



**PNEUMA SYSTEM CO.,LTD.**

**บริษัท นิวมา ซีสเต็มส์ จำกัด**

## PNEUMATIC ACTUATOR

Pneuma system co.,ltd

. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM actuator services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



RAT series pneumatic actuators-statement of and selection

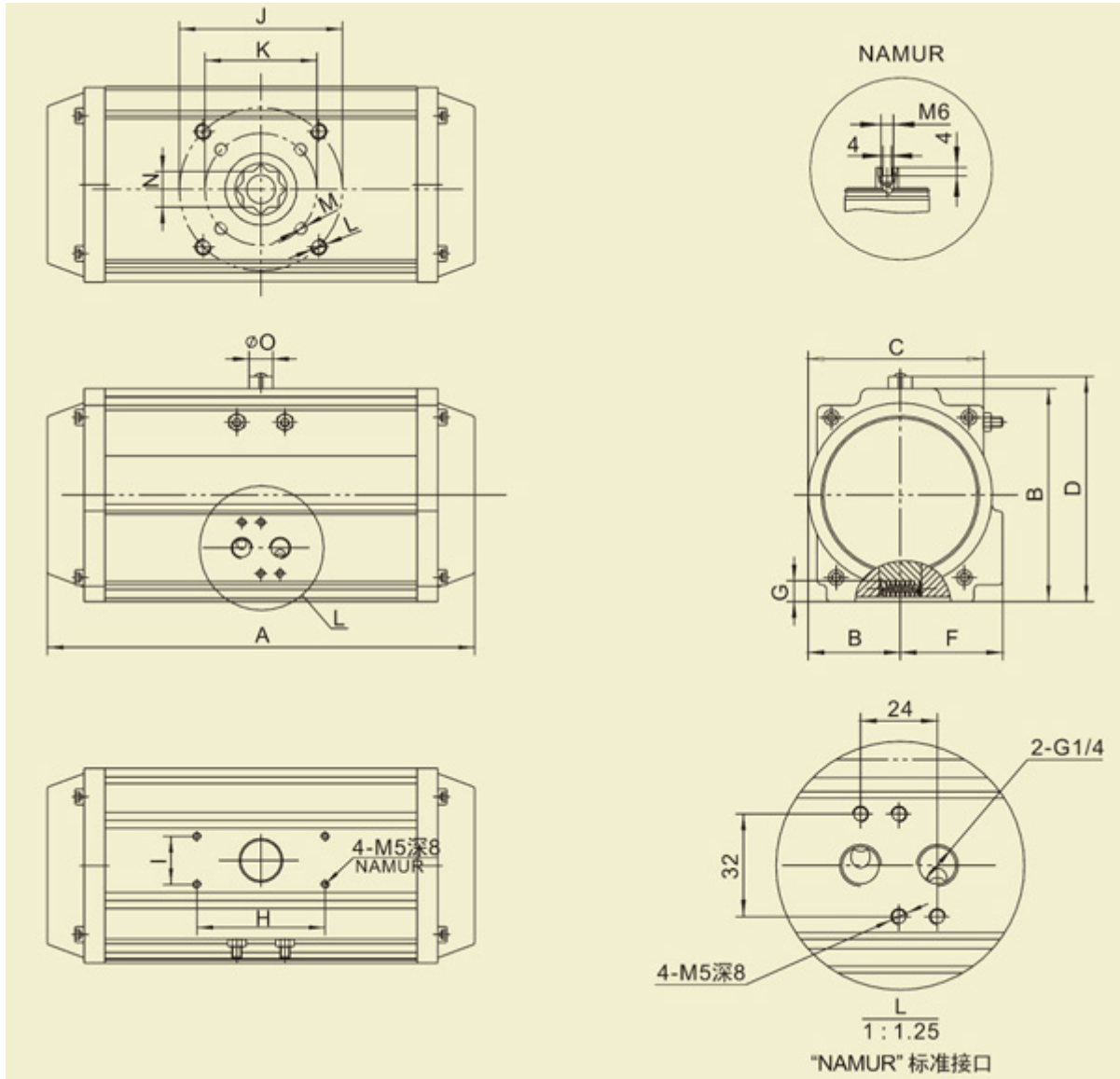
- Design and Features

Through research, development and design ,RAT series pneumatic actuators incorporate the latest mechanical technology, material, and innovative ideas. The product proudly boasts the following features:

- Full conformance to the latest specification: ISO5211, DIN3337, VD/VDE3845and NAMUR.
- The extruding high intensity aluminum body possess a honed internal surface coated with hone anode oxygenation for long life, low coefficient of friction and swift performance.
- Excellent, compact and modernized construction along with multi-specifications make the selection both economic and beneficial.
- All acting surfaces adopt high quality bearings, resulting in low friction, high cycle life and no noise.
- The two independent external travel stop adjustment bolts can easily and precisely adjust  $\pm 5^\circ$  at both open and close directions.
- Same outline actuator have the functional modes of double acting and spring, and the spring return has the normal-open and normal-close styles.
- Multi-function position indicator with NUMER is convenient for mounting accessories.
- Pre-compressed load spring is convenient for safe mounting and teardown procedures.
- Die-casting aluminum pistons and end caps have high intensity and light weight.
- Different O-rings materials are available for high and low temperature.
- According to different demands we can offer Multi-travel rotations (e.g. 120° 135° 180°) and three

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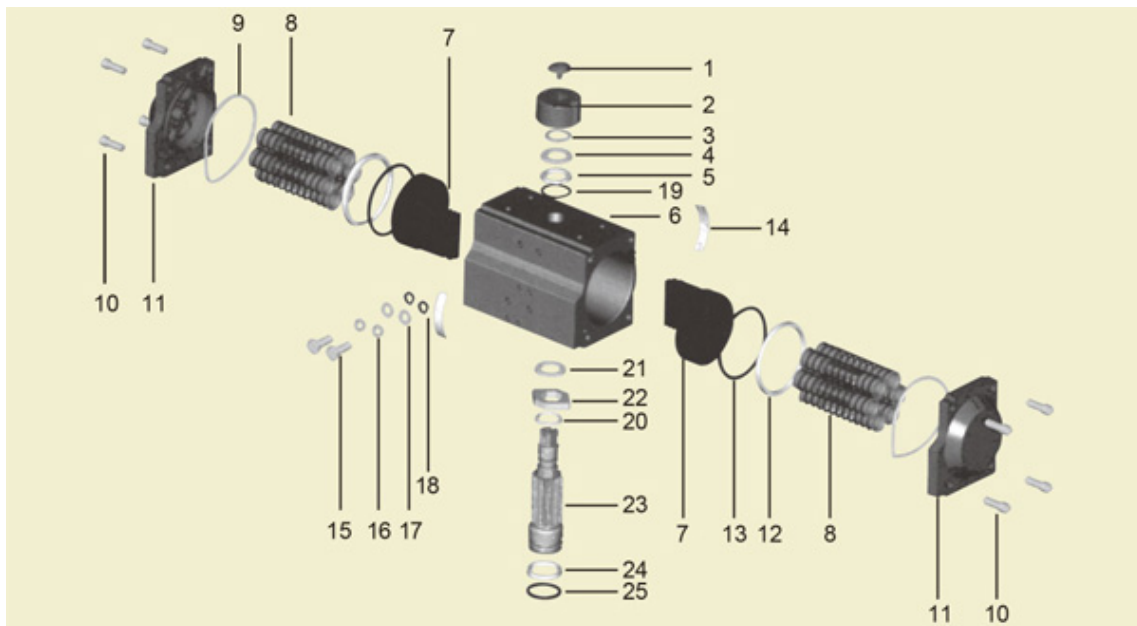
- position actuators.
- Solenoid valves are easily mounted without any connecting plank.
- Mounting connection and dimension



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	A120	A180	Airconnection
RAT032	110	45	45	65	22.5	23	12	50	25		F03 ø36		M5×5	9				G1/8 "
RAT052	143	72	55	92	30	41	14	80	30	F05 ø50	F03 ø36	M6×8	M5×8	11 ø40	158	200	G1/4 "	
RAT063	190	88	69	108	35	45	18	80	30	F07 ø70	F05 ø50	M8×13	M6×10	14 ø40	184	233	G1/4 "	
RAT075	207	99.5	100.5	119.5	38.5	52.5	20.5	80	30	F07 ø70	F05 ø50	M8×10	M6×8	14 ø40	103	243	G1/4 "	
RAT083	213	109	88	129	46	52.5	21	80	30	F07 ø70	F05 ø50	M8×13	M6×10	17 ø40	221	280	G1/4 "	
RAT092	258	117	98.5	137	50	61	21	80	30	F07 ø70	F05 ø50	M8×12	M6×10	17 ø40	280	274	G1/4 "	
RAT105	267	133	109	153	57	64	26	80	30	F10 ø102	F07 ø70	M10×13	M8×10	22 ø40	304	388	G1/4 "	
RAT125	340	155	120.5	175	67.5	70	27.5	80	30	F10 ø102	F07 ø70	M10×16	M8×13	22 ø65	365	470	G1/4 "	
RAT140	414	171.5	132	191.5	75	76	32	80	30	F12 ø125	F10 ø102	M12×20	M10×15	27 ø65	442	568	G1/4 "	
RAT160	476	197	159.5	217	87.5	87.5	34	80	30	F12 ø125	F10 ø102	M12×20	M10×15	27 ø65	507	654	G1/4 "	
RAT190	515	230	184	260	102	102	40	130	30	F14 ø140		M16×22		36 ø78	575	742	G1/4 "	
RAT210	580	255	205	285	113	113	40	130	30	F14 ø140		M16×24		36 ø78	642	831	G1/4 "	
RAT240	654	290	240	320	130	130	50	130	30	F16 ø165		M20×26		46 ø78	739	965	G3/8(1/4)" "	
RAT270	725	320	269	350	147	147	50	130	30	F16 ø165		M20×26		46 ø78	823	1075	G1/2(1/4)" "	

\* Note: A120 and A180 separately represent the acting length of the 1200 rotation travel and 1800 rotation travel.

• Parts & material



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No.	Description	Qty	Standard Meterial	Anti-corrode treatment	Optional Meterial
1	Indicator screw	1	Plastic		
2	Indicator	1	Plastic		
3	Spring clip	1	Stainless Steel		
4	Washer	1	Stainless Steel		
5	Outside washer	1	PTFE		
6	Body	1	Extruded aluminum alloy	Hard anodized etc	
7	Piston	2	Extruded aluminum alloy	anodized / Zinc galvanized	Stainless Steel
8	Spring-Interated	*	Spring Steel	dip coating	
9	O-ring(End cap)	2	NBR		Viton/Silicone
10	Cap screw	8	Stainless Steel		
11	End cap	2	Aluminum Alloy	powder polyster painted etc	
12	Bearing(Piston)	2	Engineering plastics		
13	O-ring(Piston)	2	NBR		Viton/Silicone
14	Guide(Piston)	2	Engineering plastics		
15	Adjust screw	2	Stainless Steel		
16	Nut(Adjust screw)	2	Stainless Steel		
17	O-ring(Adjust screw)	2	NBR		Viton/Silicone
18	O-ring(pinion top)	1	NBR		Viton/Silicone
19	Bearing(pinion top)	1	Engineering plastics		
20	Inside washer	1	PTFE		
21	Cam	1	Alloy steel		
22	Pinion	1	Alloy steel	Nick Plated	Stainless Steel
23	O-ring(pinion bottom)	1	Engineering plastics		
24	Bearing(pinion bottom)	1	NBR		Viton/Silicone

#### Parts introduction

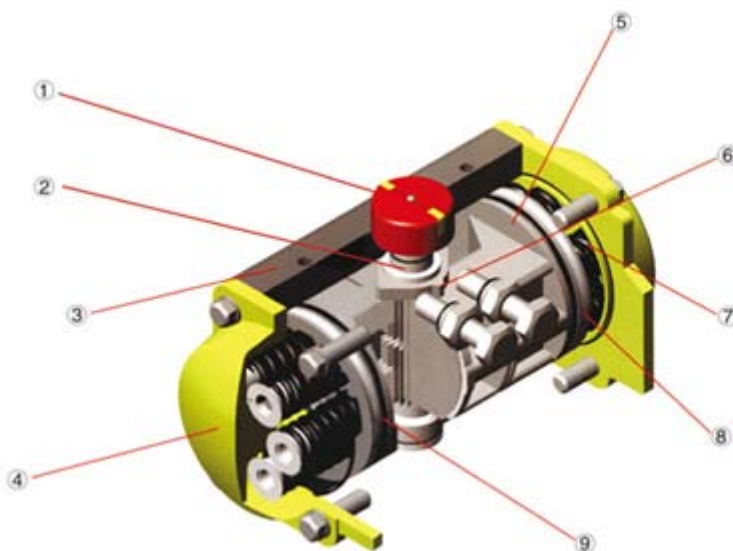
##### 1. Indicator

Position indicator with NAMUR is convenient for mounting accessories such as Limit Switch box, Positioner etc.

##### 2. Pinion

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

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### 3. Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005 body can be treated with hard anodized, powder polyester painted (different colour is available such as blue, orange, yellow etc.), PTFE or Nickel plated.

### 4. End Caps

Die-casting aluminum powder polyester painted in different colours ,PTFE or Nickel 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. Travel Adjustment

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

### 7. High performance springs

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

### 8. Bearings & Guides

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

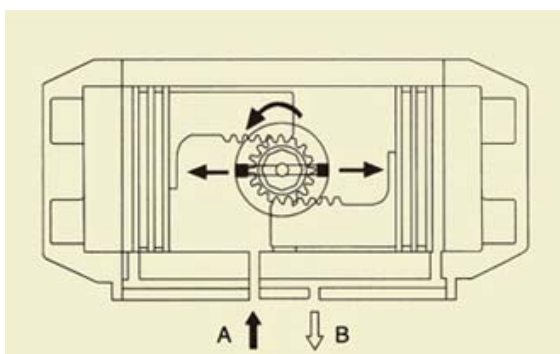
### 9. O-rings

Normal: NBR

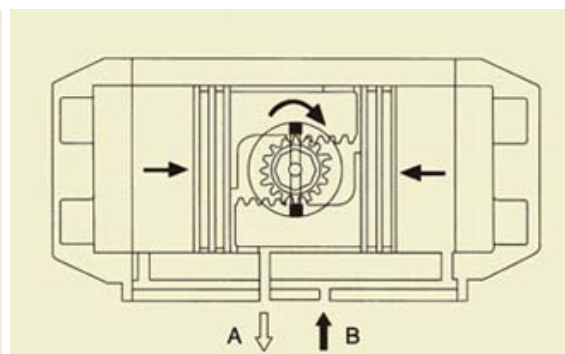
High temp. & low temp. :Viton or Silicone

## • Operating Principle ( Standard Rotation )

### 1. Double action (planform)

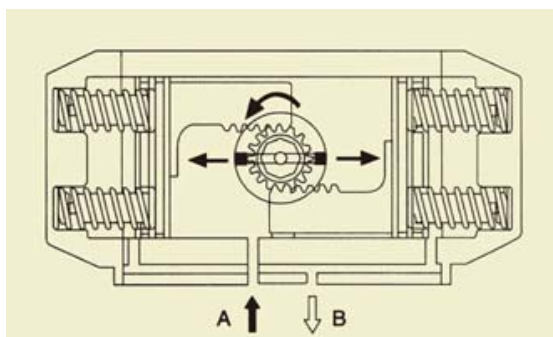


Air into Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air being exhausted from Port B.

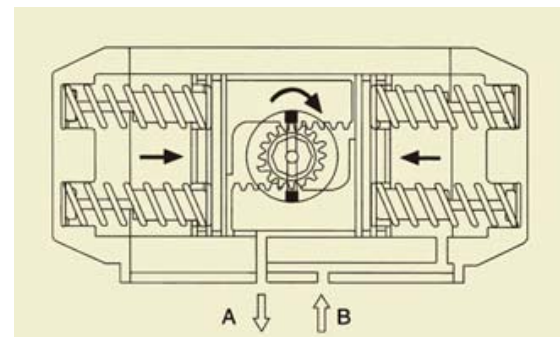


Air into Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.

### 2. Single action (planform)



Air into Port A forces the pistons outwards, causing the springs to compress, the pinion turns counterclockwise while air is being exhausted from Port B.



In the event of loss air pressure or power, the stored energy in the springs forces the pistons inwards, causing the pinion turns clockwise while air is being exhausted from Port A, and air to Port B can accelerate closing the valve.

\*Note:

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

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- The function and usage of the actuator and the parts
  - Double action actuator : open and close the valve.
  - Single action actuator (Spring return ): when air or power is lost, the actuator either close the valve automatically (normal-closed style ) or opens the valve automatically (normal-open style).
  - Double-control solenoid: power to solenoid opens the valve, power to the other solenoid closes the valve. This kind of solenoid possesses the memorial function (available for anti-exploding).
  - Single-control solenoid: power to the solenoid opens or closes the valve. Loss of power will close or open the valve (available for anti-exploding).
  - Limit switch box (signal feedback): remotely passes the signal of the valve's opened and closed status (available for antiexploding).
  - Pneumatic positioner: according to the air pressure (0.2-1bar) to control the medium fl ux (available for anti-exploding).
  - Electric positioner: according to the electric current (4-20mA) to control the medium fl ux (available for anti-exploding).
  - Electric-pneumatic transfers the current signal to air pressure signal for compatibility with positioner .
  - Tri-unit Air disposal: this includes decompression, fi lter, and oil unit, can clean and lubricate the connection parts.
  - Manual equipment: able to use manual operation in the event of loss of air or power.

#### • Sizing Information

Make sure the torque of the opening or closing valve, under normal conditions is set to a safety factor of 15-20%. For water vapor and non-lubricated liquid medium, raise safety factor setting to 25%. For non-lubricated pasty medium, raise safety factor to 40%; For non-lubricated granule powder, raise safety factor to 80% .Then, according to the air pressure; search for the actuator's type in the output torque table of dual action or single action, In the output torque table of single action, the end line of the output torque of the spring is the torque of the closing the valve.

Sizing: dual action actuators

Example:

- The torque needed by ball valve=280N.m
- Operating medium :water
- Safety factor(20%)=280N.m+20%=336N.m
- Air supply pressure=4Bar
- According to the output torque table of the dual action actuator, we choose RAT140DA. when the air supply pressure at 4Bar, its output torque is 350.96N.m

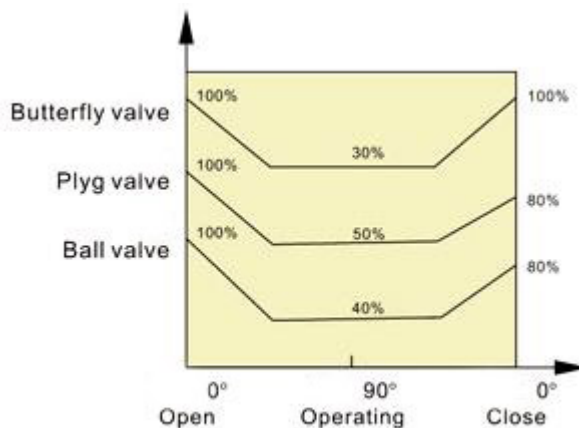
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Economical sizing : single action actuators

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 working at opening, operation and closing.



•Example

The torque of the butterfly valve is 80N.m  
 The max torque needed by the butterfly valve 80 (1+30%)  
 =104N.m

The torque after opened (operating) 104x30%=32N.m

Air supply=4Bar

We can select the RFS125S K10

Output torque is:

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 datas show the actuator's torque can satisfy the requirement of the butterfly valve.

**Attention**

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

• Air Consumption

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

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• **Three position Theoborn actuator**

Three position Theoborn actuator provides an operation of 0°, 45°, 90° or the random travel of midway position. The midway position is achieved by a mechanical stoppage of movement on the two (2) auxiliary pistons. (Midway stop position is adjustable).

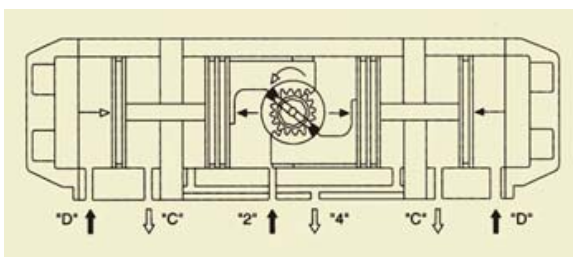


Chart1: midway position from chart 1 we can see that this position is obtained when air is supplied to port 2 and port D. Meantime port 4 and port C are in state of exhaust air. The midway position is achieved by a mechanical stoppage of movement of the two auxiliary pistons.

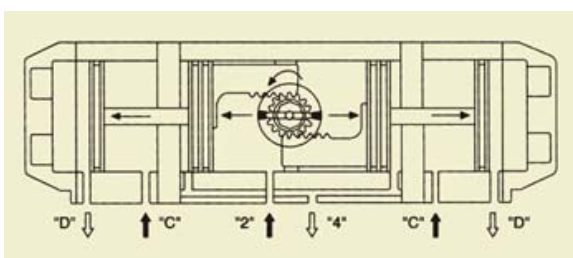


Chart2: fully open position from chart 2 we can see that this position is obtained when air is supplied to port 2 and C (air to port C is optional) ,meantime ,port 4 and D are the state of exhaust air.

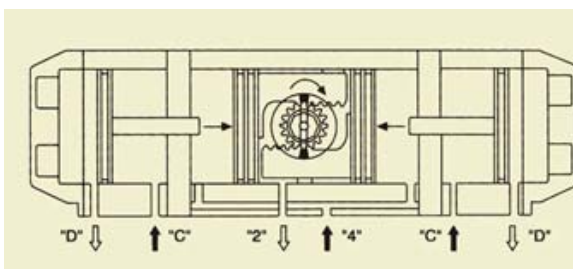


Chart3: fully closed position from chart 3 we can see that this position is obtained when air is supplied to port 4 and port 2 in the state of exhaust air. Port C and D do not need to operate.



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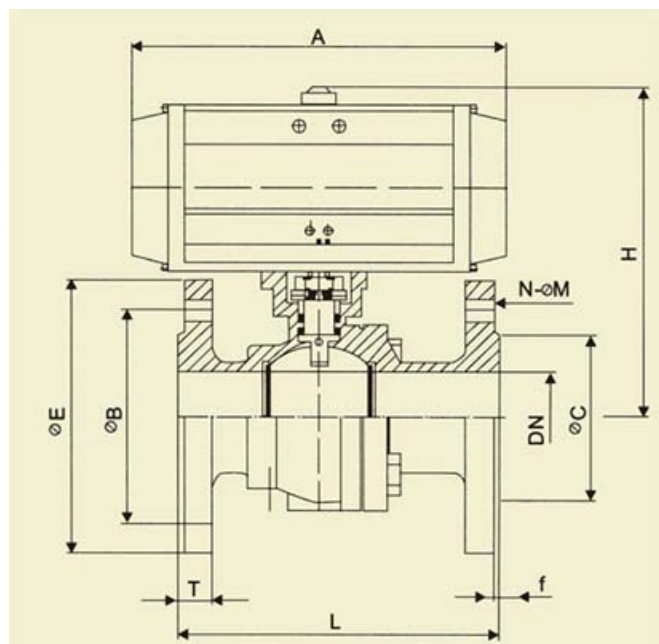
## • How to order

- Pneumatic actuators: double action or single action (normal-close or normal open );
  - The operating pressure of valve, the operating medium, ambient temperature, hard or soft O-rings.
  - Solenoid: valve dual control or single control, operating voltage, Ex-proof or not.
  - Signal feedback: mechanical or approachable, operating voltage, output current and Ex-proof type.
  - Positioner: pneumatic positioner electric positioner, current signal, voltage signal, electric-pneumaticity switch,
  - Ex-proof type.
  - Three-unit of dealing with air supply.
  - Manual equipment.
  - Special customized.
  - National or import should be told.
- High quality products
    - Each product has been tested and checked before it leaves factory.
    - Each product has a Q. C. Passed label.
    - Each product is marked with NUMAR connection size and amounting size.
    - Each product is packaged in a special carton, coated with product carton and specification.

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## Pneumatic Flange Type Ball Valve

**flange type ball valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic flange type ball valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



D N	L	T	F	E	B	C	H	A	N-M	Actuator
15	130	14	2	95	65	46	147	143	4-14	RAT052DA
20	130	16	2	105	75	56	152	143	4-14	RAT052DA
25	140	16	2	115	85	65	163	143	4-14	RAT052DA
32	165	18	2	140	100	76	184	173	4-18	RAT083DA
40	165	18	2	150	110	84	201	190	4-18	RAT075DA
50	203	20	2	265	125	99	219	196.5	4-18	RAT083DA
65	222	20	2	185	145	118	249	241	4-18	RAT092DA
80	241	20	2	200	160	132	272	263.5	4-18	RAT105DA
100	305	22	2	220	180	156	321	319	8-18	RAT125DA
125	356	22	2	250	210	184	381	390	8-18	RAT140DA
150	394	24	2	285	240	211	458	515	8-22	RAT190DA
200	457	24	2	340	295	266	534	560	12-22	RAT210DA

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## Pneumatic Flange Type Ball Valve

- Standard

Design: BS 5351

Structure Length: ANSI B 16.10/JIS

B2002/DIN PN 16320F4/F5

Flange Dimensions: ANSI

B16.5/JIS B2210/DIN 2633PN16

Testing: API598

### APPLICATION

For General Chemical and Industrial Services

Pressure and Temp. Range:

ANSI B16.31/JIS B2201

### SPECIFICATION

Fire-safe design

Body material: CF8M,CF8,CF3M

Additive: PTFE PPL flexible graphite



- FEATURES

1. Unique design and beautiful appearance

2. High platform structure and connection to ISO5211, making installation of electric/pneumatic actuator

more professional.

3. Valve body is overlaid with reinforced bar, it can be permanently used in caustic media ,keep itself from

cracking and avoid the failure of parts of valve during installtion.

4. Grinding process of valve stem to reduce the moment of electric/pneumatic valve during assembly and

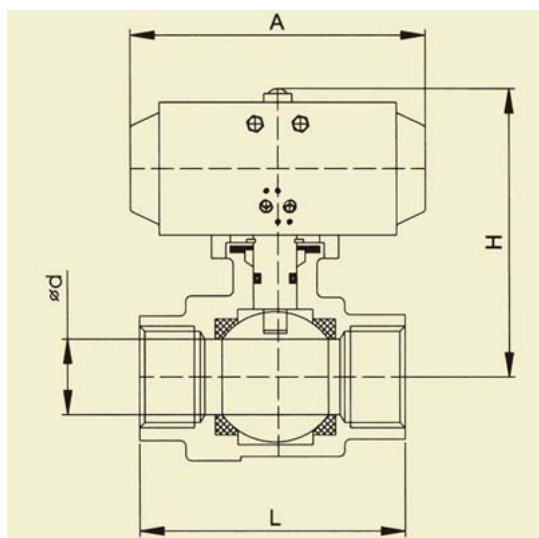
make it runmore flexible.

5. The body of carbon steel ball valve is phosphate coated, no fade ,rustless , durable and beautiful

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## Pneumatic Inner Thread 2-pcs Ball Valve

**Inner thread 2-pcs ball valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic Inner thread 2-pcs ball valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



- Standard

Design: ANSI B 16.34

Testing: AP1598

#### APPLICATION

For General Chemical and Industrial Services

Steam Working Pressure: 150PSI WSP

Temperature Range: -20°C ~ +150°C

#### SPECIFICATION

Investment Cast Body & End Cap

End Type: Threaded BSP or NPT, Buttweld

Socket Weld 2PC

Design For Fast Installation & Simple

Maintenance Bottom-loaded, Blow-out-proof

Stem

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### Pneumatic Inner Thread 2-pcs



Model	ød	L	A	H	Actuator
1/4 "	11.2	75	110	107.5	RAT032DA
3/8 "	12.7	75	110	110.5	RAT032DA
1/2 "	16	75	143	135.5	RAT052DA
3/4 "	20	80	143	138.5	RAT052DA
1 "	25	90	143	146.5	RAT052DA
1-1/4 "	32	110	173	166	RAT063DA
1-1/2 "	38.1	120	190	186.5	RAT075DA
2 "	50.8	140	190.5	204.5	RAT083DA
2-1/2 "	63.5	173	241	241	RAT092DA
3 "	76.2	186	268	264	RAT105DA

NO.	PARTNAME	SPECIFICATION
1	BODY	ASTMA351-CF8M
2	END CAP	ASTMA351-CF8M
3	BALL	ASTMA351-CF8M
4	STEM	ASTMA276-316
5	SEATS	PTFE
6	GASKET	PTFE
7	STEM	PTFE+15%GF
8	O-RING	VITON
9	DISC SPRING	SUS301JI
10	RETAININGRING	S. S.304
11	BOLTS	S. S.304
12	BOLTNUITS	S. S.304
13	WASHER	S. S.304

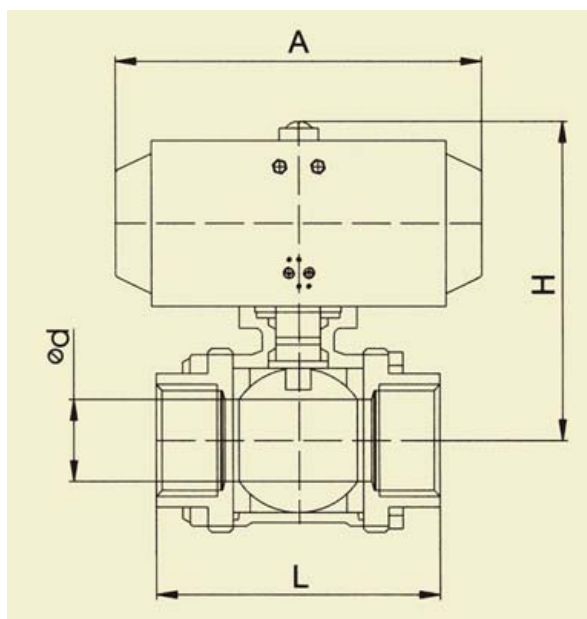


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## Pneumatic Inner Thread 3-pcs Ball Valve

**Inner thread 3-pcs ball valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic Inner thread 3-pcs ball valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



- Standard

Design: ANSI B 16.34

Testing: AP1598

APPLICATION

For General Chemical and Industrial Services

Steam Working Pressure: 150PSIWSP

Temp. Range: -20°C~ +150°C

SPECIFICATION

Investment Cast Body & End Cap

End Type: Threaded BSP or NPT, Buttweld

Socket Weld2PC

Design For Fast Installationn & Simple

Maintenance Bottom-loaded, Blow-out-proof

Stem

**BK ACTUATOR**

### Pneumatic Inner Thread 3-pcs



Model	ød	L	A	H	Actuator
1/4 "	11.2	75	110	107.5	RAT032DA
3/8 "	12.7	75	110	110.5	RAT032DA
1/2 "	16	75	143	135.5	RAT052DA
3/4 "	20	80	143	138.5	RAT052DA
1 "	25	90	143	146.5	RAT052DA
1-1/4 "	32	110	173	166	RAT063DA
1-1/2 "	38.1	120	190	186.5	RAT075DA
2 "	50.8	140	190.5	204.5	RAT083DA
2-1/2 "	63.5	173	241	241	RAT092DA
3 "	76.2	186	268	264	RAT105DA
4 "	100	225	319	315	RAT125DA

NO.	PARTNAME	SPECIFICATION
1	BODY	ASTMA351-CF8M
2	END CAP	ASTMA351-CF8M
3	BALL	ASTMA351-CF8M
4	STEM	ASTMA276-316
5	SEATS	PTFE
6	GASKET	PTFE
7	STEM	PTFE + 15%GF
8	O-RING	VITON
9	DISC SPRING	SUS301JI
10	RETAININGRING	S. S.304
11	BOLTS	S. S.304
12	BOLTNUITS	S. S.304
13	WASHER	S. S.304

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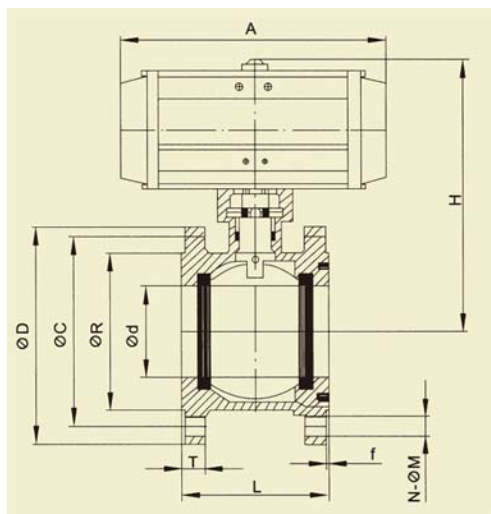




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## Pneumatic Thin Type Ball Valve

**Thin type ball valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic thin type ball valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



• SPECIFICATIONS

Working pressure: 1.6~4.0Mpa  
 Temperature range: -20~232°C~350°C  
 Suitable medium:  
 Water,Oil,Air,and some corrosive Liquid

Design Standard: GB/T12237/1989  
 End Flange: JB79  
 Fire Safe: API607 4th 1993  
 Inspection & Testing: GB/T13927-1992

Specification	ød	øR	øc	øD	L	H	A	T	f	N-øM	Actuator	
DN15	1/2"	15	45	65	95	42	145	143	14	2	12	RAT052DA
DN20	3/4"	20	55	75	100	44	150	143	14	2	12	RAT052DA
DN25	1"	25	65	85	110	50	161	143	14	2	12	RAT052DA
DN32	1 1/4"	32	78	100	110	60	185	173	16	2	16	RAT063DA
DN40	1 1/2"	38	85	110	110	65	203	190	16	3	16	RAT075DA
DN50	2"	50	100	125	125	80	220	196.5	16	3	16	RAT083DA
DN65	2 1/2"	63.5	120	145	145	110	253	241	18	3	16	RAT092DA
DN80	3"	76	135	160	160	120	274	263.5	20	3	16	RAT105DA
DN100	4"	95	155	180	180	150	320	319	20	3	16	RAT125DA
DN125	5"	118	185	210	210	180	374	390	22	3	16	RAT140DA
DN150	6"	142	210	240	240	225	415	449	24	3	20	RAT160DA

**BK ACTUATOR**

## Pneumatic Thin Type Ball Valve



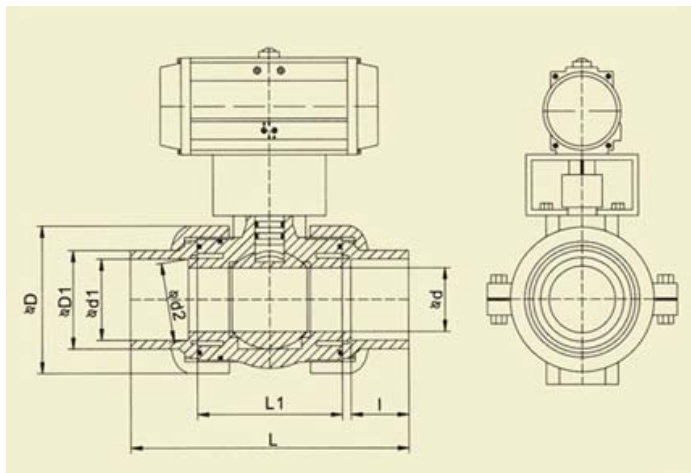
NO.	PART	MATERIAL		
1	Body	CF8M	CF8	WCB
2	Endcap	CF8M	CF8	WCB
3	Ball	316	304	
4	Ball Seat	PTFE	PPL	
5	Stem	316	304	2Cr13
6	Anti-Static equipment	304		
7	Cap gasket	PTFE		
8	Thrust spacer	PTFE		
9	Filling	PTFE		
10	Transitionspacer	Enhanced PTFE, flexible graphite		
11	Filling clamping	304		
12	Butterfl y spring	304		
13	Nut	304		
14	Loose resistantcove	304		
15	Handle Nutr	304		
16	Lock Device	304		
17	Handle	304		
18	Handle sleeve	Plastic		
19	Stop Bol	304		
20	Set Screwedt	304		
21	Handle	304		
22	Handle Adapter	304		



**PNEUMA SYSTEM CO.,LTD.**  
**บริษัท นิวมา ซีสเต็มส์ จำกัด**

## Pneumatic Plastic Ball Valve

**Plastic ball valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic plastic ball valve services for our customers.



Nom		15mm (1/2" )	20mm (3/4" )	25mm (1" )	32mm (1-1/4" )	40mm (1-1/2" )	50mm (2" )	65mm (2-1/2" )	80mm (3" )	100mm (4" )
JIS	d1	22.3	26.3	32.33	38.43	48.46	60.56	76.6	89.6	114.7
	d2	21.7	25.7	31.67	37.57	47.54	59.44	75.87	88.83	113.98
	I	22.22	25.4	28.6	31.8	34.9	38.1	44.45	63	69
ANSI	d1	21.54	26.87	33.65	42.42	48.56	60.63	73.38	89.31	114.76
	d2	21.23	26.57	32.27	42.04	48.11	60.17	72.85	88.7	114.07
	I	22.22	25.4	28.58	31.75	34.93	38.1	44.45	47.63	57.15
DIN	d1	20.3	25.3	32.3	40.3	50.3	63	75.3	90.3	110.4
	d2	20.1	25.1	32.1	40.1	50.1	63.1	75.1	90.1	110.1
	I	16	19	22	26	31	38	44	51	61
BS	d1	21.5	26.9	33.7	42.4	48.4	60.5	-	-	-
	d2	21.3	26.7	33.5	42.2	42.8	60.3	-	-	-
	I	16.5	19.5	22.5	27	30	36	-	-	-
THD./IN	NPT	14	14	11.5	11.5	11.5	11.5	8	8	8
	PT	14	14	11	11	11	11	11	11	11
D		45	55	66	82	98	120	140	160	225
D1		31	37	44	54	65	79	92	108	146
d		13	18	23	30	38	48	61	69	99
L		112	132	144	165	171	200	273	303	326
L1		60	73	78	87	92	112	136	158	176
Actuator		RAT032DA	RAT052DA	RAT052DA	RAT063DA	RAT075DA	RAT083DA	RAT092DA	RAT105DA	RAT140DA

**BK ACTUATOR**

## Pneumatic Plastic Ball Valve



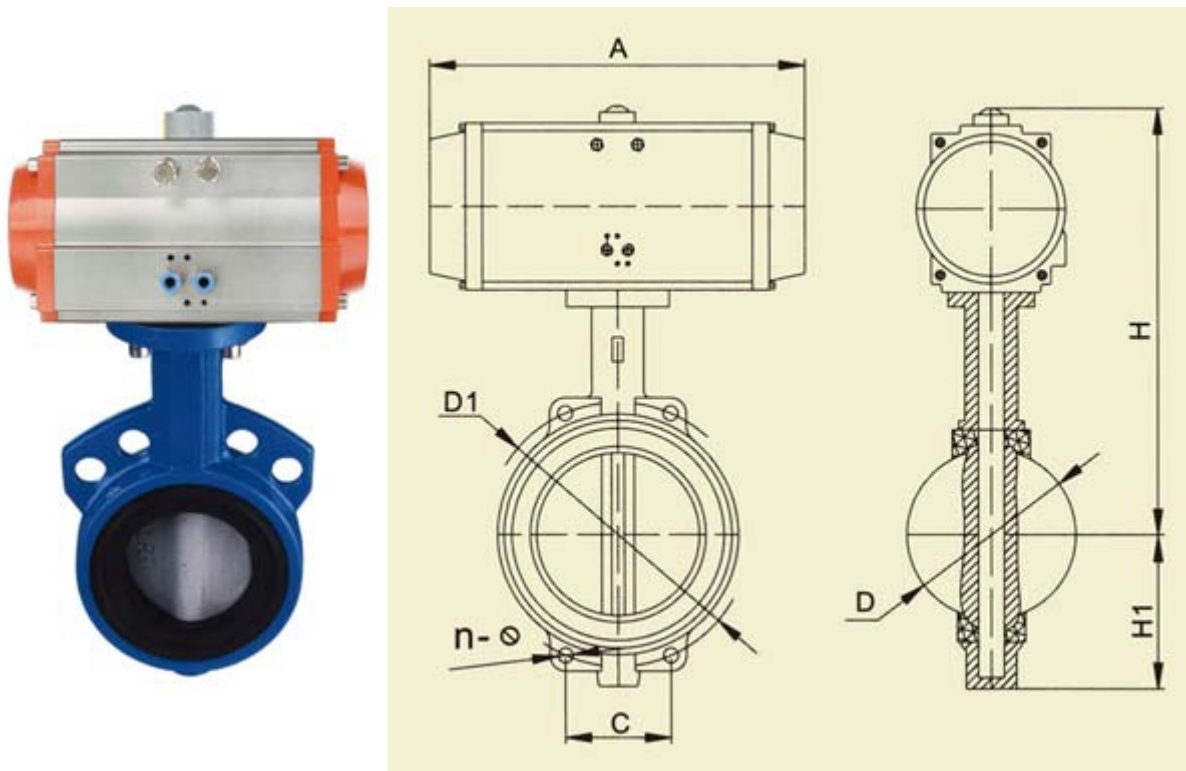
- Characteristic Pneumatic Plastic Ball Valve
  - Pressure rating: 150 psi , Working pressure: 73.4°f (23°C)
  - Standard flow rate
  - Adjustable seat tightness
  - Easy to disassemble by handle
  - Less on-line down time for replacement / maintenance
  - Actuator could be installed with inserted nut
  - Standard product without nut

Type	Size	Standard	Material	Seat	O-ring	Port
VP-640	1/2" ~ 4"	ANSI, JIS, DIN, BS	PVC	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	PP	PTFE	EPDM, FPM	Socket, Threaded, Flanged
VP-645	1/2" ~ 4"	ANSI, JIS, DIN, BS	ABS	PTFE	EPDM, FPM	Socket, Threaded, Flanged

NO.	PART	MATERIAL
1	BODY	UPVC, CPVC, PP, PVDF, ABS
2	STEM O-RING	EPDM, FPM
3	STEM	UPVC, CPVC, PP, PVDF, ABS
4	BALL	UPVC, CPVC, PP, PVDF, ABS
5	SEAT SEAL	PTFE
6	CARRIER O-RING	EPDM, FPM
7	SEAT CARRIER	UPVC, CPVC, PP, PVDF, ABS
8	UNION O-RING	EPDM, FPM
9	SET RING	UPVC, CPVC, PP, PVDF, ABS
10	UNION NUT	UPVC, CPVC, PP, PVDF, ABS
11	HANDLE	ABS, PP
12	INSERTED NUT	C3604
13	FLANGE	UPVC, CPVC, PP, PVDF, ABS

## Pneumatic Soft-sealing Butterfly Valve

**Soft-sealing butterfly** valve manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic soft-sealing butterfly valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



**BK ACTUATOR**



## Pneumatic Soft-sealing Butterfly Valve

Specification		D	D1	H	H1	A	C	n-d	Actuator
(mm)	(Inch)								
50	2	52.9	120	274	80	173	42	4-23	RAT063DA
65	2.5	64.5	136.2	300	89	190	44.7	4-26.5	RAT075DA
80	3	78.8	160	315	95	196.5	45.2	8-18	RAT083DA
100	4	104	185	345	114	241	52.1	4-24.5	RAT092DA
125	5	123.3	215	371	127	263.5	54.4	4-23	RAT105DA
150	6	155.6	238	407	139	319	55.8	4-25	RAT125DA
200	8	202.5	295	441	175	319	60.8	4-25 4-23	RAT125DA
250	10	250.5	357	490	203	390	65.6	4-29	RAT140DA
300	12	301.6	407	560	242	449	76.9	4-29	RAT160DA
350	14	333.3	467	591	267	449	76.5	4-30	RAT160DA
400	16	389.6	515 /525	656	309	515	86.5	4-26 4-30	RAT190DA
450	18	440.51	565 /585	703	328	560	105.6	4-26 4-30	RAT210DA
500	20	491.5	620 /650	786	361	654	131.8	4-26 4-33	RAT240DA
600	24	592.5	725 /770	908	459	725	152	20-30 20-33	RAT270DA
700	28	695	840	970	520	725	163	24-30 20-36	RAT270DA
800	32	794.7	950	1046	591	742	188	24-33 24-39	RAT300DA
900	36	864.7	1050	1148	656	860	203	24-33	RAT350DA
1000	40	965	1160	1310	721	918	213	24-36	RAT400DA

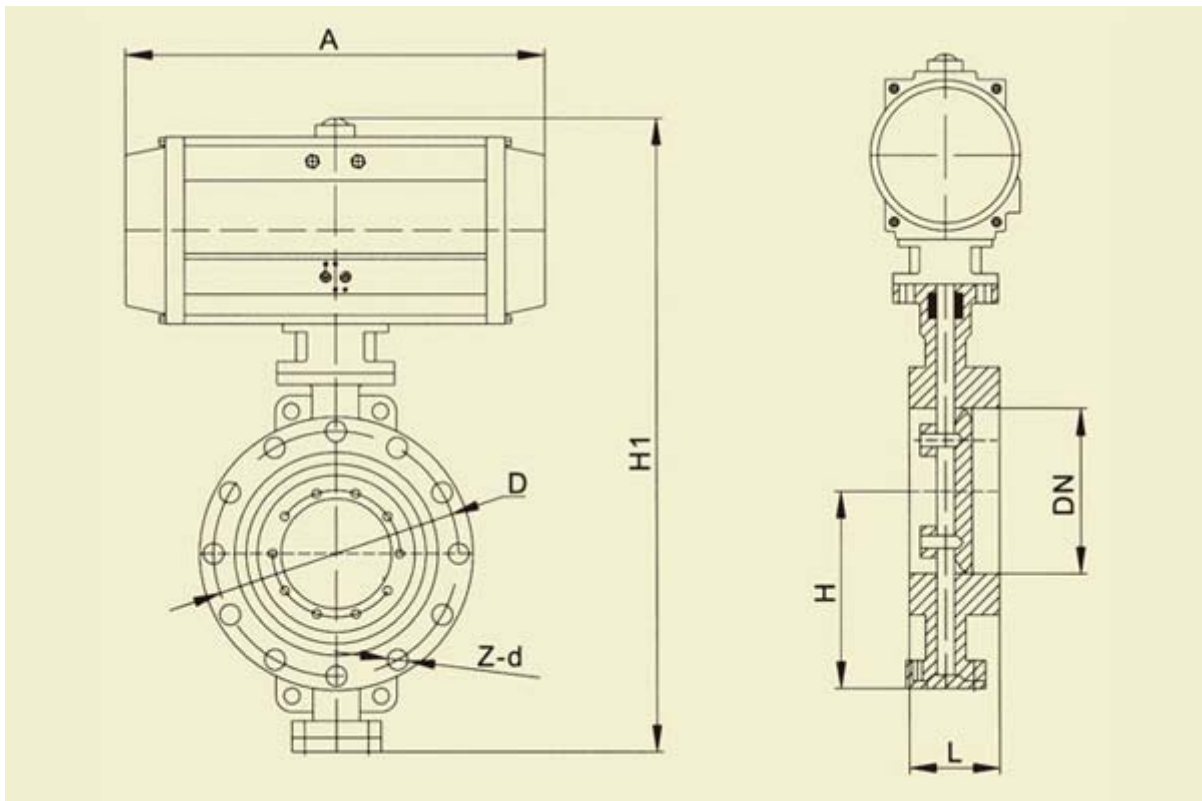
### • FEATURES

1. Small and light, easy for installation and repair, and can be installation on any position.
2. Simple structure, well-organized, prompt 90°turn round, open and close.
3. Small operating torque, simple and light.
4. Flow rate characteristic tend to straight, well regulate.
5. Open and close test over 10,000 times, long life.
6. Complete seal, no leakage during air testing.
7. Choose different material as parts, fit for kinds of medium.

**BK ACTUATOR**

## Pneumatic Hard-sealing Butterfly Valve

**Hard-sealing butterfly valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic hard-sealing butterfly valve services for our customers. Equipped with advanced facilities and high technology, now we are supplier of some famous enterprises such as the Parker Hannifin in the USA.



**BK ACTUATOR**



**PNEUMA SYSTEM CO.,LTD.**

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## Pneumatic Hard-sealing Butterfly Valve

DN		L		D	D1	H	H1	H2	A	Z-d	Actuator
mm	inch	Short	Long								
50	2	108	150	165	125	112		134	196.5	4-18	RAT083DA
65	2 <sup>1</sup> / <sub>2</sub>	112	170	185	145	115		145	241	4-18	RAT092DA
80	3	114	180	200	160	120		158	263.5	8-18	RAT105DA
100	4	127	190	220	180	138	548	181	319	8-18	RAT125DA
125	5	140	200	250	210	164	605	198	390	8-18	RAT140DA
150	6	140	210	285	240	175	653	223	449	8-22	RAT160DA
200	8	152	230	340	295	200	772	223	449	8-22	RAT160DA
250	10	165	250	395	350	243	866	256	515	12-22	RAT190DA
300	12	178	270	445	400	250	964	281	560	12-22	RAT210DA
350	14	190	290	505	460	280	1068	281	560	16-22	RAT210DA
400	16	216	310	565	515	305	1108	281	560	16-26	RAT210DA
450	18	222	330	615	565	350	1177	306	654	20-26	RAT240DA
500	20	291	350	670	620	380	1289	346	725	20-26	RAT270DA
600	24	267	390	780	725	445	1439	374	745	20-30	RAT300DA
700	28	292	430	892	840	480	1494	374	745	24-30	RAT300DA
800	32	318	470	1015	950	530	1718	428	860	24-33	RAT350DA
900	36	330	510	1115	1050	580	1818	428	860	28-33	RAT350DA
1000	40	410	550	1230	1160	650	2041	506	918	28-36	RAT400DA
1200	48	470	630	1455	1380	760	1176	506	918	32-39	RAT400DA

- Characteristic

Because this butterfly valve adopt three-dimensional eccentric to design, make the movement track on facing space reach to idealization, and there are no 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:

1. Tiny moment for starting, flexible and convenient, save labor and energy.
2. Three-dimensional eccentric configuration forces disc close tighter, and reach to reliable hermetic capability and with no leakage.
3. High temperature resistant, high pressure resistant, long service life etc.

**BK ACTUATOR**



## Pneumatic Hard-sealing Butterfly Valve

- Main technology parameter

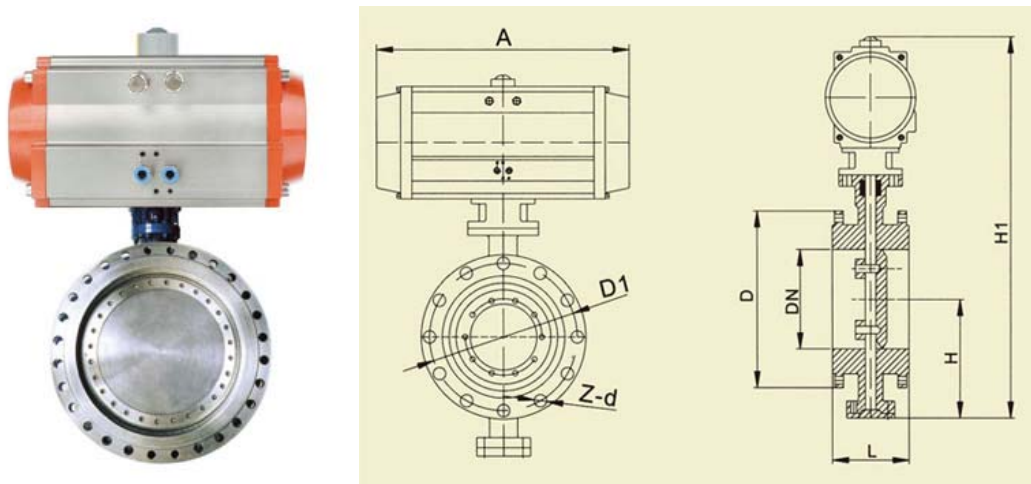
Nominal diameter	DN (mm)	50~200				50~500
Nominal pressure	PN (MPa)	0.6	1	1.6	2.5	4
PS(MPa) Test Pressure	Shell test	0.9	1.5	2.4	3.75	6
	Seal test	0.66	1.1	1.76	2.75	4.4
	Gas seal test	0.6	0.6	0.6	0.6	0.6
Leakage	<0.1xDNmm <sup>3</sup> /s (GB/T13927-92 standard)					
Appropriate temperature	Carbon steel : -29°C~425°C Stainless steel : -40°C~600°C					
Appropriate medium	Air, water, steam, coalgas, oil and acid, alkali, salt corrosive medium and so on					
Drive modality	Worm wheel drive, gas drive, electric drive					

- Material for main parts

Parts name	Material
Body	Cast iron, Stainless steel, Cr.MO.Steel, Alloy steel
Disc	Cast steel, Alloy steel, Stainless steel, Cr.MO.Steel
Seal	Stainless steel and high temperature resistant asbestos composed of multiple layers
Stem	2Cr13, 1Cr13 Stainless steel, Cr.MO.Steel
Bearing	Austenitic stainless steel, 304 nitride ZG00Cr18Ni10, 304nitridification
Additive	Flexible graphite

## Pneumatic Flange Type Butterfly Valve

**flange type butterfly valve** manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic flange type butterfly valve services for our customers. Equipped with advanced facilities and high technology,



DN		L	D	H	H1	A	Z-d	Actuator
mm	inch							
50	2	43	125	112		196.5	4-18	RAT083DA
65	2 1/2	46	145	115		241	4-18	RAT092DA
80	3	64	160	120		263.5	8-18	RAT105DA
100	4	64	180	138	548	319	8-18	RAT125DA
125	5	70	210	164	605	390	8-18	RAT140DA
150	6	76	240	175	653	449	8-22	RAT160DA
200	8	89	295	215	772	449	8-22	RAT160DA
250	10	114	350	243	866	515	12-22	RAT190DA
300	12	114	400	285	964	560	12-22	RAT210DA
350	14	127	460	320	1068	560	16-22	RAT210DA
400	16	140	515	350	1108	560	16-26	RAT210DA
450	18	152	565	350	1176	654	20-26	RAT240DA
500	20	152	620	380	1289	725	20-26	RAT270DA
600	24	154	725	435	1439	745	20-30	RAT300DA
700	28	165	840	480	1494	745	24-30	RAT300DA
800	32	190	950	530	1718	860	24-33	RAT350DA
900	36	203	1050	595	1818	860	28-33	RAT350DA
1000	40	216	1160	650	2041	918	28-36	RAT400DA
1200	48	254	1380	775	2276	918	32-39	RAT400DA

**BK ACTUATOR**

## Pneumatic Flange Type Butterfly Valve

- Characteristic

Because this butterfly valve adopt three-dimensional eccentric to design, make the movement track on facing space reach to idealization, and there are no 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:

1. Tiny moment for starting, flexible and convenient, save labor and energy.
2. Three-dimensional eccentric configuration forces disc close tighter, and reach to reliable hermetic capability and with no leakage.
3. High temperature resistant, high pressure resistant, long service life etc.

- Main technology parameter

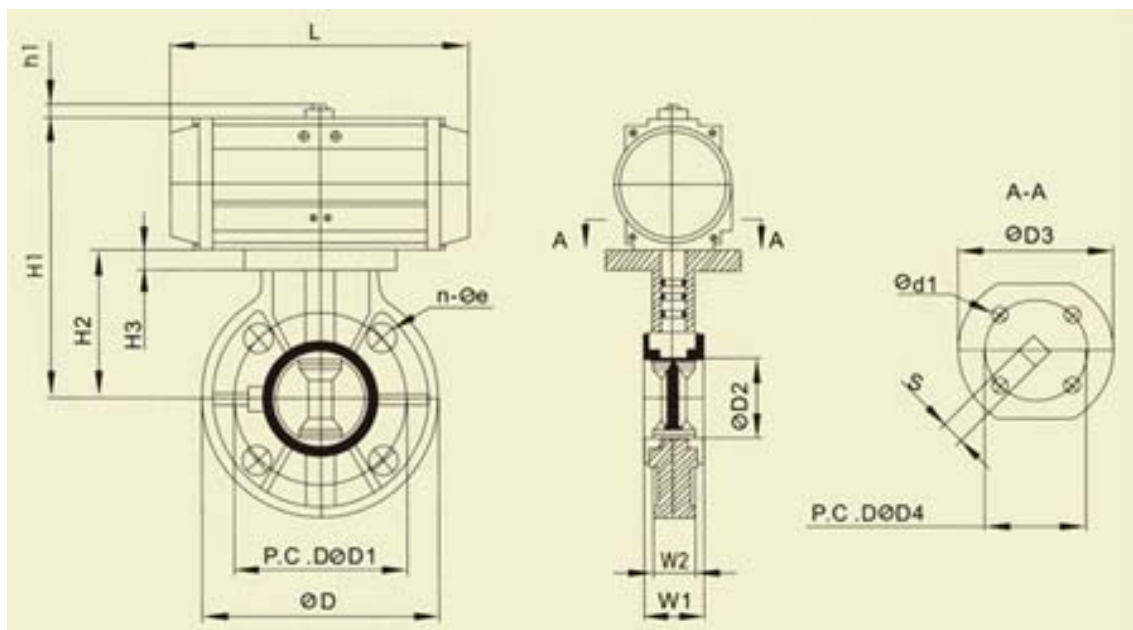
Nominal diameter	DN(mm)	50~200				50~500
Nominal pressure	PN(MPa)	0.6	1	1.6	2.5	4
PS(MPa) Test Pressure	Shell test	0.9	1.5	2.4	3.75	6
	Seal test	0.66	1.1	1.76	2.75	4.4
	Gas seal test	0.6	0.6	0.6	0.6	0.6
Leakage	<0.1xDNmm <sup>3</sup> /s(GB/T13927-92 standard)					
Appropriate temperature	Carbon steel : -29°C~425°C Stainless steel : -40°C~600°C					
Appropriate medium	Air, water, steam, coalgas, oil and acid, alkali, salt corrosive medium and so on					
Drive modality	Worm wheel drive, gas drive, electric drive					

- Material for main parts

Parts name	Material
Body	Cast iron, Stainless steel, Cr.MO.Steel, Alloy steel
Disc	Cast steel, Alloy steel, Stainless steel, Cr.MO.Steel
Seal	Stainless steel and high temperature resistant asbestos composed of multiple layers
Stem	2Cr13, 1Cr13 Stainless steel, Cr.MO.Steel
Bearing	Austenitic stainless steel, 304 nitride ZG00Cr18Ni10, 304nitrication
Additive	Flexible graphite

## Pneumatic Plastic Butterfly Valve

**Plastic butterfly** valve manufacturer and wholesaler. Our products are produced according to the ISO9001:2000 standards. There are more than 10 well educated and experienced technicians in our company to deal with OEM pneumatic plastic butterfly valve services for our customers. Equipped with advanced facilities and high technology



**BK ACTUATOR**



**PNEUMA SYSTEM CO.,LTD.**  
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## Pneumatic Plastic Butterfly Valve

Nom		50mm (2) "	65mm (2-1/2) "	80mm (3) "	100m (4) "	125m (5) "	150mm (6) "	200mm (8) "	250mm (10) "	300mm (12) "	350mm (14) "	400mm (16) "	450mm (18) "	500m (20) "	600m (24) "
JIS	D1	120	140	150	175	210	240	290	355	400	445	510	565	620	730
	n-øe	4-19	4-19	8-19	8-19	8-23	8-23	8-23	12-25	16-25	16-25	16-27	20-27	20-27	24-35
ANSI	D1	120.3 9	139.4 4	152.4	190.5	216	241.55	298.5	362	432	476	540	578	635	749
	n-øe	4-19	4-19	4-19	8-19	8-22	8-22	8-22	12-25	12-25	12-29	16-29	16-32	20-32	20-30
DIN	D1	125	145	160	180	210	240	295	350	400	460	515	565	620	725
	n-øe	4-18	4-18	4-18	8-18	8-18	8-18	8-23	8-23	12-23	12-23	16-23	16-27	20-27	24-30
D		165	185	200	229	257	285	343	411	490	533	597	635	699	813
D2		56.5	69.5	79.5	102.5	130	152	203	255	309.5	365	406	452	502	603
D3		105	120	123	135	164	169	201	205	237	236	300	335	335	335
H2		103	113	115	135.5	165	177	210	242	302	300	350	370	400	465
H3		13	13	13	13	15	19	21	22	26	25	32	35	40	46
W1		43	46	46	56	69	705	85	109	133	127	168	189.5	189	209
W2		29	31	31	40	50	54	69	88	103.5	113	153	163	171	191
T-DIN259 85P		1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/4 "	1/2 "	1/2 "	1/2 "
DOUBLE ACTION	ød1	6.5	6.5	8.5	8.5	8.5	10.5	10.5	10.5	12.5					
	øD4	50	50	70	70	70	102	102	102	125					
	h1	20	20	20	20	20	20	20	30	30	30				
	H1	188	188	217	237.5	280	304	367	399	498					
	L	158.5	158.5	210.5	210.5	247.5	268.5	345	345	437.5					
	S	14	14	17	17	17	22	27	27	27					
SINGLE ACTION	ød1	6.5	6.5	8.5	8.5	10.5	10.5	12.5	12.5						
	øD4	50	50	70	70	102	102	125	125						
	h1	20	20	20	20	20	30	30	30						
	H1	205	205	230	250.5	292	334	406	438						
	L	210.5	210.5	247.5	247.5	268.5	345	437.5	437.5						
	S	17	17	17	17	22	27	27	27						

- Low flow loss
    - The opening angle of the disc could be seen clearly throumy the position indicator
    - Fast/efficiemt operation for automatic control system in a limited piping space
    - Pneumatic actuator specification meets with ISO 5211, VDI/VDE 3845, DIN 3337
    - NAMUR, easy to assemble solenoid valve, limit switshes and accessories
    - Pneumatic actuator max. air supply pressure 0.8MPa, min. air pressure 0.5MPa.
- Pressure rating: 2" ~ 10" 150 psi, 12" 100 psi, 14" 16" 86 psi, 18" 72 psi, 20" ~ 24" 51 psi

**BK ACTUATOR**



## Pneumatic Plastic Butterfly Valve

Type	Size	Standard	Material	Seat	O-ring	Disc	Port
VP-830	2" ~ 24"	ANSI, JIS, DIN	PVC	EPDM, FPM	EPDM, FPM	PP	Flanged
VP-831	2" ~ 24"	ANSI, JIS, DIN	CPVC	EPDM, FPM	EPDM, FPM	CPVC	Flanged
VP-833	2" ~ 24"	ANSI, JIS, DIN	PVDF	EPDM, FPM	EPDM, FPM	PVDF	Flanged
VP-834	2" ~ 24"	ANSI, JIS, DIN	PP	EPDM, FPM	EPDM, FPM	PP	Flanged

NO.	PART	MATERIAL
1	BODY	UPVC, PP, CPVC, PVDF
2	DISC	UPVC, PP, PVDF
3	SEAT SEAL	EPDM, FPM
4	STEM	SUS410
5	O-RING	EPDM, FPM
6	O-RING	EPDM, FPM
7	PNEUMATIC ACTUATORS ALUMINIUM ALLOY	EXTRUDED
8	BOLT & WASHER	SUS
9	PIN	SUS



**BK ACTUATOR**