K-val®

MAC-SERIES

PNEUMATIC ACTUATOR

Mechanical and Fluid Control Systems www.koreavalve.com

NEW PRODUCTS IN 2024

K-val
Engineering Solution for Korea valve

MAC-SERIES
Pneumatic Actuator

Mcsys Motto: “Be the Highest of Standards”.
Mcsys motto reflects our desire to create world-class products that speak for themselves. The McSYS approach always stresses three major points: market-leading innovation, first-rate performance and unfailing reliability.
In short, our goal is to offer to our clients and partners work that is nothing but the highest standards in engineering and design.

MAC Series Pneumatic Actuator Of Pinion And Rack Type

Structure

➢ Indicator

Multi-function position indicator with NAMUR is convenient for mounting accessories such as valve positioner, limit switch.

➢ Pinion

The pinion is high-precision and integrative, made from nickel-plating steel, full conform to the standards of ISO05211, DIN3337, NAMUR. The size can be customized and stainless steel is available.

➢ Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005 body can be coated with hard anodized, polye- ster, PTFE or nickel.

➢ End Cap

End caps are made of Aluminum die-casting, and can be coated with polyester, metal powder, PTFE and nickel.

➢ Piston

The twin rack pistons are made of aluminum die-casting coated with hard anodized or steel coated with Zinc. Long lifespan, fast operation and reversed rotation by simple reversing.

➢ Stroke Adjustment

The two independent external travel bolts can accurately adjust ±5% at both open and close position.

➢ High Performance Spring

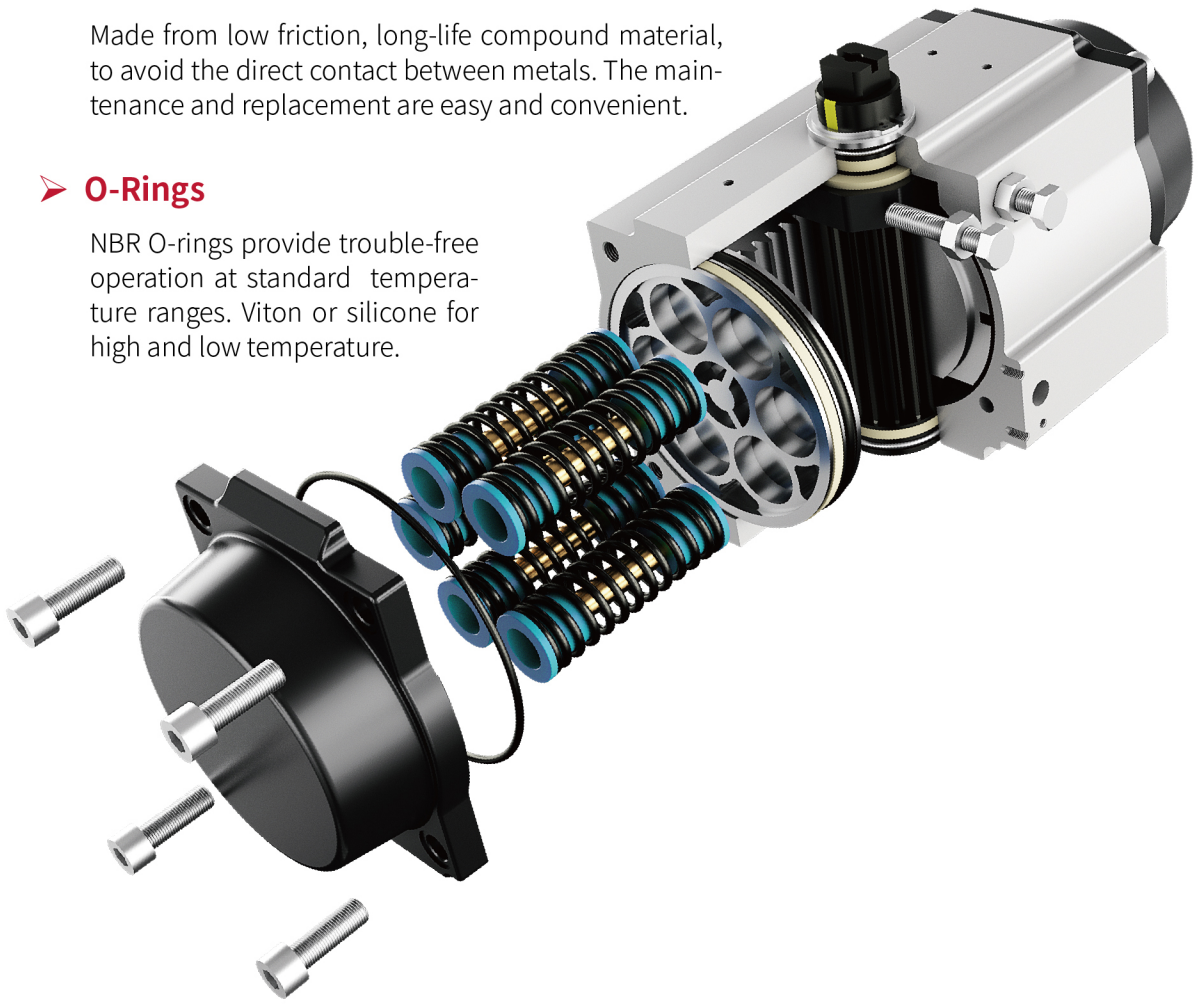
Preloaded springs are made from high quality material for resistant to corrosion and longer lifespan, which can be demounted safely and conveniently to satisfy different requirements of torque by changing quantity of springs.

➢ Bearing & Guide

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

➢ O-Rings

NBR O-rings provide trouble-free operation at standard temperature ranges. Viton or silicone for high and low temperature.



Application

Applied on small/middle rotary valves, such as ball valve, butterfly valve.

Technical Parameters

1 Work Medium

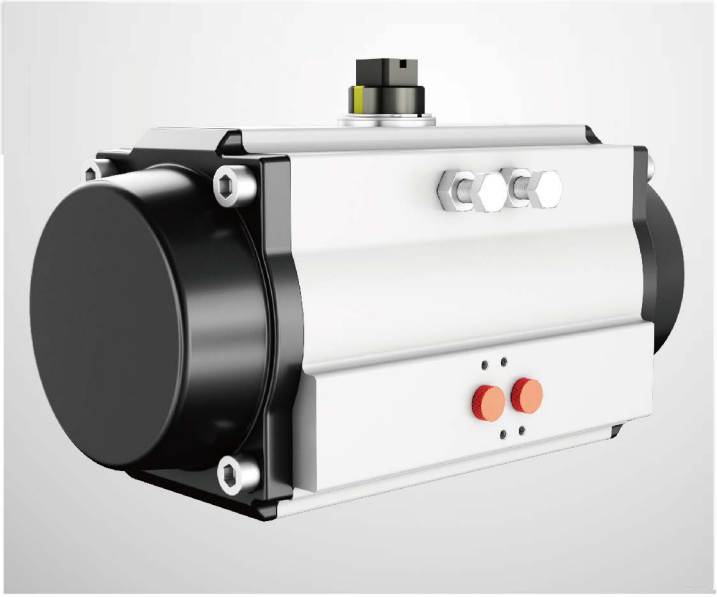
Dry or lubricated air, the non-corrosive gases or oil.

2 Air Supply Pressure

Min. air pressure is 2 bar, max. air pressure is 8bar.

3 Operating Temperature

Standard: -20 ~ +80°C
Low: -40 ~ +80°C
High: -20 ~ +150°C



4 Stroke Adjustment

±5°Adjustment range at 0°and 90°point for rotation.

5 Lubrication

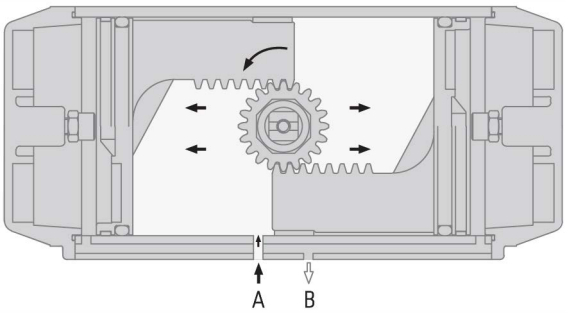
All the moving parts are coated with lubricants, extending their service life.

6 Application

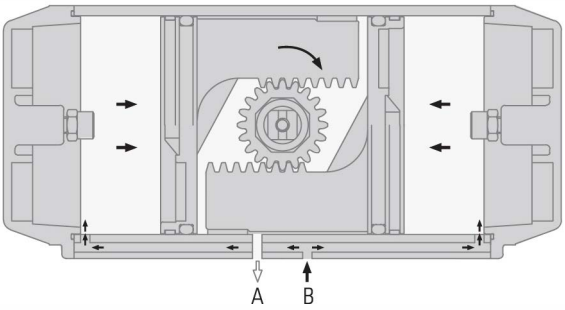
Either indoor or outdoor.

Operating Principle

CCW-Counter Clockwise



CW-Clockwise



Single Acting

Air from Port A forces the pistons outwards, causes the springs to compress, the pinion turns anticlock-wise while the air exhausted through port B.

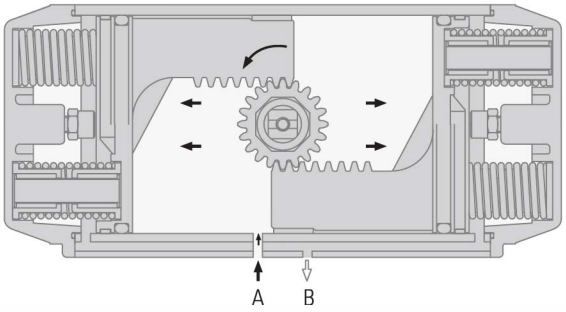
Loss of air force, compressed springs force the pistions inwards, causes the pinion turns clockwise while the air exhausted through Port A.

Double Acting

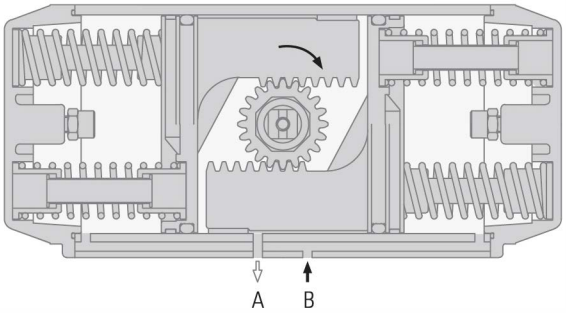
Air from Port B forces the pistons inwards, causes the pinion to turn clockwise while the air exhausted through Port A .

Air from Port A forces the pistons outwards, causes the pinion to turn counter clockwise while the air exhausted through Port B .

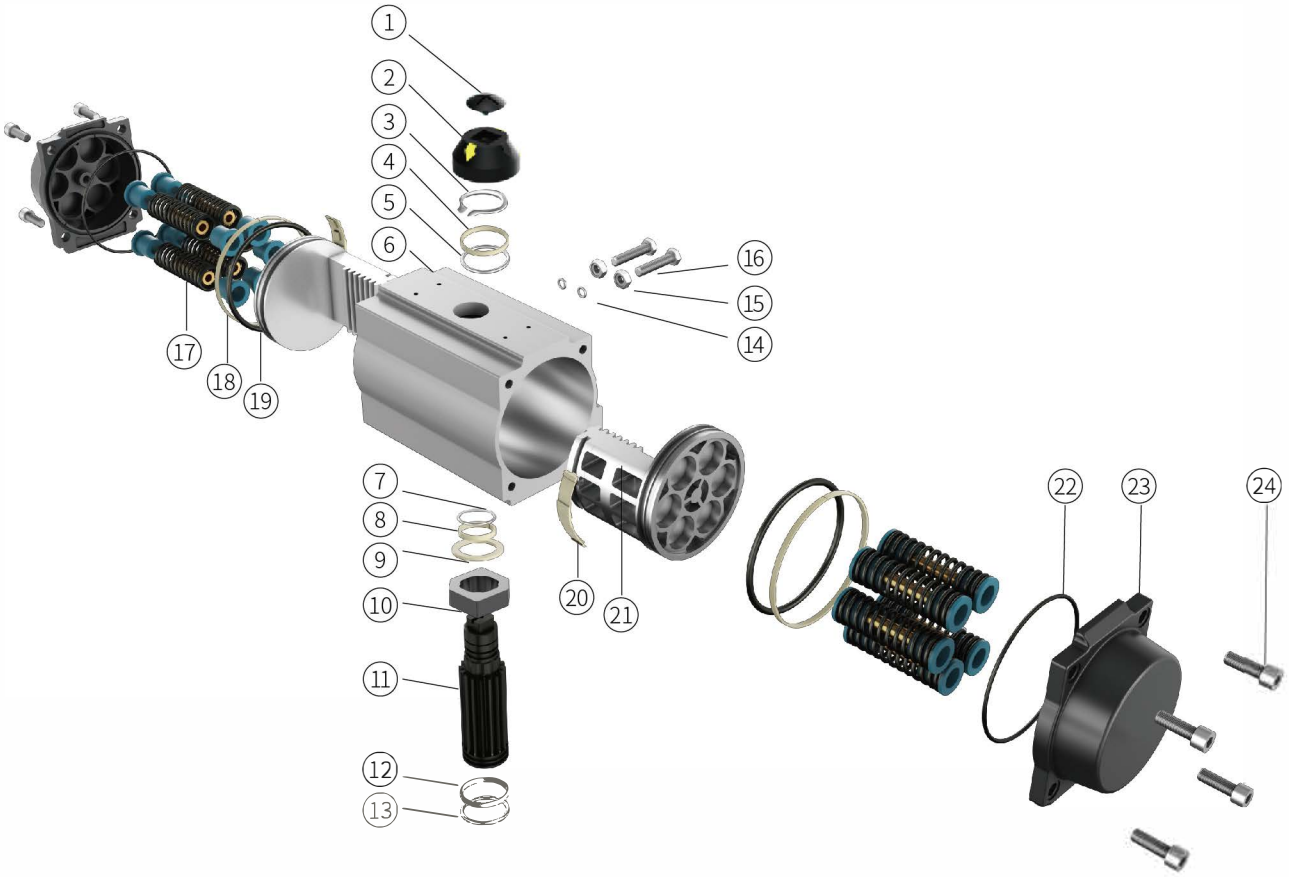
CCW-Counter Clockwise



CW-Clockwise

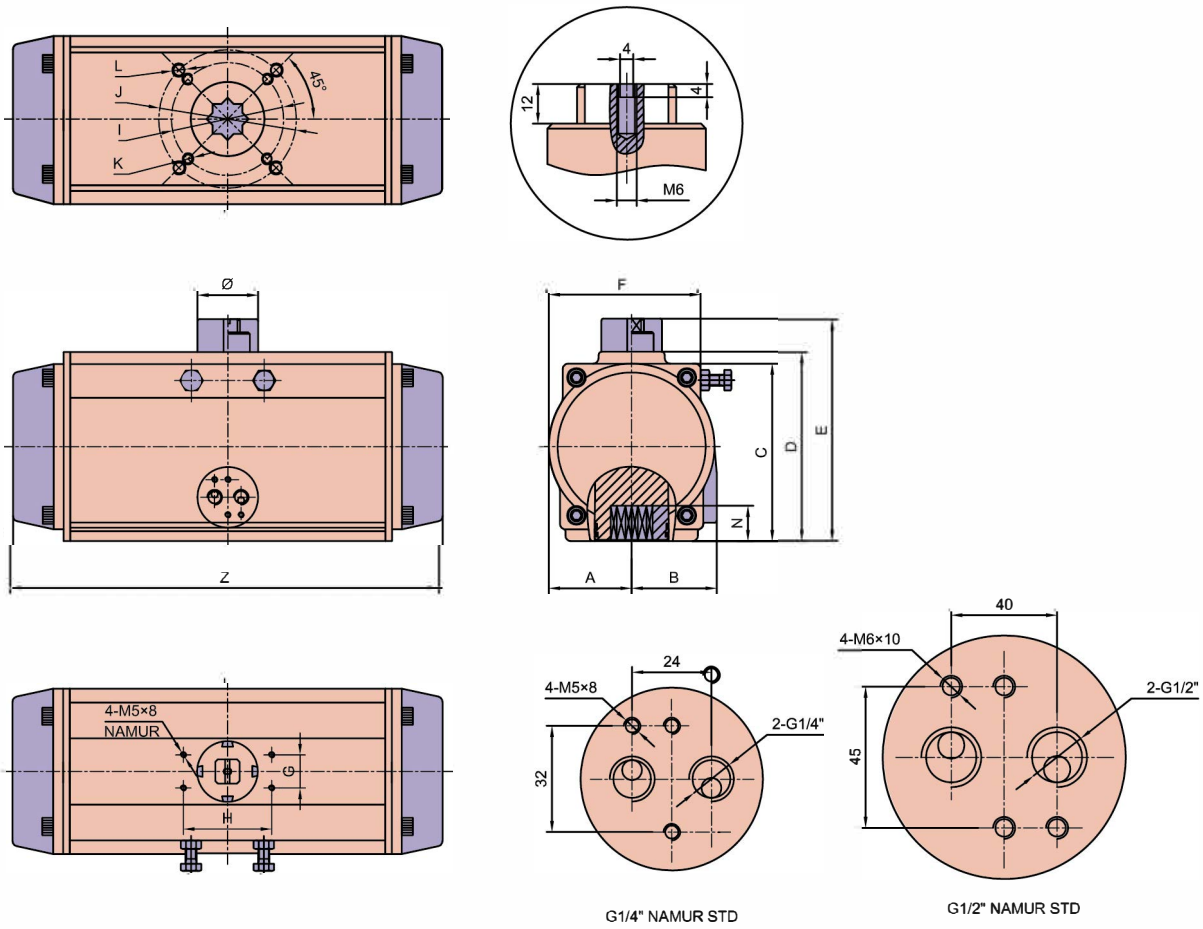


Part & Material



NO	Description	Qty	Standard Material	NO	Description	Qty	Standard Material
1	Indicator Screw	1	ABS	13	Bottom O-Ring	1	NBR/FBM
2	Position Indicator	1	ABS	14	Adjust O-Ring	2	NBR
3	Spring Clip	1	Stainless Steel	15	Adjust Nut	2	Stainless Steel
4	Washer	1	Stainless Steel	16	Adjust Bolt	2	Stainless Steel
5	Outside Washer	1	POM	17	Spring Assembly	5-12	Spring Steel,Die Casting
6	Top O-Ring	1	Aluminum Alloy	18	Piston Bearing	2	POM
7	Top Bearing	1	NBR/FBM	19	Piston O-Ring	2	NBR/FPM
8	Spacer Washer	1	POM	20	Guide Plate	2	PA66
9	Travel Cam	1	POM	21	Piston	2	Aluminum Alloy
10	Drive Shaft	1	Carbon Steel	22	End Cover O-Ring	2	NBR/FPM
11	Bottom Bearing	1	Carbon Steel	23	End Cover	2	Aluminum Alloy
12	Bottom O-Ring	1	POM	24	End Cover Bolt	8	Stainless Steel

Installation Size Table



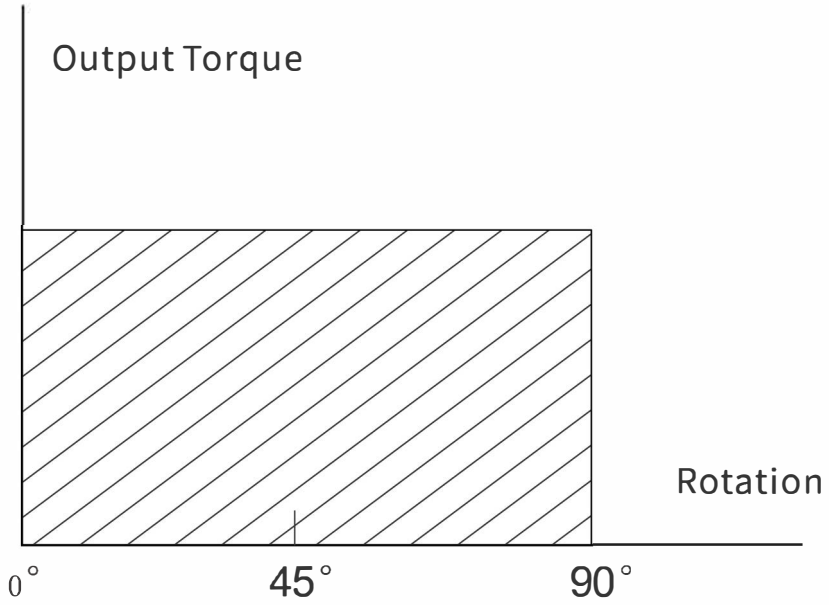
G1/4" NAMUR STD

G1/2" NAMUR STD

Unit:mm

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Φ	Air Connection
MAC-52	30	41.5	65.5	72	92	65	30	80	Φ36	Φ50	M5x8	M6x10	11	14	147	Φ40	G1/4
MAC-63	36	47	81	88	108	72	30	80	Φ50	Φ70	M6x10	M8x13	14	18	168	Φ40	G1/4
MAC-75	42	53	94	99.5	119.5	81	30	80	Φ50	Φ70	M6x10	M8x13	14	18	186	Φ40	G1/4
MAC-83	46	57	98.5	108.7	128.7	92	30	80	Φ50	Φ70	M6x10	M8x13	17	21	212	Φ40	G1/4
MAC-92	50	58.5	111	116.5	136.5	98	30	80	Φ50	Φ70	M6x10	M8x13	17	21	262	Φ40	G1/4
MAC-105	57.5	64	122.5	133	153	109.5	30	80	Φ70	Φ102	M8x13	M10x16	22	26	268	Φ40	G1/4
MAC-125	67.5	74.5	145.5	155	185	127.5	30	130	Φ70	Φ102	M8x13	M10x16	22	26	301	Φ55	G1/4
MAC-140	75	77	161	172	202	137.5	30	130	Φ102	Φ125	M10x16	M12x20	27	31	390	Φ55	G1/4
MAC-160	87	87	184	197	227	159	30	130	Φ102	Φ125	M10x16	M12x20	27	31	458	Φ55	G1/4
MAC-190	103	103	215	230	260	189	30	130		Φ140		M16x23	36	50	534	Φ80	G1/4
MAC-210	113	113	235.5	255	285	210	30	130		Φ140		M16x23	36	50	538	Φ80	G1/4
MAC-240	130	130	264.5	289	319	245	30	130		Φ165		M20*25	46	60	602	Φ80	G1/4
MAC-270	147	147	299	326	356	273	30	130		Φ165		M20*25	46	60	718	Φ80	G1/2

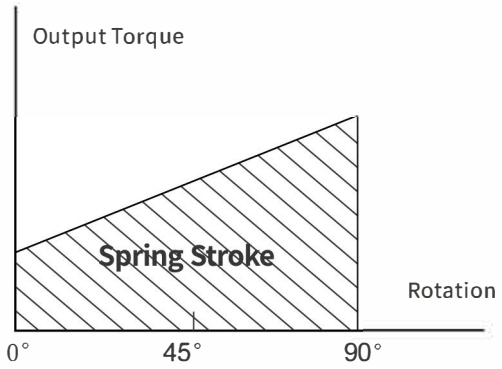
Output Torque of Double Acting Actuator

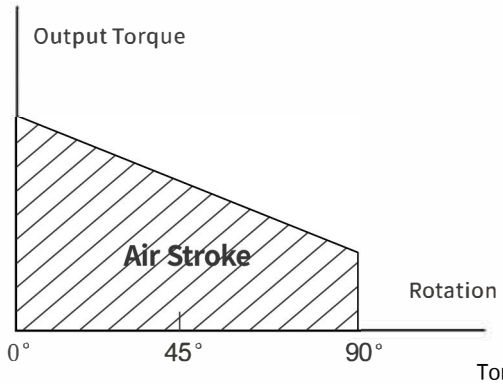


Torque:N.m

Model	Air Connection(bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
MAC-52D	8.0	10.0	12.0	16.0	18.0	20.0	22.0	24.0	28.0	32.0
MAC-63D	15.0	18.0	22.0	29.0	33.0	36.0	40.0	44.0	51.0	58.0
MAC-75D	20.0	25.0	30.0	40.0	45.0	50.0	55.0	60.0	70.0	80.0
MAC-83D	31.0	39.0	47.0	63.0	70.0	78.0	86.0	94.0	110.0	125.0
MAC-92D	45.0	56.0	68.0	90.0	102.0	113.0	124.0	135.0	158.0	181.0
MAC-105D	66.0	83.0	99.0	132.0	149.0	165.0	182.0	198.0	231.0	264.0
MAC-125D	100.0	125.0	150.0	200.0	226.0	251.0	276.0	301.0	351.0	401.0
MAC-140D	171.0	214.0	256.0	342.0	385.0	427.0	470.0	513.0	598.0	684.0
MAC-160D	266.0	332.0	399.0	532.0	598.0	665.0	731.0	798.0	931.0	1064.0
MAC-190D	426.0	532.0	638.0	851.0	958.0	1064.0	1170.0	1277.0	1490.0	1702.0
MAC-210D	532.0	665.0	798.0	1064.0	1197.0	1330.0	1463.0	1596.0	1862.0	2128.0
MAC-240D	769.0	962.0	1154.0	1539.0	1731.0	1924.0	2116.0	2308.0	2693.0	3078.0
MAC-270D	1170.0	1462.0	1754.0	2339.0	2632.0	2924.0	3216.0	3509.0	4094.0	4679.0
MAC-300D	1526.0	1908.0	2289.0	3052.0	3434.0	3815.0	4197.0	4578.0	5341.0	6104.0
MAC-350D	2285.0	2856.0	3427.0	4570.0	5141.0	5712.0	6283.0	6854.0	7997.0	9139.0
MAC-400D	3256.0	4070.0	4884.0	6512.0	7326.0	8140.0	8954.0	9768.0	11396.0	13024.0

Output Torque of Single Acting Actuator





Torque:N.m

Model	Air Connection(bar)																	
		2.5		3		4		5		6		7		8		Spring Torque	
	Spring Qty	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End
MAC - 52S	5	5.7	3.8	7.6	5.7											6.2	4.3
	6	4.9	2.5	6.9	4.5	10.9	8.5									7.4	5.0
	7	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4							8.6	5.9
	8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1					9.9	6.7
	9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8			11.1	7.6
	10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6			12.4	8.5
	11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3	13.6	9.3
	12							9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1	14.8	10.2
MAC - 63S	5	11.4	7.7	15.0	11.4	22.3	14.9									10.4	6.8
	6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9							12.5	8.2
	7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9							14.6	9.6
	8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3			16.7	10.9
	9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2			18.8	12.3
	10					14.0	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4	20.9	13.7
	11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3	22.9	15.0
	12							20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25.0	16.4
MAC - 75S	5	14.5	10.6	19.4	15.5	29.5	25.7									14.5	10.5
	6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8							17.4	12.7
	7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9							20.3	14.8
	8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0			23.2	16.9
	9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2			26.1	19.0
	10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.0	59.1	51.2	29.0	21.1
	11							27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4	31.9	23.2
	12							24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4	34.7	25.3
MAC - 83S	5	23.3	16.1	31.1	24.0	46.8	39.7									23.0	15.8
	6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7							27.6	19.0
	7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2							32.2	22.1
	8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9			36.8	25.3
	9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3			41.4	28.5
	10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3	46.0	31.6
	11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8	50.6	34.8
	12							40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2	55.2	38.0
MAC - 92S	5	33.1	22.0	44.2	33.2	66.8	55.9									34.4	23.3
	6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6							41.2	28.0
	7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7							48.1	32.7
	8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0			55.0	37.3
	9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1			61.9	42.0
	10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8	68.7	46.7
	11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0	75.6	51.4
	12							56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1	82.5	56.0
MAC - 105S	5	51.0	33.4	67.5	49.9	100.6	83.0									49.2	31.6
	6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2							59.1	38.0
	7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4							68.9	44.3
	8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7			78.7	50.6
	9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9			88.6	56.9
	10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7	98.4	63.3
	11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2	108.3	69.6
	12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9
MAC - 125S	5	73.0	47.0	98.0	72.0	148.0	122.0									79.0	52.0
	6	63.0	31.0	88.0	56.0	138.0	107.0	188.0	157.0							94.0	63.0
	7	52.0	15.0	77.0	40.0	127.0	90.0	178.0	141.0							110.0	73.0
	8			67.0	25.0	117.0	75.0	167.0	125.0	217.0	176.0	268.0	226.0			125.0	84.0
	9					107.0	59.0	157.0	109.0	207.0	159.0	257.0	210.0			141.0	94.0
	10					96.0	44.0	146.0	94.0	196.0	144.0	247.0	194.0	297.0	245.0	157.0	105.0
	11							136.0	78.0	186.0	128.0	236.0	178.0	286.0	228.0	173.0	115.0
	12							125.0	63.0	176.0	113.0	226.0	163.0	276.0	213.0	188.0	125.0

Torque:N.m

Model	Air Connection(bar)																Spring Torque	
		2.5		3		4		5		6		7		8			
	Spring Qty	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End
MAC-140S	5	128.0	85.0	171.0	127.0	256.0	213.0									129.0	86.0
	6	111.0	59.0	154.0	102.0	239.0	187.0	325.0	237.0							155.0	103.0
	7	94.0	33.0	137.0	76.0	222.0	162.0	308.0	247.0							181.0	120.0
	8			120.0	50.0	205.0	136.0	291.0	221.0	376.0	307.0	462.0	392.0			206.0	137.0
	9					187.0	110.0	273.0	196.0	358.0	281.0	444.0	367.0			232.0	155.0
	10					170.0	84.0	256.0	169.0	341.0	255.0	427.0	340.0	512.0	426.0	258.0	172.0
	11							238.0	143.0	324.0	229.0	409.0	314.0	495.0	400.0	284.0	189.0
	12							221.0	118.0	307.0	203.0	392.0	289.0	478.0	374.0	310.0	206.0
MAC-160S	5	193.0	124.0	259.0	191.0	392.0	324.0									208.0	140.0
	6	165.0	83.0	232.0	149.0	365.0	282.0	498.0	415.0							250.0	168.0
	7	137.0	41.0	203.0	107.0	336.0	240.0	469.0	373.0							292.0	196.0
	8			176.0	66.0	309.0	199.0	442.0	237.0	575.0	465.0	708.0	598.0			333.0	223.0
	9					280.0	157.0	413.0	290.0	546.0	423.0	679.0	556.0			375.0	251.0
	10					253.0	115.0	386.0	248.0	519.0	381.0	652.0	514.0	785.0	647.0	417.0	279.0
	11							358.0	207.0	491.0	340.0	624.0	473.0	757.0	606.0	458.0	307.0
	12							330.0	165.0	463.0	298.0	596.0	431.0	729.0	564.0	500.0	335.0
MAC-190S	5	332.0	222.0	438.0	329.0	651.0	542.0									309.0	200.0
	6	292.0	161.0	398.0	267.0	611.0	480.0	924.0	693.0							371.0	240.0
	7	252.0	99.0	358.0	205.0	571.0	418.0	784.0	631.0							433.0	280.0
	8			318.0	143.0	531.0	356.0	744.0	569.0	957.0	782.0	1169.0	995.0			495.0	320.0
	9					491.0	295.0	704.0	507.0	917.0	720.0	1130.0	933.0			557.0	360.0
	10					451.0	233.0	664.0	446.0	877.0	658.0	1090.0	871.0	1302.0	1084.0	618.0	400.0
	11							624.0	384.0	837.0	597.0	1050.0	809.0	1263.0	1022.0	680.0	440.0
	12							584.0	322.0	797.0	535.0	1010.0	748.0	1223.0	960.0	742.0	480.0
MAC-210S	5	390.0	285.0	523.0	418.0	789.0	684.0									380.0	275.0
	6	335.0	209.0	468.0	342.0	734.0	608.0	1000.0	874.0							456.0	330.0
	7	280.0	133.0	413.0	266.0	679.0	532.0	945.0	798.0							532.0	385.0
	8			358.0	190.0	624.0	456.0	890.0	722.0	1156.0	988.0	1422.0	1254.0			608.0	440.0
	9					569.0	380.0	835.0	646.0	1101.0	912.0	1367.0	1178.0			684.0	495.0
	10					514.0	304.0	780.0	570.0	1046.0	836.0	1312.0	1102.0	1578.0	1368.0	760.0	550.0
	11							425.0	494.0	991.0	760.0	1257.0	1026.0	1523.0	1292.0	836.0	605.0
	12							670.0	418.0	936.0	684.0	1202.0	950.0	1468.0	1216.0	912.0	660.0
MAC-240S	5	552.0	409.0	744.0	600.0	1129.0	985.0									554.0	410.0
	6	470.0	297.0	662.0	489.0	1047.0	874.0	1432.0	1259.0							665.0	492.0
	7	388.0	187.0	580.0	379.0	964.0	764.0	1349.0	1149.0							775.0	575.0
	8			498.0	268.0	883.0	653.0	1267.0	1037.0	1652.0	1422.0	2037.0	1807.0			886.0	656.0
	9					800.0	542.0	1185.0	926.0	1569.0	1311.0	1954.0	1696.0			998.0	739.0
	10					718.0	431.0	1103.0	816.0	1488.0	1201.0	1872.0	1586.0	2257.0	1970.0	1108.0	821.0
	11							1021.0	705.0	1406.0	1090.0	1791.0	1474.0	2176.0	1859.0	1219.0	903.0
	12							939.0	594.0	1323.0	979.0	1708.0	1363.0	2093.0	1748.0	1330.0	985.0
MAC-270S	5	903.0	675.0	1195.0	968.0	1779.0	1552.0									787.0	560.0
	6	790.0	519.0	1083.0	811.0	1667.0	1396.0	2252.0	1981.0							943.0	672.0
	7	679.0	361.0	972.0	654.0	1556.0	1238.0	2141.0	1823.0							1101.0	783.0
	8			860.0	497.0	1444.0	1081.0	2029.0	1666.0	2614.0	2252.0	3199.0	2836.0			1258.0	895.0
	9					1332.0	923.0	1917.0	1509.0	2502.0	2094.0	3087.0	2678.0			1416.0	1007.0
	10					1220.0	767.0	1805.0	1352.0	2390.0	1937.0	2974.0	2521.0	3560.0	3107.0	1572.0	1119.0
	11							1693.0	1194.0	2278.0	1779.0	2862.0	2364.0	3448.0	2949.0	1730.0	1231.0
	12							1582.0	1037.0	2167.0	1623.0	2751.0	2207.0	3336.0	2792.0	1887.0	1342.0
MAC-300S	5	1097.0	729.0													1061.0	730.0
	6	835.0	494.0	1316.0	875.0											1273.0	876.0
	7	772.0	258.0	1153.0	639.0	1916.0	1402.0									1485.0	1022.0
	8			991.0	403.0	1754.0	1166.0	2517.0	1929.0							1697.0	1168.0
	9					1592.0	930.0	2355.0	1693.0	3118.0	2456.0					1909.0	1314.0
	10					1430.0	695.0	2193.0	1458.0	2956.0	2221.0	3719.0	2984.0	4482.0	3747.0	2122.0	1460.0
	11							2030.0	1222.0	2793.0	1985.0	3556.0	2748.0	4319.0	3511.0	2334.0	1606.0
	12							1868.0	986.0	2631.0	1749.0	3394.0	2512.0	4157.0	3275.0	2546.0	1752.0
MAC-350S	5	1553.0	964.0													1702.0	1173.0
	6	1292.0	586.0	1863.0	1157.0											2043.0	1408.0
	7	1031.0	208.0	1602.0	779.0	2745.0	1922.0									2383.0	1642.0
	8			1341.0	401.0	2484.0	1544.0	3626.0	2686.0							2724.0	1877.0
	9					2224.0	1165.0	3336.0	2307.0	4508.0	3449.0					3064.0	2112.0
	10					1963.0	787.0	3105.0	1929.0	4247.0	3071.0	5390.0	4214.0	6532.0	5356.0	3405.0	2346.0
	11							2844.0	1551.0	2986.0	2693.0	5129.0	3836.0	6271.0	4978.0	3745.0	2581.0
	12							2584.0	1172.0	3726.0	3726.0	4869.0	3457.0	6011.0	4599.0	4086.0	2816.0
MAC-400S	5	2028.0	869.0													2880.0	1837.0
	6	1736.0	411.0	2550.0	1225.0											3292.0	2100.0
	7			2259.0	768.0	3887.0	2396.0									3703.0	2362.0
	8			1967.0	311.0	3595.0	1939.0	5223.0	3567.0							4115.0	2624.0
	9					3303.0	1482.0	4931.0	3110.0	6559.0	4738.0					4526.0	2887.0
	10					3012.0	1025.0	4640.0	2653.0	6268.0	4291.0	7895.0	5908.0	9523.0	7536.0	4938.0	3149.0
	11							4348.0	2195.0	5976.0	3823.0	7603.0	5450.0	9231.0	7078.0	5349.0	3412.0
	12							4057.0	1738.0	5685.0	3366.0	7312.0	4993.0	8940.0	6621.0	5761.0	3674.0
	13							3765.0	1281.0	5393.0	2909.0	7020.0	4536.0	8648.0	6164.0	6172.0	3937.0
	14									5101.0	2452.0	6728.0	4079.0	8356.0	5707.0	6584.0	4199.0

Sizing Single Acting (Spring Return) Actuators

The suggested safety factor for spring return actuator under normal working conditions is 30%-50%.

For Example

The torque needed by valve = 80N.m
The torque consider safety factor(1+30%)=104N.m

According to the output torque of the single acting (spring return) actuator, the output torque of MAC140S7 at a pressure of 5 bar is:

Air stroke 0°=380N.m Air stroke 90°=247N.m Spring stroke 90°=180N.m
Spring stroke 0°=120N.m All the output torque is lager than we required.

Remark

During the restoration, the single acting (spring return) actuators output torque will not be affected by the inputting air from the port B. On the contrary, it will help the restoration of springs.

During selecting the single acting (spring return) actuators, we can choose the more reasonable and more economical actuators, if we know the different torque needed by the valve working at opening, operating and closing.

Part No.

MAC 1 2 3

MAC 1	MAC 2	MAC 3
Body Diameter Size 50,63,75,83,92,105, 125,140,160,190,210, 240,270	**Acting Type** S: Single Type D: Double Type	**Quantity of Springs (For Single Type Only)** **S5~S12** Remark: ● Default of the stroke angle is 90°.120°and 180° should confirm first.

Air Consumption of Double Acting Actuator

Air consumption rate can be calculated as follows:

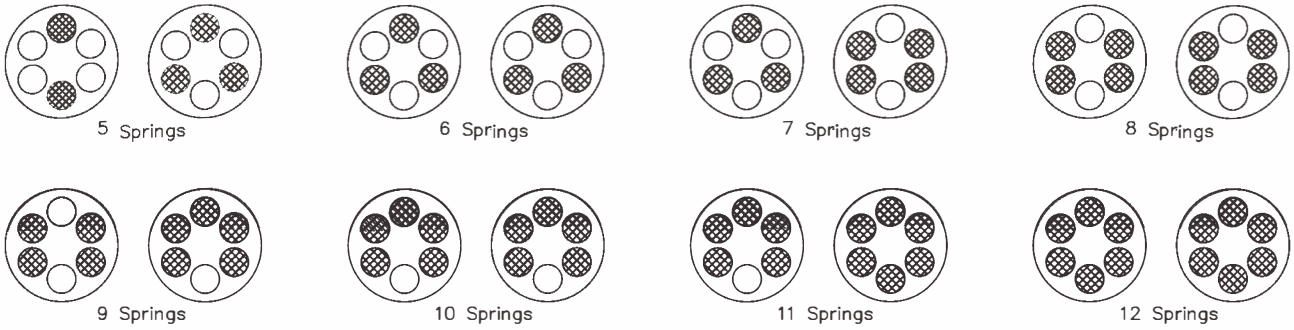
MODEL	VOLUME OPENING	VOLUME CLOSING	MODEL	VOLUME OPENING	VOLUME CLOSING
MAC-52D	0.11	0.14	MAC-140D	2.43	3.20
MAC-63D	0.20	0.23	MAC-160D	3.65	5.03
MAC-75D	0.29	0.38	MAC-190D	5.9	7.9
MAC-83D	0.41	0.55	MAC-210D	7.4	9.7
MAC-92D	0.62	0.91	MAC-240D	10.7	14.3
MAC-105D	0.94	1.18	MAC-270D	16.9	22.5
MAC-125D	1.47	1.85			

WEIGHT TABLE

MODEL	MAC-32	MAC-40	MAC-52	MAC-63	MAC-75	MAC-83	MAC-92	MAC-105	MAC-125
WEIGHT(DA)	0.7KG	1KG	1.4KG	2KG	2.7KG	3.5KG	4.7KG	5.7KG	8.1KG
WEIGHT(SR)	-	1.1KG	1.5KG	2.1KG	2.9KG	4KG	5.4KG	7.0KG	10.5KG

MODEL	MAC-130	MAC-160	MAC-190	MAC-210	MAC-240	MAC-270	MAC-350	MAC-350	MAC-400
WEIGHT(DA)	12.3KG	20KG	33KG	37.8KG	56KG	80KG	100.6KG	160KG	197.3KG
WEIGHT(SR)	16KG	25.4KG	39KG	47.4KG	69.2KG	102.2KG	128.2KG	209.2KG	243KG

SPRINGS MOUNTING FORM FOR SINGLE ACTING (SPRING RETURN) ACTUATORS



K-val®

ADDRESS : #207 siwha high-tech,242 seohaean-ro siheung-si,gyunggi-do,korea

PHONE : +82-31-319-6560 FAX : +82-31-319-6560

WEBSITE : www.koreavalve.com E-MAIL : enquiry@koreavalve.com