

Butterfly Valves

VA-18
VA-19
VA-20



Design Features:

- Heavy Duty One Piece wafer Body Design.
- Top Flange Drilled to fit ISO 5211 dimensions.
- Semi Lugged Body Design with Guiding Holes for Better Alignment.
- Heavy Duty Square Grooved Disc/Stem Connections.
- Extended Neck Serves for 50mm(2") piping insulation from line media.
- Blow Out Proof Stem Sealing Design.
- Hard Backed Rubber Liner Design for Field Replacement.
- Moulded Ring seals on Liner to serve as flange gaskets.
- Sliding Bearing for minimize operating torques.

Conformity to Standard & Codes: Applications

Design Standard:

API 609, BS 5155, ISO 5211

Face to Face Dimension:

API 609

End Detail:

ASME B16.5 (Suitable for insertion between PN10/ PN16/ #150/ BS-10 Table D/ E Flanges)

Valve Testing:

API 598

• HVAC

• Sugar

• Pulp and Paper

• Pharmaceutical

• Chemical and Petro Chemical

• Irrigation Systems

• Sewage Plants

• Food Processing

• Water Work Systems

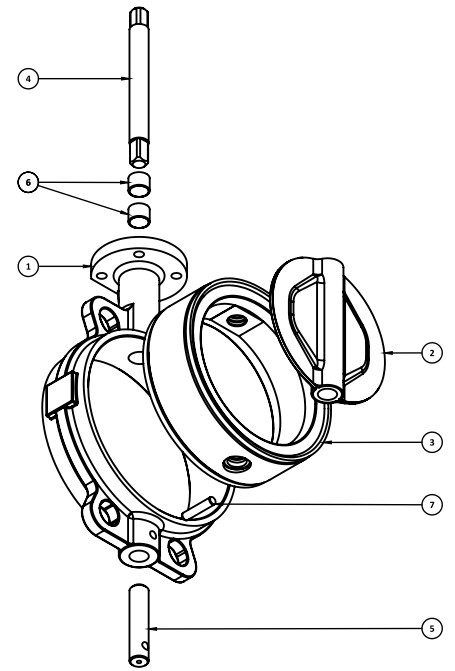


CM/L NO.: 9503172

PART LIST

S. NO.	PART NAME	MATERIAL	SPECIFICATION	QTY.
1.	BODY	CAST IRON / DUCTILE IRON	IS210 GR. FG200/220 / ASTM A536 GR. 65-45-12/60-40-18	1
2.	DISC	DUCTILE IRON / STAINLESS STEEL	ASTM A536 GR. 65-45-12/60-40-18 / ASTM A351 GR. CF8/CF8M	1
3.	RUBBER SUPPORTED BACK-UP RING	PLASTIC/METAL + RUBBER	BACKLITE/ALUMINUM + NBR/EPDM	1
4.	MAIN STEM	STAINLESS STEEL	ASTM A 276 GR. 410/304/316	1
5.	PIVOT STEM	STAINLESS STEEL	ASTM A 276 GR. 410/304/316	1
6.	SELF LUBRICATED BUSH	STEEL + BRNZ + PTFE	CARBON STEEL BACKING + SINTERED BRONZE & PTFE	2
7.	DOWEL PIN	CARBON STEEL	ASTM A105	1
8.	FASTNERS	STAINLESS STEEL	SS201	--

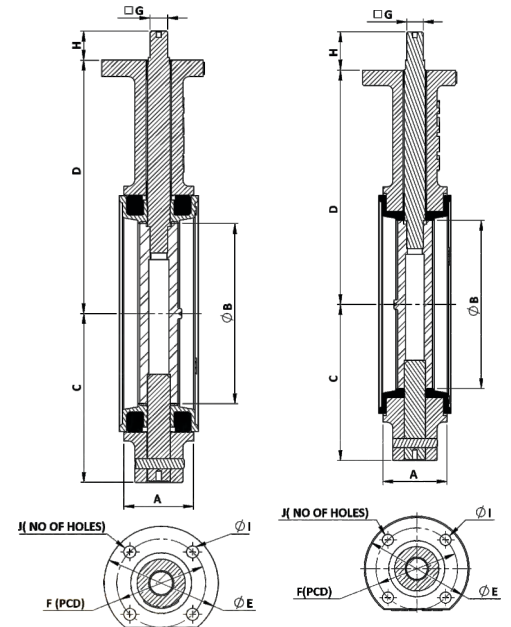
Note: 1. Special Seat Material like PTFE lined EPDM/NBR, Body Moulded Fixed Seat, Silicon, Viton and UHMWPE Available on Demand.
 2. Special Coatings available on Demand.
 3. Contact Technical Team for Any Kind of Special Material.



DIMENSIONS

SIZE	INCH	A	B	C	D	E	F	G	H	I	J
DN32	1¼"	33	32	73	109	65	50	9.5	10	7.5	4
DN40	1½"	33	40	73	109	65	50	9.5	10	7.5	4
DN50	2"	43	50	77	132	65	50	9.5	10	7.5	4
DN65	2½"	46	66	84	140	65	50	9.5	10	7.5	4
DN80	3"	46	80	96	147	65	50	9.5	10	7.5	4
DN100	4"	52	101	112	172	90	70	11	12	9.5	4
DN125	5"	56	124	121	187	90	70	11	12	9.5	4
DN150	6"	56	150	134	201	90	70	11	12	9.5	4
DN200	8"	60	201	168	229	125	102	17	19	11.5	4
DN250	10"	68	251	202	269	125	102	20	21	11.5	4
DN300	12"	78	301	234	298	125	102	20	21	11.5	4
DN350	14"	78	340	275	330	175	140	24	24	17.5	4
DN400	16"	102	391	303	358	175	140	36	38	17.5	4
DN450	18"	114	442	356	403	175	140	36	38	17.5	4
DN500	20"	127	486	382	435	210	165	46	48	21.5	4
DN600	24"	154	585	440	510	210	165	55	57	21.5	4
DN700	28"	165	680	490	560	300	254	55	57	17.5	8
DN750	30"	165	699	540	615	300	254	55	57	17.5	8
DN900	36"	200	850	630	705	300	254	55	57	17.5	8

*All dimensions are in mm unless and otherwise specified.



TORQUE TABLE

SIZE (mm)	LINE PRESSURE	
	10 BAR	16 BAR
32	5	7
40	6	8
50	7	9
65	15	18
80	18	24
100	25	37
125	45	59
150	110	125
200	140	200
250	200	240
300	280	360
350	610	700
400	750	850
450	860	1500
500	2255	3690
600	3000	3840
700	3600	6500
750	4000	7250
900	4200	7600

Cv VALUE CHART FOR "VTM" BUTTERFLY VALVES

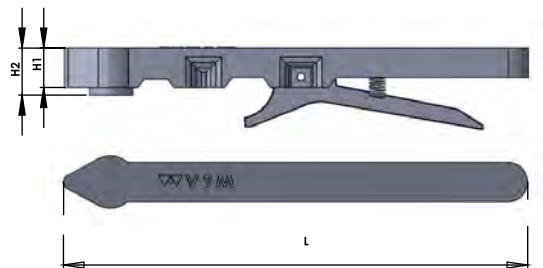
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
1 1/2"	40	0.7	3	6	14	20	38	53	62	73
2"	50	0.2	5	9	17	27	53	70	115	145
2 1/2"	65	0.4	8	15	26	42	83	105	175	240
3"	80	0.6	12	22	38	63	125	160	260	440
4"	100	0.8	17	42	73	120	235	305	510	720
5"	125	2	45	88	155	250	490	625	1000	1175
6"	150	3	89	145	250	410	800	1030	1650	2040
8"	200	4	148	250	420	700	1300	1750	2725	3472
10"	250	5	232	390	670	1150	2150	2750	4300	5950
12"	300	6	342	550	1000	1600	3100	4050	5000	8402
14"	350	6	338	715	1549	2761	4568	7230	10844	11917
16"	400	8	464	983	2130	3797	6282	9942	14913	16388
18"	450	11	615	1302	2822	5028	8320	13168	19752	21705
20"	500	14	791	1674	3628	6465	10698	16931	25396	27908
24"	600	22	1222	2587	5605	9989	16528	26157	39236	43116

- NOTE:
- All Torque values are in Nm.
 - All Actuator are selected on basis by adding 30% factor of safety in the torque value required to operate.
 - For Powdery/Non Lubricant media, torque values shall increase by 25%
 - For Dry Gases/Viscous media, torque shall increase by 20%

ACTUATORS & ACCESSORIES

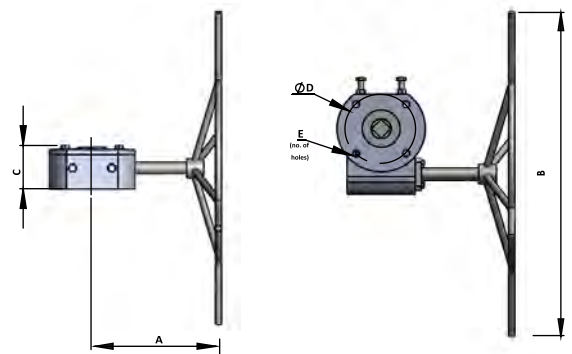
HAND LEVER

SIZE	L	H1	H2
32/40/50/65/80MM	240.00	25.00	31.00
100/125/150MM	290.00	25.00	31.00
200MM	340.00	28.00	33.00
250/300MM	550.00	32.00	35.00



GEAR BOX SIZES

SIZE	RATIO	TURN TO CLOSE 90°	MAX. OUTPUT TORQUE (NM)	A	B	C	D	E
32 TO 150mm (1 1/4" - 6")	25:1	6.25	125	145	200	60	50 or 70	4
200 TO 300mm (8" - 12")	32:1	8.00	500	240	300	75	102	4
350 TO 450mm (14" - 18")	47:1	11.75	2000	255	400	85	140	4
500 TO 600mm (20" - 24")	45:1	11.25	4000	290	600	122	165	4
700 TO 900mm (28" - 36")	52:1	13.00	8000	250	800	152	254	8



NOTE: VTM Designed Electric & Pneumatic Actuators are available on Demand.

CHEMICAL RESISTANCE GUIDE

FLUID / MATERIAL	DISC			SEAT		
	AL-BRZ	DUCTILE	304/316	NBR	EPDM	VITON
Acetic Acid (10%)	Very Poor	Poor	Excellent	Very Poor	Good	Very Poor
Air	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Ammonia (anhydrous liquid)	Very Poor	Good	Excellent	Poor	Good	Very Poor
Ammonia (soluton)	Very Poor	Good	Excellent	Good	Good	Very Poor
Ammonium Sulfate	Very Poor	Poor	Good	Excellent	Excellent	Good
Animal Oil	Good	Excellent	Excellent	Excellent	Good	Good
Calcium Carbonate	Very Poor	Very Poor	Good	Excellent	Excellent	Excellent
Carbonic Acid	--	Very Poor	Good	Good	Good	Excellent
Chlorinated Water	Very Poor	--	Poor	Good	--	Excellent
Ethane	--	Good	Good	Excellent	Very Poor	Excellent
Ethyl Alcohol	Good	Good	Excellent	Good	Excellent	Good
Freon12	Excellent	Good	Excellent	Good	Excellent	Poor
Gasoline (refined/unleaded)	Good	Good	Excellent	Poor	Very Poor	Excellent
Hydrochloric Acid	Very Poor	Very Poor	Very Poor	Poor	Good	Excellent
Hydrogen Gas (cold)	Excellent	Good	Excellent	Good	Good	Excellent
Lubricatng Oil (petroleum base)	Good	Excellent	Excellent	Excellent	Very Poor	Excellent
Methyl Alcohol	Excellent	Good	Excellent	Good	Excellent	Poor
Mineral Oil	Good	Good	Excellent	Excellent	Very Poor	Excellent
Natural Gas	Excellent	Excellent	Excellent	Good	Very Poor	Excellent
Oxygen (cold)	Excellent	Good	Excellent	Good	Good	Excellent
Petroleum Oil (refined)	Good	--	--	Good	Very Poor	Good
Propane Gas	--	Good	Excellent	Excellent	Very Poor	Excellent
Sea Water	Excellent	Very Poor	Good	Excellent	Excellent	Excellent
Soybean Oil	--	Poor	Excellent	Excellent	Poor	Excellent
Sulfuric Acid (7%)	Very Poor	Very Poor	Good	Good	Good	Excellent
Sulfuric Acid (20%)	Very Poor	Very Poor	Very Poor	Very Poor	Good	Excellent
Sulfuric Acid (50% & larger)	Very Poor	Very Poor	Very Poor	Very Poor	Good	Good
Sulfurous Acid	Very Poor	Very Poor	Good	Poor	Poor	Excellent
Steam (100°C)	Excellent	Excellent	Excellent	Very Poor	Good	Poor
Vegetable Oil	Good	Poor	Excellent	Excellent	Poor	Excellent
Water (hot, 150°F)	Excellent	Poor	Excellent	Very Poor	Good	Excellent

The above performance data has been developed from field testing, customer field reports and/or in-house testing. Properties/applications shown are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. While the utmost care has been used in compiling this data, we assume no responsibility for errors

VALVE PRESSURE RATING

RATING	SHELL(Kg/cm ²)	SEAT(Kg/cm ²)
PN-10	15.0	11.0
PN-16	24.0	17.6
PN-25	38	28

V.A. VALVES

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Due to continuous development program, design and data in this leaflet are subject to change without prior notice.

GUARANTEE

All valves are guaranteed against any manufacturing defects for a period of 12 months from date of supply, provided the valves have not been misused, damaged or installed for services they are not recommended. The company shall be liable to furnish part / parts thereof or full valve as the company may deem fit.

Authorized Stockist

Our associates:

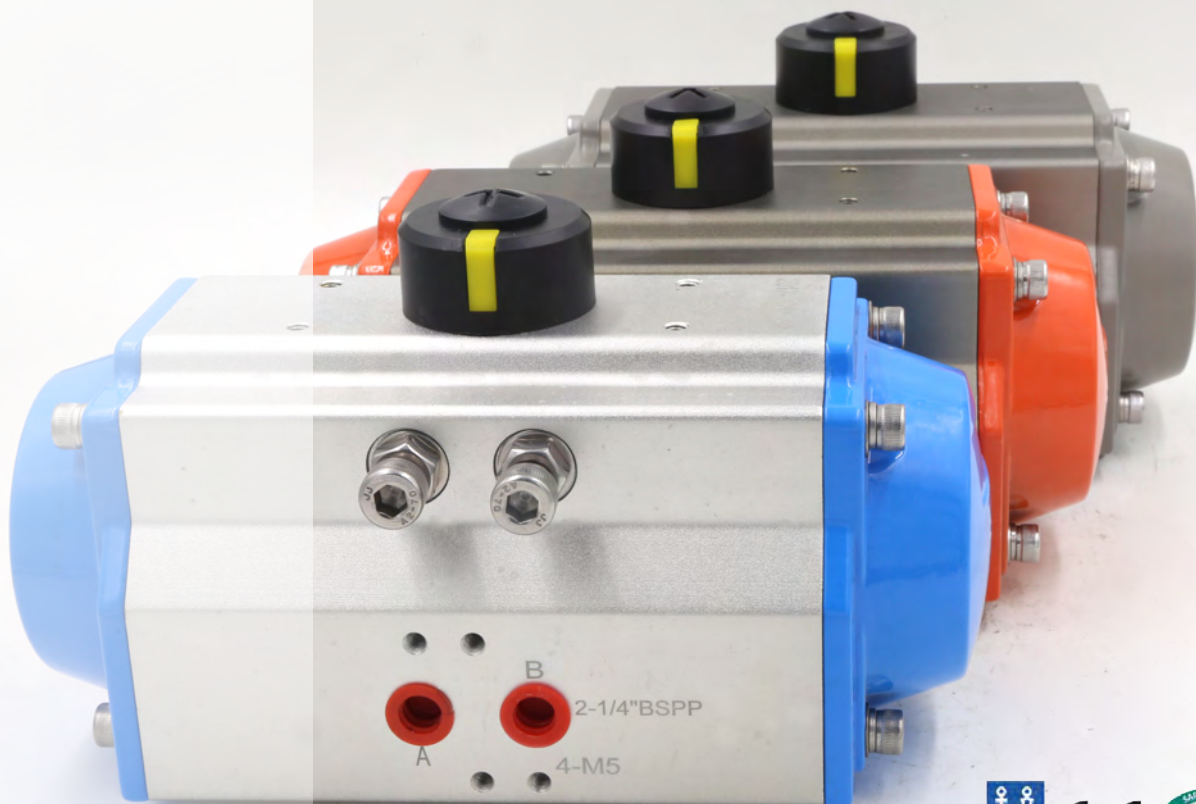


PIONEERING FLUID CONTROLS

www.vtm-valves.com



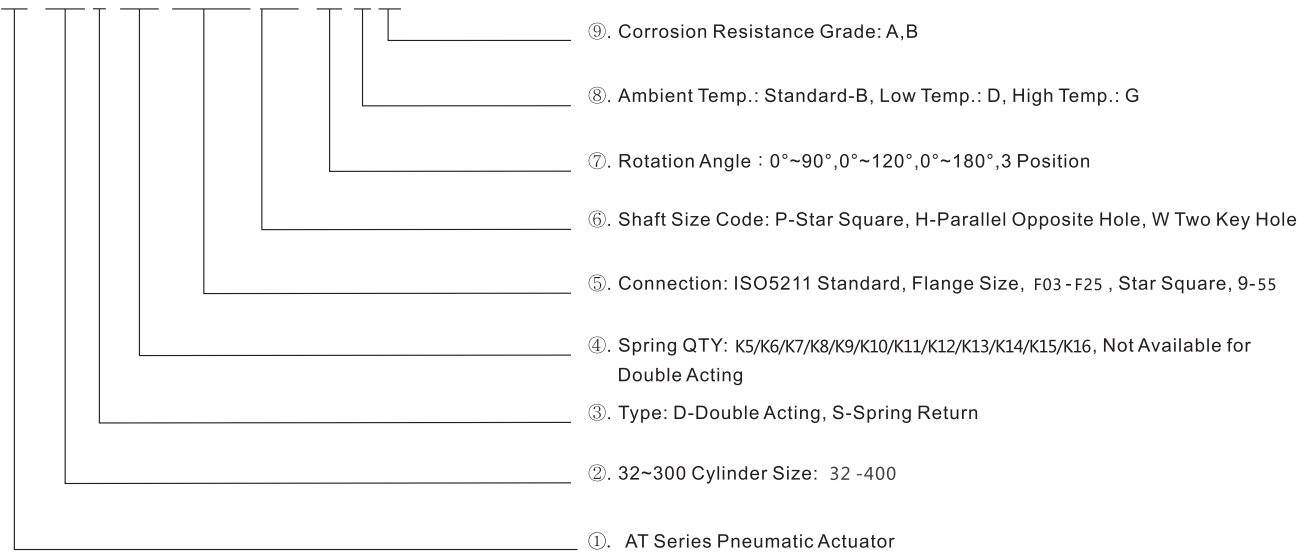
Pneumatic Actuator AT Series



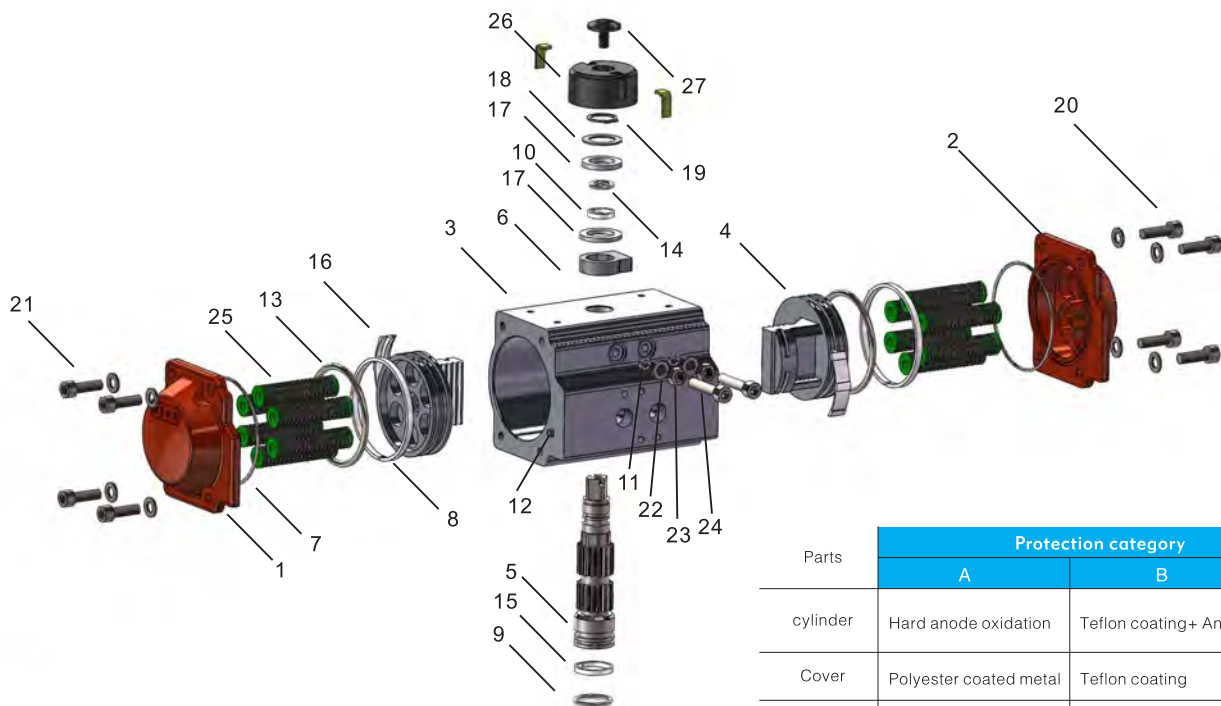
Components and materials, corrosion ATD/ATS 32 -400

Model preparation

AT-160 S-K10 F10/12 P27-90-B-A



Components and materials, corrosion

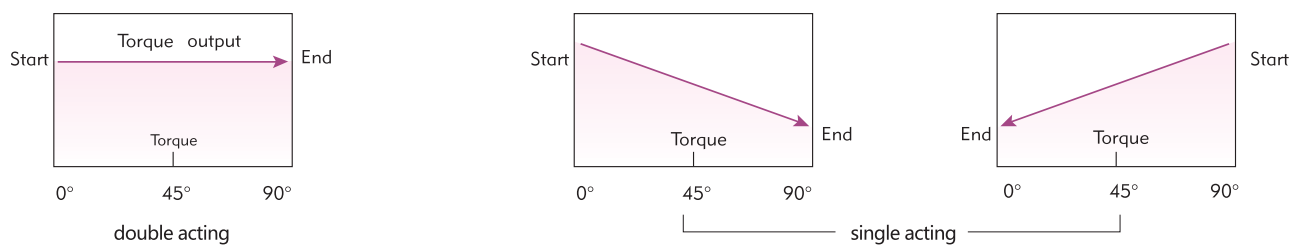


Parts	Protection category	
	A	B
cylinder	Hard anode oxidation	Teflon coating+ Anode sclerosis
Cover	Polyester coated metal	Teflon coating
Output shaft	Carbon steel electroless nickel plating	Electroless nickel plating or stainless steel
Use Occasion	General situation	General occasions or low concentrations of acidic environment

Pneumatic Actuator AT Series

Part Number	Each number	Part Name	Standard Materials	Selected materials
01	1	Left Cover	Aluminum Die Casting	Stainless steel
02	1	Right Cover	Aluminum Die Casting	Stainless steel
03	1	body	Aluminum extrusion	Stainless steel
04	2	Piston	Aluminum Die Casting	----
05	1	Output shaft	Carbon Steel	Stainless steel
06	1	Cam adjustment	Stainless steel	----
07 *	2	O-ring (cover)	NBR	Fluorine or silicone rubber
08 *	2	O-ring (Piston)	NBR	Fluorine or silicone rubber
09 *	1	O-ring (output shaft bottom)	NBR	Fluorine or silicone rubber
10 *	1	O-ring (output shaft at the top)	NBR	Fluorine or silicone rubber
11 *	2	O-ring (adjusting screw)	NBR	Fluorine or silicone rubber
12 *	2	Plug (Cylinder)	NBR	Fluorine or silicone rubber
13 *	2	Bearing (Piston)	POM	----
14 *	1	Bearing (output shaft at the top)	POM	----
15 *	1	Bearing (output shaft bottom)	POM	----
16 *	1	Guide with Bearing (Piston back)	POM	----
17 *	2	Thrust bearings (output shaft)	POM	----
18	2	Gasket (output shaft)	Stainless steel	----
19	1	Flexible file ring	Spring steel	----
20	4	Cover bolt	Stainless steel	----
21	4	Cover Gasket	Stainless steel	----
22	2	Gasket	Stainless steel	----
23	2	Nut	Stainless steel	----
24	2	Adjustment bolt	Stainless steel	----
25	5-12	Spring Components	Alloy spring steel	----
26	1	Position indicator	POM	----
27	1	Screw of indicator	POM	----

Torque Diagram



Double Acting Operation

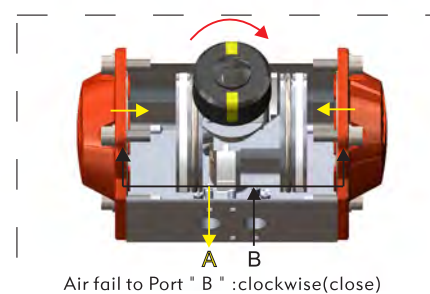
Selection of double action actuators

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

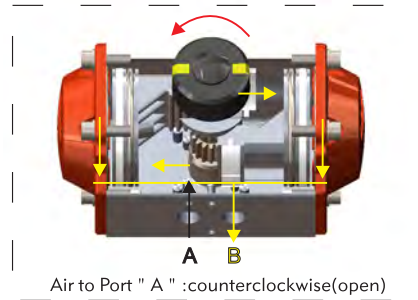
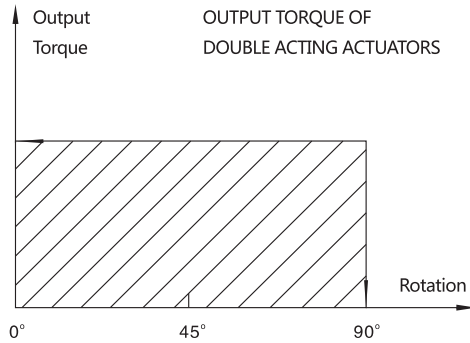
Example:

- The torque needed by valve = 100 N.m
- The torque considered safety factor $100 \times (1 + 30\%) = 130 \text{ N.m}$
- Air Supply = 5 Bar

According to double acting torque table, we can choose the minimum model is AT-100D.



Pneumatic Actuator AT Series



* Pistons must be inverted to reverse actuator rotation

Spring Return Operation

Selection of single action actuators

Under normal operating conditions, a single actuator to consider the role of the safety factor of 30% -50%.

For example:

Valve required torque = 100N.m

Safety torque = $100 \times (1 + 30\%) = 130\text{N.m}$

according to single acting actuator output torque table, we can find AT-145S K10

Torque following

Implementation process 0° = 285N.m air

Implementation process 90° = 164 N.m air

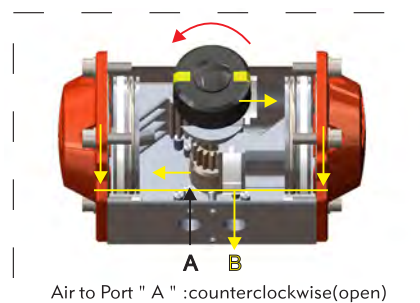
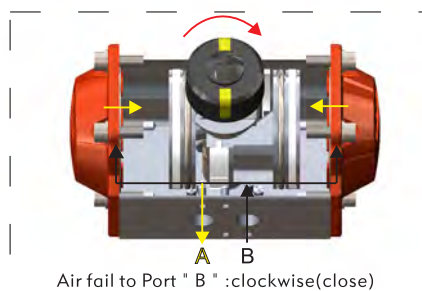
Spring stroke 0° = 193 N.m

Spring stroke 90° = 314 N.m

output Torque bigger than all our needs

Note:

Single action during the spring return actuators, actuator B hole ventilation does not affect actuator output torque.instead it's helpful of spring return

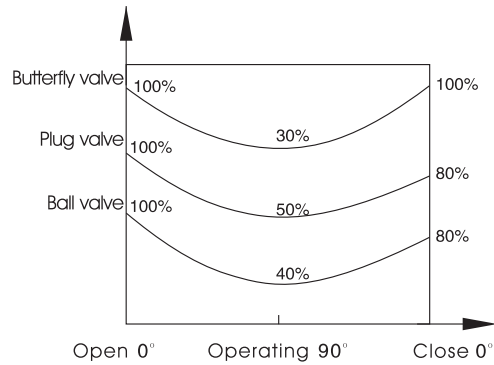


* Spring force makes the actuator clockwise when the air is exhausted at port " A "

* When air fail to counterclockwise is required, the pistons must be inverted

Sizing information and How to order

Sizing information and How to order



Forexample:

Butterfly of the original maximum torque=80N.m

Opened torque $80 \times 30\% = 24\text{N.m}$

Air pressure = 5.5 Bar

We can choose AT-115SK10

Air travel $0^\circ = 141\text{N.m} > 80\text{N.m}$

Air travel $90^\circ = 81\text{N.m} > 24\text{N.m}$

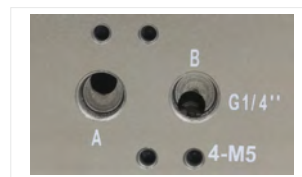
Spring stroke $90^\circ = 155\text{N.m} > 24\text{N.m}$

Spring stroke $0^\circ = 95.3\text{N.m} > 80\text{N.m}$

The above figures show opening meet of the butterfly valve

Operating type (Double acting and spring return)

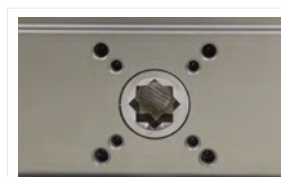
Air supply connection is designed in accordance with NAMUR Standard to install solenoid valves.



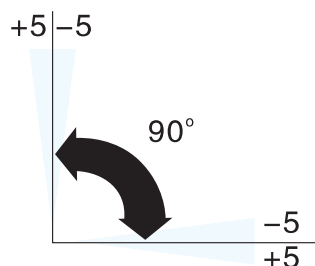
The Namur drive pinion and the Namur top mounting connection permit direct installation of accessories such as limit switch box and positioner.



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



Operating conditions:



1. Operating media

Dry or lubricated air, or the non-corrosive gases

The maximum particle diameter must be less than $30\ \mu\text{m}$

2. Air supply pressure

The minimum supply pressure is 2.5 Bar

The maximum supply pressure is 8 Bar

3. Operating temperature

Standard: $-20^\circ\text{C} \sim +80^\circ\text{C}$

Low temperature: $-40^\circ\text{C} \sim +80^\circ\text{C}$

High temperature: $-15^\circ\text{C} \sim +150^\circ\text{C}$

4. Travel adjustment

Have adjustment range of $\pm 5^\circ$ for the rotation at 0° and 90°

5. Application

Either indoor or outdoor

Air Consumption

Air Consumption

Model	Maximum pressure	The angle of rotation	Temperature	1*the need to adjust the number of laps	Diameter	Internal volume close	Open	On-off time close	Open	kgs/per A weight	Weight Spring weight
SPA-50	Lubrication or dry of compressed air 8bar	(0°-90°) ± 5° or full itinerary 0°-90°	B (normal) NBR O-ring -20~+80°C G(High Temperature) Viton O-ring -15~+150°C D (Low Temperature) Silicone O-ring -40~+80°C	1/6	50	0.1	0.2	DA 0.6 SR 2.0	DA 0.6 SR 0.5	DA 1.10 SR 1.15	... 0.010
SPA-63				1/6	63	0.2	0.3	DA 0.7 SR 2.0	DA 0.7 SR 1.0	DA 1.62 SR 1.80	... 0.015
SPA-75				1/5	75	0.3	0.5	DA 0.8 SR 2.0	DA 0.7 SR 1.0	DA 2.75 SR 3.15	... 0.036
SPA-88				1/5	88	0.5	0.8	DA 0.9 SR 2.5	DA 0.8 SR 1.0	DA 3.80 SR 4.40	... 0.046
SPA-100				1/5	100	0.7	1.1	DA 1.0 SR 3.0	DA 1.0 SR 1.0	DA 5.20 SR 5.95	... 0.050
SPA-115				1/4	115	1.2	1.8	DA 1.5 SR 3.0	DA 1.5 SR 1.0	DA 7.85 SR 9.05	... 0.094
SPA-125				1/4	125	1.5	2.3	DA 2.0 SR 4.0	DA 2.0 SR 1.0	DA 10.00 SR 12.00	... 0.150
SPA-145				1/4	145	2.4	3.8	DA 2.5 SR 4.0	DA 2.5 SR 1.0	DA 14.70 SR 17.20	... 0.200
SPA-160				1/4	160	3.1	4.9	DA 4.0 SR 4.0	DA 3.0 SR 1.5	DA 20.85 SR 24.45	... 0.300
SPA-190				1/4	190	4.5	7.3	DA 5.0 SR 5.0	DA 4.0 SR 3.0	DA 31.05 SR 36.80	... 0.479
SPA-210				1/4	210	6.8	11.2	DA 5.0 SR 6.0	DA 5.0 SR 3.0	DA 39.00 SR 45.50	... 0.500
SPA-240				1/4	240	10	15.2	DA 6.0 SR 12	DA 6.0 SR 4.0	DA 53.00 SR 64.00	... 0.917
SPA-270				1/4	270	14.5	21.4	DA 8.0 SR 15	DA 8.0 SR 6.0	DA 76.00 SR 95.20	... 1.600
SPA-300				1/4	300	23.8	29.7	DA 12 SR 18	DA 12 SR 8.0	DA 100.0 SR 128.2	... 2.350
SPA-350				1/4	350	35.1	46	DA 14 SR 20	DA 14 SR 10	DA 186.0 SR 216.0	... 2.501
SPA-400				1/4	400	52.6	56	DA 15 SR 25	DA 15 SR 12	DA 243.0 SR 279.0	... 3.001

Air consumption rest with Supply. Air volume and Action cycle times,expressions

$$L/Min = \text{Air volume}(\text{Air volume Opening} + \text{Air volume closing}) \times [(\text{Air Supply}(Kpa) + 101.3) \div 101.3] \times \text{Action cycle times}(/min)$$

Common faults and inspection, troubleshooting

Failure phenomenon	Inspection Items	Solution
Pneumatic valve can not move	1, the electromagnetic valve is normal, coil is burned, Electromagnetic valve is stuck being stolen	Solenoid valve replacement, replacement coils, remove stolen property.
	2, a separate air supply pneumatic actuator test, check seals and Whether the cylinder is damaged.	Replace a bad ring and cylinder.
	3, there are impurities in the spool valve stuck.	Remove impurities, replace damaged parts.
	4, the handle in a manual motor location.	change the handle to pneumatic position
Slow motion, crawling	1, supply pressure is not enough.	The increase of gas supply pressure (0.4-0.7Mpa)
	2, pneumatic actuator output torque is too small.	Increase the pneumatic actuator Production.
	3, the valve spool or valve assembly too tight.	Re-assembly adjustments.
	4, air supply pipe plug, flow is too small.	Exclude plug, replace the filter cartridge.
Reply devices without signal	1, power line short circuit or open circuit.	Maintenance of power lines.
	2, reply within the cam position is not accurate.	Adjust the cam to the correct location
	3, micro switch damaged.	Replacement Micro Switch

RT Series stainless steel pneumodic auuator

Designing features



ASTM316L, 316, 304, 303 stainless steel pneumatic actuator with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.

Dual piston rack and pinion design for compact construction, symmetric mounting position, high-cycle life and fast operation, reverse rotation can be accomplished in the field by simply inverting the pistons.

Multiple bearings and guides on racks and pistons, low friction, high cycle life and prevent shaft blowout.

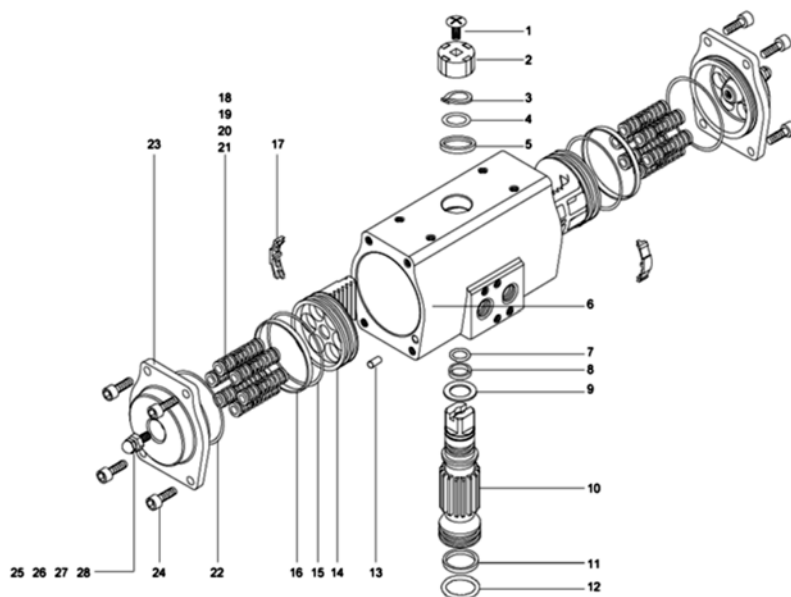
Modular preloaded spring cartridge design, with coated spring for simple versatile range, greater safety and corrosion resistance, longer cycle life.

Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency.

Stainless steel fasteners for long term corrosion resistance.

Full conformance to the latest specifications: ISO5211, DIN 3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

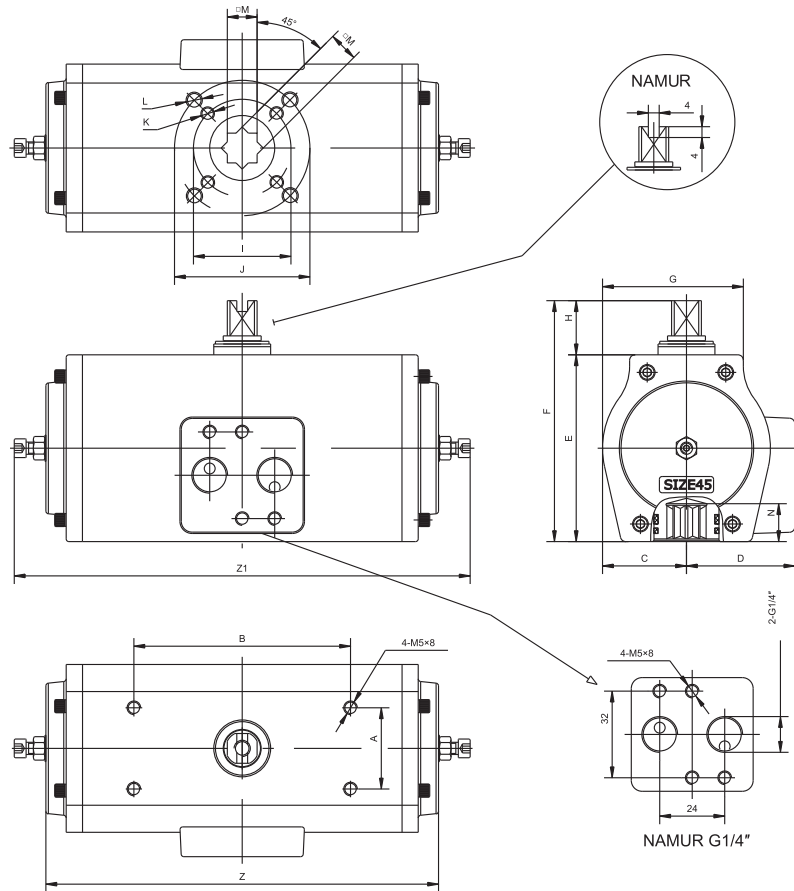
RT Series Actuators Parts and Material Table



Number	Description	Qty	Standards Material
1	Indicator screw	1	POM
2	Indicator	1	POM
3	Snap ring	1	Spring steel
4	Washer	1	Stainless steel
5	Trust bearing	1	POM
6	Body	1	Stainless steel
7	O-ring(top)	1	Viton/NBR
8	Bearing top	1	POM
9	Trust bearing	1	POM
10	Pinion	1	Stainless steel
11	Bearing bottom	1	POM
12	O-ring Bottom	1	Viton/NBR
13	Plug	2	NBR
14	Piston	2	Stainless steel
15	Piston O-ring	2	Viton/NBR
16	Piston Bearing	2	POM
17	Guide Piston	2	POM
18	Spring	*	Spring Steel
19	Spring Retainer(L)	*	Nylon 66
20	Spring Retainer(R)	*	Nylon 66
21	Retainer Connector	*	Brass
22	End-Cap O-ring	2	Viton/NBR
23	End-Cap	2	Stainless steel
24	End-Cap Stop Screw	8	Stainless steel
25	Adjust Screw	2	Stainless steel
26	Adjust Screw Nut	2	Stainless steel
27	Adjust Screw Washer	2	Stainless steel
28	Adjust Screw O-ring	2	Viton/NBR

RT Series stainless steel pneumodic auator

RT Series Actuators Parts and Material Table



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Z1	Air
RT-45	30	80	31	39	68	88	52	20	36	50	M5×7	M6×8	11	14	145	165	1/4"NPT
RT-60	30	80	38	47	84	104	64	20	36	50	M5×8	M6×10	14	15.5	165	185	1/4"NPT
RT-85	30	80	49.5	53	107	127	76.5	20	50	70	M6×10	M8×12	17	20	200		1/4"NPT
RT-105	30	80	58	63.5	134	154	88	20	70	102	M8×13	M10×16	22	26	252		1/4"NPT
RT-125	30	130	69	68.5	157	187	100.5	30	70	102	M8×13	M10×16	22	29	338		1/4"NPT
RT-140	30	130	79.5	80	178	208	122	30	102	125	M10×16	M12×20	27	30	393		1/4"NPT
RT-160	30	130	90	90	200	230	146	30	102	125	M10×18	M12×18	27	30	442	475	1/4"NPT
RT-210	30	130	122	110	257	287	184	30		140		M16×20	36	40	596	628	1/4"NPT

RT Double Acting Actuator Output Torque(Nm) For Double Acting Actuators

Model	Air supply pressure(Unit:Bar)									
	2.5	3	3.5	4	4.5	5	5.5	6	7	8
RT-45D	8.3	10.0	11.6	13.3	15.0	16.6	18.3	20.0	23.3	26.6
RT-60D	14.6	17.6	20.5	23.4	26.4	29.3	32.2	35.2	41.0	47.0
RT-85D	43.3	52.0	60.7	69.3	78.0	86.7	95.3	104	121	139
RT-105D	81.4	97.6	114	130	146	163	179	195	228	260
RT-125D	138	166	194	221	249	277	304	332	387	443
RT-140D	217	261	304	348	391	434	478	521	608	695
RT-160D	283	340	397	453	510	577	623	680	793	907
RT-210D	683	820	957	1093	1230	1367	1503	1640	1913	2187

Pneumatic Actuator

Single Acting Actuator Output Torque(Nm)

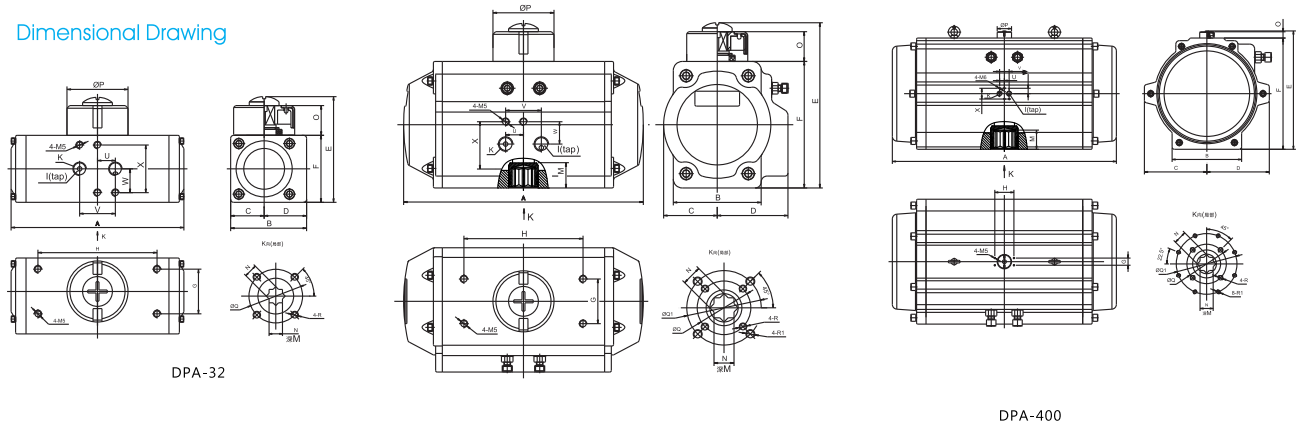
Model	Spring Q.ty	2.5bar		3bar		3.5bar		4bar		4.5 bar		5 bar		5.5 bar		6 bar		7 bar		8 bar		Spring Torque											
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°										
		5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12
SPA-50		4.6	2.3	6.3	4	7.9	5.6	9.6	7.3	11.3	9	12.9	10.6	12.2	13.9	11.1	14.8	11.6	17.4	13.7	19.2	15.1	20.8	16.6	22.3	18.2	24.0	19.9	25.7	21.5	27.3		
SPA-63		8.1	4	11.1	7	14	9.9	16.9	12.8	19.9	15.8	22.8	18.7	25.7	21.5	28.4	24.3	31.2	27.1	34.0	29.9	36.8	32.7	39.6	35.5	42.4	38.3	45.2	41.1	48.0			
SPA-75		16.1	8	22.1	14	27.8	19.7	33.6	25.5	39.4	31.3	45.2	37.1	51.0	42.9	56.8	48.7	62.6	54.5	68.4	60.3	74.2	66.1	80.0	71.9	85.8	77.7	91.6	83.5	97.4			
SPA-88		25.5	12.7	34.8	22	43.8	31	53	40.2	62.1	49.3	71.2	58.4	81.1	67.7	84.5	71.2	87.9	74.6	91.3	81.1	102.1	91.9	112.7	102.5	123.3	113.1	133.9	123.7	144.5			
SPA-100		37	18.4	50.3	31.7	63.6	45	76.6	58	90.6	72	103.6	85	116.5	98	129.4	111.3	124.2	117.1	130.0	122.9	135.8	128.7	141.6	134.5	147.4	140.3	153.2	146.1	159.0			
SPA-115		59.4	29.3	81.4	51.3	102.4	72.3	124	94.3	145	115	167	137	179	143	191	149	207	165	223	181	239	207	265	223	281	239	297	255	313			
SPA-125		76.7	38	104.7	66	132.7	74	160	121	188	149	216	177	230	184	246	192	252	207	264	222	277	233	291	247	305	261	319	275	333			
SPA-145		120.7	60	164.7	104	207.7	147	252	191	295	234	338	277	371	301	386	316	401	331	416	346	431	361	446	376	461	391	476	406	491			
SPA-160		158	78	215	135	272	192	328	248	385	305	452	372	519	443	534	464	555	485	576	506	597	527	618	548	639	569	660	590	721			
SPA-190		333	224	440	331	546	437	653	544	759	650	866	757	963	854	999	914	1021	936	1043	958	1065	980	1081	1011	1122	1037	1148	1063	1174			
SPA-210		376	271	506	401	636	531	767	662	897	792	1027	922	1157	1052	1187	1112	1247	1142	1277	1172	1307	1202	1337	1232	1367	1262	1397	1292	1427			
SPA-240		547	465	292	594	929	785	1120	976	1312	1168	1503	1359	1728	1612	1939	1823	2150	2034	2361	2245	2572	2456	2783	2667	3013	2897	3243	3127	3473			
SPA-270		892	780	665	1183	1473	1266	1764	1537	2054	1827	2345	2118	2732	2516	3130	2914	3528	3312	3926	3710	4324	4108	4732	4516	5130	4914	5528	5312	5926			
SPA-300		1263	932	1661	1330	2060	1729	2458	2127	2857	2526	3294	2924	3738	3427	4241	3930	4744	4433	5247	4936	5750	5439	6253	5942	6756	6445	7259	6948	7762			
SPA-350		1810	1281	2407	1878	3003	2474	3600	3071	4196	3667	4793	4264	5419	4890	6045	5516	6671	6142	7297	6768	7923	7394	8549	8020	9175	8646	9801	9272	10427			
SPA-400		2413	1370	3263	2220	4113	3070	4963	3920	5813	4770	6663	5620	7556	6512	8397	7353	9238	8194	10079	9035	10920	9876	11751	10697	12572	11518	13393	12339	14214			
		5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12	5	6	7	8	9	10	11	12

Pneumatic Actuator

Double Acting Actuator Output Torque(Nm)

Model	Air supply pressure(Uni t : Bar)									
	2.5	3	3.5	4	4.5	5	5.5	6	7	8
DPA-32	3.8	4.5	5.3	6.0	6.8	7.5	8.3	9.0	10.5	12.0
DPA-50	8.3	10.0	11.6	13.3	15.0	16.6	18.3	20.0	23.3	26.6
DPA-63	14.6	17.6	20.5	23.4	26.4	29.3	32.2	35.2	41.0	47.0
DPA-75	29.0	35.0	40.7	46.5	52.3	58.1	64.0	69.7	81.4	93.0
DPA-88	45.7	55.0	64.0	73.2	82.3	91.4	101	110	128	146
DPA-100	66.4	79.7	93.0	106	120	133	146	159	186	213
DPA-115	107	129	150	172	193	215	236	258	301	344
DPA-125	138	166	194	221	249	277	304	332	387	443
DPA-145	217	261	304	348	391	434	478	521	608	695
DPA-160	283	340	397	453	510	577	623	680	793	907
DPA-190	533	640	746	853	959	1066	1173	1279	1492	1706
DPA-210	651	781	911	1042	1172	1302	1432	1562	1823	2083
DPA-240	957	1148	1339	1530	1722	1913	2104	2296	2678	3061
DPA-270	1452	1743	2033	2324	2614	2905	3195	3486	4067	4648
DPA-300	1993	2391	2790	3188	3587	3985	4384	4782	5579	6376
DPA-350	2983	3580	4176	4773	5369	5966	6563	7159	8352	9546
DPA-400	4250	5100	5950	6800	7650	8500	9350	10200	11900	13600

Dimensional Drawing



Dimension

Unit (mm)

Model	FLANGE L(ISO5211) Q/Q1	R/R1 M/N(min)	A	B	C	D	E	F	G	H	I	K	O	P	U	V	W	X
			PA-32	F03 Ø36	M5 10/9	118	51	22.5	28.5	69	45	30	80	PF	1/8"	20	42	12
PA-50	F03/F05 Ø36/Ø50	M5/M6 13/11	146	47	29	41.5	95	69	30	80	PF	1/4"	20	42	12	24	16	32
	F03/F05 Ø36/Ø50	M5/M6 16/14																
PA-75	F05/F07 Ø50/Ø70	M6/M8 19/17	214	68	43	51	128	102	30	80	PF	1/4"	20	42	12	24	16	32
	F05/F07 Ø50/Ø70	M6/M8 20/17																
PA-100	F07/F10 Ø70/Ø102	M8/M10 24/22	270	95	56	64	153	127	30	80	PF	1/4"	20	42	12	24	16	32
	F07/F10 Ø70/Ø102	M8/M10 24/22																
PA-115	F07/F10 Ø70/Ø102	M8/M10 29/27	316	97	64.5	74.5	181	145	30	80	PF	1/4"	30	62	12	24	16	32
	F07/F10 Ø70/Ø102	M8/M10 29/27																
PA-125	F10/F12 Ø102/Ø125	M10/M12 30/27	418	115	80	87	214	178	30	80/130	PF	1/4"	30	62	12	24	16	32
	F10/F12 Ø102/Ø125	M10/M12 30/27																
PA-160	F14 Ø140	M16 40/36	450	118	89	104	236	200	30	80/130	PF	1/4"	30	80	12	24	16	32
	F14 Ø140	M16 40/36																
PA-190	F16 Ø165	M20 50/46	628	160	130	130	328	292	30	130	PF	1/4"	30	90	12	24	16	32
	F16 Ø165	M20 50/46																
PA-210	F16 Ø165	M20 50/46	750	160	147	147	367	331	30	130	PF	1/2"	30	90	20	40	22.5	45
	F16 Ø165	M20 50/46																
PA-240	F16 Ø165	M20 50/46	772	180	161	172	390	354	30	130	PF	1/2"	30	90	20	40	22.5	45
	F16 Ø165	M20 50/46																
PA-270	F16/F25 Ø165/Ø254	M20/8-M16 50/46	860	270	190	190	346	410	30	130	PF	1/2"	30	90	20	40	22.5	45
	F16/F25 Ø165/Ø254	M20/8-M16 50/46																
PA-300	F16/F25 Ø165/Ø254	M20/8-M16 72/55	938	291	262	262	502	466	30	130	PF	1/2"	30	90	20	40	22.5	45
	F16/F25 Ø165/Ø254	M20/8-M16 72/55																

Three position pneumatic actuator

Three position pneumatic actuators have two kinds of models $0^\circ -45^\circ -90^\circ$ or $0^\circ -90^\circ -180^\circ$. In intake 2, the piston moves to both ends after air inflow, it through both ends design has auxiliary piston produces mechanical constraints to realize the middle position. It can use outside ends adjusting bolt easily adjust intermediate position. Angle directly such as 20° 30° 50° 75° or 95° 120° 130° 150° 175° , etc.

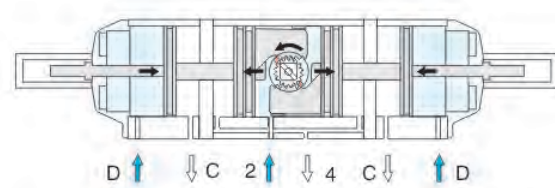
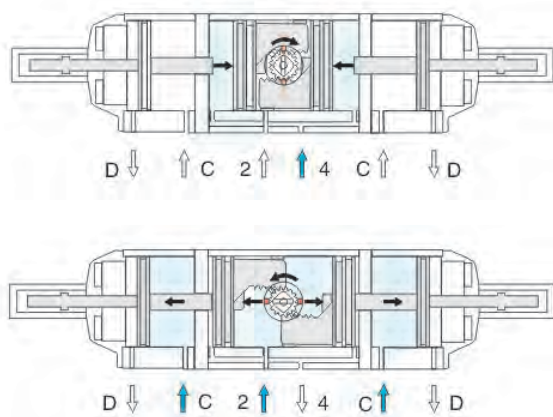
Three position pneumatic actuators which operating need to design a set of electromagnetic valve control loop system to complete the operation, the control principle is as follows:

Air pressure enters 2 hole and D hole at one time, then air from 4 hole and C hole is exhausted, 2 hole as internal piston movement, D hole through assisted piston push-rod limit internal piston positioning at a predetermined middle position.

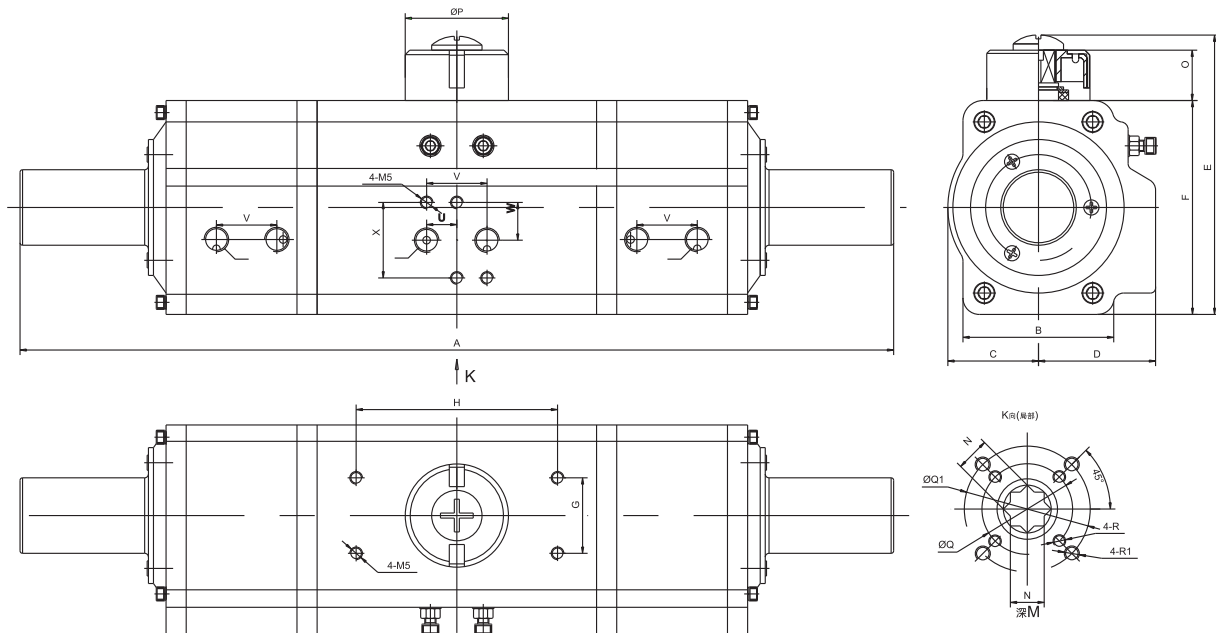
Air pressure enters 2 hole and C hole at one time, then air from 4 hole and D hole is exhausted, 2 hole internal piston continues to move, C hole removes auxiliary piston push-rod limit positioning, it makes the internal piston smooth arrival in full-open position.

Air pressure enters 4 hole, then air from 2 hole is exhausted, internal piston moves to the middle direction then reaches full-closed position.

We can provide 0-45-90 spring return type specification. When lose air, or cut power (or air failure), it can return to full-closed position through the spring force inner piston.



Three position pneumatic actuator



Dimension

Model	FLANGE L(ISO5211)	R/R1	A	B	C	D	E	F	G	H	I	K	O	P	U	V	W	X
	Q/Q1	M/N(min)																
CT-63	F03/F05	M5/M6	347	59	36	47.5	111	85	30	80	PF	1/4"	20	42	12	24	16	32
	Ø36/Ø50	16/14																
CT-75	F05/F07	M6/M8	412	68	43	51	128	102	30	80	PF	1/4"	20	42	12	24	16	32
	Ø50/Ø70	19/17																
CT-88	F05/F07	M6/M8	538	68	49.5	55.5	141	115	30	80	PF	1/4"	20	42	12	24	16	32
	Ø50/Ø70	20/17																
CT-100	F07/F10	M8/M10	620	95	56	64	153	127	30	80	PF	1/4"	20	42	12	24	16	32
	Ø70/Ø102	24/22																
CT-115	F07/F10	M8/M10	686	97	64.5	74.5	181	145	30	80	PF	1/4"	30	62	12	24	16	32
	Ø70/Ø102	24/22																
CT-125	F07/F10	M8/M10	718	97	69	78.5	193	157	30	80	PF	1/4"	30	62	12	24	16	32
	Ø70/Ø102	29/27																
CT-145	F10/F12	M10/M12	760	115	80	87	214	178	30	80/130	PF	1/4"	30	62	12	24	16	32
	Ø102/Ø125	30/27																
CT-160	F10/F12	M10/M12	826	118	89	104	236	200	30	80/130	PF	1/4"	30	80	12	24	16	32
	Ø102/Ø125	30/27																
CT-190	F14	M16	892	130	103	103	267	231	30	80/130	PF	1/4"	30	80	12	24	16	32
	Ø140	40/36																

GUARANTEE

All valves are guaranteed against any manufacturing defects for a period of 12 months from date of supply, provided the valves have not been misused, damaged or installed for services they are not recommended. The company shall be liable to furnish part / parts thereof or full valve as the company may deem fit.

V.A. VALVES

ISO 9001-2008 Certified

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