

ACTUATION ROTARY ACTUATORS

Specification

Fluid	Dry or Lubricated Air (to be filtered by 30 um filter element)
Operating Pressure	0.25Mpa (36psi) to 0.8Mpa (114psi)
Temperature	20°C to +80°C
Travel Adjustment	±5° at 0° & 90°



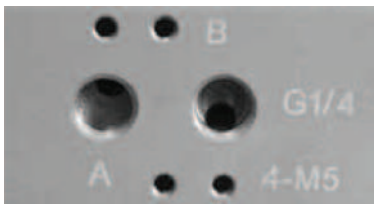
Design

Our newly-designed Pneumatic Actuators are aluminium rack and pinion actuators in double acting and spring return, based on our innovative and patented technology. This kind of actuator features a top mount multifunction indicator and open-close stop adjustment as a standard. In addition, state-of-the-art engineering has allowed us to reduce the size of the actuator without losing any torque.

Ordering Code

K R T 0 0 7	—	S R	—	K 1 0
Body		Actuation		Spring Qty SA only
Model Aluminium Alloy		SR: Spring Return DA: Double Acting		Travel
				Blank: 90° Rotation
				120: 120° Rotation
				135: 135° Rotation
				180: 180° Rotation

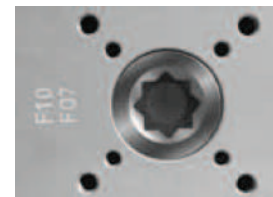
Mounting Standard



Air supply connection is designed in accordance with NAMUR standards to install solenoid valves.

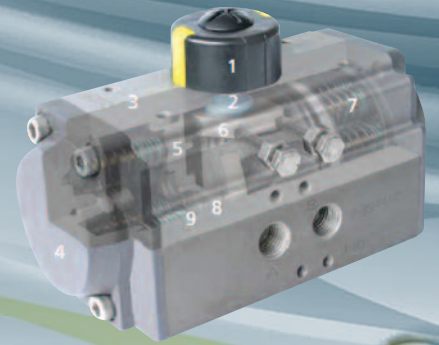


The NAMUR drive pinion and the NAMUR top mounting connection permit direct installation of accessories such as limit switch boxes and positioners.



Bottom mounting connection is designed in accordance with ISO5211 and DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.

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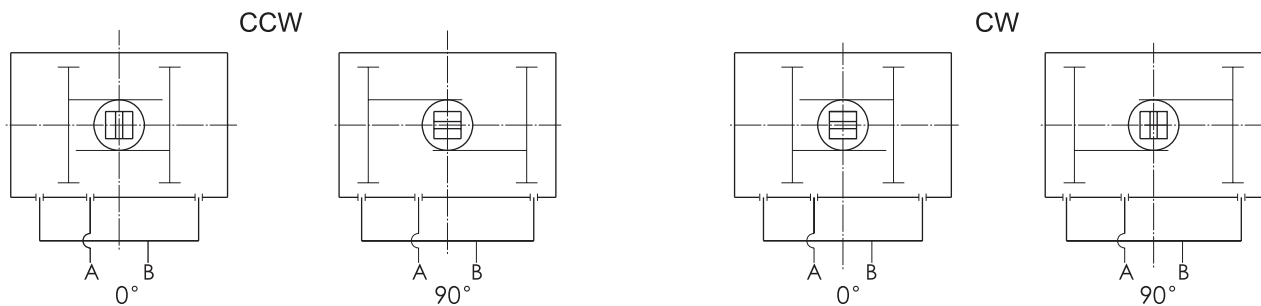


Structure

- Indicator** – Position indicator with NAMUR is convenient for mounting accessories such as limit switch box, positioners and so on.
- 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.
- Actuator body** – Extruded aluminium alloy ASTM6005 body.
- End caps** – Die-casting aluminium powder polyester painted in black.
- Pistons** – The twin rack pistons are made from die-casting aluminium treated with hard anodized or made from cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the pistons.
- Travel adjustment** – The two independent external travel stop adjustment bolts can adjust at both open and close directions easily and precisely.
- High performance springs** – Preloaded coating springs are made from a 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.
- 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.
- O-rings** – NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature, viton or silicone is used.

Operating Principle

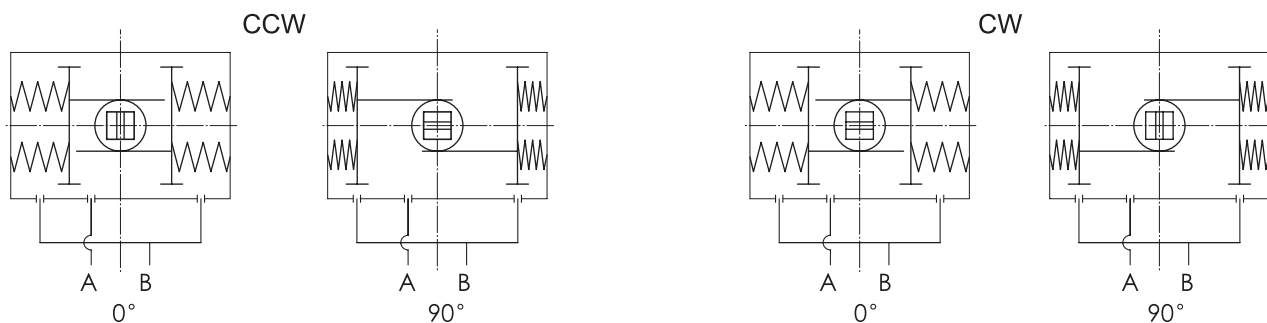
Double Acting



Standard Rotation – Air to port A forces the pistons outwards, causing the pinion to turn counter clockwise 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 counter clockwise while the air is being exhausted from port A.

Spring Return

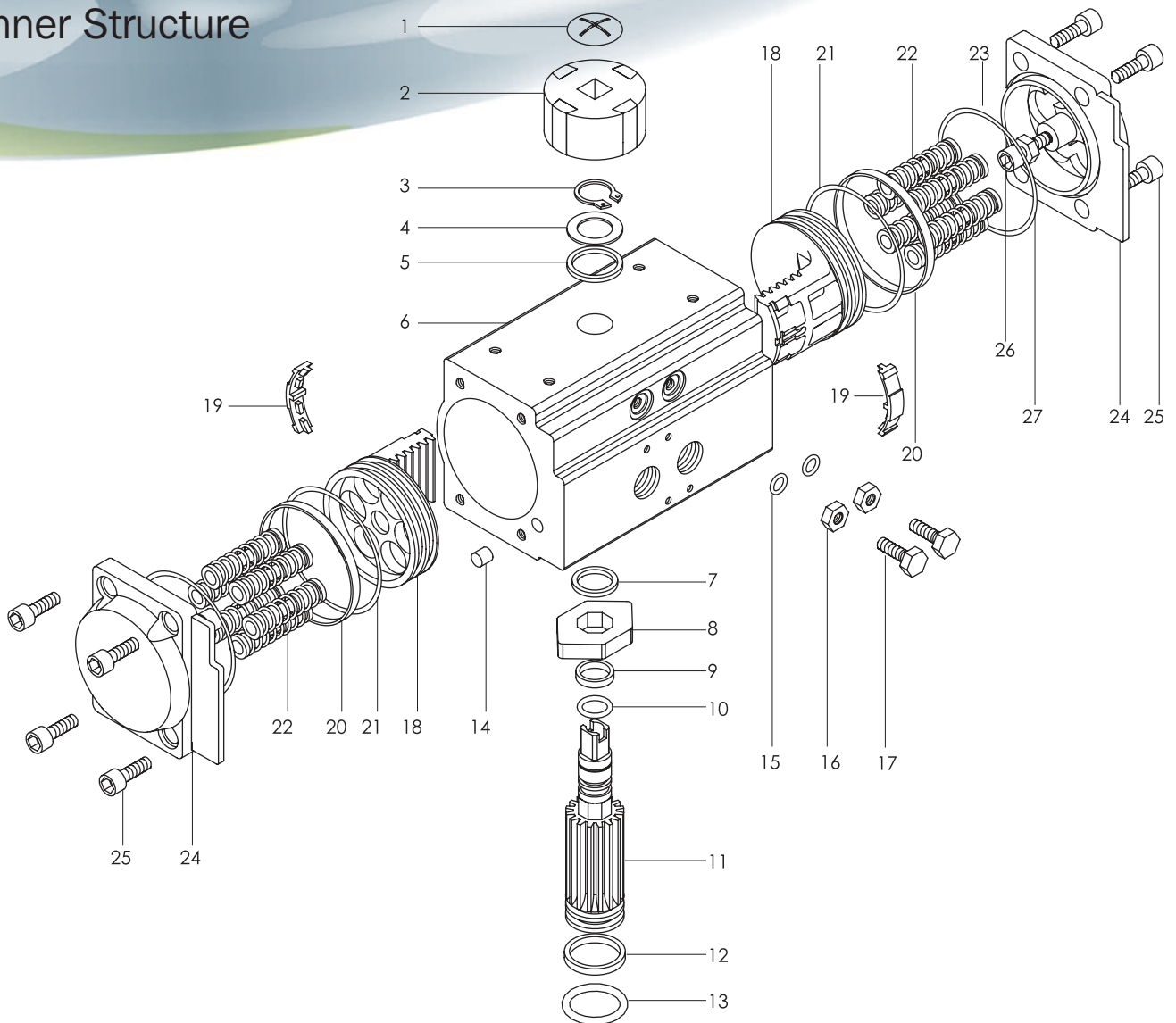


Standard Rotation – Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns counter clockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air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

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Inner Structure



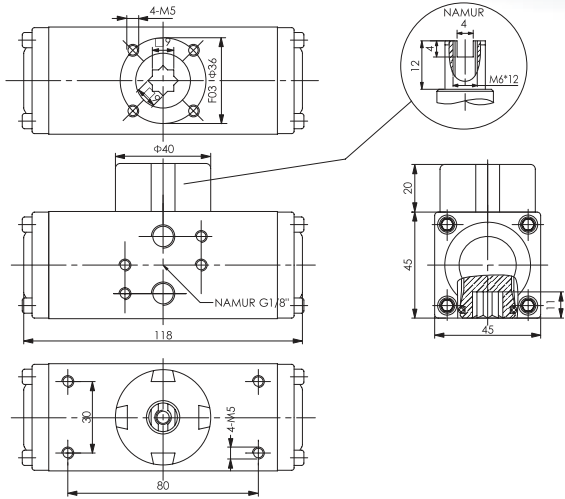
No.	Description	Quantity	Material
1	Indicator Screw	1	Plastic (ABS)
2	Indicator	1	Plastic (ABS)
3	Circlip	1	Stainless Steel (304)
4	Thrust Washer	1	Stainless Steel (304)
5	Outside Washer	1	Polyoxymethylene
6	Body	1	Extruded Aluminium Alloy (6605-T5)
7	Piston Guide	2	Polyoxymethylene
8	O-ring (Pinion top)	1	NBR
9	Bearing (Pinion top)	1	Polyoxymethylene
10	Inside Washer	1	Polyoxymethylene
11	Cam	1	# 45
12	Pinion	1	# 45
13	Bearing (Pinion bottom)	1	Polyoxymethylene
14	O-ring (Pinion bottom)	1	NBR

No.	Description	Quantity	Material
15	Spring	0 - 12	Steel
16	Bearing (Piston)	2	Polyoxymethylene
17	O-ring (Piston)	2	NBR
18	Piston	2	Die-cast Aluminium (101A)
19	Plug	2	NBR
20	O-ring (adjust screw)	2	NBR
21	Nut (adjust screw)	2	Stainless Steel (304)
22	Adjust Screw	2	Stainless Steel (304)
23	Stop Screw	2	Stainless Steel (304)
24	Nut (Stop screw)	2	Stainless Steel (304)
25	O-ring (End cap)	2	NBR
26	End Cap	2	Die-cast Aluminium (ADC 12)
27	End Cap Screw	8	Stainless Steel (304)

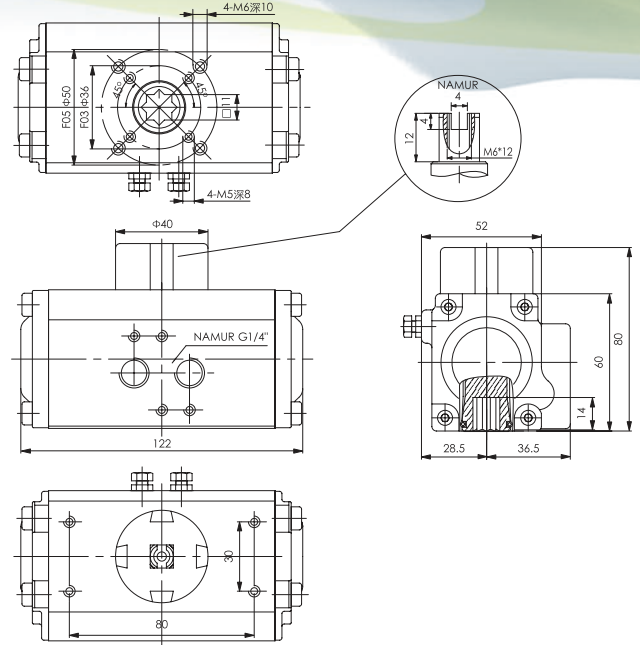
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Dimensions

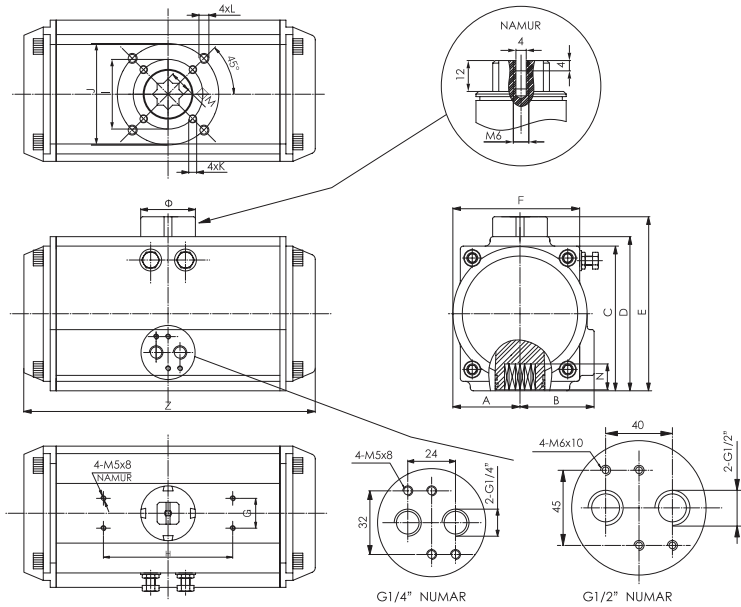
Double Acting – KRT007DA



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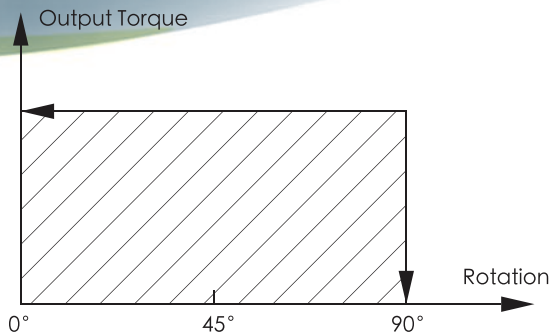
Double & Single Acting



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Φ	Port
KRT020DA & KRT020SRK10	30	41.5	65.5	72	92	65	30	80	Φ36	Φ50	M5 x 8	M6 x 10	11	14	147	Φ40	NAMUR G1/4"
KRT035DA & KRT035SRK10	36	47	81	87.5	107.5	72	30	80	Φ50	Φ70	M6 x 10	M8 x 13	14	18	168	Φ40	NAMUR G1/4"
KRT050DA & KRT050SRK10	42	53	94	99.5	119.5	81	30	80	Φ50	Φ70	M6 x 10	M8 x 13	14	18	184	Φ40	NAMUR G1/4"
KRT075DA & KRT075SRK10	46	57	98.5	108.7	128.7	92	30	80	Φ50	Φ70	M6 x 10	M8 x 13	17	21	204	Φ40	NAMUR G1/4"
KRT110DA & KRT110SRK10	50	58.5	111	116.5	136.5	98	30	80	Φ50	Φ70	M6 x 10	M8 x 13	17	21	262	Φ40	NAMUR G1/4"
KRT160DA & KRT160SRK10	57.5	64	122.5	133	153	109.5	30	80	Φ70	Φ102	M8 x 13	M10 x 16	22	26	268	Φ40	NAMUR G1/4"
KRT255DA & KRT225SRK10	67.5	74.5	145.5	155	175	127.5	30	80	Φ70	Φ102	M8 x 13	M10 x 16	22	26	301	Φ55	NAMUR G1/4"
KRT435DA & KRT435SRK10	75	77	161	172	192	137.5	30	80	Φ102	Φ125	M10 x 16	M12 x 20	27	31	390	Φ55	NAMUR G1/4"
KRT665DA & KRT665SRK10	87	87	184	197	217	158	30	80	Φ102	Φ125	M10 x 16	M12 x 20	27	31	458	Φ55	NAMUR G1/4"
KRT1000DA & KRT1000SRK10	103	103	213	230	260	189	30	130		Φ140		M16 x 25	36	40	525	Φ80	NAMUR G1/4"
KRT1200DA & KRT1200SRK10	113	113	235.5	255	285	210	30	130		Φ140		M16 x 25	36	40	532	Φ80	NAMUR G1/4"
KRT1800DA & KRT1800SRK10	130	130	264.5	289	319	245	30	130		Φ165		M20 x 25	46	50	602	Φ80	NAMUR G1/4"
KRT2700DA & KRT2700SRK10	147	147	299	326	356	273	30	130		Φ165		M20 x 25	46	50	722	Φ80	NAMUR G1/2"
KRT3800DA & KRT3800SRK10	162	162	348	348	378	324	30	130	Φ165	Φ215	M20 x 25	M20 x 25	46	60	742	Φ80	NAMUR G1/2"
KRT5700DA & KRT5700SRK10	190	190	402	402	432	380	30	130	Φ165	Φ215	M20 x 25	M20 x 25	46	60	860	Φ80	NAMUR G1/2"

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Output Torque Double Acting



Unit: Nm

Model	Air supply pressure (Unit : bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
KRT007DA	3	4	5	6	7	8	8	9	11	12
KRT012DA	5	6	7	10	11	12	13	14	17	19
KRT020DA	8	10	12	16	18	20	22	24	28	32
KRT035DA	15	18	22	29	33	36	40	44	51	58
KRT050DA	20	25	30	40	45	50	55	60	70	80
KRT075DA	31	39	47	63	70	78	86	94	110	125
KRT110DA	45	56	68	90	102	113	124	135	158	181
KRT160DA	66	83	99	132	149	165	182	198	231	264
KRT255DA	100	125	150	200	226	251	276	301	351	401
KRT435DA	171	214	256	342	385	427	470	513	598	684
KRT665DA	266	332	399	532	598	665	731	798	931	1064
KRT1000DA	426	532	638	851	958	1064	1170	1277	1490	1702
KRT1200DA	532	665	798	1064	1197	1330	1463	1596	1862	2128
KRT1800DA	769	962	1154	1539	1731	1924	2116	2308	2693	3078
KRT2700DA	1170	1462	1754	2339	2632	2924	3216	3509	4094	4679
KRT3800DA	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
KRT5700DA	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139

Sizing: Double Acting Actuator

The suggested safety factor for double acting actuators under normal working conditions is 20%-30%.

Example:

The torque needed by valve = 100Nm

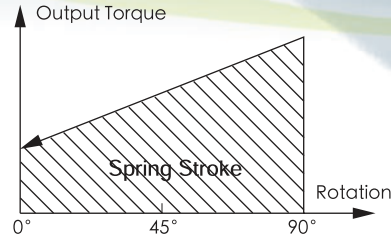
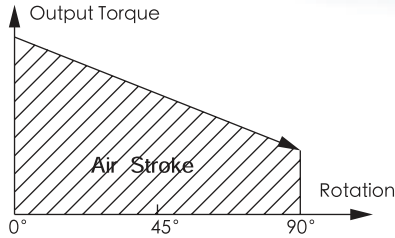
The torque considered safety factor (1+30%) = 130Nm

Air Supply = 5 bar

According to the above table, we can choose the minimum model is KRT160DA.

ACTUATION ROTARY ACTUATORS

Output Torque Single Acting



Unit: Nm

Air Pressure		Output torque of air to springs																Springs' Output	
		2.5 bar		3 bar		4 bar		5 bar		6 bar		7 bar		8 bar					
		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				
KRT020SR	K5	5.7	3.8	7.6													6.2	4.3	
	K6	4.9	2.5	6.9	10.9	8.5											7.4	5	
	K7	4.0	1.3	6.0	9.8	7.3	14	10.4									8.6	5.9	
	K8			5.2	2	9.2	6	13.2	9.1	17.2	14.1						9.9	6.7	
	K9			4.3	0.8	4.8	12.3	7.9	16.3	12.8	20.3	16.8					11.1	7.6	
	K10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6				12.4	8.5	
	K11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3		13.6	9.3	
	K12							9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1	14.8	10.2		
KRT035SR	K5	11.4	7.7	15	11.4	22.3	14.9										10.4	6.8	
	K6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9								12.5	8.2	
	K7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9								14.6	9.6	
	K8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3				16.7	10.9	
	K9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2				18.8	12.3	
	K10					1.4	8.2	22.8	15.6	30.0	22.8	37.3	31.1	44.7	37.4		20.9	13.7	
	K11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3		22.9	15.0	
	K12							20	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25.0	16.4		
KRT050SR	K5	14.5	10.6	19.4	15.5	29.5	25.7										14.5	10.5	
	K6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8								17.4	12.7	
	K7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9								20.3	14.8	
	K8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0				23.2	16.9	
	K9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2				26.1	19.0	
	K10					19.0	11.1	28.8	21.2	39	31.2	49.1	41.2	59.1	51.2		29.0	21.1	
	K11							27.0	18.3	37	28.3	47.0	38.4	57.0	48.4		31.9	23.2	
	K12							24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4	34.7	25.3		
KRT075SR	K5	23.3	16.1	31.1	24.0	46.8	39.7										23.0	15.8	
	K6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7								27.6	19.0	
	K7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2								32.2	22.1	
	K8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9				36.8	25.3	
	K9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3				41.4	28.5	
	K10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3		46.0	31.6	
	K11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8		50.6	34.8	
	K12							40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2	55.2	38.0		
KRT110SR	K5	33.1	22	44.2	33.2	66.8	55.9										34.4	23.3	
	K6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6								41.2	28.0	
	K7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7								48.1	32.7	
	K8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0				55.0	37.3	
	K9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1				61.9	42.0	
	K10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8		68.7	46.7	
	K11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0		75.6	51.4	
	K12							56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1	82.5	56.0		
KRT160SR	K5	51.0	33.4	67.5	49.9	100.6	83.0										49.2	31.6	
	K6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2								59.1	38.0	
	K7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4								68.9	44.3	
	K8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7				78.7	50.6	
	K9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9				88.6	56.9	
	K10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7		98.4	63.3	
	K11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2		108.3	69.9	
	K12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9		
KRT255SR	K5	73.0	47.0	98.0	72.0	148.0	122.0										79.0	52.0	
	K6	63.0	31.0	88.0	56.0	138.0	107.0	188.0	157.0								94.0	63.0	
	K7	52.0	15.0	77.0	40.0	127.0	90.0	178.0	141.0								110.0	73.0	
	K8			67.0	25.0	117.0	75.0	167.0	125.0	217.0	176.0	268.0	226.0				125.0	84.0	
	K9					107.0	59.0	157.0	109.0	207.0	159.0	257.0	210.0				141.0	94.0	
	K10					96.0	44.0	146.0	94.0	196.0	144.0	247.0	194.0	297.0	245.0		157.0	105.0	
	K11							136.0	78.0	186.0	128.0	236.0	178.0	286.0	228.0		173.0	115.0	
	K12							125.0	63.0	176.0	113.0	226.0	163.0	276.0	213.0	188.0	125.0		
KRT435SR	K5	128.0	85.0	171.0	127.0	256.0	213.0										129.0	86.0	
	K6	111.0	59.0	154.0	102.0	239.0	187.0	325.0	273.0								155.0	103.0	
	K7	94.0	33.0	137.0	76.0	222.0	162.0	308.0	247.0								181.0	120.0	
	K8			120.0	50.0	205.0	136.0	291.0	221.0	376.0	307.0	462.0	392.0				206.0	137.0	
	K9					187.0	110.0	273.0	196.0	358.0	281.0	444.0	367.0				232.0	155.0	
	K10					170.0	84.0	256.0	169.0	341.0	255.0	427.0	340.0	512.0	426.0		258.0	172.0	
	K11							238.0	143.0	324.0	229.0	409.0	314.0	512.0	400.0		284.0	189.0	
	K12							221.0	118.0	307.0	203.0	392.0	289.0	478.0	374.0	310.0	206.0		

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Unit: Nm

Air Pressure		Output torque of air to springs														Springs' Output	
Model	Spring Qty.	2.5 bar		3 bar		4 bar		5 bar		6 bar		7 bar		8 bar		90° Start	0° 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	0° Start	90° End		
KRT665SR	K5	193.0	124.0	259.0	191.0	392.0	324.0									208.0	140.0
	K6	165.0	83.0	232.0	149.0	365.0	282.0	498.0	415.0							250.0	168.0
	K7	137.0	41.0	203.0	107.0	336.0	240.0	469.0	373.0							292.0	196.0
	K8			176.0	66.0	309.0	199.0	442.0	373.0	575.0	465.0	708.0	598.0			333.0	223.0
	K9					280.0	157.0	413.0	290.0	546.0	423.0	679.0	556.0			375.0	251.0
	K10					253.0	115.0	386.0	248.0	519.0	381.0	652.0	514.0	785.0	647.0	417.0	279.0
	K11							258.0	207.0	491.0	340.0	624.0	473.0	757.0	606.0	458.0	307.0
K12							330.0	165.0	463.0	298.0	596.0	431.0	729.0	564.0	500.0	335.0	
KRT1000SR	K5	332.0	222.0	438.0	329.0	651.0	542.0									309.0	200.0
	K6	292.0	161.0	398.0	367.0	611.0	480.0	824.0	693.0							371.0	240.0
	K7	252.0	99.0	358.0	205.0	571.0	418.0	784.0	631.0							433.0	280.0
	K8			318.0	143.0	531.0	356.0	744.0	569.0	957.0	782.0	1169.0	995.0			495.0	320.0
	K9					491.0	295.0	704.0	507.0	917.0	720.0	1130.0	933.0			557.0	360.0
	K10					451.0	233.0	664.0	446.0	877.0	658.0	1090.0	871.0	1302.0	1084.0	618.0	400.0
	K11							624.0	384.0	837.0	597.0	1050.0	809.0	1263.0	1022.0	680.0	440.0
K12							584.0	322.0	797.0	535.0	1010.0	748.0	1223.0	960.0	742.0	480.0	
KRT1200SR	K5	390.0	285.0	523.0	418.0	789.0	684.0									380.0	275.0
	K6	335.0	209.0	468.0	342.0	734.0	608.0	1000.0	874.0							456.0	330.0
	K7	280.0	133.0	413.0	266.0	679.0	532.0	945.0	798.0							532.0	385.0
	K8			358.0	190.0	624.0	456.0	890.0	722.0	1156.0	988.0	1422.0	1254.0			608.0	440.0
	K9					569.0	380.0	835.0	646.0	1101.0	912.0	1367.0	1178.0			684.0	495.0
	K10					514.0	304.0	780.0	570.0	1046.0	836.0	1312.0	1102.0	1578.0	1368.0	760.0	550.0
	K11							725.0	494.0	991.0	760.0	1257.0	1026.0	1523.0	1292.0	836.0	605.0
K12							670.0	418.0	936.0	684.0	1202.0	950.0	1468.0	1216.0	912.0	660.0	
KRT1800SR	K5	552.0	409.0	744.0	600.0	1129.0	985.0									554.0	410.0
	K6	470.0	297.0	662.0	489.0	1047.0	874.0	1432.0	1259.0							665.0	492.0
	K7	388.0	187.0	580.0	379.0	964.0	764.0	1349.0	1149.0							775.0	575.0
	K8			498.0	268.0	883.0	653.0	1267.0	1037.0	1652.0	1422.0	2037.0	1807.0			886.0	656.0
	K9					542.0	311.0	1185.0	926.0	1569.0	1311.0	1954.0	1696.0			998.0	739.0
	K10					431.0	233.0	1103.0	816.0	1488.0	1201.0	1872.0	1586.0	2257.0	1970.0	1108.0	821.0
	K11							1021.0	705.0	1406.0	1090.0	1791.0	1474.0	2176.0	1859.0	1219.0	903.0
K12							939.0	594.0	1323.0	979.0	1708.0	1363.0	2093.0	1748.0	1330.0	985.0	
KRT2700SR	K5	903.0	675.0	1195.0	968.0	1779.0	1552.0									787.0	560.0
	K6	790.0	519.0	1083.0	811.0	1667.0	1396.0	2252.0	1981.0							943.0	672.0
	K7	679.0	361.0	972.0	654.0	1556.0	1238.0	2141.0	1823.0							1101.0	783.0
	K8			860.0	497.0	1444.0	1081.0	2029.0	1666.0	2614.0	2252.0	3199.0	2836.0			1258.0	895.0
	K9					923.0	542.0	1917.0	1509.0	2502.0	2094.0	3087.0	2678.0			1416.0	1007.0
	K10					767.0	431.0	1805.0	1352.0	2390.0	1937.0	2974.0	2521.0	3560.0	3170.0	1572.0	1119.0
	K11							1693.0	1194.0	2278.0	1779.0	2862.0	2364.0	3448.0	2949.0	1730.0	1231.0
K12							1582.0	1037.0	2167.0	1623.0	2751.0	2207.0	3336.0	2792.0	1887.0	1342.0	
KRT3800SR	K5	1097.0	729.0													1061.0	730.0
	K6	935.0	494.0	1316.0	875.0											1273.0	876.0
	K7	772.0	258.0	1153.0	639.0	1916.0	1402.0									1485.0	1022.0
	K8			991.0	403.0	1754.0	1166.0	2517.0	1929.0							1697.0	1168.0
	K9					1592.0	930.0	2355.0	1693.0	3118.0	2456.0					1909.0	1314.0
	K10					1430.0	695.0	2193.0	1458.0	2956.0	2221.0	3719.0	2984.0	4482.0	3747.0	2122.0	1460.0
	K11							2030.0	1222.0	2793.0	1985.0	3556.0	2748.0	4319.0	3511.0	2334.0	1606.0
K12							1868.0	986.0	2631.0	1749.0	3394.0	2512.0	4157.0	3275.0	2546.0	1752.0	
KRT5700SR	K5	1553.0	964.0													1702.0	1173.0
	K6	1292.0	586.0	1863.0	1157.0											2043.0	1408.0
	K7	1031.0	2083.0	1602.0	779.0	2745.0	1922.0									2383.0	1642.0
	K8			1341.0	401.0	2484.0	1544.0	3626.0	2686.0							2724.0	1877.0
	K9					2224.0	1165.0	3336.0	2307.0	4508.0	3449.0					3064.0	2112.0
	K10					1963.0	787.0	3105.0	1929.0	4247.0	3071.0	5390.0	4214.0	6532.0	5356.0	3405.0	2346.0
	K11							2844.0	1551.0	3986.0	2693.0	5129.0	3836.0	6271.0	4978.0	3745.0	2581.0
K12							2584.0	1172.0	3726.0	2314.0	4869.0	3457.0	6011.0	4599.0	4086.0	2816.0	

Sizing: Spring Return Actuator

The suggested safety factor for double acting actuators under normal working conditions is 30%-50%.

Example:

The torque needed by valve = 80Nm.

The torque considered safety factor (1+30%) = 104Nm.

Air Supply = 5 bar.

According to the table of spring return actuators' output we find output torque of KRT435ST is:

Air stroke 0°=308Nm

Air stroke 90°=247Nm

Spring stroke 90°=181Nm

Spring stroke 0°=120Nm

All the output is larger than we needed.

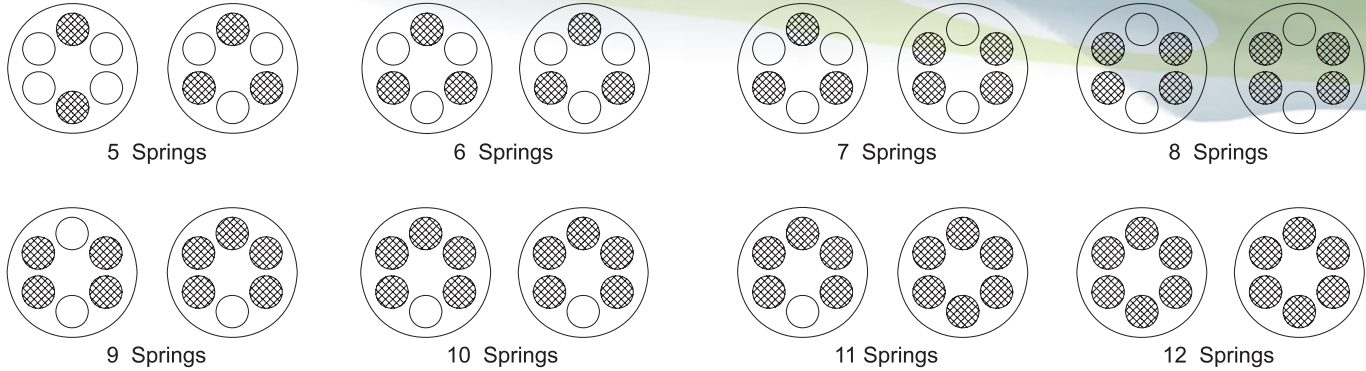
Attention:

During the restoration, the spring actuator's output torque will not be agented by the inputting air from the port B.

On the contrary, it will help the restoration of springs.

ACTUATION ROTARY ACTUATORS

Spring mounting form for spring return actuators



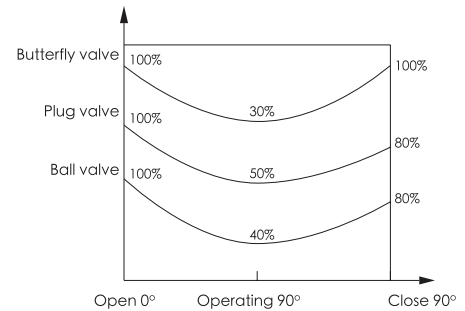
During selecting the spring return actuators, we can choose the more reasonable and more economical actuators, if we know the different torque needed by the valve at opening, operating and closing.

Example:

The torque needed by a butterfly valve = 104Nm
 The torque after opening (operating) $104 \times 30\% = 32\text{Nm}$
 Air Supply = 5 bar
 We can select the KRT255SR K11.

Air stroke 0% 136Nm > 104Nm
 Air stroke 90° = 78Nm > 32Nm
 Spring Stroke 90° = 173Nm > 32Nm
 Spring stroke 0° = 115Nm > 104Nm

The above data shows the actuator's torque can satisfy the requirement of the butterfly valve.



Note:

Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply).

Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.

Weight

Model	KRT007	KRT012	KRT020	KRT035	KRT050	KRT075	KRT110	KRT160	KRT255	KRT435	KRT665	KRT1000	KRT1200	KRT1800	KRT2700	KRT3800	KRT5700
DA	0.7kg	1.0kg	1.4kg	2.0kg	2.7kg	3.1kg	4.6kg	6.8kg	8.9kg	13.0kg	20.0kg	31.0kg	47.0kg	67.0kg	97.0kg	110.0kg	186.0kg
SA	-	1.1kg	1.5kg	2.1kg	2.9kg	3.6kg	5.2kg	6.9kg	10.1kg	1.05kg	24.0kg	35.0kg	55.0kg	80.0kg	118.0kg	130.0kg	234.0kg

Air Consumption

Unit: L/min

Model	Air Volume Opening	Air Volume Closing
KRT007	0.04	0.05
KRT012	0.08	0.11
KRT020	0.12	0.16
KRT035	0.21	0.23
KRT050	0.30	0.34
KRT075	0.43	0.47
KRT110	0.64	0.73
KRT160	0.95	0.88
KRT255	1.60	1.40
KRT435	2.50	2.20
KRT665	3.70	3.20
KRT1000	5.90	5.40
KRT1200	7.50	7.50
KRT1800	11.00	9.00
KRT2700	17.00	14.00
KRT3800	23.80	29.70
KRT570	35.10	46.30

Air consumption rest with Air Supply.

Air volume and Action cycle times, expressions:

$$\text{L/min} = \text{Air Volume (Air Volume opening + Air volume closing)} \times \left[\frac{\text{Air supply (Kpa)} = 101.3}{101.3} \right] \times \text{Action cycle times (/min)}$$