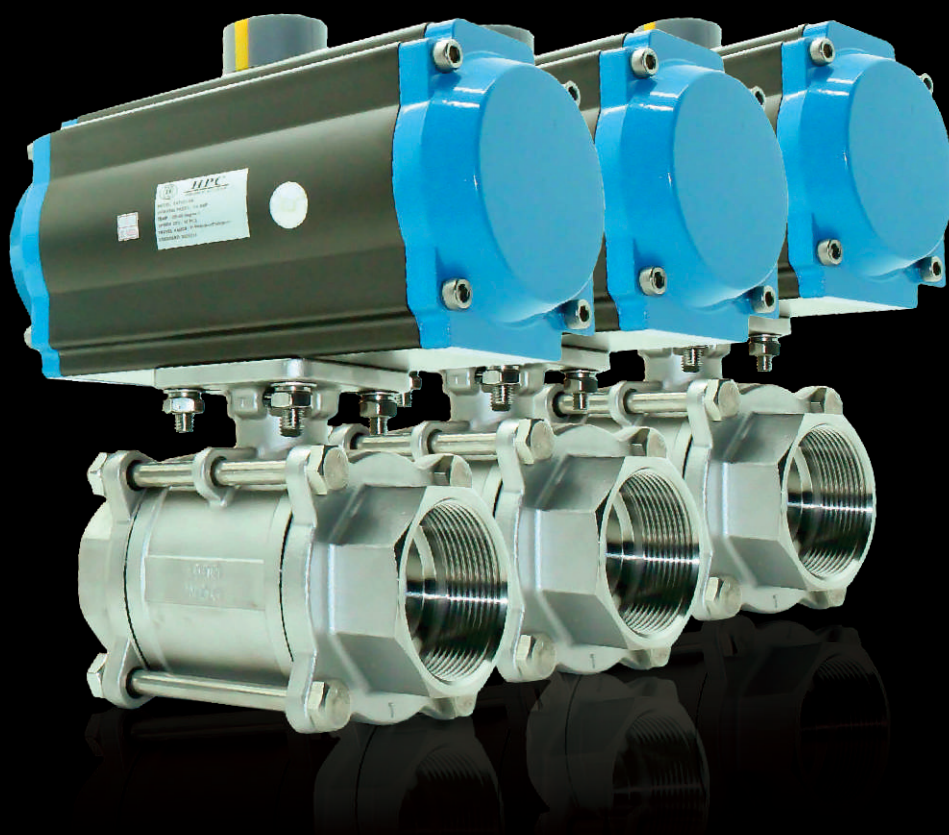


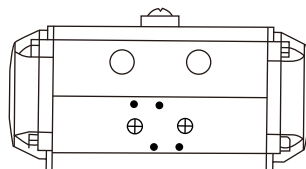
Smart Solution for Actuator



**WE DO OUR BEST TO FULL FILL
CUSTOMER'S NEEDS WITH
TRUSTED PRODUCT & RELIABLE PARTNER**



Smart Solution for Actuator



CONTENTS

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« REP (Positioner)

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« Limit Switch Box

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« Clutch Handwheel

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BAB 8

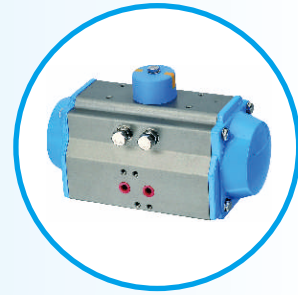
« Electric Actuator

30

› Pneumatic Actuator

R A T

RAT Series Pneumatic Actuator was designed and developed based on the advanced technology and new material.



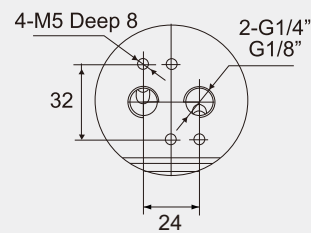
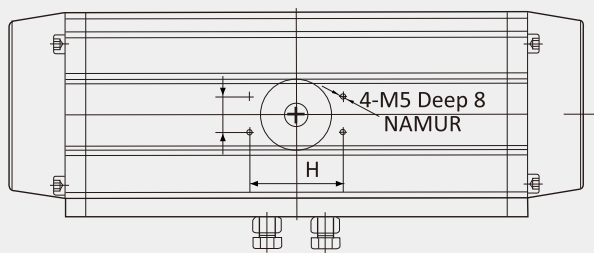
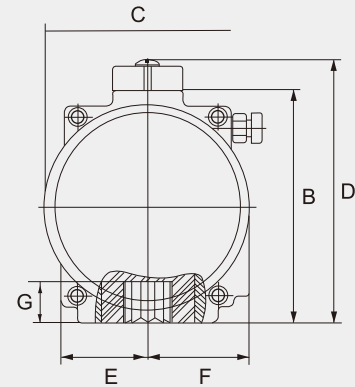
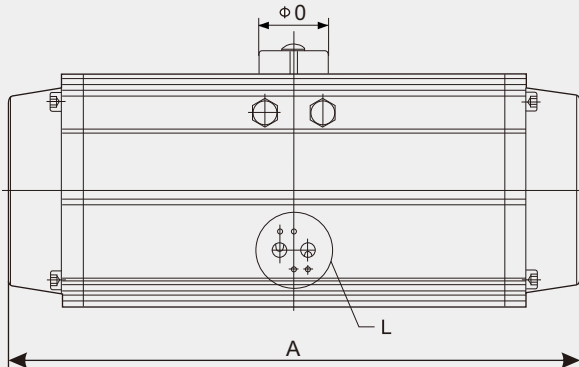
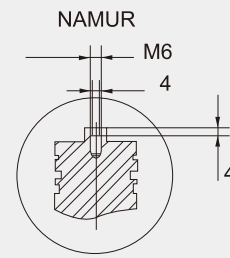
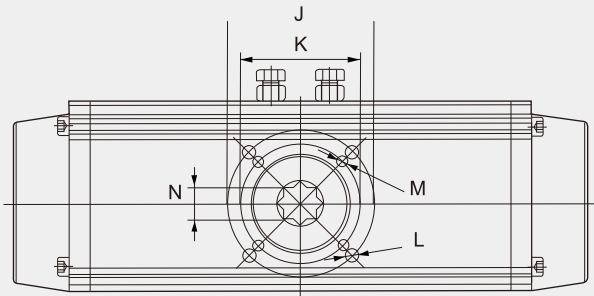
Order Code

R	AT			
Code KZE Product	Actuator Type	Size 032 - 400	SA Spring return type DA Air return type	Qty of Springs 05 - 12

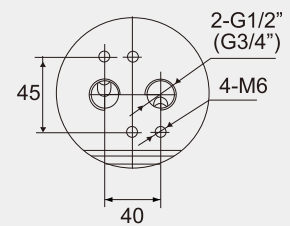
Features

- Conform to the latest international standard: ISO5211, DIN3337,VD/VDE3845 and NAMUR.
- Excellent, compact and modernized design as well as complete specifications is good for you selection.
- All acting surfaces adopt high quality bearings, resulting in low friction, long cycle life and no noise.
- The two independent stroke adjusting devices can easily and precisely adjust at $\pm 5^\circ$ open or close.
- Double acting type and single acting type (spring return) are with the same external structure, which is easy to install the accessories.
- NAMUR standard multifunction position indicator indicates visually.
- Pre-compressed load spring is convenient for safe mounting and teardown procedures.
- Pistons and end caps are made from die-casting aluminum which has high intensity and light weight.
- Different seal materials are available for high or low temperature
- We can offer Multi-travel rotations (e.g. 120° 135° 180°) and three position actuators.
- Solenoid valves can be easily mounted without connecting plank.

The Dimensions



RAT032-RAT240



RAT270-RAT100

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	A120	A180	Air Connection
RAT032	109	45	45	65	22.5	22.5	12	50	25		F03 Φ36		M5X9	9	Φ40			G1/8"
RAT040	124	59.5	45	85.3	28.5	36.4	14	80	30	F05 Φ50	F03 Φ36	M6X9	M5X8	11	Φ40			G1/4"
RAT052	163.5	72	65	97.5	25	42	14	80	30	F05 Φ50	F03 Φ36	M6X9	M5X8	11	Φ40	158	200	G1/4"
RAT063	181	82.6	70	113	35.5	45.5	18	80	30	F07 Φ70	F05 Φ50	M8X10	M6X9	14	Φ40	184	233	G1/4"
RAT075	207	99.5	80.2	125	38.7	52.5	20.5	80	30	F07 Φ70	F05 Φ50	M8X12	M6X9	14	Φ40	103	243	G1/4"
RAT083	212	109	88	134.5	46	56.5	21	80	30	F07 Φ70	F05 Φ50	M8X12	M6X9	17	Φ40	221	280	G1/4"
RAT092	258	117	98.5	142.5	42	61	21	80	30	F07 Φ70	F05 Φ50	M8X12	M6X10	17	Φ40	280	274	G1/4"
RAT105	287	132.5	109.5	158	52	64	24.5	80	30	F10 Φ102	F07 Φ70	M10X15	M8X12	22	Φ40	304	388	G1/4"
RAT125	312.5	154.4	127	180	60	73.5	29	80	30	F10 Φ102	F07 Φ70	M10X15	M8X12	22	Φ50	365	470	G1/4"
RAT140	411	173.3	138	199	65	77	32	80	30	F12 Φ125	F10 Φ102	M12X20	M10X15	27	Φ60	442	568	G1/4"
RAT160	488	198	158.2	223.8	73.8	86.7	34.5	80	30	F12 Φ125	F10 Φ102	M12X20	M10X15	27	Φ60	507	654	G1/4"
RAT190	544	232.3	187	257.8	85.3	102.7	40	130	30	F14 Φ140		M16X22		36	Φ80	575	742	G1/4"
RAT210	610	257.6	210.5	283	96.5	113	41	130	30	F14 Φ140		M16X24		36	Φ80	642	831	G1/4"
RAT240	622	291	245	314.5	115	130	50	130	30	F16 Φ165		M20X26		46	Φ80	739	965	G3/8"(1/4")
RAT270	766	330	273	355.5	126	147	50	130	30	F16 Φ165		M20X26		46	Φ80	823	1075	G1/2"(1/4")
RAT300	794	354	312	379.5	140	173	57	130	30	Φ165		M20X26		46	Φ80			G1/2"
RAT350	880	410	362	435.5	164	195	60	130	30	Φ165		M20X26		46	Φ80			G1/2"
RAT400	1076	466	450	491.5	145	145	60	130	30	Φ254		M20X26		55	Φ80			G3/4"

Output torque of RAT spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		8	
Model	Spring qty	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
RAT032SA	2	3.28	2.74	4.37	3.65	5.47	4.56	6.5	5.47	7.65	6.39	8.74	7.29
RAT052SA	5	8.48	6.28	12.64	10.44							4	6.2
	6	7.68	4.98	11.84	9.14							4.8	7.5
	7	6.98	3.78	11.14	7.94							5.5	8.7
	8			10.34	6.74	14.5	10.9					6.3	9.9
	9			9.54	5.44	13.7	9.6					7.1	11.2
	10			8.74	4.24	12.9	8.4	17.06	12.59			7.9	12.4
	11					12.1	7.1	16.26	11.26	20.42	15.42	8.7	13.7
RAT063SA	12					11.3	5.9	15.46	10.06	19.62	14.22	8.5	14.9
	5	15	11.2	22.3	18.55	29.6	25.8					7	10.8
	6	13.5	9	20.8	16.3	28.1	23.7					8.5	12.95
	7	12	6.9	19.4	14.2	26.7	21.5					9.9	15.1
	8			18	12	25.3	19.3	32.6	26.6			11.3	17.3
	9			16.5	9.9	23.9	17.2	31.2	24.52			12.7	19.4
	10			15.3	7.7	22.6	15	29.9	22.3	37.2	29.6	14	21.6
RAT075SA	11			13.8	5.6	21.1	12.9	28.4	20.2	35.7	27.5	15.5	23.7
	12					19.7	10.7	27	18	34.3	25.3	16.9	25.9
	5	23.4	17.8	35.1	29.5							11.9	17.5
	6	-21.1	14.3	32.8	26							14.2	21
	7	-18.7	10.8	30.4	22.5							16.6	24.5
	8			28	19	39.8	30.8					19	28
	9			25.7	15.5	37.5	27.3					21.3	31.5
RAT083SA	10			23.3	12	35.1	23.8	46.8	35.5	58.6	47.3	23.7	35
	11					32.7	20.3	44.4	32	56.2	43.8	26.1	38.5
	12					30.4	16.8	42.1	28.5	53.9	40.3	28.4	42
	5	30.9	23.8	46.1	38.9							14.5	21.7
	6	28.1	19.5	43.3	34.6							17.39	26
	7	25.2	15.1	40.3	30.2							20.3	30.4
	8			37.4	25.9	52.6	41.1					23.2	34.7
RAT092SA	9			34.5	21.5	49.7	36.7					26.1	39.1
	10			31.6	17.2	46.8	32.4	62	47.6	77.1	62.7	29	43.4
	11					43.9	28.1	59.1	43.3	74.2	58.4	31.9	47.7
	12					41	23.7	56.2	38.8	71.3	54	34.78	52.08
	5	50.28	37.78	75.54	63.03							25.5	38
	6	45.18	30.18	70.44	55.44							30.6	45.6
	7	40.08	22.58	65.34	47.84							35.7	53.2
RAT105SA	8			60.24	40.24	85.5	65.5					40.8	60.8
	9			55.14	32.69	80.4	57.9					45.9	68.4
	10			50.04	25.04	75.3	50.3	100.56	75.56	125.82	100.82	51	76
	11					70.2	42.7	95.46	67.96	120.72	93.22	56.1	83.6
	12					65.1	35.1	90.36	60.36	115.6	85.6	61.2	91.2
	5	68.6	52	103.6	87							33.2	49.8
	6	61.9	42	96.9	77							39.9	59.8
RAT125SA	7	55.3	32.1	90.3	67.1							46.5	69.7
	8			83.7	57.1	116.6	90					53.1	79.7
	9			77	47.4	109.9	80.3					59.8	89.4
	10			70.4	37.2	103.3	70.1	137.3	104	171.2	138	66.4	99.6
	11					96.7	60.1	130.6	94	164.6	128	73	109.6
	12					90	50.2	123.9	64.1	157.9	118.1	79.7	119.5
	5	115.5	88	173.8	146.3							59.4	86.9
RAT125SA	6	103.6	70.6	161.9	128.9							71.3	104.3
	7	91.8	53.5	150.1	111.6							83.1	121.6
	8			138.2	94.2	196.5	152.5					95	139
	9			126.3	76.8	184.6	135.1					106.9	156.4
	10			114.4	59.4	172.7	117.7	231	176			118.8	173.8
	11					160.9	100.4	219.2	158.7	277.5	217	130.6	191.1
	12					149	83	207.3	141.3	265.6	199.6	142.5	208.5

Output torque of RAT spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		8	
Model	Spring qty	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
RAT140SA	5	174.7	131.2	262.5	219							88.5	132
	6	157	104.8	244.8	192.6							106.2	158.4
	7	133.9	78.4	227.1	166.2							123.9	184.8
	8			209.4	139.8	297.1	227.5					141.6	211.2
	9			191.7	113.4	279.4	201.1					159.3	237.6
	10			174	87	261.7	174.7	349.4	262.4	437.8	350.1	177	264
	11					244	148.3	331.7	263	419.5	323.8	194.7	290.4
	12					226.3	121.9	314	209.6	401.8	297.4	212.4	316.8
RAT160SA	5	264.6	197.1	398.3	330.8							136.5	204
	6	237.3	156.2	371	289.9							163.8	244.9
	7	210	115.4	343.7	249.1							191.1	285.7
	8	182.7	74.6	316.4	208.3	450.1	341.9					218.4	326.5
	9			289.1	167.5	422.8	301.2					245.7	367.3
	10			261.8	126.7	395.5	260.4	529.2	394.1			273	408.1
	11					368.2	219.6	501.9	353.3	635.6	487	300.3	448.9
	12					340.9	178.8	474.6	312.5	608.3	446.2	327.6	489.7
RAT190SA	5	429	320.4	644.5	535.9							217.4	326
	6	385.5	255.5	601	470.7							260.9	391.2
	7	342	190	557.5	405.5							304.4	456.4
	8			514	340.3	729.5	555.8					347.9	521.6
	9			470.6	275.1	686.1	490.6					391.3	586.8
	10			427.1	209.9	642.6	425.4	858.1	640.9	1073.6	856.4	434.8	625
	11					599.1	360.2	814.6	575.7	1030.1	791.2	478.3	717.2
	12					555.6	295	771.1	510.5	986.6	726	521.8	782.4
RAT210SA	5	589.6	440.6	885.7	736.7							298.8	447.8
	6	529.8	351.1	825.9	647.2							358.6	537.8
	7	470.1	261.5	766.2	557.6							418.3	626.9
	8			706.4	468.1	1002.5	764.2					478.1	716.4
	9			646.7	375.5	942.8	671.6					537.8	809
	10			586.9	289	883	585.1	1179.1	881.2	1475.2	1177.3	597.6	895.5
	11					823.2	495.5	1119.3	791.6	1415.4	1087.7	657.4	985.1
	12					763.5	406	1059.6	702.1	1355.7	998.2	717	1074.6
RAT240SA	5	924	690.5	1488.1	1154.6							468.5	702
	6	829.9	550.1	1294	1014.2							562.6	842.4
	7	736.7	409.7	1200.8	873.8							655.8	982.8
	8			1107.1	733.4	1571.3	1197.6					749.5	1123.2
	9			1013.4	593	1477.6	1057.2					843.2	1263.6
	10			919.7	452.6	1383.9	916.8	1848.1	1381	2312.2	1845.1	936.9	1404
	11					1290.2	776.4	1754.4	1240.6	2218.5	1704.7	1030.6	1544.4
	12					1196.5	636	1660.7	1100.2	2124.8	1564.3	1124.3	1684.8
RAT270SA	5	1299.7	971.2	1952.4	1623.9							658.5	987
	6	1168	773.8	1820.7	1426.5							790.2	1184.4
	7	1036.3	576.4	1689	1229.1							921.9	1381.8
	8			1557.3	1031.7	2210	1684.4					1053.6	1579.2
	9			1425.6	834.3	2078.3	148.7					1185.3	1776.6
	10			1293.9	636.9	1946.6	1289.6	2599.3	1942.3	3252	2595	1317	1974
	11					1814.9	1092.2	2467.6	1744.9	3120.3	2397.6	1448.7	2171.4
	12					1683.2	894.8	2353.9	1547.5	2988.6	2200.2	1580.4	2368.8

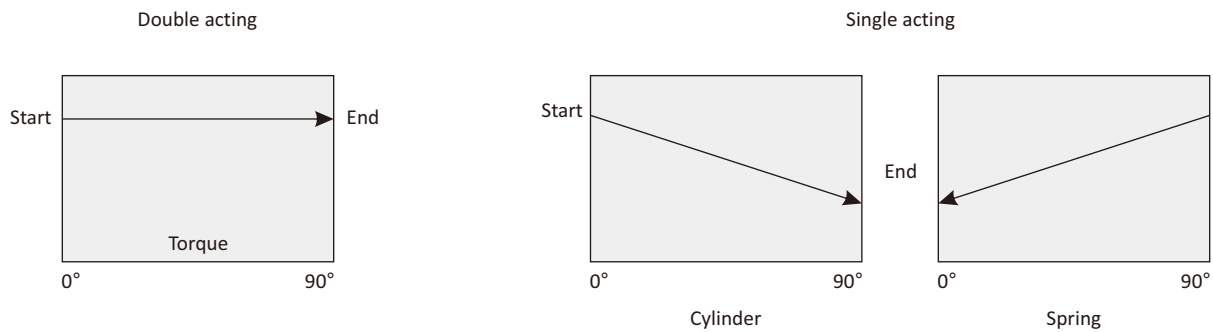
Output torque of RAT spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		8	
Model	Spring qty	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"	0"	90"
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
RAT300SA	5	1603	1183									800	1220
	6	1883	1066									920	1337
	7	1330	844	2132	1646							1073	1559
	8	1177	621	1979	1423	2780	2224					1226	1782
	9			1825	1201	2626	2002	3427	2803			1380	2004
	10			1652	977	2473	1778	3274	2579	4075	3380	1533	2228
	11					2320	1556	3121	2357	3922	3158	1686	2450
	12					2014	1077	2815	1878	3686	2679	1922	2929
RAT350SA	5	2399	1739									1199	1859
	6	2120	1453									1478	2145
	7	1874	1096	3074	2296							1724	2502
	8	1627	738	2827	1938	4027	3138					1971	2860
	9			2580	1581	3780	2781	4979	3980			2218	2317
	10			2335	1223	3535	2423	4734	3622	5934	4822	2463	3575
	11					3288	2066	4487	3265	5687	4465	2710	3932
	12					3120	1537	4319	2736	5519	3936	2878	4461
RAT400SA	5	3418	2479									1709	2648
	6	2922	1670									2205	3457
	7	2647	1239	4357	2949							2480	3888
	8	2372	806	4082	2516	5191	4225					2755	4321
	9			3806	2085	5515	3794	7224	5503			3031	4752
	10			3531	1652	5240	3361	6949	5070	8658	6779	3306	5185
	11					4963	2930	6672	4639	8381	6348	3583	5616
	12					4445	2190	6154	3899	8106	5608	4101	6356

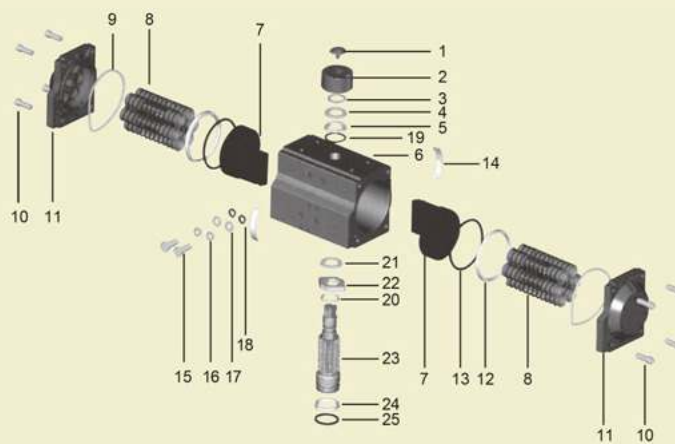
Output torque of RAT air force return actuator

Model	Air Pressure (bar)						
	2	3	4	5	6	7	8
RAT 032DA	2.78	4.20	6.00	7.50	9.00	10.00	11.50
RAT 040DA	4.44	6.56	9.83	11.72	14.06	15.63	17.97
RAT 052DA	8.32	12.48	16.64	20.8	24.96	29.12	33.28
RAT 063DA	14.64	21.96	29.28	36.6	43.92	51.24	58.56
RAT 075DA	23.5	35.3	47	58.8	70.5	82.3	94
RAT 083DA	29.7	44.5	59.4	74.2	89.1	103.9	118.8
RAT092DA	45.5	68.2	91.1	113.7	136.4	159.2	181.9
RAT 105DA	67.88	101.82	136.76	169.7	203.64	237.58	271.52
RAT 125DA	116.6	174.9	233.2	291.5	349.8	408.1	466.4
RAT 140DA	175.48	263.22	350.96	438.7	526.44	614.18	701.92
RAT 160DA	267.4	401.1	534.8	668.5	802.2	935.9	1069.6
RAT 190DA	430.96	646.44	861.9	1077.4	1292.9	1508.4	1723.8
RAT 210DA	592.2	888.4	1184.5	1480.6	1776.7	2072.8	2369
RAT 240DA	831.9	1220.8	1627.8	2030.7	2444.6	2848.6	3255.5
RAT 270DA	1305.4	1958.2	2610.9	3263.6	3916.3	4569	5221.8
RAT 300DA	1602	2403	3205	4006	4807	5608	6409
RAT 350DA	2399	3598	4798	5998	7197	8397	9596
RAT 400DA	3418	5127	6837	8546	10255	11964	13673

Torque diagram of actuator

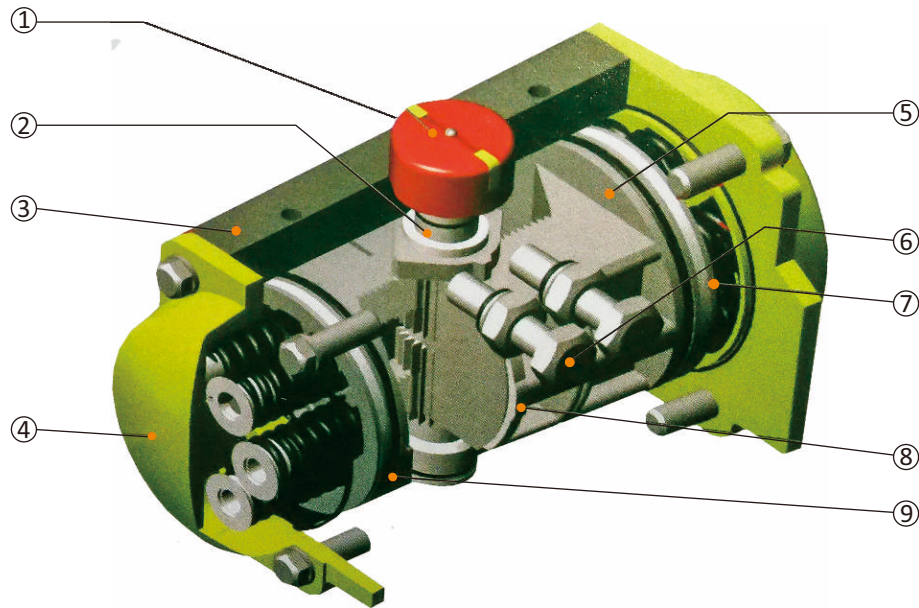


Parts and Material



No.	Description	Qty	Material	Anti-corrode treatment	Optional Material	Wearing parts
1	Indicator crew	1	Pa66 +Pa3			
2	Indocator	1	POM			
3	Spring clip	1	Circlip			
4	Washer	1	Stainless steel			
5	Outside washer	1	PTFE			
6	Body	1	Aluminum alloy	Hard anodized etc		
7	Piston	2	Cast aluminum	Hard anodized	Stainless steel	
8	Spring assembly	*	60Si2Mn2 + Pa66	Dip coating		
9	End cap O-ring	2	NBR		Viton/Silicone	X
10	Cap screw	8	Stainless steel			
11	End cap	2	Cast aluminum	Powder spraying atc		
12	Bearing (Piston)	2	PTFE			
13	O-ring (Piston)	2	NBR		Viton/Silicone	X
14	Guide (Piston)	2	POM		PTFE	
15	Adjusting bolt	2	Stainless steel			
16	Adjusting screw nut	2	Stainless steel			
17	O-ring (adjusting nut)	2	NBR		Viton Silicone	
18	O-ring (pinion top)	1	NBR		Viton Silicone	X
19	Bearing (Pinion top)	1	PTFE			X
20	Inside washer	1	PTFE			
21	Cam	1	SUS304			
22	Pinion	1	Alloy steel	Nickel plated	Stainless steel	
23	Bearing(Pinion bottom)	1	PTFE			
24	O-ring (Pinion bottom)	1	NBR		Viton/Silicon	X

Part Introduction



1. Indicator

NAMUR standard indicator is convenient for mounting accessories such as Limit switch box, Positioner and so on.

2. Actuator Shaft

Nickel plated alloy steel and high-precision shaft conforms to NAMUR, ISO5211 and DIN3337 standard. The dimensions and stainless steel one can be customized.

3. Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005 body can be treated with hard anodized, powder polyester painted (different colors like blue, orange, yellow and so on are available), PTFE or nickel plated.

4. End Caps

Die-casting aluminum powder polyester can be painted in different colors, PTFE coated or Nicked plated.

5. Pistons

The twin rack pistons are made from Die-casting aluminum 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.

6. Stroke adjustment

The two independent external stroke adjustment bolts can adjust $\pm 5^\circ$ at both open and close direction easily and precisely.

7. High performance springs

Preloaded coating springs are made from the high quality material for resistant to corrosion and long service life, which can be demounted safely and conveniently to satisfy different requirements of torque. By changing quantity of springs.

8. Bearings and Guides

Made from low friction and long-life compound material which to avoid the direct contact between metals and also easy to be maintained.

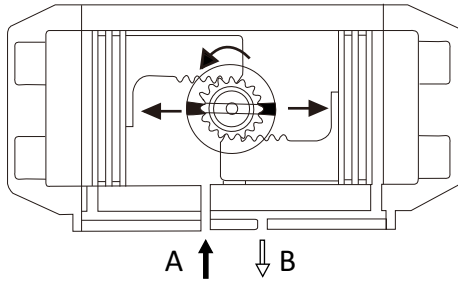
9. O-rings

Normal: NBR

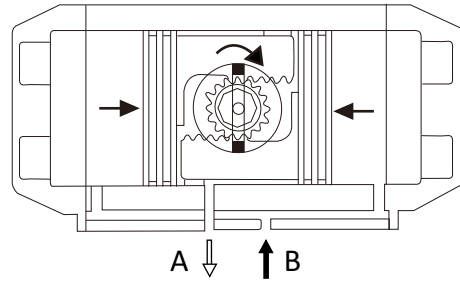
High temp. & low temp. : Viton or Silicone

Operating Principle

Double action

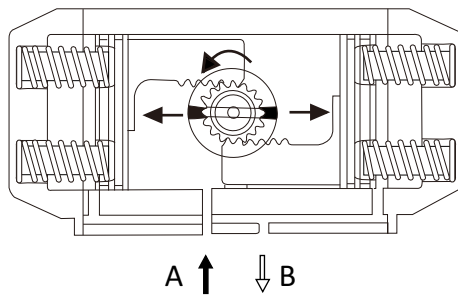


Input the air into Port A forces the pistons move outwards, the pinion turns counterclockwise and open the valve, then the air be exhausted from Port B.

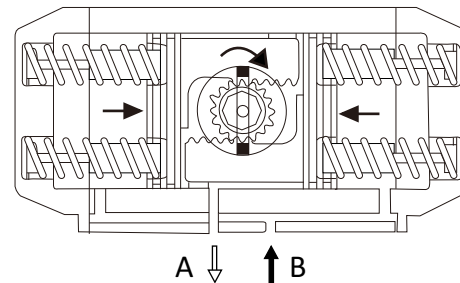


Input the air into Port B forces the pistons move inwards, the pinion turns clockwise and close the valve, then the air be exhausted from Port A.

Single action



Input the air into Port A forces the pistons move outwards, the pinion turns counterclockwise and open the valve, then the air be exhausted from Port B.



When loss air pressure or power, the stored energy in the springs forces the pistons inwards, causing the pinion turns clockwise while air be exhausted from port A, and air to the Port B can accelerate closing the valve.

Note:

1. The standard rotation is clockwise for closing the valve and counterclockwise for opening.
2. If the direction of the piston is assembled, then the standard rotation is counterclockwise for closing the valve and clockwise for opening.

The Function and usage of the actuator and the parts

- Double action actuator open and close the valve
- Single action actuator (spring return): when the air is cut off, it will close (normal close type)
- Double control solenoid valve: the valve open when one solenoid coil power on and close when another coil power on, it has memory function. (Ex-proof type is available)
- Single control solenoid valve: the valve open or close when power on, and close or open when power off. (Ex-proof type is available).
- Limit switch box: transmit the signal of open or close of the valve remotely. (Ex-proof type is available)
- Pneumatic positioner: control the medium flow rate of the valve according to air pressure (0.2-1bar) (Ex-proof type is available).
- Electric positioner: control the medium flow rate of the valve according to electric current (4-20mA) (Ex-proof type is available).
- Electric-pneumatic transducer: transduce current signal to air pressure signal for compatibility with positioner.
- FRL: includes filter, regulation and lubrication which can clean and lubricate the connection parts.
- Manual equipments: manual operate on the valve in case of the cut off or stoppage of the air or power.

How to choose

Firstly, confirm the torque that will need during the open or close of the valve. Normally the safety factor is 15~20%. If the medium is steam or non-lubricated liquid, then set it to 25%. The safety factor for non-lubricated slurry liquid is 40% and for non-lubricated granule power 80%. Then check output torque table from of double action or single action, you can get a right model. On the output torque table of single action actuator, the torque on the line of spring stroke is the torque of closing the valve.

Example

- A ball valve need torque = 280N.m
- Medium : water
- Safety factor (20%) = $280 (1+20\%) = 336\text{N.m}$
- Air pressure = 4 bar
- According to the output torque table of double action actuator, the right model is RAT140DA, the output torque is 350.96N.m when the pressure is 4bar

Sample of choosing single action actuators

During the selecting of the spring return actuators, we can choose a more reasonable and economical actuator if we know the different torque of valve on opening, operation and closing.



Example

A butterfly valve need torque=80N.m
 The max torque needed by the butterfly valve $80(1+30\%) = 104\text{N.m}$
 The torque after opened (operating) $104 \times 30\% = 32\text{N.m}$
 Air supply = 4bar
 We can select RAT125S K10

- Air Stroke 0° = 114.4N.m > 104N.m
- Air Stroke 90° = 59.4N.m > 32N.m
- Spring Stroke 90° = 173.8N.m > 32N.m
- Spring Stroke 0° = 118.8N.m > 104N.m
- The above data shows the actuator's torque can satisfy the requirement of the butterfly valve

Attention: During the restoration, the spring return actuator's torque will not be affected by inputting air from port B. On the contrary, it will help restoration of springs.

Air consumption

Air volume opening & closing					
Model	Air volume opening	Air volume closing	Model	Air volume opening	Air volume closing
RAT032	0.035 L	0.045 L	RAT160	2.6 L	3.7 L
RAT052	0.09 L	0.12 L	RAT190	4.2 L	5.9 L
RAT063	0.14 L	0.2 L	RAT210	5.7 L	8.2 L
RAT075	0.21 L	0.3 L	RAT240	9 L	12.8 L
RAT083	0.29 L	0.41 L	RAT270	12.6 L	17.9 L
RAT092	0.49 L	0.71 L	RAT300	21.4 L	30 L
RAT105	0.7 L	0.99 L	RAT350	31.2 L	43.7 L
RAT140	1.7 L	2.4 L	RAT400	47.9 L	67.1 L

Air consumption of double action actuator (L/min) = air volume (air volume opening + air volume closing) x (air supply(kpa) + 101.3) ÷ 101.3) x action cycle time (/min).

Air consumption of single action actuator (L/min) = air volume opening x (air supply (kpa) + 101.3) ÷ 101.3) x action cycle time (/min).

The weight of actuator

Model	Similar weight	Model	Similar weight
RAT032DA	0.55	RAT160DA	22
RAT052DA	1.3	RAT190DA	32
RAT063DA	2.3	RAT210DA	44
RAT075DA	3.05	RAT240DA	53.2
RAT083DA	3.5	RAT270DA	83
RAT092DA	4.8	RAT300DA	104.4
RAT105DA	6.05	RAT350DA	150.3
RAT125DA	9.5	RAT400DA	272.2
RAT140DA	15		

Operating conditions

working medium

- Dry or lubricated air or inert gas, as long as the medium is compatible with the inside parts and lubricant of the actuator
- The dew-point temperature of the operating media is -20°C. The dimension of the impurity particle cannot be larger than 30μ.
- If the positioner is needed, the dimension of impurity particle cannot be large than 5μ.

Air pressure

- 3bar to 8bar

Working temperature

- Standard : -20°C ~ +80°C
- Low temperature type : -40°C ~ +80°C
- High temperature type : -20°C ~ +160°C

Lubrication

- Usually the standard types no need to use lubricant. In the low temperature or high temperature accasion, it will need special lubricant.

Three position actuator

Three position actuator provides an operation of 0° , 45° , 90° or the random travel of middle position. The middle position is achieved by the mechanical brake which is caused by the movement of the two auxiliary pistons. It is adjustable.

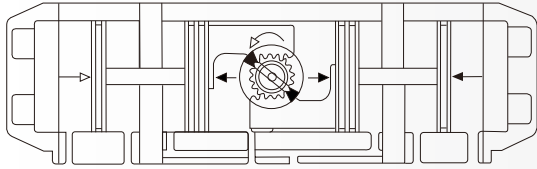


Chart 1 : it is a middle position, which is achieved when the air is supplied to port 2 and port D, meantime port 4 and port C are in state of exhaust air. When the air is supplied to port D, it forces the auxiliary pistons move to the center, and make the inner pistons stopped at the set position.

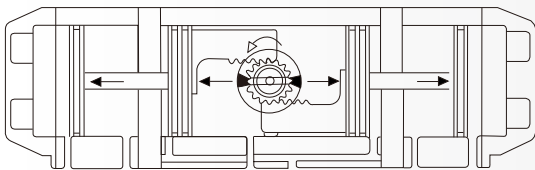


Chart 2 : it is fully open position, which is achieved when the air is supplied to port 2 and port C (air to port C is optional), meantime port 4 and port D are in a state of exhaust air.

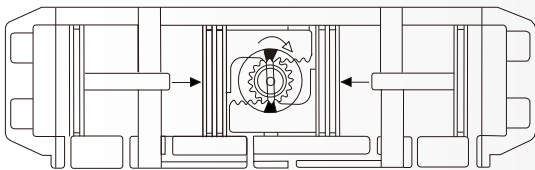


Chart 3 : it is fully close position, which is achieved when the air is supplied to port 4 and port 2 is in a state of exhaust air. No need to operate port C and port D.

How to order

- Pneumatic actuators : double acting or spring return type (normal close or normal open)
- Please note the working pressure of the valve, working medium, working temperature and the seals.
- Solenoid valve : please note whether you need double coil or single coil, voltage and Ex-proof or not.
- Signal feedback : mechanical or approachable switch, voltage, output current and ex-proof type.
- Positioner : pneumatic positioner, electric positioner current signal, voltage, electrical converter, ex-proof type
- FRL
- Manual device
- Special one can be customized

Quality Assurance

- Each actuator is tested and checked before delivery.
- Each actuator has a QC passed label.
- Each actuator is with the standard NUMAR connection and mounting size
- Each actuator is packed by the carton.

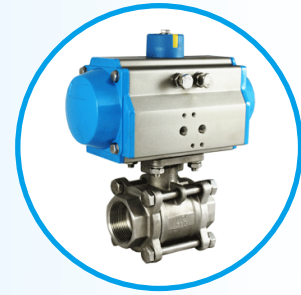
Common problems and the solution

Common problems	Checking Item	Solution
Pneumatic valve does not work	1. Check if the solenoid valve works normally? is the solenoid coil failure? If the armature of the solenoid valve is jammed by impurity?	Replace the solenoid valve or coil and remove the impurity
	2. Test the pneumatic actuator with air supply to check if the o-ring and cylinder are broken.	Replace the broken o-ring and cylinder
	3. Is impurity blocking the valve?	Clean out the impurity, replace the broken parts
	4. Is the handle of the manual device at the manual state?	Put the handle to the pneumatic state
Acting slowly	1. Is the air supply pressure insufficient?	Increase the air pressure (0.4~0.7Mpa)
	2. Is the output torque of pneumatic actuator not enough?	Select a bigger model of the pneumatic actuator
	3. Is the valve stem or other parts assembled to tight?	Re-assemble and adjust the valve
	4. Is the air supply pipe blocked making the air flow too small?	Clean on the block and replace the filter stem
The feedback has no signal	1. Check if the power is short circuit or open circuit	Examine and repair the circuit
	2. Is the cam of the feedback in the incorrect position?	Adjust the cam to the correct position
	3. Is the micro switch broken?	Replace the micro switch

› Pneumatic Ball Valve

R B V

Unique design and high platform structure.
ISO5211 connection, easy to be installed.



Order Code

R	BV	□	□	□	□	□□	□
KZE Product	Ball valve	Type	Connection	Structure	Tandem Structure	Nominal Diameter	Valve body material
	P pneumatic L Lever	1 Female thread connection 2 male thread connection 4 Flanged connection 7 wafer type	1 Straight bore 2.Y 3-way Y type 4.L 3-way L type 5.T 3-way T type	1 1PCS type 2 2PCS type 3 3PCS type Blank Other	08 : 1/4" 10 : 3/8" 15 : 1/2" 20 : 2/4" 25 : 1" 32 : 1/4" 40 : 1/2" 50 : 2" 65 : 2 1/4" 80 : 3" 100 : 4" 125 : 5" 150 : 6"	Z CI Q DI P Stainless stell 304 R Stainless stell 316 C Carbon steel	

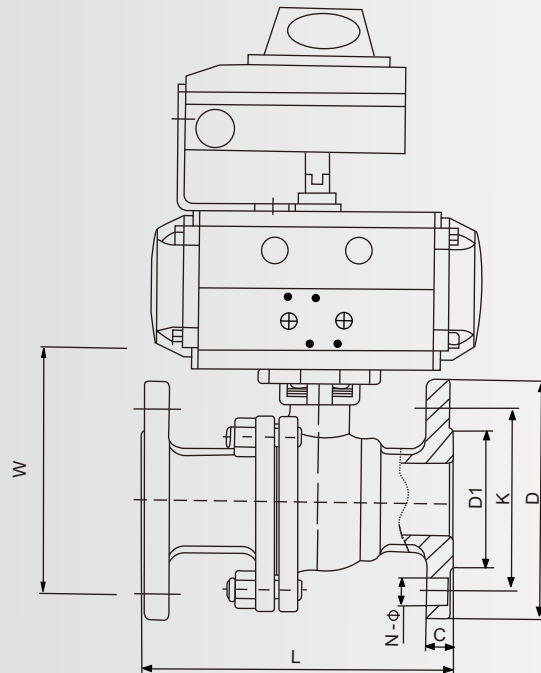
Features

- Unique design and beautiful appearance
- High platform structure and ISO5200 connection, makes the installation of electric or pneumatic actuator to be more professional.
- Valve body is overlaid with reinforced bar, which can be permanently used in corrosion medium, and keep away from the cracking and failure during the installation
- Grinding process of the valve stem reduces the torque of electric or pneumatic valve during the installation.
- The valve body of carbon steel is phosphate coated, which won't be discolored and rusty. It is durable and beautiful.

Pneumatic Din Flange Ball Valve

Features

- The nominal pressure: PN 1.6, 2.5 Mpa
- Strength test pressure: PT2.4/3.8MPa
- Seal test pressure (low pressure): 0.6MPa
- Suitable medium: water.oil.gas.nitric acid.acetic acid
- Suitable temperature: -40~180°C
(WCB, Cf8, CF8M, Ti, Ni)
- GB: China national standard

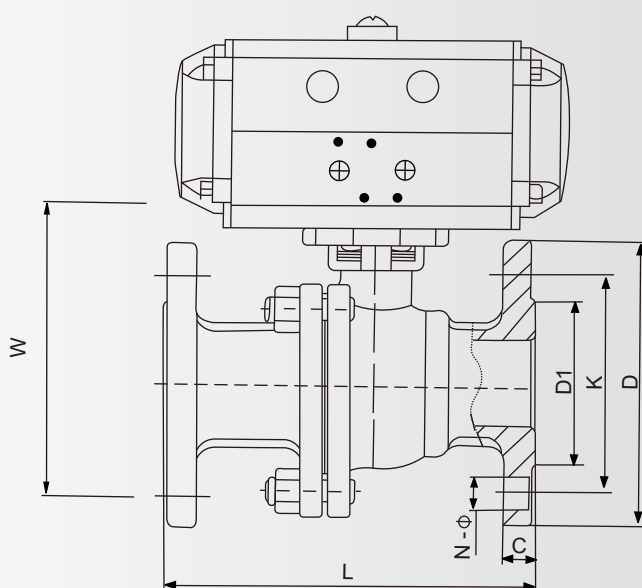
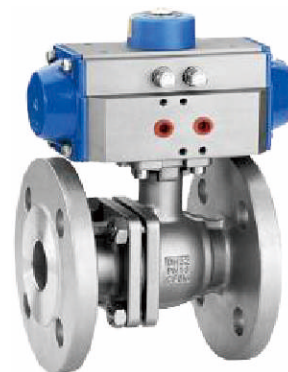


Model	INCH	DN	L	D	K	D1	C	W	N-Φ	Actuator
RBVP41-2-15GB	½"	15	130	95	65	45	14	97	4-14	RAT052DA
RBVP41-2-20GB	¾"	20	140	105	75	45	14	110	4-14	RAT052DA
RBVP41-2-25GB	1"	25	150	105	85	65	14	115	4-14	RAT063DA
RBVP41-2-32GB	1-1/4"	32	165	135	100	78	16	140	4-18	RAT063DA
RBVP41-2-40GB	1-1/2"	40	180	145	110	85	16	170	4-18	RAT075DA
RBVP41-2-50GB	2"	50	200	160	125	100	16	165	4-18	RAT083DA
RBVP41-2-65GB	2-1/2"	65	220	180	145	120	18	195	4-18	RAT092DA
RBVP41-2-80GB	3"	80	250	196	160	137	20	220	8-18	RAT105DA
RBVP41-2-100GB	4"	100	280	217	180	156	20	250	8-18	RAT125DA
RBVP41-2-125GB	5"	125	320	245	210	185	22	380	8-18	RAT140DA
RBVP41-2-150GB	6"	150	340	280	240	210	24	470	8-23	RAT190DA
RBVP41-2-200GB	8"	200	400	335	295	265	26	626	12-23	RAT210DA

Pneumatic ANSI Flange Ball Valve

Features

- The nominal pressure : 150/300
 - Strength test pressure : PT 3.0/7.5MPa
 - Seal test pressure (low pressure): 0.6MPa
 - Suitable medium: water.oil.gas.nitric acid.acetid acid
 - Suitable temperature: -40 ~ 180°C
(WCB, CF8, CF8M,Ti, Ni)
- Ansi: American Standard



Model	INCH	DN	L	D	K	D1	N—Ø	C	W	Actuator
RBVP41-2-15-ANSI	½"	15	105	89	60.5	35	4-15	10	100	RAT052DA
RBVP41-2-20-ANSI	¾"	20	116	98	70	43	4-15	11	108	RAT052DA
RBVP41-2-25-ANSI	1"	25	127	108	79.5	51	4-15	12	110	RAT052DA
RBVP41-2-32-ANSI	1-1/4"	32	140	117	89	64	4-15	13	165	RAT063DA
RBVP41-2-40-ANSI	1-1/2"	40	165	127	100	74	4-15	14.5	145	RAT075DA
RBVP41-2-50-ANSI	2"	50	178	152	120.5	92	4-19	16	165	RAT083DA
RBVP41-2-65-ANSI	2-1/2"	65	190	178	139.5	105	4-19	17.5	200	RAT092DA
RBVP41-2-80-ANSI	3"	80	203	190	152.5	127	4-19	19	225	RAT105DA
RBVP41-2-100-ANSI	4"	100	229	229	192	155	8-19	24	265	RAT125DA
RBVP41-2-125-ANSI	5"	125	356	254	216	186	8-22	24	380	RAT140DA
RBVP41-2-150-ANSI	6"	150	394	279	241.3	216	8-22	25.4	470	RAT190DA
RBVP41-2-200-ANSI	8"	200	457	343	298.5	270	8-22	29	626	RAT210DA

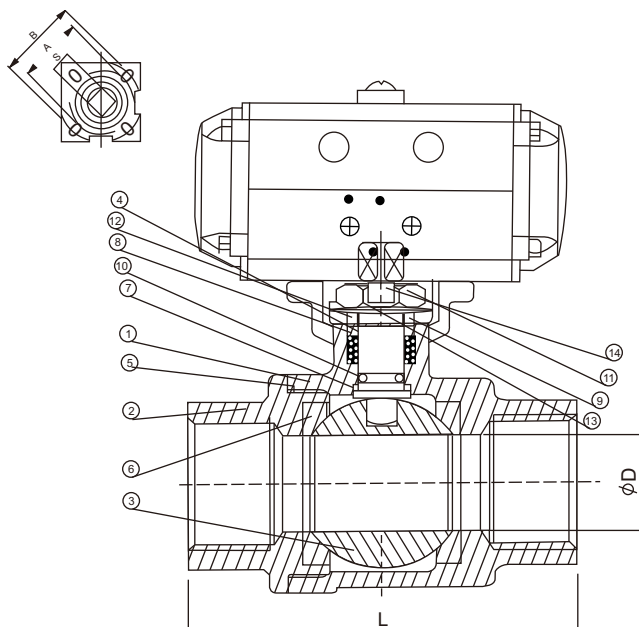
Pneumatic Female Thread 3-part Ball Valve

Features

- Screw type: NPT, BSPT, BSP
ISO-228 Class A Thread
- Temperature range: PTFE : -20°C~180°C
TFM : -50°C~270°C
RPTFE: -35°C~210°C
- Suitable medium: water, oil, air and some corrosive liquid
- Nomial pressure: 1000PSI (PN63) For ½" to 4"
- Blowout proof stem
- Locking device
- Material: CF8M 9(DIN I.4408)
Cf8 9DIN I .4308)
WCB (DIN I.0619)
(WCB, CF8, CF8M/I. Ti. Ni)

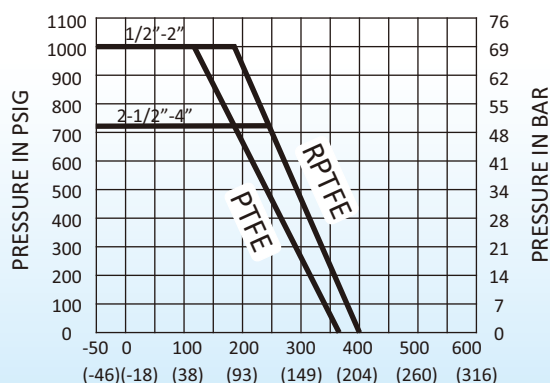


No.	Component	Material	No.
1	Valve body	AISI 316	1
2	The sealing ring of the valve body	PTFE	2
3	Bolt washer	AISI 304	4
4	Screw cap	AISI 316	2
5	The sealing ring of the valve body	PTFE	2
6	Steam washer	Poly PTFE	1
7	Stem packing	PTFE	1
8	Packing gland	AISI 304	1
9	Valve stem	AISI 316	1
10	Valve body	AISI 316	1
11	Bolt washer	AISI 304	4
12	Six corner	AISI 304	4



Model	Size/ Dime	D	H	h	T	ISO-5211		S	Actuator
						A	B		
RBVP11-3-15	½"	15	38.8	5.5	5.7	70.6	F03 F04	9	RAT052DA
RBVP11-3-20	¾"	20	46	10	5.6	77.2	F03 F04	9	RAT052DA
RBVP11-3-25	1"	25	55.6	11	6	86.7	F04 F05	11	RAT052DA
RBVP11-3-32	1-1/4"	32	60.7	11.6	6	105	F04 F05	11	RAT063DA
RBVP11-3-40	1-1/2"	40	71.7	14.5	7	115	F05 F07	14	RAT075DA
RBVP11-3-50	2"	50	79	14	8	137	F05 F07	14	RAT083DA
RBVP11-3-65	2-1/2"	65	106.5	21.3	9.5	188.5	F07 F10	17	RAT092DA
RBVP11-3-80	3"	80	119.5	18	10	206.5	F07 F10	17	RAT105DA
RBVP11-3-100	4"	100	125	22	10	266	F10 F12	22	RAT125DA

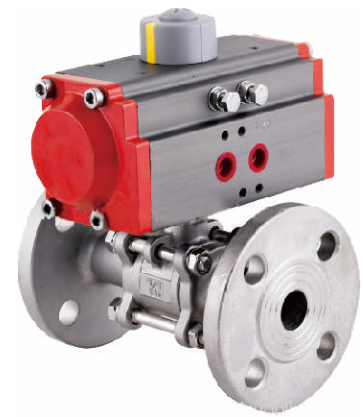
Pressure temperature analysis diagram



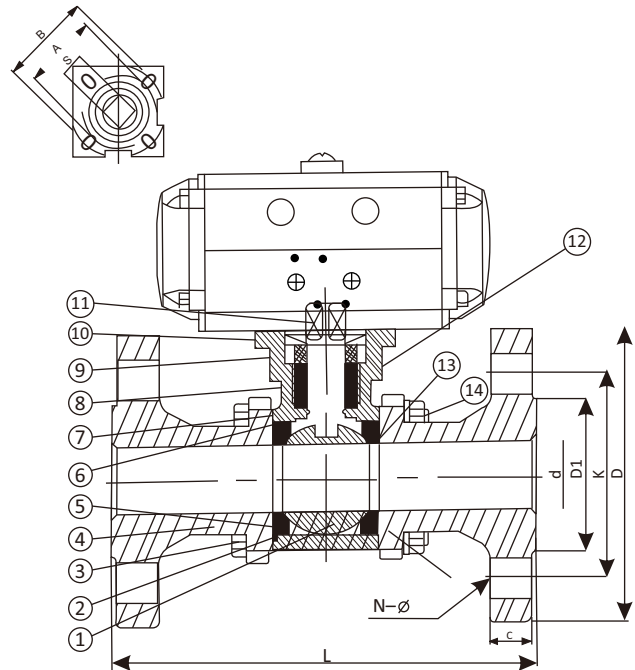
Pneumatic 3-Part Flange Ball Valve

Features

- The nominal pressure : PN 1.6, 2.5, 4.0, 6.4MPa
- Strength test pressure : PT 2.4, 3.8, 6.0, 9.6MPa
- Seal test pressure (low pressure): 0.6MPa
- Suitable medium: Suitable medium: water.oil.gas.nitric acid.acetic acid
- Suitable temperature: -40 ~ 180°C
- 3 Piece type flanged ball valve
(GB, ANSI, -JIS, DIN, SB)
(WCB, CF8, CF8M/I, Ti, Ni)

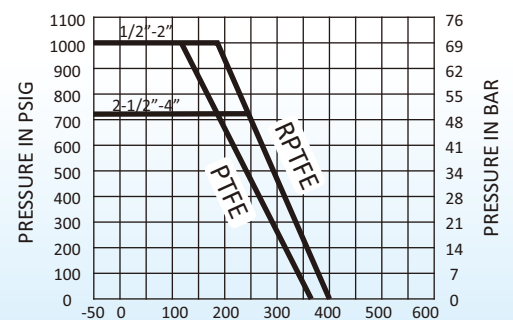


No.	Component	Material	No.
1	The ball	AISI 316	1
2	Valve seal	PTFE	2
3	Bolt	AISI 304	4
4	Valve cover	AISI 316	2
5	Valve seat	PTFE	2
6	Steam gasket	PTFE	1
7	O ring	PTFE	1
8	Stem packing	PTFE	1
9	Stem packing	AISI 304	1
10	Gland	AISI 304	1
11	Valve stem	AISI 316	1
12	Valve body	AISI 316	1
13	Stem gasket	AISI 304	4
14	Six corner	AISI 304	4



Model	DN	D	PN	ANSI	D	K	D1	C	N-Ø	Actuator
			L							
RBVP41-3-15	1/2"	15	130	108	95	65	45	16	4-14	RAT052DA
RBVP41-3-20	3/4"	20	150	117	105	75	58	18	4-14	RAT052DA
RBVP41-3-25	1"	25	160	127	115	85	68	18	4-14	RAT052DA
RBVP41-3-32	1-1/4"	32	180	140	140	100	78	18	4-18	RAT063DA
RBVP41-3-40	1-1/2"	40	200	165	150	110	88	18	4-18	RAT075DA
RBVP41-3-50	2"	50	230	178	165	125	102	20	4-18	RAT083DA
RBVP41-3-65	2-1/2"	65	250/290	190	185	145	122	22	8-18	RAT092DA
RBVP41-3-80	3"	80	280-310	203	200	160	138	24	8-18	RAT105DA
RBVP41-3-100	4"	100	320/350	229	235	190	162	24	8-22	RAT125DA

Pressure temperature analysis diagram
PRESSURE VS TEMPERATURE CHART



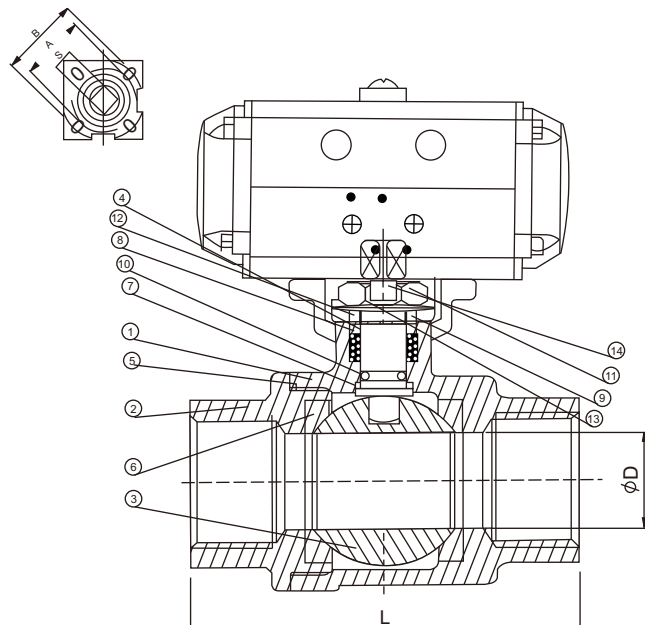
Pneumatic Female Thread 2-part Ball Valve

Features

- Screw type: NPT, BSPT, BSP
ISO-228 Class A Thread
- Temperature range: PTFE: -20°C~180°C
TFM: -50°C~270°C
RPTFE: -35°C~210°C
- Suitable medium: water, oil, air and some corrosive liquid
- Nomial pressure: 1000PSI (Pn63) For ½" to 3"
- Anti roll stem
- Locking device
- Material: CF8M 9(DIN I.4408)
CF8 9DIN I .4308)
WCB (DIN I.0619)
(WCB. Cf8. CF8M/I.Ti.Ni)

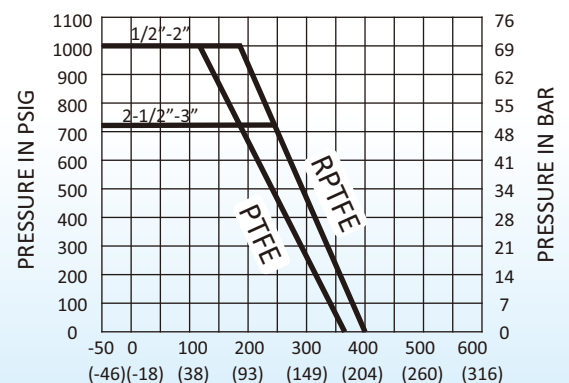


No.	Component	Material	No.
1	Valve body	AISI 316	1
2	The sealing ring of the valve body	PTFE	2
3	Bolt washer	AISI 304	4
4	Screw cap	AISI 316	2
5	The sealing ring of the valve body	PTFE	2
6	Steam washer	Poly PTFE	1
7	Stem packing	PTFE	1
8	Packing gland	AISI 304	1
9	Valve stem	AISI 316	1



Model	Size/ Dime	D	H	h	T	L	ISO-5211		S	Actuator
							A	B		
RBVP11-2-15	½"	15	39.5	6	5.6	39.5	F03	F04	9	RAT052DA
RBVP11-2-20	¾"	20	44	11.6	5.6	44	F03	F04	9	RAT052DA
RBVP11-2-25	1"	25	56	10	7.5	56	F04	F05	11	RAT052DA
RBVP11-2-32	1-1/4"	32	62	12.7	5.7	62	F04	F05	11	RAT063DA
RBVP11-2-40	1-1/2"	40	78.5	12	7	78.5	F05	F07	14	RAT075DA
RBVP11-2-50	2"	50	91	11.7	7.85	91	F05	F07	14	RAT083DA
RBVP11-2-65	2-1/2"	65	105	21	8.8	105	F07	F10	17	RAT092DA
RBVP11-2-80	3"	80	116.5	18.7	9	116.5	F07	F10	17	RAT105DA

Pressure temperature analysis diagram



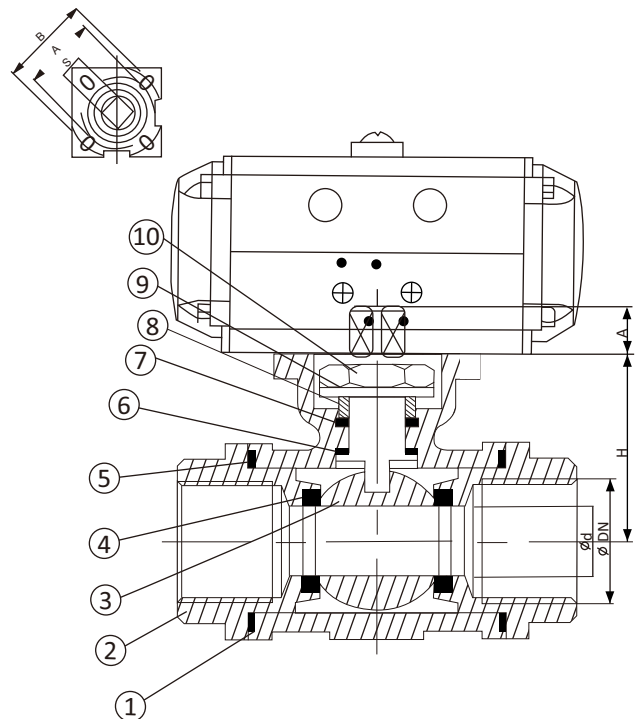
Pneumatic 3-Way Ball Valve

Features

- The nominal pressure : PN 1.6, 2.5, 4.0, 6.4MPa
- Strength test pressure : PT 2.4, 3.8, 6.0, 9.6MPa
- Sealed test pressure (low pressure): 0.6MPa
- Seal test pressure (pressure): 1.8, 2.8, 4.4, -7.1MPa
- Suitable medium: Suitable medium: water.oil.gas.
nitric acid.acetic acid
- Suitable temperature: -40 ~ 180°C
(WCB. Cf8. CF8M/I. Ti. Ni)

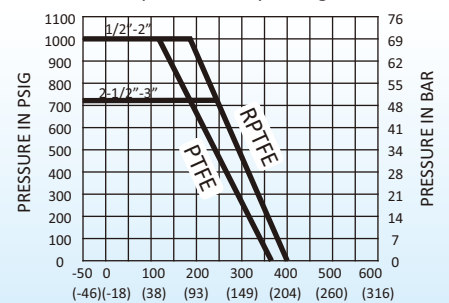


No.	Component	Material	No.
1	Valve body	AISI 316	1
2	Valve cover	AISI 316	2
3	The ball	AISI 316	4
4	Valve seat	PTFE	2
5	Valve seal	PTFE	2
6	Valve seat	PTFE	1
7	Stem packing	PTFE	1
8	Stem washer	AISI 304	1
9	Elastic washer	AISI 304	1
10	Valve stem nut	AISI 304	1
11	Valve stem	AISI 316	1



Model	d $\varnothing$	L	H	h	B	A	S	T	DN	G	A1	Actuator
RBVP14-2-15	11.0	73.3	37	8.5	F04	F03	9.0	5	15	1/2"	69.5	RAT052DA
RBVP14-2-20	15.0	83.4	30	11.8	F04	F03	9.0	20	20	3/4"	74	RAT052DA
RBVP14-2-25	20.0	88.6	45	14.3	F05	F04	11.0	25	25	1"	85.5	RAT052DA
RBVP14-2-32	25.0	127	55	14.5	F05	F04	11.0	32	32	1-1/4"	105	RAT063DA
RBVP14-2-40	32.0	137.3	68	17.5	F07	F05	14.0	40	40	1-1/2"	126	RAT075DA
RBVP14-2-50	40.0	154	72.7	18.8	F07	F05	14.0	50	50	2"	137.8	RAT083DA

Pressure temperature analysis diagram



› Pneumatic butterfly valve

R D V

Specialized manufacture, Specialized service, RFS valve devote to satisfy user's expectation, improving service quality continuously. keeping improving.



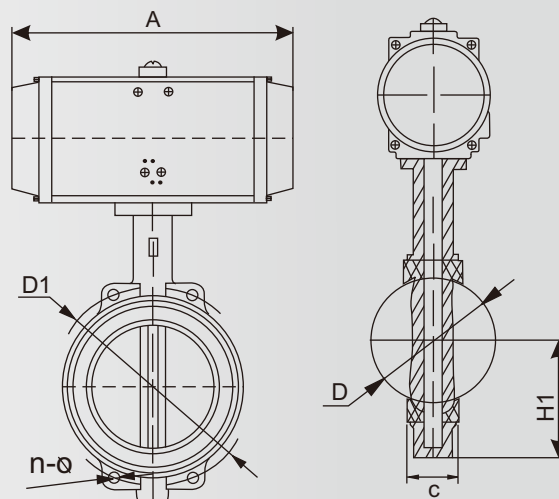
Ordering Code

R	DV	P	□	□	□	□	□
KZE Product	Butterfly valve	Type P pneumatic control L Lever control	Connection 4 Flanged type 7 wafer type	Body material Z CI Q DI P Stainless steel 304 R Stainless steel 316 C Carbon steel T Aluminum bronzo	Disc material B1 plated DI B2 Aluminum bronzo B3 Stainless steel 304 B4 Titanium steel B5 Stainless steel 316 B6 Carbon steel	Seal Material H Stainless steel 1 Natural rubber 2 Hypalon seal 3 EPDM 5 Neoprene 6 NBR 7 Abrasion resistant rubber 8 Viton 9 Heat-resistant EPDM F4 PTFE	Office 50-1000

Pneumatic wafer type soft seal butterfly valve

Features

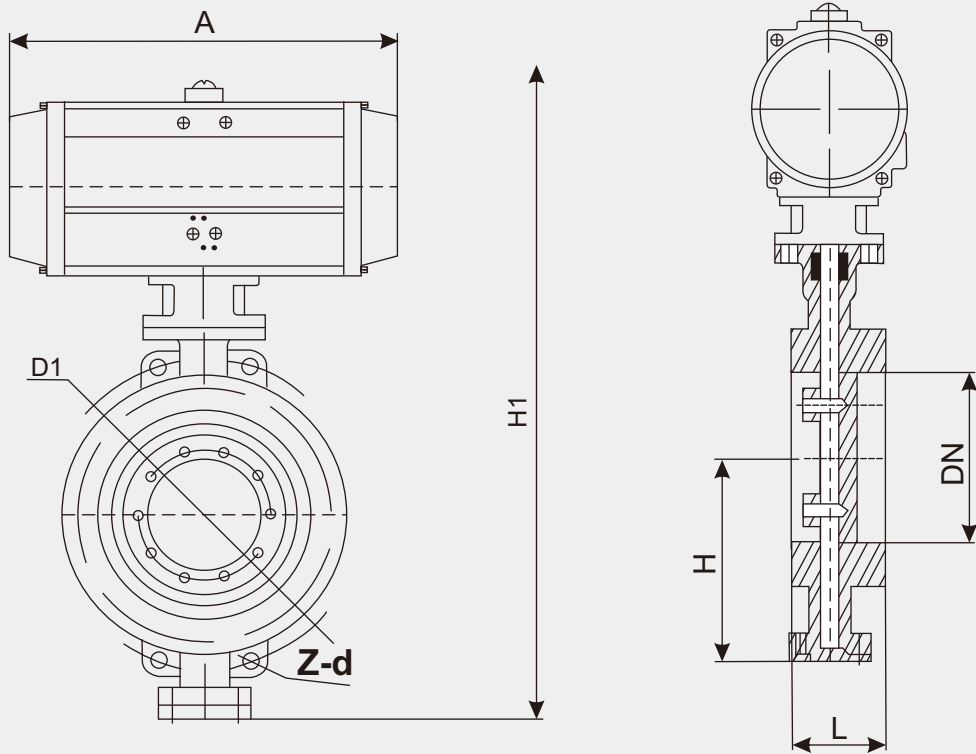
- Small and light, easy for installation and repair, and can be installation on any position
- Simple structure, compact, Prompt 90 degree turn round, open and close.
- Small operating torque
- Flow rate characteristic tend to straight, well regulate
- Open and close test over 10.000 times, long life.
- Complete seal, no leakage during air testing.
- Choose different material as parts, fit for kinds of medium.



Model	Orifice	D	D1	H1	A	C	n-d	Actuator
RDVP7PB3-7-50	2	52.9	125	80	181	42	4-18	RAT063DA
RDVP7PB3-7-65	2.5	64.5	145	89	223	44.7	4-18	RAT075DA
RDVP7PB3-7-80	3	78.8	160	95	212	45.2	8-18	RAT083DA
RDVP7PB3-7-100	4	104	180	114	258	52.1	8-18	RAT092DA
RDVP7PB3-7-125	5	123.3	210	127	287	54.4	8-18	RAT105DA
RDVP7PB3-7-150	6	155.6	240	139	342.5	55.8	8-22	RAT125DA
RDVP7PB3-7-200	8	202.5	295	175	342.5	60.6	8-22	RAT125DA
RDVP7PB3-7-250	10	250.5	350	203	412	65.6	12-22	RAT140DA
RDVP7PB3-7-300	12	301.6	400	242	490	76.9	12-22	RAT160DA
RDVP7PB3-7-350	14	333.3	460	267	490	76.5	16-26	RAT160DA
RDVP7PB3-7-400	16	389.6	515	309	544	86.5	16-26	RAT190DA
RDVP7PB3-7-450	18	440.51	565	328	580	105.6	20-26	RAT210DA
RDVP7PB3-7-500	20	491.5	620	361	622	130.3	20-26	RAT240DA
RDVP7PB3-7-600	24	592.5	725	459	766	151.4	20-30	RAT270DA
RDVP7PB3-7-700	28	695	840	520	766	163	24-30	RAT270DA
RDVP7PB3-7-800	32	794.7	950	591	794	188	24-33	RAT300DA
RDVP7PB3-7-900	36	864.7	1050	656	880	203	28-33	RAT350DA
RDVP7PB3-7-1000	40	965	1160	721	1076	213	28-36	RAT400DA

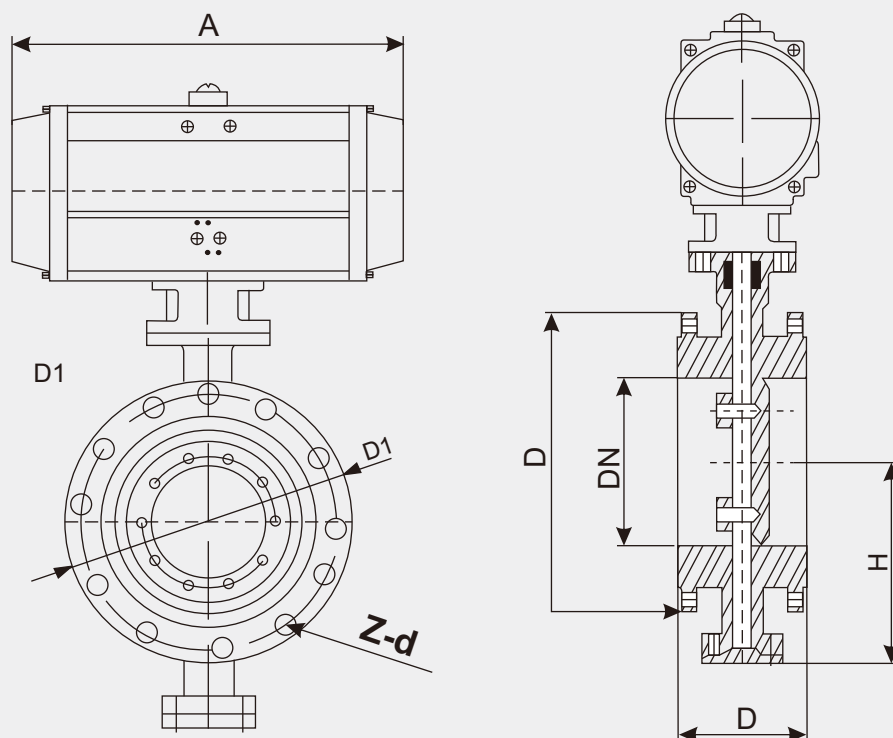
Valve Body		Disc		Rotating shaft	Liner bushing	Seal material		
Material item	Code	Material item	Code	Material item	Material item	Material item	Code	Suitable Temperature
CI	Z	Plated DI	B1			Natural rubber	1	-20~+85°C
DI	Q	Aluminum bronze	B2			Hypalon seal	2	-18~+135°C
								Short time
								-18~+149°C
Aluminum bronze	T	Stainless steel 304	B3	Stainless steel	Lubrication bronze	EPDM	3	-45~+135°C
								Short time
								-50~+150°C
						Neoprene	5	-7~+93°C
								Short time
								-7~107°C
Stainless steel 304	P	Titanium Steel	B4	Carbon steel	PTFE	NBR	6	-12~+82°C
								Short time
								-12~+93°C
Stainless steel 316	R	Stainless steel 316	B5			Abrasion resistant rubber	7	-10~+50°C
						Viton	8	-23~+150°C
						Heat-resistant EPDM rubber	9	-20~+150°C
Carbon steel	C	Carbon steel	B6			PTFE	F4	-10~+150°C

Pneumatic wafer type metal seal butterfly valve



Model	Orifice (inch)	L	D1	H	A	Z- $\varnothing$ d	Actuator
RDVP7RB5-H-50	2	43	125	112	212	4-18	RAT083DA
RDVP7RB5-H-65	2½	46	145	115	258	4-18	RAT092DA
RDVP7RB5-H-80	3	46	160	120	287	8-18	RAT105DA
RDVP7RB5-H-100	4	64	180	140	342.5	8-18	RAT125DA
RDVP7RB5-H-125	5	64	210	170	412	8-18	RAT140DA
RDVP7RB5-H-150	6	70	240	180	490	8-22	RAT160DA
RDVP7RB5-H-200	8	76	295	210	490	8-22	RAT160DA
RDVP7RB5-H-250	10	89	350	240	544	12-22	RAT190DA
RDVP7RB5-H-300	12	114	400	290	580	12-22	RAT210DA
RDVP7RB5-H-350	14	114	460	320	580	16-22	RAT210DA
RDVP7RB5-H-400	16	127	515	350	580	16-26	RAT210DA
RDVP7RB5-H-450	18	140	565	380	622	20-26	RAT240DA
RDVP7RB5-H-500	20	152	620	410	766	20-26	RAT270DA
RDVP7RB5-H-600	24	152	725	170	794	20-30	RAT300DA
RDVP7RB5-H-700	28	178	840	550	794	24-30	RAT300DA
RDVP7RB5-H-800	32	229	950	640	880	24-33	RAT350DA
RDVP7RB5-H-900	36	241	1050	710	880	28-33	RAT350DA
RDVP7RB5-H-1000	40	241	1160	770	1076	28-36	RAT400DA
RDVP7RB5-H-1200	48	300	1380	875	1076	32-39	RAT400DA

Pneumatic flange type Metal-Metal seal butterfly valve



Model	Orifice (inch)	L	D	D1	H	A	Z- $\varnothing$ d	Actuator
RDVP4RB5-H-50	2	108	165	125	112	212	4-18	RAT083DA
RDVP4RB5-H-65	2½	112	185	145	115	258	4-18	RAT092DA
RDVP4RB5-H-80	3	114	200	150	120	287	8-18	RAT105DA
RDVP4RB5-H-100	4	127	220	180	138	342.5	8-18	RAT125DA
RDVP4RB5-H-125	5	140	250	210	164	412	8-18	RAT140DA
RDVP4RB5-H-150	6	140	285	240	175	490	8-22	RAT160DA
RDVP4RB5-H-200	8	152	340	295	215	490	12-22	RAT160DA
RDVP4RB5-H-250	10	165	405	355	243	544	12-26	RAT190DA
RDVP4RB5-H-300	12	178	460	410	285	580	12-26	RAT210DA
RDVP4RB5-H-350	14	190	520	417	320	580	16-26	RAT210DA
RDVP4RB5-H-400	16	216	580	525	350	580	16-30	RAT210DA
RDVP4RB5-H-450	18	222	640	585	350	622	20-30	RAT240DA
RDVP4RB5-H-500	20	229	715	650	380	766	20-33	RAT270DA
RDVP4RB5-H-600	24	267	840	771	435	794	20-36	RAT300DA
RDVP4RB5-H-700	28	292	910	840	480	794	24-36	RAT300DA
RDVP4RB5-H-800	32	318	1025	950	530	880	24-39	RAT350DA
RDVP4RB5-H-900	36	330	1125	1050	595	880	28-39	RAT350DA
RDVP4RB5-H-1000	40	410	1255	1170	650	1076	28-42	RAT400DA
RDVP4RB5-H-1200	48	417	1485	1390	775	1076	32-48	RAT400DA

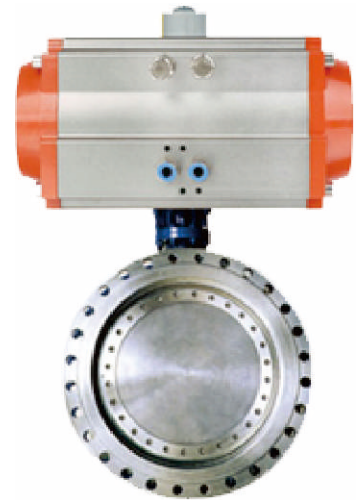
Eccentric metal seated butterfly valve

Features

Because this butterfly valve adopt three-dimensional eccentric to design. making the movement track on facing space reach to idealization, and there are attrition and on intervene between hermetical components. furthermore, the hermetical material has been selected reasonably, there by it ensure hermetic, 10 antisepsis, wearable capability of valve.

The main characteristic as below

- Tiny moment for starting, flexible and convenient, save labor and energy.
- Three-dimensional eccentric configuration forces disc close tighter, and reach to reliable hermetic capability and without leakage.
- High temperature resistant, high pressure resistant, long service life etc.



Main technology parameter

Orifice	DN (mm)	50 - 200				50 - 500
Nominal pressure	PN (Mpa)	0.6	1.0	1.6	2.5	2.5
PS (Mpa) Test Pressure	Shell test	0.9	1.5	2.4	3.75	3.75
	Seal test	0.66	1.1.	1.76	2.75	2.75
	Gas seal test	0.6	0.6	0.6	0.6	0.6
Leakage	<0.1xDNmm ³ /s (accordance GB/T13927-92 standard)					
Appropriate Temperature	Carbon steel: -29°C ~ 425°C / Stainless steel: -40°C ~ 600°C					
Appropriate medium	Air, water, steam, gas, oil, alkali, salt, and weak corrosion medium etc.					
Drive modality	Worm wheel drive / gas drive / electric drive					

Material for main parts

Parts item	Material
Valve body	Cast iron, stainless steel, Cr.MO.Steel, alloy steel
Disc	Cast steel, alloy steel, stainless steel, Cr.MO.Steel
Seal	Stainless steel and Graphite
Stem	2Cr13, 1Cr13 stainless steel, Cr.MO.Steel
Bearing	Stainless steel, 304 nitrifier
Filler	Flexible graphite

› Pneumatic plastic Ball Valve

V P

Plastic ball valve dopt special auxiliary formula material, ansure its acid resistance and alkali resistance for having higher machinery strength.

Applying many scopes water pipe line system widely.

Ordering Code

VP

Pneumatic plastic valve

□

Valve type
64 Ball valve
83 Butterfly valve

□

Material
0 UPVC
1 CPVC
2 PVDF
3 FRPP

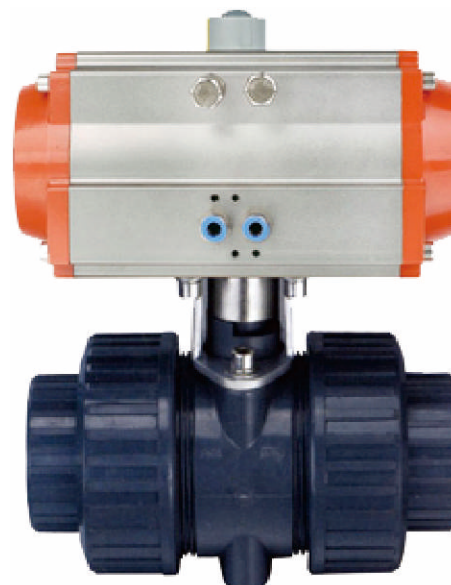
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Orifice

Pneumatic plastic ball valve

Features

- Woring pressure : 150 psi
- Easy to disassemble by handle for cushion elasticity
- Can be Assemble quickly without any special tool
- Actuator can be installed with inserted nut



Model	Size	Standard	Material	Seat	Seat	Port
VP-640	1/2"~4"	ANSI,JIS,DIN,BS	UPVC	PTFE	EPDM, FPM	Socket,Threaded,Flanged
VP-641	1/2"~4"	ANSI,JIS,DIN,BS	CPVC	PTFE	EPDM, FPM	Socket,Threaded,Flanged
VP-643	1/2"~4"	ANSI,JIS,DIN,BS	PVDF	PTFE	EPDM, FPM	Socket,Threaded,Flanged
VP-644	1/2"~4"	ANSI,JIS,DIN,BS	FRPP	PTFE	EPDM, FPM	Socket,Threaded,Flanged

› Positioner

REP

The positioner is used for operation of pneumatic rotary valve actuators by means of electrical controller or control systems with a similiar output signal of DC4 to 20mA or split ranges.

Ordering Code

								
KZE Product	Item number EP-1000R (Rotary type) EP-1000L (Linear type)	Action type S Single acting D Double acting	Ex-proof rate m Exd mIIBT5 n non ex-proof	Feedback pole 1 M6x40L 2 M6x63L 3 M8x40L 4 M8x63L 5 NAMUR	Throttle pole 1 1 2 2 3 NONE	Connection type 1 1PT 2 2NPT	Environment temperature S -20°C~60°C H -20°C~120°C L -40°C~70°C	Select accesories 1 +PTM(Internal) 2 +PTM(External) 3 +L/S(Internal) 4 +L/S(External) 5 +PTM+L/S(Internal)

REP-1000R/L Positioner

Features

The positioner is used for operation of pneumatic rotary valve actuators by means of electrical controller or control system with a similar output signal of Dc4 to 20mA or split ranges.

- There is no resonance at 5~200Hz
- The change of RA/DA acting is convenient. It's able to apply to single pr double acting actuator
- It's possible to prevent the hunting with orifice to the small size actuator
- It's economical due to less air consumption.
- It's able to control the 1/2 split range with simple operation without replacement of parts.



Parameter

Item / Type	Single action	Double action
Input Signal	4-20mA DC	
Impedance	250±15 Ohm	
Supply Pressure	1.4-7kgf/cm ² (20-100psi)	
Stroke	0 ~ 90°C	
Air Connection	PT(NPT)1/4"	
Gauge Connection	PT(NPT)1/8"	
Conduit	PF1/2" (G1/2")	
Explosion Proof	ExialIB T6	
Protection	IP66	
Ambient Temp	Operating -20°C ~ 70°C Explosion -20°C ~ 60°C	
Linearity	±1%F.S.	±2%F.S
Hysteresis	±1%F.S	
Sensitivity	±0.2%F.S.	±0.5%F.S
Repeatability	±0.5%F.S	
Air Consumption	3LPM (Sup=1.4kgf/cm ² , 20psi)	
Flow Capacity	80LPM (Sup=1.4kgf/cm ² , 20psi)	
Material	Aluminum Diecasting	
Weight	2.8kg(6.2lb)	

› Limit switch Box



Ordering Code

KZE

Model

2

Size
2
3
4

10

Machinery jiggle switch

N

The shell is fixed by screw

EX

Ex-proof

Limit switch box, ex-proof limit switch box

Features

Limit switch box is designed based on advanced technology which are solid beautiful, high-level quality and with the following characteristic:

1. Visual position indicator and waterproof type
2. Easy to set without tool based on spring loaded plined cam
3. There are many connection terminal and 8pcs of points, easy to connect and safety
4. Standard dual cable connection
5. No worry to loose bolts while cover opens.
6. Namur standard stainless steel shaft and bracket.

Model	KZE-210N / KZE-310N	KZE-410N-EX
Explosion Proof	IP 65	ExdII Bt4
Ambient Temp	-25°C ~ 85°C	
Cable Entry	G 1/2" G3/4"	
Terminal Stripe	8	
Position Indicator	0 ~ 90°C	
Switches	Mechanical Type	
Potentiometer	1k	
Current	4 ~ 20mA	

› Clutch Handwheel

Features

The pneumatic butterfly valve and ball valve with handle mechanism, as long as by the simple switching, then can achieve the handle operation of valve. Handle mechanism installed between pneumatic actuator and valve, quite convenience for operation.



Structure character and using method

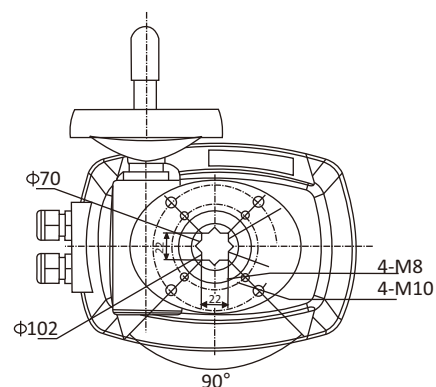
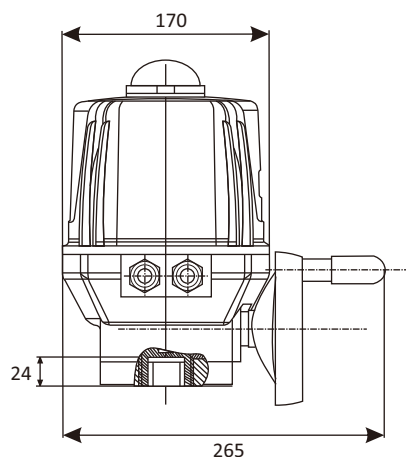
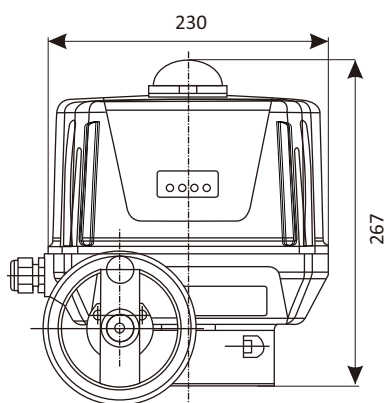
Transmission type	RSD1~8	Stem and wheel trasmit		
Stroke		90°±5°		
Special design		The bearing of the stem are two pcs of eccentric body, using the connection stem for turning into integrative, at the same time, also can run 180 degree for combine and disconnection between stem and wheel, combine condition is by handle, disconnection condition is by pneumatic.		
Installation	The upper end	The standard size hole is connection with pneumatic actuator. The square body is in the middle which hold out extracorporeal, connection with the inner eight-square of pneumatic actuator directly.		
	The lower and	The standard screw hole on the shell is connecting with the valve or bracket. The middle output shaft is a standard inner eight-square.		
Usage	Handle		Pulling the side round handle, then can turn spanner. When the spanner is at the appointed place, the round handle reset fastness eccentric bearing. Warning: It can not be operated by pneumatic when at the handle position , otherwise the parts will be damaged.	
	Pneumatic			

Model	Handwheel model	Shaft square	Speed ratio	Diameter	Input Torque	Out torque	Model	Handwheel model
DA				φ	NM	NM	SR	
RAT052DA	RSD-1	11*11	26 : 1	200	60	150	RAT052SA	RSD-1
RAT063DA	RSD-1	14x14	26 : 1	200	60	150	RAT063SA	RSD-1
RAT075DA	RSD-1	14x14	26 : 1	200	60	150	RAT075SA	RSD-1
RAT083DA	RSD-2	17*17	28 : 1	200	60	300	RAT083SA	RSD-2
RAT092DA	RSD-2	17*17	28 : 1	220	60	300	RAT092SA	RSD-2
RAT105DA	RSD-3	22*22	38 : 1	280	60	600	RAT105SA	RSD-3
RAT125DA	RSD-3	22*22	38 : 1	280	60	600	RAT125SA	RSD-3
RAT140DA	RSD-4	27*27	54 : 1	350	90	1000	RAT140SA	RSD-4
RAT160DA	RSD-4	27*27	54 : 1	350	90	1000	RAT160SA	RSD-4
RAT190DA	RSD-5	36*36	80 : 1	500	110	2000	RAT190SA	RSD-5
RAT210DA	RSD-5	36*36	80 : 1	500	140	2000	RAT210SA	RSD-5
RAT240DA	RSD-6	46*46	78 : 1	500	140	3500	RAT240SA	RSD-6
RAT270DA	RSD-6	46*46	78 : 1	500	200	3500	RAT270SA	RSD-6
RAT300DA	RSD-6	46*46	78 : 1	500	200	3500	RAT300SA	RSD-7
RAT350DA	RSD-6	46*46	78 : 1	500	200	3500	RAT350SA	RSD-7
RAT400DA	RSD-7	55*55	98 : 1	600	200	4500	RAT400SA	RSD-8

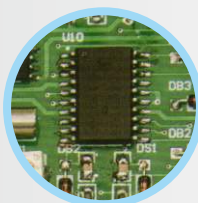
› Electric Actuator

Design Character

- Wide voltage : 90~240V AC 50/60Hz
- On-off valve speed, to complete an opening (closing) only 5 seconds
- Automatic clutch device
- Overload protection
- Automatic fault detect function
- Multiterm patents
- Protection class reach up tp Ip67
- Over heating protection device
- The built-in prevent dewing function
- The original sound and light alarm function
- Symmetric design, elegant appearance



Model	: REA-150
Travel	: 90°±5°
Supply	: 90~240V 50/60Hz
Ambient temp	: -20°~+70°
Enclosure	: LP67
Rated torque	: 150N.m
Rated current	: 1A



High precision
electronic "core"



Automatic clutch
device



High seal
structure



Smart Solution for Actuator



PT. DRATEK MEKATRONIK INDONESIA
(Specialist Pneumatics and Hydraulic Equipment)