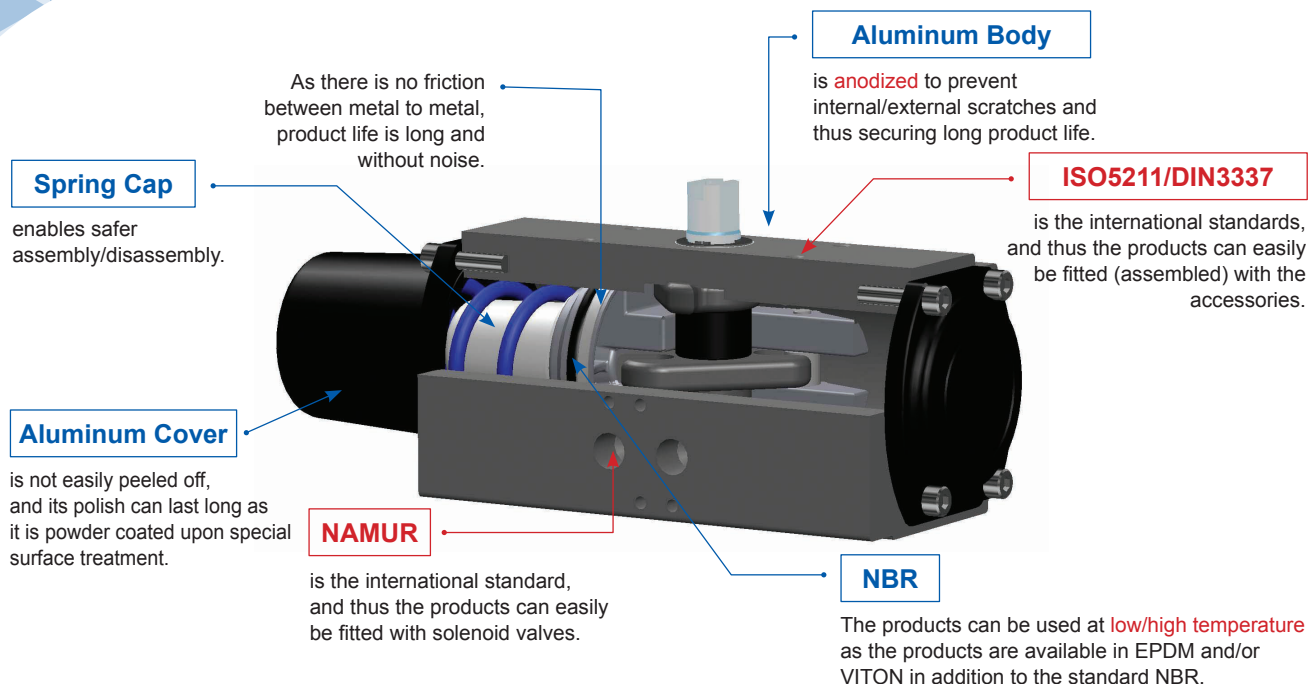


Pneumatic actuator (A/R series)



► Model range



A D 65

①

②

③

- ① A series - Scotch yoke
R series - Rack & pinion
- ② D-Double acting
S-Spring return
- ③ Internal diameter

AD	50/65/80/100/125/140/160/185/210/250/300
AS	50/65/80/100/125/140/160/185/210/250/300
RD	32/40/50/65/80/90/100/115/125/140/160/185/210
RS	40/50/65/80/90/100/115/125/140/160/185/210

► Model code

A6ND-AKKB-1012C27-OP

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k)

(a)	(d)	(e)	(f)	(h)	(i)	(k)
Mechanism	SPRING	Action	Body color	Indicator	ISO5211	OPTION
A:scotch yoke R:rack pinion	D:Double acting W:Weak spring M:Middle spring S:Strong spring H:Hand wheel No.:RS spring q'ty	A:Action A (Fail closed) B:Action B (Fail open) C:Action C (Fail closed/Open CW) D:Action B (Fail open/Open CW)	K:Black L:Blue W:White Y:Yellow R:Red	A:A type B:B type C:C type D:D type	3:F03 5:F05 : ① STEM C11:11*11 C14:14*14	T4:PT1/4 T8:PT3/8 T2:PT1/2 N4:NPT1/4 N8:NPT3/8 N2:NPT1/2 O45:Open -45° (center stopper) SE1:end cap stopper HW:Hand wheel
(b)			Cover color			
Diameter			K:Black L:Blue M:Mint R:Red			
3:32 4:40 :						
(c)						
O-RING						
N:NBR V:VITON (High temp.) E:EPDM(Low temp.)						

KOSA PLUS

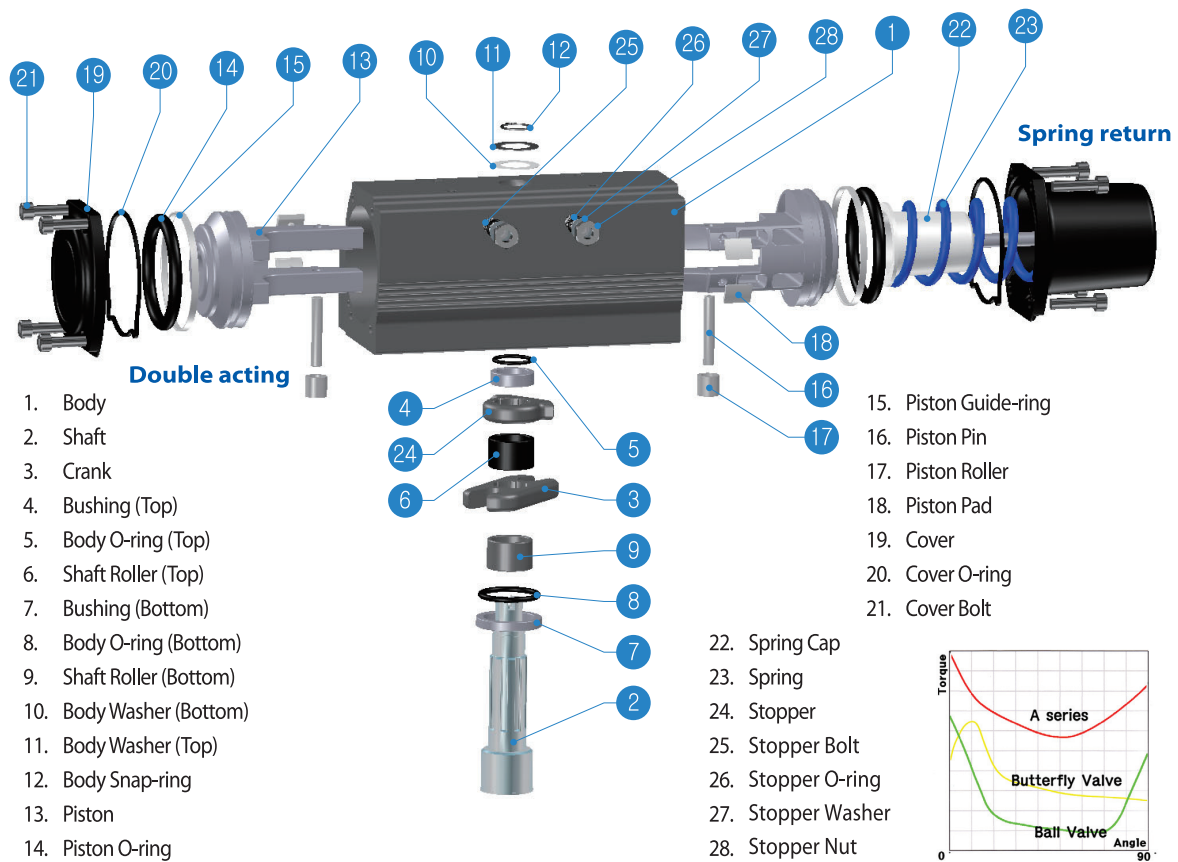
KOSAPLUS Co.,Ltd.

294, Gongdan2daero, Siheung, Gyeonggi, 15115, S.Korea (<http://www.kosaplus.com>)

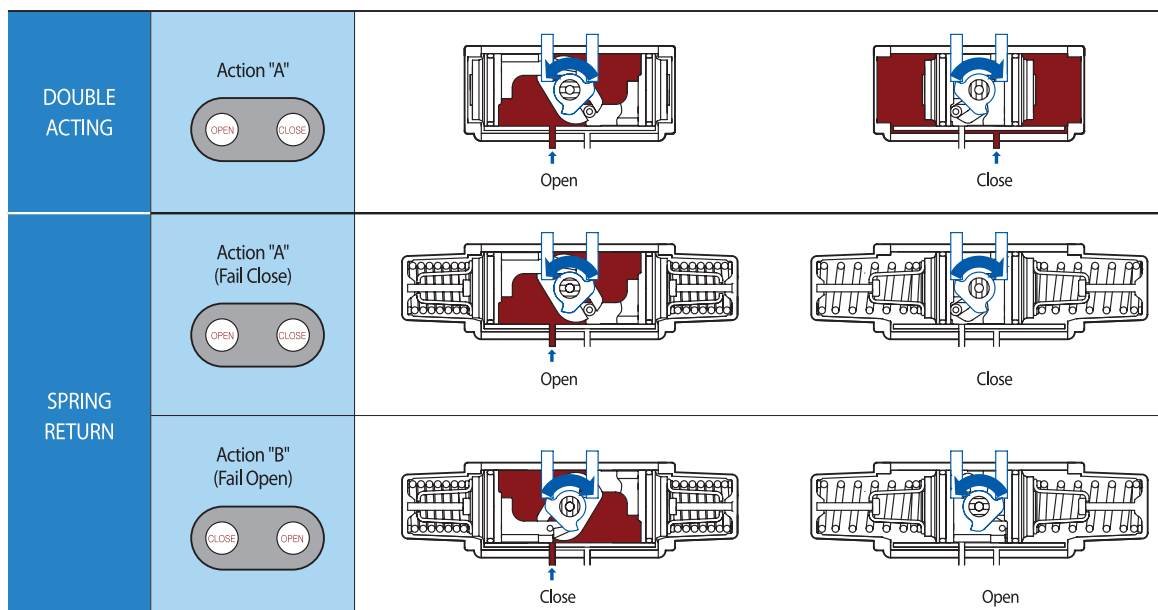
• E-mail: oversea@kosaplus.com • Tel: +82-31-433-3159 / Fax: +82-31-433-3151

Catalog Version : 4.1AR (Nov.2016)

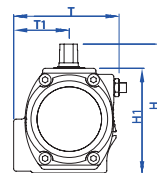
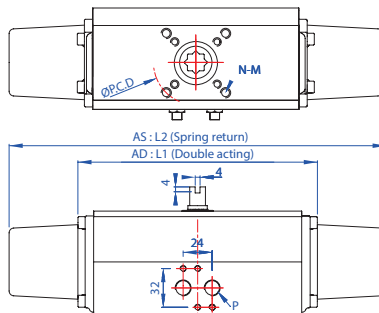
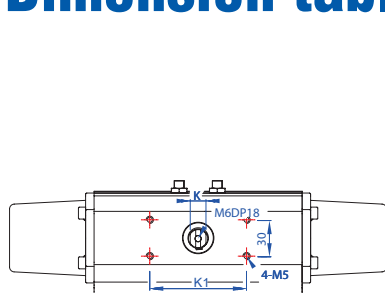
► Part list



► Operating mechanism

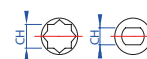


► Dimension table



P	
A50~A210	PT1/4
A250/A300	#PT3/8
	#PT1/2

MOUNT IMAGE



unit : mm

MODEL	K1	ISO	P.C.D(Ø)	N-G	K	L1	L2	T	T1	H	H1	CH	DTH	AD Wt(Kg)	AS Wt(Kg)
A50	80	F03/F05/F07	36/50/70	4-M5/M6/M8	9	162	257	75	40	90	70	11*11	13	1.4	1.6
												#14*14	14		
												#9.7*Ø15	14		
A65	80	F05/F07	50/70	4-M6/M8	13	202	314	89	46	107	87	14*14	17	2.3	3.0
												#11.7*Ø17	17		
												#9.7*Ø15	14		
A80	80	F07	70	4-M8	13	262	430	101	49.5	126	106	17*17	19	3.9	5.3
												#14.7*Ø19	20		
A100	80	F07/F10	70/102	4-M8/M10	19	311	500	129	61.5	148	128	22*22	26	6.7	9.5
												#17.7*Ø22	26		
A125	80	F07/F10	70/102	4-M8/M10	19	390	606	151	71.5	174	154	22*22	26	11.3	17.6
A140	80	F10/F12	102/125	4-M10/M12	24	431	682	164	77	192	172	27*27	30	16.4	23.9
												#22*22			
A160	80	F14	140	4-M16	24	506	781	188	89	216	196	36*36	30	23.7	36.6
		#F10/F12	#102/125	#4-M10/M12								#27*27			
A185	80	F14	140	4-M16	24	578	894	217	102	244	224	36*36	30	34.8	56.9
A210	130	F16	165	4-M20	36	605	982	231	115	284	254	46*46	60	45.5	77.2
		#F14										#36*36	50		
A250	130	F16	165	4-M20	36	755	1108	301	152	335	305	46*46	60	65.8	119.6
A300	130	F16/F25	165/254	4-M20/8-M16	36	900	1344	360	170	408	378	55*55	60	165.0	275.5

*'#' is optional.

► Selection guide

Valve Size		Double acting		Spring return	
		Ball valve	Butterfly valve	Ball valve	Butterfly valve
1/2"	15A	AD50		AS50	
3/4"	20A				
1"	25A				
1-1/4"	32A	AD65		AS65	
1-1/2"	40A				
2"	50A		AD50	AS80	AS50
2-1/2"	65A	AD80			AS65
3"	80A			AS100	
4"	100A	AD100	AD65	AS125	AS80
5"	125A	AD125		AS140	
6"	150A	AD140	AD80	AS160	AS100
8"	200A	AD160		AS185	
10"	250A	AD185	AD100	AS210	
12"	300A	AD210	AD125	AS250	AS140
14"	350A	AD250	AD140	AS300	AS160
16"	400A	AD300	AD160		AS185
18"	450A		AD185		AS210
20"~22"	500A~550A		AD210		AS250
24"~32"	600A~800A		AD250		AS300
34"~40"	850A~1000A		AD300		

•The above data is for reference only; the actual assembly may be different depending on valve material, pressure, structure, fluid and operational environment.

•The data is not legally effective and therefore should not be used as legal ground.

A series (AD/AS)

Scotch yoke

► AD series Torque table

unit : Nm

Model	Angle	SupplyAir											
		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar	
		Close	Open	Close	Open	Close	Open	Close	Open	Close	Open	Close	Open
AD50	0°	31.4	24.7	42.8	32.3	54.2	39.9	66.5	47.5	78.9	54.2	92.2	60.8
	45°	15.2	15.2	20.0	20.0	25.7	24.7	30.4	29.5	36.1	34.2	40.9	39.9
	90°	23.8	29.5	31.4	39.9	39.0	48.5	46.6	59.9	53.2	71.3	60.8	82.7
AD65	0°	77.9	54.2	108.3	69.4	138.7	84.6	169.1	99.8	199.5	115.0	229.9	130.2
	45°	35.2	33.3	45.6	43.7	57.0	55.1	68.4	65.6	80.8	76.0	92.2	87.4
	90°	52.3	65.6	69.4	88.4	85.5	111.2	102.6	134.0	119.7	156.8	136.8	179.6
AD80	0°	152.0	99.8	209.0	133.0	266.0	166.3	323.0	199.5	380.0	228.0	437.0	261.3
	45°	66.5	57.0	90.3	76.0	109.3	95.0	133.0	114.0	156.8	137.8	175.8	161.5
	90°	04.5	118.8	137.8	166.3	166.3	218.5	199.5	266.0	232.8	318.3	266.0	365.8
AD100	0°	232.8	180.5	323.0	247.0	399.0	304.0	475.0	365.8	560.5	418.0	646.0	470.3
	45°	114.0	109.3	152.0	147.3	190.0	185.3	232.8	223.3	275.5	266.0	318.3	304.0
	90°	190.0	190.0	256.5	266.0	318.3	342.0	384.8	418.0	446.5	494.0	508.3	560.5
AD125	0°	551.0	389.5	750.5	508.3	997.5	631.8	1,197.0	745.8	1,396.5	855.0	1,596.0	959.5
	45°	247.0	242.3	332.5	323.0	413.3	399.0	498.8	475.0	584.3	555.8	665.0	631.8
	90°	394.3	451.3	527.3	612.8	646.0	821.8	774.3	983.3	893.0	1,144.8	1,002.3	1,306.3
AD140	0°	741.0	589.0	1,026.0	779.0	1,311.0	969.0	1,596.0	1,159.0	1,881.0	1,339.5	2,166.0	1,491.5
	45°	337.3	318.3	451.3	427.5	570.0	532.0	684.0	641.3	798.0	750.5	912.0	864.5
	90°	527.3	579.5	693.5	788.5	878.8	1,007.0	1,040.3	1,263.5	1,206.5	1,539.0	1,368.0	1,805.0
AD160	0°	1,121.0	902.5	1,539.0	1,187.5	1,947.5	1,472.5	2,384.5	1,748.0	2,850.0	2,033.0	3,325.0	2,299.0
	45°	522.5	503.5	703.0	674.5	878.8	845.5	1,059.3	1,011.8	1,235.0	1,182.8	1,415.5	1,349.0
	90°	845.5	978.5	1,125.8	1,363.3	1,401.3	1,805.0	1,676.8	2,123.3	1,947.5	2,503.3	2,208.8	2,883.3
AD185	0°	1,833.5	1,187.5	2,470.0	1,520.0	3,097.0	1,900.0	3,686.0	2,251.5	4,294.0	2,584.0	4,902.0	2,888.0
	45°	802.8	817.0	1,073.5	1,092.5	1,339.5	1,349.0	1,605.5	1,615.0	1,881.0	1,890.5	2,156.5	2,147.0
	90°	1,311.0	1,406.0	1,729.0	1,919.0	2,137.5	2,441.5	2,527.0	3,021.0	2,916.5	3,581.5	3,296.5	4,256.0
AD210	0°	2,137.5	1,976.0	2,945.0	2,612.5	3,724.0	3,163.5	4,560.0	3,676.5	5,367.5	4,218.0	6,317.5	4,750.0
	45°	1,083.0	1,102.0	1,444.0	1,491.5	1,805.0	1,852.5	2,166.0	2,223.0	2,527.0	2,593.5	2,897.5	2,945.0
	90°	1,748.0	1,824.0	2,318.0	2,432.0	2,878.5	3,068.5	3,458.0	3,705.0	4,028.0	4,322.5	4,617.0	4,940.0
AD250	0°	4,180.0	3,277.5	5,700.0	4,275.0	7,220.0	5,272.5	8,835.0	6,222.5	10,260.0	7,125.0	11,780.0	7,970.5
	45°	1,890.5	1,890.5	2,498.5	2,498.5	3,087.5	3,097.0	3,705.0	3,743.0	4,341.5	4,389.0	4,968.5	4,978.0
	90°	3,201.5	3,448.5	4,218.0	4,617.0	5,158.5	5,776.0	6,080.0	6,944.5	7,039.5	8,189.0	7,970.5	9,443.0
AD300	0°	7,211.0	5,049.0	9,615.0	6,732.0	14,422.0	10,099.0	15,984.4	11,193.1	17,306.4	12,118.8	18,222.2	12,760.1
	45°	2,970.0	2,970.0	3,960.0	3,960.0	5,940.0	5,940.0	6,583.5	6,583.5	7,128.0	7,128.0	7,505.2	7,505.2
	90°	5,049.0	7,211.0	6,732.0	9,415.0	10,099.0	14,422.0	11,193.1	15,984.4	12,118.8	17,306.4	12,760.1	18,222.2

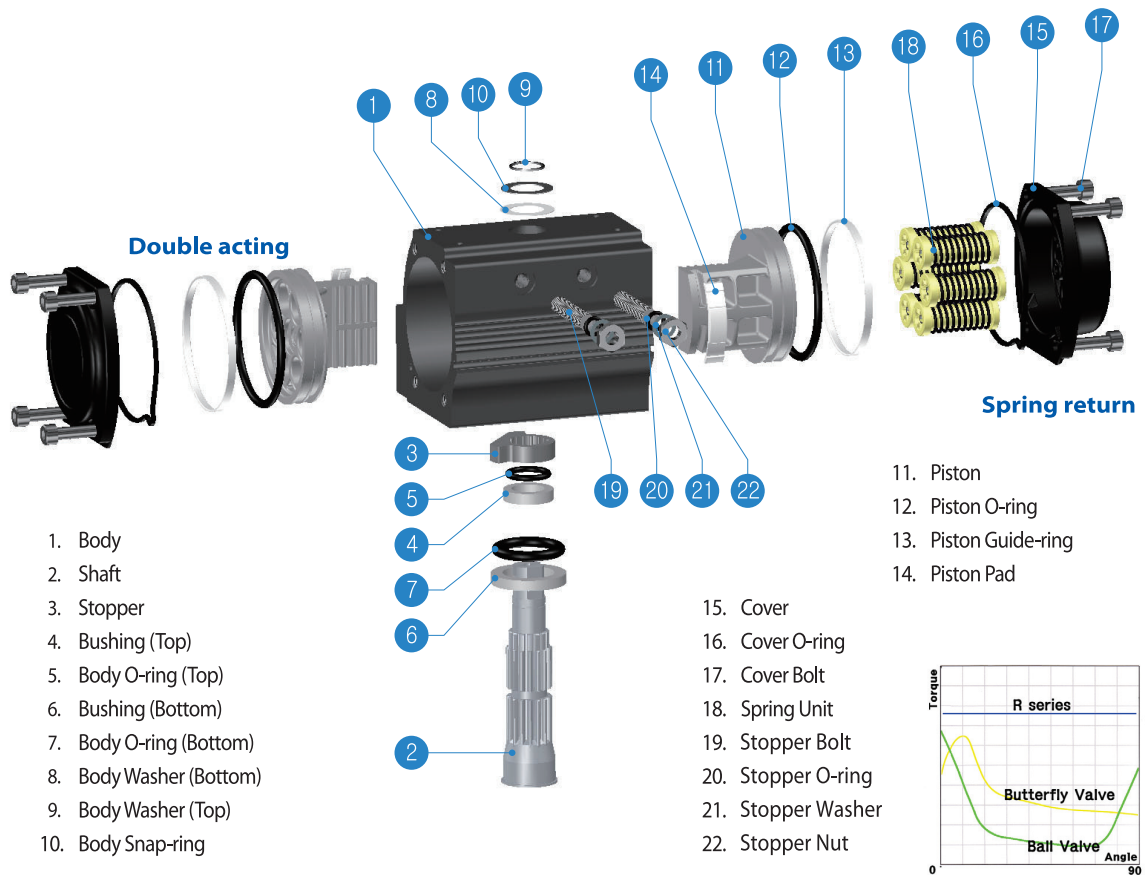
► AS series Torque table

unit : Nm

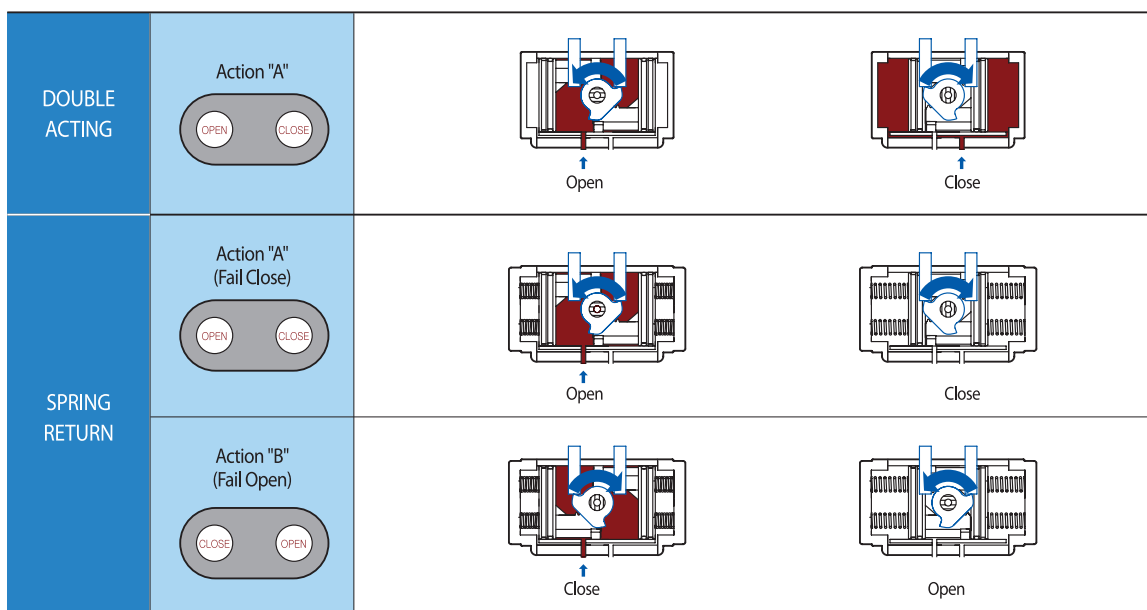
Model	Angle	Spring torque: Weak			Spring torque: Middle				Spring torque: Strong			
		Spring	Air:3Bar	Air:4Bar	Spring	Air:4Bar	Air:4.5Bar	Air:5Bar	Spring	Air:6Bar	Air:7Bar	Air:8Bar
AS50	0°	10.5	14.3	21.9	16.2	19.0	22.8	26.6	23.0	28.3	35.2	42.8
	45°	8.2	6.7	11.9	12.0	8.2	10.8	13.6	16.5	14.3	20.0	24.7
	90°	16.2	7.6	17.1	24.2	6.2	11.4	16.2	33.3	14.0	23.8	33.3
AS65	0°	29.5	35.2	53.2	43.7	41.3	49.4	58.0	56.6	64.9	83.6	95.0
	45°	15.6	17.1	28.5	24.9	17.6	23.3	28.5	34.4	32.3	44.7	56.1
	90°	29.2	28.5	47.0	47.2	20.0	30.6	41.2	65.2	39.9	60.8	84.6
AS80	0°	47.5	71.3	104.5	76.0	76.0	95.0	114.0	114.0	123.5	156.8	190.0
	45°	33.3	28.5	52.3	42.8	33.3	42.8	57.0	61.8	61.8	80.8	99.8
	90°	61.8	47.5	95.0	85.5	42.8	61.8	85.5	118.8	85.5	128.3	171.0
AS100	0°	95.0	109.3	161.5	114.0	133.0	166.3	199.5	152.0	237.5	299.3	356.3
	45°	61.8	47.5	90.3	76.0	57.0	76.0	95.0	99.8	118.8	161.5	204.3
	90°	109.3	61.8	133.0	152.0	61.8	99.8	133.0	209.0	152.0	228.0	304.0
AS125	0°	109.3	332.5	465.5	285.0	318.3	384.8	451.3	408.5	470.3	589.0	712.5
	45°	57.0	180.5	261.3	166.3	161.5	204.3	247.0	237.5	247.0	327.8	408.5
	90°	118.8	313.5	489.3	318.3	237.5	318.3	408.5	446.5	384.8	560.5	712.5
AS140	0°	133.0	475.0	674.5	384.8	460.8	555.8	655.5	574.8	693.5	883.5	1,073.5
	45°	85.5	228.0	342.0	228.0	199.5	247.0	313.5	332.5	318.3	427.5	532.0
	90°	152.0	251.8	532.0	446.5	275.5	375.3	475.0	617.5	465.5	674.5	883.5
AS160	0°	313.5	627.0	921.5	503.5	750.5	902.5	1,045.0	888.3	1,059.3	1,339.5	1,615.0
	45°	194.8	299.3	475.0	289.8	380.0	465.5	551.0	498.8	508.3	679.3	850.3
	90°	384.8	460.8	826.5	536.8	608.0	769.5	950.0	940.5	731.5	1,121.0	1,520.0
AS185	0°	456.0	912.0	1,282.5	1,035.5	921.5	1,111.5	1,292.0	1,548.5	1,292.0	1,634.0	1,976.0
	45°	266.0	513.0	779.0	579.5	465.5	598.5	741.0	874.0	703.0	969.0	1,235.0
	90°	541.5	798.0	1,301.5	1,140.0	608.0	855.0	1,092.5	1,681.5	931.0	1,415.5	1,928.5
AS210	0°	418.0	1,577.0	2,156.5	1,206.5	1,491.5	1,833.5	2,109.0	1,681.5	2,375.0	2,945.0	3,515.0
	45°	247.0	779.0	1,149.5	674.5	717.3	921.5	1,097.3	1,035.5	1,092.5	1,463.0	1,833.5
	90°	475.0	1,197.0	1,824.0	1,239.8	978.5	1,349.0	1,719.5	1,947.5	1,472.5	2,099.5	2,707.5
AS250	0°	731.5	2,631.5	3,686.0	2,213.5	2,555.5	3,097.0	3,610.0	3,277.5	3,942.5	4,864.0	5,776.0
	45°	418.0	1,425.0	2,090.0	1,254.0	1,282.5	1,605.5	1,947.5	1,738.5	2,071.0	2,726.5	3,363.0
	90°	874.0	2,299.0	3,515.0	2,432.0	1,767.0	2,318.0	2,945.0	3,315.5	2,888.0	4,028.0	5,168.0
AS300	0°	-	-	-	6,421.0	3,637.9	4,308.0	4,547.3	8,566.0	5,740.0	6,361.8	7,270.7
	45°	-	-	-	2,283.0	1,834.1	2,172.0	2,292.7	3,046.0	2,894.0	3,207.5	3,665.7
	90°	-	-	-	3,266.0	3,712.2	4,396.0	4,640.2	4,359.0	5,857.0	6,491.5	7,418.9

•You may select spring types from strong/middle/weak; if unspecified in P/O, the standard type (as shown in the blue box) is provided.

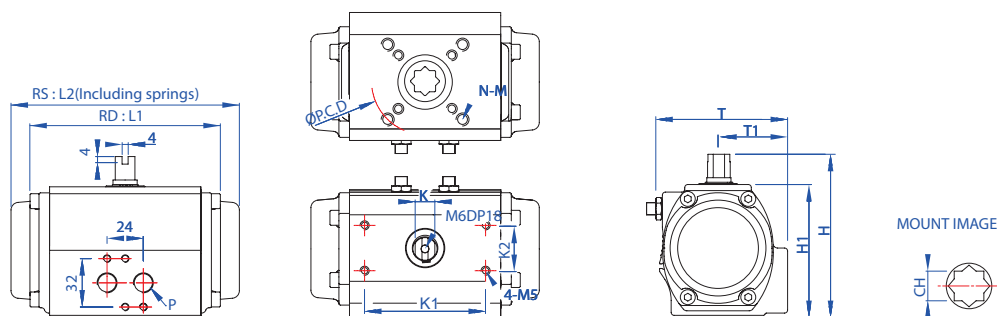
► Part list



► Operating mechanism



► Dimension table



P		
R32,R40	PT1/8	
R50~R210	PT1/4	
	K1	K2
R32	25.5	25.5
R40	50	25
R50~R160	80	30
R185	80	30
R210	130	30

unit : mm

MODEL	ISO	P.C.D(Ø)	N-G	K	L1	L2	T	T1	H	H1	CH	DTH	RD Wt(Kg)	RS Wt(Kg)
@RD32	F03	36	4-M5	7	66	-	45	25	55	45	9*9	9	0.3	-
@R40	F03/F05	36/50	4-M5/M6	9	97	97	63	32	75	55	9*9	9	0.5	0.6
	#F04	#42	#4-M5											
R50	F03/F05/F07	36/50/70	4-M5/M6/M8	9	119	133	75	40	90	70	11*11	13	1.0	1.1
	#F04	#42	#4-M5											
R65	F05/F07	50/70	4-M6/M8	13	131	154	89	46	106.5	86.5	14*14	16	1.4	1.5
	#F04/F07	#42/70	#4-M5/M8											
R80	F07	70	4-M8	19	189	220	101	49.5	126	106	17*17	19	2.9	3.3
R90	F07	70	4-M8	19	188	223	104	54.5	136	116	17*17	19	3.4	3.8
R100	F07/F10	70/102	4-M8/M10	19	229	256	132	61.5	148	128	22*22	26	4.7	5.4
											#17*17	19		
R115	F07/F10	70/102	4-M8/M10	19	264	302	137	67.5	163	143	22*22	26	6.7	7.5
R125	F07/F10	70/102	4-M8/M10	19	299	330	151	71.5	174	154	22*22	26	8.6	9.9
R140	F10/F12	102/125	4-M10/M12	24	332	389	164	77	192	172	27*27	30	12.4	14.5
											#22*22	26		
R160	F10/F12	102/125	4-M10/M12	24	364	416	188	103.5	216	196	27*27	30	16.9	19.5
R185	F12	125	4-M12	24	434	465	217	103	244	224	36*36	30	24.2	29.0
R210	F14	140	4-M16	36	444	527	231	115	284	254	36*36	30	32.3	37.9

•Model with '@' is compact type. They don't have angle stopper. •'#' is optional.

► Selection guide

Valve Size		Double acting		Spring return	
		Ball valve	Butterfly valve	Ball valve	Butterfly valve
1/2"	15A	RD32 (1piece)	RD50	RS40	
3/4"	20A	RD40 (1piece)		RS50	
1"	25A		RD65	RS65	
1-1/4"	32A			RS80	
1-1/2"	40A		RD80	RS90	RS50
2"	50A			RS100	RS65
2-1/2"	65A		RD90	RS115	RS80
3"	80A		RD100/RD115	RS125	RS90
4"	100A			RS140	RS100
5"	125A		RD140	RS160	RS115
6"	150A		RD160	RS185	RS125
8"	200A		RD185	RS210	RS140
10"	250A		RD210		RS160
12"	300A				RS185
14"	350A				RS210
16"	400A				

•The above data is for reference only; the actual assembly may be different depending on valve material, pressure, structure, fluid and operational environment.
 •The data is not legally effective and therefore should not be used as legal ground.

► RD series Torque table

unit : Nm

MODEL	SUPPLY AIR						
	3Bar	4Bar	4.5Bar	5Bar	6Bar	7Bar	8Bar
RD32	2.4	3.1	3.5	3.9	4.8	5.7	6.6
RD40	5.5	7.4	8.4	9.2	11.1	13.0	14.8
RD50	9.4	12.5	14.3	15.9	19.1	22.5	25.8
RD65	18.3	24.7	27.8	30.8	36.8	42.9	49.2
RD80	44.5	58.9	66.5	74.4	89.3	104.3	117.8
RD90	57.2	76.2	85.7	95.2	114.2	133.2	152.2
RD100	79.5	105.5	118.8	132.1	158.7	185.3	211.9
RD115	123.5	166.3	187.2	209.0	251.8	294.5	337.3
RD125	161.5	218.5	247.0	270.8	327.8	384.8	437.0
RD140	237.5	318.3	361.0	399.0	479.8	560.5	641.3
RD160	327.8	441.8	494.0	551.0	669.8	779.0	893.0
RD185	475.0	641.3	722.0	802.8	964.3	1,125.8	1,287.3
RD210	679.3	912.0	1,030.8	1,144.8	1,382.3	1,615.0	1,847.8

► RS series Torque table

unit : Nm

Model	Spring unit	Supply Air															
		3Bar		4Bar		4.5Bar		5Bar		6Bar		7Bar		8Bar		SPRING	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
RS40	WM	3.2	1.5	5.0	3.1	5.0	3.8	6.0	4.6	6.9	5.9	8.8	7.1	10.7	8.2	2.4	1.6
	WS	2.7	0.7	4.6	1.7	5.4	2.3	6.4	2.9	8.2	4.1	10.1	5.2	12.0	6.3	3.0	2.1
	M	2.6	0.8	4.6	2.4	5.4	3.2	6.3	4.1	8.1	5.9	10.0	7.7	11.9	9.3	4.1	2.8
	MS	1.9	-	3.7	1.0	4.6	1.8	5.4	2.5	7.3	4.2	9.1	5.6	11.0	6.7	4.9	3.0
	S	1.0	-	2.9	0.5	3.8	1.2	4.8	2.1	6.7	3.8	8.6	5.1	10.5	6.4	5.9	3.9
RS50	8	4.1	1.2	7.4	4.4	9.0	6.1	10.7	7.6	14.2	11.1	17.3	14.5	20.8	18.0	8.1	5.2
	9	3.6	-	6.9	3.4	8.6	5.2	10.3	6.9	13.6	10.2	16.9	13.6	20.3	17.0	9.1	6.0
	10	2.9	-	6.1	2.7	7.8	4.3	9.5	5.9	12.8	9.3	16.2	12.6	19.5	16.1	10.1	6.5
	11	2.3	-	5.6	1.5	7.3	3.1	8.9	4.8	12.4	8.2	15.7	11.5	19.0	14.9	11.0	7.0
	12	1.8	-	5.2	0.6	6.8	2.2	8.5	3.9	11.9	7.3	15.2	10.5	18.5	11.1	11.8	7.6
RS65	8	4.1	1.2	8.7	3.6	14.7	9.5	17.9	12.5	21.1	15.7	27.2	22.0	33.3	28.1	13.7	8.4
	9	3.6	-	7.6	1.3	14.0	7.5	17.1	10.7	20.0	13.8	26.3	20.0	32.4	26.4	15.2	9.7
	10	2.9	-	6.1	-	12.3	5.3	15.4	8.6	18.5	11.8	24.7	18.1	30.4	24.3	17.4	11.0
	11	2.3	-	5.4	-	11.4	3.8	14.4	7.6	17.6	10.4	23.8	16.7	30.0	22.8	18.6	12.2
	12	1.8	-	4.8	-	10.8	1.9	13.6	5.0	16.6	8.2	23.1	14.5	29.2	20.8	20.2	12.5
RS80	8	21.1	6.1	35.3	21.0	42.9	29.1	50.5	35.7	65.6	51.3	80.8	66.4	95.7	80.5	33.7	21.7
	9	17.6	-	32.4	15.7	39.9	23.8	47.4	30.4	62.4	45.3	77.7	60.1	92.5	75.1	38.3	24.8
	10	14.3	-	29.5	11.0	37.1	19.0	44.3	25.7	59.8	40.4	74.5	55.5	89.2	70.0	43.7	28.2
	11	11.4	-	26.2	5.7	33.4	12.9	40.5	20.4	56.1	35.3	70.8	49.9	85.8	64.4	47.7	30.3
	12	9.1	-	23.7	1.0	32.2	8.6	38.5	16.2	53.9	30.7	68.9	44.8	83.6	60.1	51.6	33.5
RS90	8	27.7	6.7	47.3	25.7	56.6	35.2	65.8	44.7	85.1	63.7	104.1	82.7	123.1	101.7	43.9	27.2
	9	23.1	-	42.5	18.8	51.6	28.9	61.4	38.0	80.8	57.4	100.0	77.0	119.0	96.0	49.8	30.7
	10	19.2	-	38.0	12.7	47.5	21.9	57.0	31.4	76.0	50.8	95.0	69.8	114.0	89.0	56.5	34.5
	11	16.9	-	35.0	6.5	44.4	16.2	54.0	25.7	73.2	44.7	92.2	63.7	111.2	82.7	61.8	37.8
	12	12.8	-	31.5	-	41.5	9.5	50.0	19.2	69.4	38.0	88.6	57.0	107.4	76.5	67.5	40.7
RS100	8	34.9	4.8	60.8	29.6	74.1	43.7	86.7	56.1	113.1	81.9	139.7	108.3	166.3	135.9	67.6	40.9
	9	30.6	-	57.0	20.9	70.3	33.7	83.1	46.6	109.3	74.1	135.9	100.2	162.5	126.4	76.4	45.6
	10	25.2	-	52.7	11.8	66.9	24.1	79.3	36.9	105.5	64.1	132.1	90.0	158.7	116.9	87.2	50.4
	11	20.5	-	46.4	1.9	59.5	14.3	72.4	28.0	98.6	53.8	125.4	79.3	152.0	105.5	93.8	55.7
	12	13.8	-	40.3	-	52.9	4.8	65.6	19.0	92.6	45.8	119.2	71.2	145.8	97.9	102.0	60.6
RS115	8	61.8	23.8	104.5	66.5	128.3	85.5	147.3	109.3	190.0	152.0	232.8	190.0	275.5	237.5	85.5	52.3
	9	52.3	9.5	95.0	52.3	118.8	71.3	137.8	95.0	185.3	142.5	228.0	180.5	270.8	223.3	99.8	61.8
	10	42.8	-	85.5	42.8	109.3	61.8	128.3	80.8	175.8	123.5	218.5	166.3	256.5	209.0	114.0	66.5
	11	38.0	-	80.8	28.5	104.5	47.5	123.5	71.3	166.3	114.0	209.0	156.8	251.8	199.5	123.5	76.0
	12	33.3	-	71.3	14.3	95.0	38.0	114.0	57.0	156.8	99.8	199.5	142.5	242.3	185.3	133.0	80.8
RS125	8	76.0	28.5	128.3	80.8	156.8	109.3	180.5	137.8	237.5	194.8	289.8	247.0	346.8	304.0	114.0	71.3
	9	66.5	9.5	118.8	66.5	147.3	95.0	175.8	123.5	228.0	175.8	280.3	232.8	332.5	285.0	133.0	85.5
	10	52.3	-	109.3	47.5	137.8	76.0	161.5	104.5	218.5	161.5	270.8	213.8	323.0	270.8	147.3	95.0
	11	42.8	-	99.8	33.3	128.3	61.8	152.0	85.5	209.0	142.5	261.3	199.5	313.5	251.8	161.5	104.5
	12	33.3	-	90.3	19.0	114.0	42.8	142.5	71.3	194.8	123.5	251.8	180.5	304.0	232.8	175.8	114.0
RS140	8	114.0	42.8	194.8	123.5	237.5	166.3	275.5	204.3	356.3	289.8	437.0	370.5	517.8	451.3	175.8	104.5
	9	95.0	14.3	175.8	99.8	218.5	142.5	256.5	180.5	337.3	266.0	418.0	346.8	498.8	427.5	194.8	118.8
	10	85.5	-	166.3	76.0	204.3	118.8	242.3	156.8	323.0	242.3	408.5	323.0	484.5	403.8	218.5	137.8
	11	66.5	-	147.3	47.5	190.0	90.3	228.0	133.0	308.8	213.8	389.5	299.3	470.3	380.0	242.3	152.0
	12	52.3	-	133.0	28.5	175.8	66.5	213.8	109.3	294.5	194.8	375.3	275.5	456.0	356.3	266.0	166.3
RS160	8	147.3	52.3	261.3	166.3	318.3	218.5	375.3	280.3	489.3	394.3	603.3	508.3	712.5	622.3	242.3	161.5
	9	123.5	14.3	242.3	128.3	299.3	185.3	356.3	242.3	470.3	356.3	584.3	470.3	698.3	584.3	275.5	185.3
	10	104.5	-	218.5	99.8	270.8	152.0	327.8	209.0	446.5	323.0	560.5	437.0	669.8	551.0	313.5	204.3
	11	80.8	-	194.8	61.8	251.8	114.0	308.8	175.8	422.8	289.8	532.0	403.8	650.8	517.8	337.3	228.0
	12	66.5	-	175.8	28.5	232.8	85.5	289.8	142.5	403.8	256.5	513.0	365.8	627.0	479.8	365.8	247.0
RS185	8	204.3	66.5	365.8	228.0	446.5	304.0	532.0	384.8	693.5	546.3	850.3	703.0	1,011.8	864.5	370.5	251.8
	9	171.0	9.5	337.3	171.0	418.0	251.8	494.0	332.5	660.3	494.0	821.8	660.3	978.5	817.0	422.8	285.0
	10	137.8	-	304.0	118.8	384.8	199.5	460.8	280.3	627.0	446.5	788.5	608.0	945.3	769.5	465.5	318.3
	11	104.5	-	266.0	61.8	346.8	152.0	427.5	232.8	593.8	394.3	750.5	555.8	912.0	712.5	508.3	346.8
	12	71.3	-	232.8	23.8	313.5	99.8	394.3	180.5	555.8	342.0	717.3	498.8	874.0	655.5	560.5	380.0
RS210	8	332.5	152.0	570.0	380.0	684.0	498.8	802.8	617.5	1,035.5	850.3	1,263.5	1,078.3	1,496.3	1,311.0	489.3	327.8
	9	285.0	76.0	517.8	313.5	636.5	432.3	750.5	546.3	988.0	779.0	1,216.0	1,016.5	1,448.8	1,244.5	555.8	375.3
	10	232.8	9.5	465.5	242.3	584.3	356.3	703.0	475.0	935.8	712.5	1,168.5	945.3	1,401.3	1,173.3	622.3	427.5
	11	185.3	-	422.8	175.8	532.0	294.5	655.5	408.5	888.3	646.0	1,121.0	878.8	1,353.8	1,111.5	684.0	465.5
	12	147.3	-	384.8	114.0	498.8	237.5	612.8	342.0	850.3	574.8	1,083.0	812.3	1,315.8	1,040.3	745.8	503.5