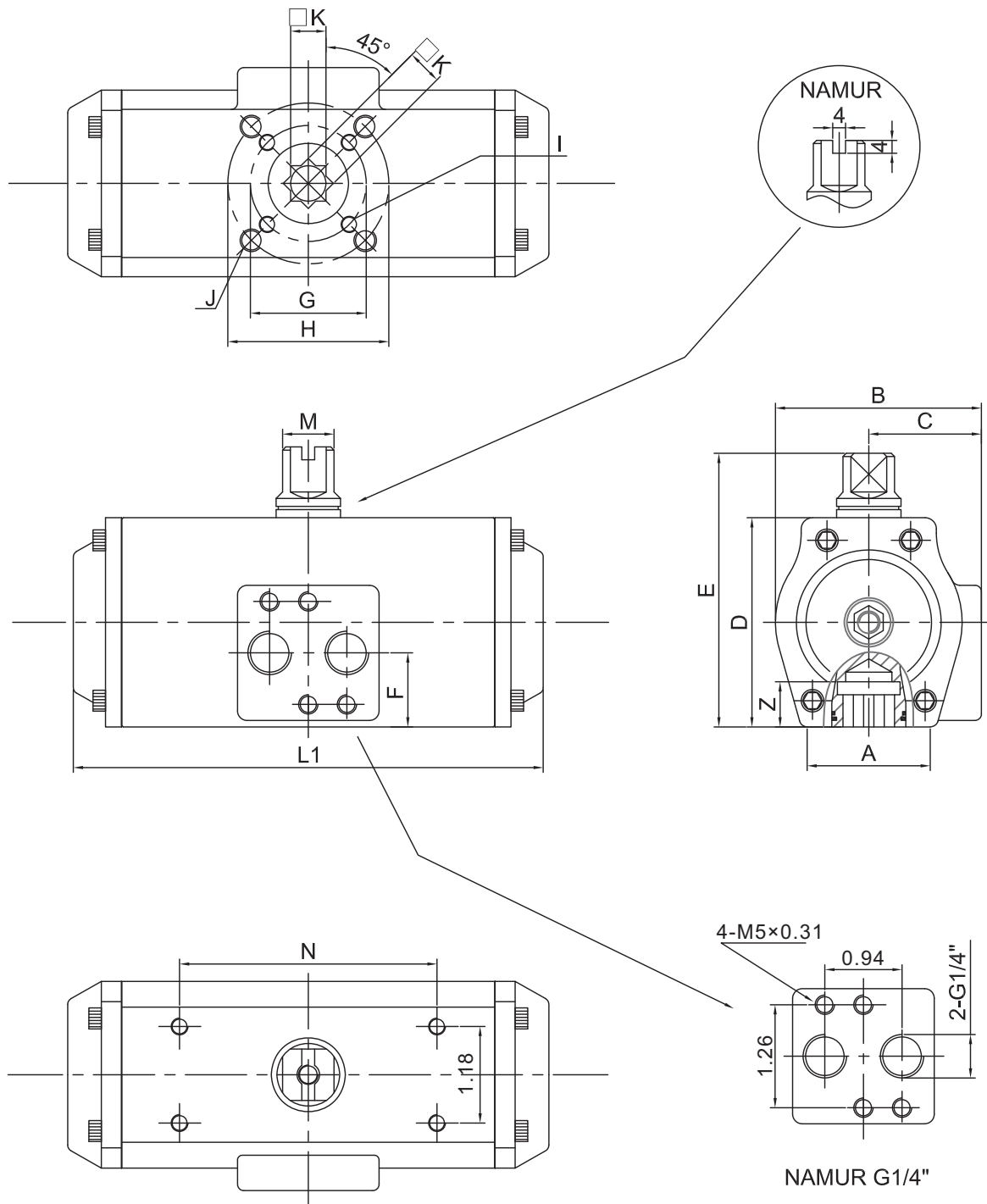
Assembly, Parts and Materials



No.	Description	Qty	Standards Material
1	Indicator screw	1	Plastic(ABS)
2	Indicator	1	Plastic(ABS)
3	Circlip	1	Stainless steel(304/316)
4	Thrust washer	1	Stainless steel(304/316)
5	Outside washer	1	Polyoxymethylene
6	Body	1	Stainless steel(304/316)
7	O-ring(Pinion top)	1	Viton/NBR
8	Bearing(Pinion top)	1	Polyoxymethylene
9	Inside washer	1	Polyoxymethylene
10	Pinion	1	Stainless steel(304/316)
11	Bearing(Pinion bottom)	1	Polyoxymethylene
12	O-ring(Pinion bottom)	1	Viton/NBR
13	Plug	2	NBR
14	Piston	2	Stainless steel(304/316)
15	O-ring(Piston)	2	Viton/NBR
16	Bearing(Piston)	2	Polyoxymethylene
17	Guide(Piston)	2	Nylon66
18	Spring	*	Spring steel
19	Spring Retainer(L)	*	Nylon66
20	Spring Retainer(R)	*	Nylon66
21	Retainer Connector	*	Brass
22	O-ring(End-Cap)	2	Viton/NBR
23	End-Cap	2	Stainless steel(304/316)
24	End-Cap Stop Screw	8	Stainless steel(304/316)
25	Adjust Screw	2	Stainless steel(304/316)
26	O-ring(Adjust Screw)	2	Viton/NBR
27	Nut(Adjust Screw)	2	Stainless steel(304)

STAINLESS STEEL Pneumatic Actuators

Dimensions for A-45~A-160

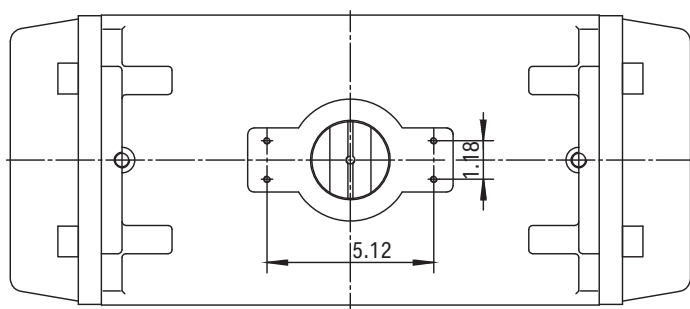
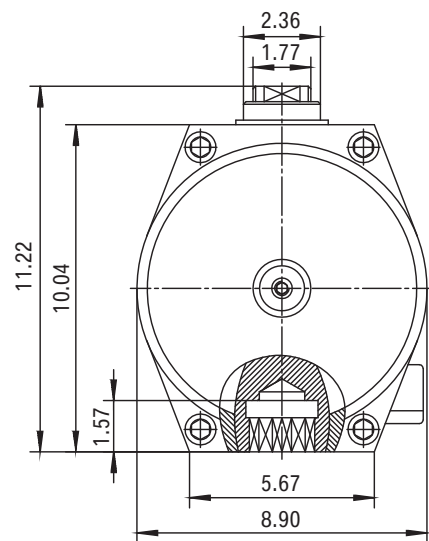
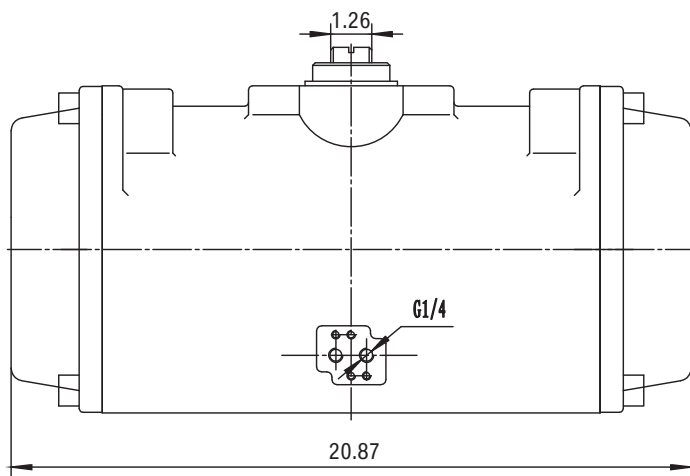
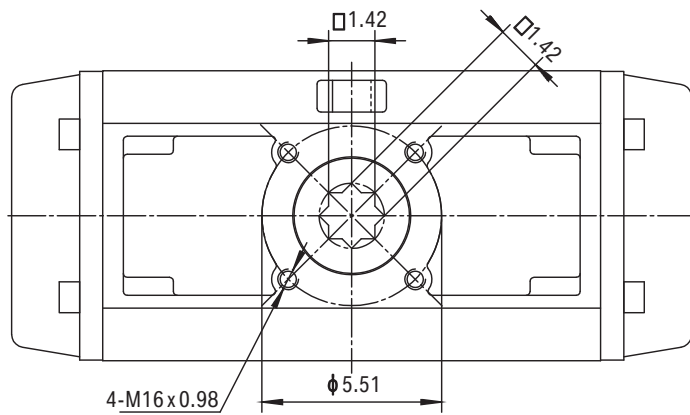


Unit: inch

SIZE	A	B	C	D	E	F	ΦG	ΦH	I	J	K	L1	M	N	Z	Air Connection
A-45	1.89	2.76	1.61	2.56	3.35	0.91	1.42	1.97	M5×0.31	M6×0.39	0.43	5.83	0.63	3.15	0.55	G1/4"(1/4"NPT)
A-60	2.28	3.07	1.69	3.19	3.98	0.91		1.97		M6×0.39	0.55	6.57	0.63	3.15	0.71	G1/4"(1/4"NPT)
A-85	2.95	4.02	2.11	4.25	5.04	0.94	1.97	2.76	M6×0.39	M8×0.51	0.67	7.76	0.63	3.15	0.83	G1/4"(1/4"NPT)
A-105	3.62	4.80	2.50	5.24	6.02	0.94		2.76		M8×0.51	0.87	9.88	0.63	3.15	1.02	G1/4"(1/4"NPT)
A-125	3.78	5.51	2.83	6.10	7.28	1.10	2.76	4.02	M8×0.51	M10×0.63	0.87	11.18	0.87	5.12	1.02	G1/4"(1/4"NPT)
A-140	4.41	6.06	3.07	6.75	7.93	1.34	4.02	4.92	M10×0.63	M12×0.79	1.06	14.17	0.87	5.12	1.22	G1/4"(1/4"NPT)
A-160	5.00	6.81	3.39	7.76	8.94	1.54	4.02	4.92	M10×0.63	M12×0.79	1.06	16.53	0.87	5.12	1.22	G1/4"(1/4"NPT)
A-210	5.67	8.90	4.45	10.04	11.22	1.77		5.51		M16×0.98	1.42	20.87	1.26	5.12	1.57	G1/4"(1/4"NPT)

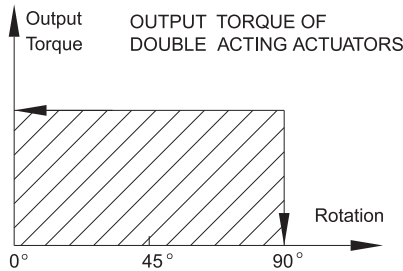
STAINLESS STEEL Pneumatic Actuators

Dimension for A-210



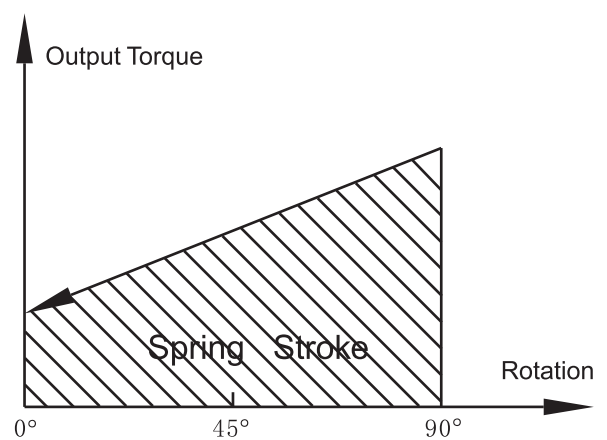
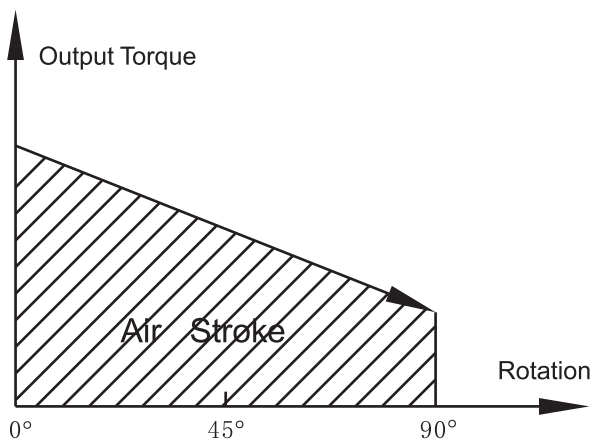
STAINLESS STEEL Pneumatic Actuators

Output torque table for double acting actuators



OUTPUT TORQUE OF ALPHA-ACHEM SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING(Unit:lb-ft-in)											
Model	Air pressure(psig)										
	30	40	45	50	60	65	70	80	90	100	120
A-45DA	53.1	67.3	80.5	10.6	107.1	120.4	133.6	146.9	160.2	186.7	214.2
A-60DA	125.7	157.5	188.5	24.9	251.3	283.2	314.2	346.1	377.0	439.8	502.7
A-85DA	265.5	340.7	408.8	53.9	545.1	614.2	682.3	750.4	818.6	954.9	1091.2
A-105DA	582.3	727.4	873.5	115.2	1164.6	1309.7	1454.9	1600.9	1746.0	2037.2	2328.3
A-125DA	911.5	1132.7	1362.8	179.6	1814.2	2044.2	2265.5	2495.5	2725.7	3177.0	3628.3
A-140DA	1548.7	1938.1	2327.4	306.8	3106.2	3495.6	3885.0	4265.5	4654.9	5433.6	6212.4
A-160DA	2362.8	2955.8	3548.7	467.8	4734.5	5318.6	5911.5	6504.4	7097.3	8274.3	9460.2
A-210DA	4654.9	5823.0	6982.3	920.5	9309.7	10477.9	11646.0	12805.3	13973.5	16300.9	18628.3

Output torque table for spring return actuators



OUTPUT TORQUE OF ALPHA-ACHEM SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN(UNIT:lb-ft-in)																			
Model	Spring Q.ty	Air pressure(psig)																	
		30		40		45		60		70		90		100		120		Spring'output	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
A-45SR	5	26.5	10.6	40.7	24.8													40.7	25.7
	6	20.4	1.8	34.5	15.9	47.8	29.2											48.7	31.0
	7			29.2	7.1	42.5	20.4	69.0	46.9									57.5	36.3
	8					37.2	11.5	63.7	38.1	90.3	64.6	119.5	94.7					65.5	40.7
	9							58.4	30.1	85.0	56.6	111.5	83.2					73.5	46.0
	10							53.1	21.2	79.6	47.8	106.2	74.3	132.7	100.9	160.2	128.3	81.4	51.3
	11									74.3	38.9	100.9	65.5	127.4	92.0	154.9	119.5	89.4	56.6
	12									69.0	31.0	95.6	57.5	122.1	84.1	149.6	111.5	98.2	61.9

STAINLESS STEEL Pneumatic Actuators

OUTPUT TORQUE OF ALPHA-ACHEM SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN(UNIT:lbf-in)																			
Model	Spring Q.ty	Air pressure(psig)																	
		30		40		45		60		70		90		100		120		Spring'output	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
A-60SR	5	61.9	28.3	93.8	60.2													92.0	60.2
	6	49.6	8.8	81.4	40.7	112.4	71.7											110.6	72.6
	7			68.1	68.1	99.1	52.2	161.9	115.0									129.2	85.0
	8					86.7	32.7	149.6	95.6	212.4	158.4							147.8	96.5
	9							136.3	76.1	199.1	138.9	261.9	201.8					166.4	108.8
	10							123.9	56.6	186.7	119.5	249.6	182.3	312.4	245.1	375.2	308.0	185.0	121.2
	11									174.3	100.0	237.2	162.8	300.0	225.7	362.8	288.5	202.7	132.7
	12									161.1	80.5	223.9	143.4	286.7	206.2	349.6	269.0	221.2	145.1
A-85SR	5	125.7	58.4	193.8	126.5													203.5	139.8
	6	95.6	15.0	163.7	83.2	231.9	151.3											244.2	168.1
	7			134.5	40.7	202.7	108.8	338.9	245.1									285.0	195.6
	8					173.5	65.5	309.7	201.8	446.9	338.9							325.7	223.9
	9							279.6	159.3	416.8	296.5	553.1	432.7					366.4	252.2
	10							250.4	116.8	387.6	254.0	523.9	390.3	660.2	526.5	796.5	662.8	407.1	279.6
	11									358.4	210.6	494.5	346.9	631.0	483.2	767.3	619.5	447.8	308.0
	12									328.3	168.1	464.6	304.4	600.9	400.7	737.2	577.0	488.5	336.3
A-105SR	5	287.6	123.9	432.7	269.0													435.4	279.6
	6	228.3	31.9	373.5	177.0	519.5	323.0											523.0	336.3
	7			315.0	85.8	461.1	231.9	752.2	523.0									609.7	392.0
	8					401.8	139.8	692.9	431.0	983.2	721.2							696.5	447.8
	9							634.5	339.8	924.8	630.1	1215.9	921.3					784.1	503.5
	10							575.2	247.8	865.5	538.1	1156.6	829.2	1447.8	1120.4	1738.9	1411.5	870.8	560.2
	11									806.2	446.0	1097.3	737.2	1388.5	1028.3	1679.6	1319.5	958.4	615.9
	12									747.8	354.9	1038.9	646.0	1330.1	937.2	1621.2	1228.3	1045.1	671.7
A-125SR	5	423.9	181.4	645.1	402.7													693.8	463.7
	6	326.5	35.4	547.8	256.6	777.9	486.7											832.7	555.8
	7			449.6	110.6	679.6	340.7	1131.0	792.1									970.8	648.7
	8					582.3	194.7	1033.6	646.0	1485.0	1097.3							1109.7	741.6
	9							936.3	500.0	1387.6	951.3	1847.8	1411.5					1248.7	833.6
	10							838.9	354.0	1290.3	805.3	1750.4	1265.5	2201.8	1716.8	2653.1	2168.1	1387.6	926.5
	11									1192.9	659.3	1653.1	1119.5	2104.4	1570.8	2555.8	2022.1	1525.7	1019.5
	12									1094.7	513.3	1554.9	973.5	2006.2	1424.8	2457.5	1876.1	1664.6	1112.4
A-140SR	5	749.6	347.8	1138.9	737.2													1141.6	759.3
	6	589.4	107.1	978.8	496.5	1368.1	885.9											1369.9	910.6
	7			819.5	256.6	1208.8	646.0	1987.6	1424.8									1597.3	1062.8
	8					1048.7	405.3	1827.4	1184.1	2606.2	1962.8							1825.7	1215.0
	9							1668.1	944.2	2446.9	1723.0	3216.8	2492.9					2054.0	1366.4
	10							1508.0	703.5	2286.7	1482.3	3056.6	2252.2	3835.4	3031.0	4614.2	3809.7	2282.3	1518.6
	11									2126.5	1242.5	2896.5	2012.4	3675.2	2791.1	4454.0	3569.9	2510.6	1669.9
	12								1967.3	1001.8	2737.2	1771.7	3515.9	2550.4	4294.7	3329.2	2738.9	1822.1	
A-160SR	5	1061.9	422.1	1654.9	1015.0													1843.4	1236.3
	6	801.8	34.5	1394.7	627.4	1987.6	1220.4											2212.4	1486.7
	7			1134.5	238.9	1727.4	831.9	2913.3	2017.7									2584.1	1734.5
	8					1467.3	444.3	2653.1	1630.1	3830.1	2807.1							2946.9	1973.5
	9							2392.9	1241.6	3569.9	2418.6	4755.8	3604.4					3318.6	2221.2
	10							2132.7	853.1	3309.7	2031.0	4495.6	3216.8	5672.6	4393.8	6858.4	5579.6	3690.3	2469.0
	11									3049.6	1642.5	4235.4	2828.3	5412.4	4005.3	6598.2	5191.2	4053.1	2716.8
	12									2789.4	1254.0	3975.2	2439.8	5152.2	3616.8	6338.0	4802.7	4424.8	2964.6
A-210SR	5	2097.3	1115.0	3265.5	2283.2													3185.8	2300.9
	6	1584.1	407.1	2752.2	1575.2	3911.5	2734.5											3823.0	2769.9
	7			2238.9	876.1	3398.2	2035.4	5725.7	4362.8									4451.3	3230.0
	8					2885.0	1327.4	5212.4	3654.9	7548.7	5991.2							5088.5	3690.3
	9							4699.1	2946.9	7035.4	5283.2	9365.8	7610.6					5725.7	4150.4
	10							4185.8	2238.9	6522.1	4575.2	8849.6	6902.7	11177.0	9230.1	13504.4	11557.5	6362.8	4610.6
	11									6008.8	3867.3	8336.3	6194.7	10663.7	8522.1	12991.2	10849.6	7000.0	5070.8
	12									5495.6	3159.3	7823.0	5486.7	10150.4	7814.2	12477.9	10141.6	7637.2	5531.0

Weight

Unit:kg

Model	A-45	A-60	A-85	A-105	A-125	A-140	A-160	A-210
DA	2.51	3.85	6.35	11.90	18.00	24.80	35.80	98
SR	2.65	4.10	7.00	12.60	19.20	27.30	37.60	

STAINLESS STEEL Pneumatic Actuators

Operating Conditions

1. Operating media

Dry or lubricated air, the non-corrosive gasses

2. Air supply pressure

Double acting: 2~8Bar; Spring return: 2~8Bar

3. Operating temperature

Standard(NBR O-ring): -20°C~+80°C

Special temperature(HNBR O-ring): -35°C~+150°C

4. Travel adjustment

Have adjustment range of $\pm 5^\circ$ for the rotation at 90°

5. Lubrication

The actuator is supplied ready-lubricated no further lubrication is required. If lubrication is deemed necessary, use EP-1 grease.

6. Application

Either indoor or outdoor

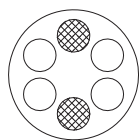
7. Highest pressure

The maximum input pressure is 10 Bar

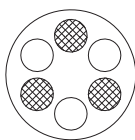
Manual Operation

Remove any manual opening device from the valve, leaving the valve stem clear. Make sure that the shape of the stem fit the actuator output and that the rotation is not hindered in any way. Mount the actuator onto the valve, certaining it well on the stem. Make sure that the rotation direction is correct, in any case do not insert your hands inside the valve. We strongly suggest checking the cleanness of the air-supply pipes, especially when the plant is not provided with filters. A spacer between actuator and valve will be necessary with fluids at high temperature.

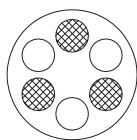
Springs mounting form for spring return actuators:



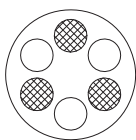
5 Springs



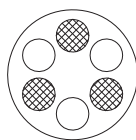
6 Springs



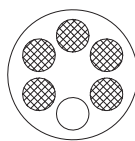
7 Springs



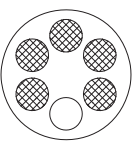
8 Springs



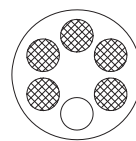
9 Springs



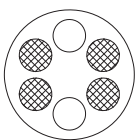
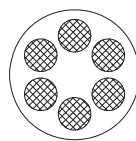
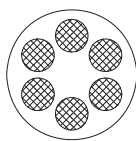
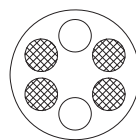
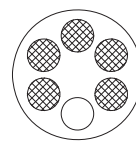
10 Springs



11 Springs



12 Springs



STAINLESS STEEL Pneumatic Actuators

Air Consumption

Model	Air volume opening	Air volume closing
A-45	0.08	0.11
A-60	0.2	0.23
A-85	0.41	0.55
A-105	0.94	1.18
A-125	1.47	1.85
A-140	2.43	3.2
A-160	3.65	5.03
A-210	7.4	9.7

Air Consumption depends on Air Supply. Air volume and Action cycle times, the calculating as follows:

$$L/Min = \text{Air volume (Air volume opening + Air volume closing)} \times [(\text{Air Supply (Kpa)} + 101.3) \div 101.3] \times \text{Action cycle times (/min)}$$

Maintenance

1. It is recommended that periodic checks be performed to make sure that all fasteners remain tight.
2. The actuator is supplied ready-lubricated no further lubrication is required. If lubrication is deemed necessary, use EP-1 grease.
3. Under certain working conditions (heavy duty, non-compatible operating media or abnormal operating conditions) internal seals should be checked periodically and replaced when necessary.
4. On spring return actuators, spring fatigue may set in requiring the replacement of springs. Spring should always be replaced in full sets.

NOTE

If an actuator is properly assembled and used, it will be maintenance free, as it has been lubricated enough to last a normal working life under normal working conditions. Should it get necessary to replace its seals, we suggest turning to my company where the product will be overhauled first, and then tested. On request, my company will be willing to provide its customers with kits and instructions.

STAINLESS STEEL Accessory

Stainless Steel Plain Silencer	SM20	G or NPT 1/8"	Nickel coated Pipe Connector	BP10	G or NPT 1/8"-6/8mm	Cable Gland	Ex-CM20	Brass nickel coated M20-1.5,6~12mm
	SM21	G or NPT 1/4"		BP11	G or NPT 1/4"-6/8mm		Ex-CP12	Brass nickel coated 1/2",6~12mm
	SM22	G or NPT 3/8"		BP12	G or NPT 3/8"-6/8mm		Ex-CP34	Brass nickel coated 3/4",8.5~16mm
	SM23	G or NPT 1/2"		BP13	G or NPT 1/2"-6/8mm			
								

STAINLESS STEEL Valve Monitor

Product Description

PRODUCT NAME: ACHEM STAINLESS STEEL Flameproof Valve Monitor

MODEL NO.: ALS600M2

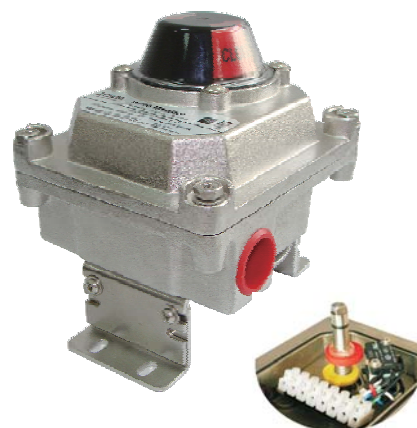
DESCRIPTION OF THE PRODUCT:

The ALS600M2 series stainless steel flameproof valve monitor is a rotary position indication device for CORROSIVE and HAZARDOUS (Ex d IIB T6) area. Armed with mechanical switch, this device can senses mechanical position (on/off) of the valve for remote PLC or PC indication. The visual indicator on the top of the device can also clearly display the valve position for local detection.

APPROVED BY:



IP66



Specifications and Technical Data

SPECIFICATIONS AND TECHNICAL DATA		WIRING DIAGRAM					
Enclosure	Stainless steel 304 or 316. Resistance to corrosion of chemicals and salty fog: O-ring sealed						
O-rings	Buna N						
Environment	NEMA 4, 4X, 7, 8 IP66						
Area Classification	Class I, Div.1&2, Groups C and D, Ex d IIB T6						
Fasteners	304 or 316 Stainless steel						
Shaft	304 Stainless steel Namur						
Conduit Entries	Two ½" BSPP						
	Also available with two ½" or ¾" NPT, ¾" BSPP M20-1.5						
Terminal Strip Contacts	8 ~ 14 bar						
Mounting Bracket	MB – 3.3: 30 x 80, 130 H:20, 30 (Carbon steel)						
Temperature Rating	-20°C-85°C						
Sensor: 2 SPDT CROUZET Mechanical Switches							
Model No.	M2 (2-SPDT)						
Operating Voltage	Max: 15A125-250 VAC						
Operating Temp.	-25°C-85°C						

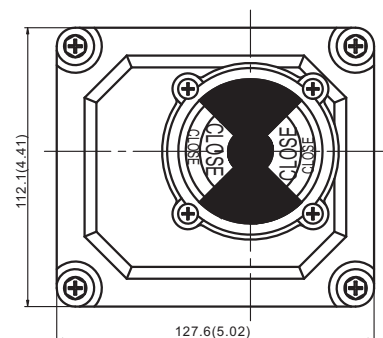
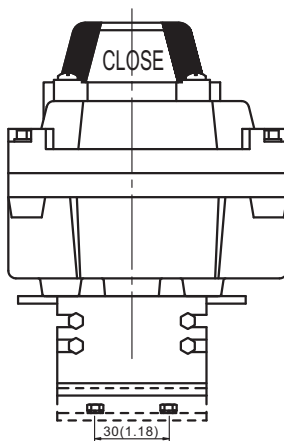
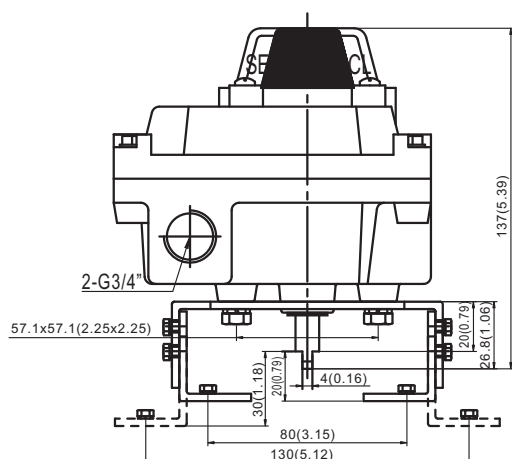
TOP SWITCH		SOLENOID VALVE		1		CLOSED
RED		+		2		
Nc		-		3		
C		RED		4		
No		BLACK		5		
		GREEN		6		
Nc		YELLOW		7		
C		WHITE		8		
BOTTOM SWITCH						OPEN
YELLOW		No		BLUE		
		GROUND				



Crouzet

NF UL

Drawings and Dimensions



STAINLESS STEEL Solenoid Valve

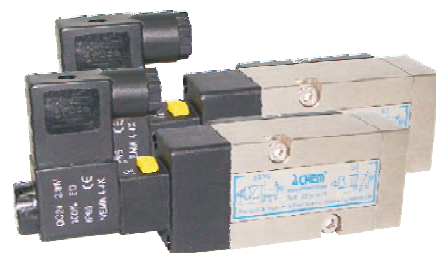
Product Description

PRODUCT NAME: ACHEM STAINLESS STEEL BODY NAMUR SOLENOID VALVE

MODEL NO.: ALV610F3C0

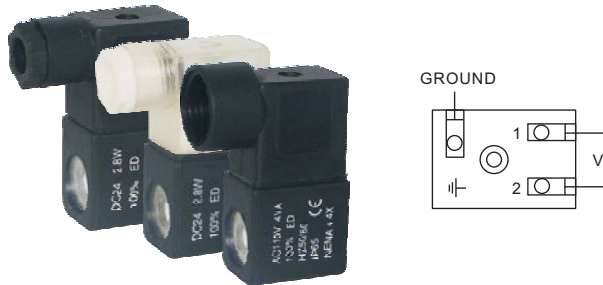
DESCRIPTION OF THE PRODUCT:

Based on NAMUR standard, the same ACHEM STAINLESS STEEL NAMUR solenoid valve can be adapted for 3/2 NC or 5/2 functions for controlling double-acting and single-acting pneumatic actuators. Armed with the stainless steel(304 or 316) body, this solenoid valve is excellent for use in corrosive atmospheres. Working pressure from 2bar to 8 bar and the working voltage from 12-48VDC, 110-240VAC.



APPROVED BY:  IP65 NEMA4, 4X

Specifications and Technical Data

Spool valve Body	Stainless Steel (304, 316 or 316L)	solenoid coil, C0	
Seal	Buna N	Operating Voltage	12/24/48VDC-3.5W 110/210/220/240VAC-4VA(50/60HZ)
Materials in contact with fluid	Stainless Steel (304, 316 or 316L) Glass-filled PA, POM, Buna N		Wiring Connector
	Function	5/2 and 3/2 , CV =1.1(19.63mm2)	Insulation Protection
Air Ports	Air ports 1/4" BSPP or NPT	Insulated voltage	1000V
Assembly and Connection	Stainless steel (304 or 316)	Duty factor	100% ED
Fasteners	Stainless steel (304 or 316)	Weather Proof	IP65 NEMA4, 4X
Environment	Type 4, 4X (indoor and outdoor)	Area Classification	-
Area Classification	-	Operating Temp.	-25°C ~ 80°C
Working Temperature	-25°C ~ 80°C,on requires -50 ~ 150°C	LED coil	available
Working Pressure	2 ~ 8 bar	Wiring Diagram	
Working Medium	less than 40µm filtered and dried air		
Bistable(ALV620F3C0)	available on requiring		
Working life	more than 1000,000 cycle (On the normal working condition)		
Advanced Features			
1, All the exhaust ports of this spool valve are connectable, providing better environmental protection.			
2, The valves armed with "environmentally-protected structure" offer environmental protection against the ingress of liquids, dusts or other foreign matter.			

Drawings and Dimensions

