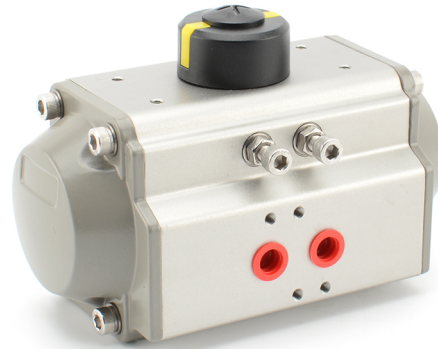
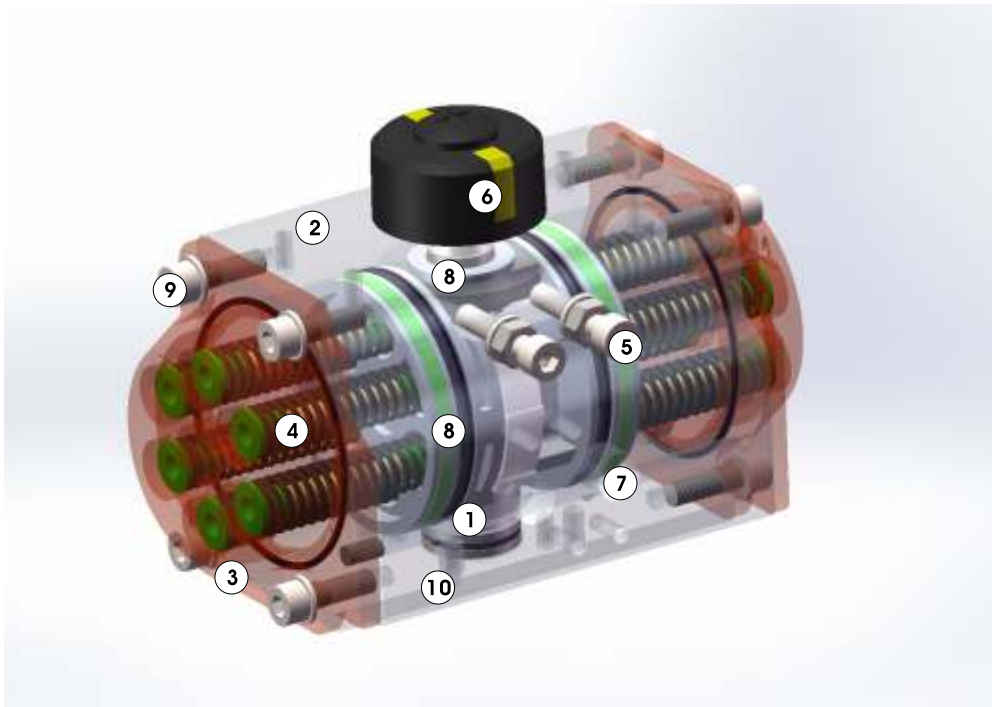


# AT PNEUMATIC ACTUATOR



## 说明及型号编制 ATD/ATS 32-300

### ATD / ATS series of new valve pneumatic actuator ATD/ATS系列新型阀门气动执行器



ATD/ATS新型齿轮齿条式气动执行器综合了国内外最新技术，通过CAD三维模型创新优化设计，外形美观紧凑、现代化的造型；并采用实用新型材料、新工艺，使产品的质量、性能更加可靠；多规格选型更经济实惠；产品全面符合最新国际标准技术规范，满足现在和未来的需求。

- ① 齿轮齿条双活塞对称结构设计，动作快速平稳，精度高，输出功率大，通过简单的改变活塞装配位置可得到反方向旋转。
- ② 挤压的优质铝合金缸体，经精密加工的内孔和外部表面进行硬质阳极氧化处理(特殊情况下阳极氧化+特氟隆涂层)，使用寿命更长，摩擦系数低。
- ③ 一体式设计，所有的双作用和单作用执行器型号，都具有相同的缸体和端盖，很方便通过加装弹簧或拆除弹簧来改变作用方式。
- ④ 组合式预负安全弹簧组，不论在装配过程或使用现场中，都能方便而安全的安装或增减弹簧数量。
- ⑤ 外部侧面两个单独的调节螺钉对于已安装在阀门上的执行器更是精确方便，调节阀开和阀关位置，如需全行程调节时则另外在两个端盖处配置较长调节螺钉。
- ⑥ 多功能位置指示器，现场可视化指示，符合VDI/VDE3845、NAMUR标准槽，能安装并输出所有附件，如限位开关盒、电气定位器、位置传感器(倍加福、图尔克)。
- ⑦ 气源接口符合NAMUR标准，可直接安装NAMUR标准电磁阀。
- ⑧ 活塞背面的复合材料轴瓦和导向环以及输出轴的轴承等为防止金属对金属的摩擦，并且增加润滑，使其低摩擦、长寿命。
- ⑨ 所有的紧固件均采用不锈钢材料，长期抗腐蚀。
- ⑩ 连接部分符合全新国际标准规范ISO5211，DIN3337(F03-F25)使产品安装具有互换性、通用性。

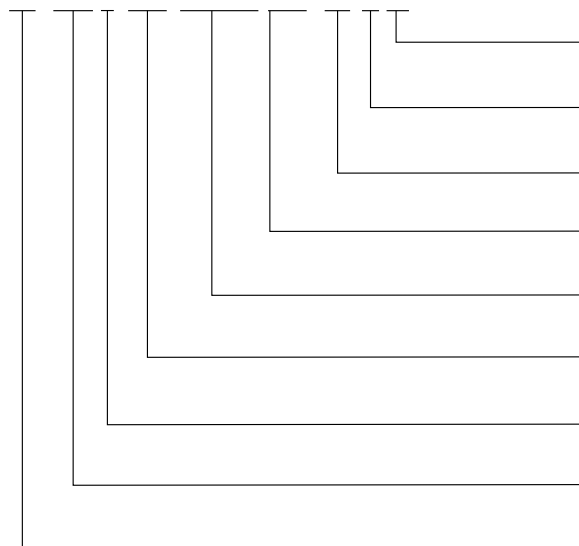
ATD/ATS new rack and pinion pneumatic actuator by the zhejiang KST company combines the latest technology at home and abroad, through the three-dimensional model of innovation and optimization of CAD design, beautiful shape compact, modern styling; and adopt practical new materials, new processes, so that the product quality, more reliable; more standard selection of more affordable; products fully meet the latest international standards, technical specifications, to meet current and future needs.

- ① dual piston rack and pinion design of symmetric structures, rapid and smooth movement, high precision, high output power by a simple change in the direction of the piston assembly positions available anti-rotation.
- ② high quality extruded aluminum alloy cylinder block, by precision machining the hole and the external surface of hard anodized (anodic oxidation under special circumstances + Teflon coating), longer life, low friction coefficient.
- ③ integrated design, all the double acting and single-function actuator models have the same cylinder and end caps, easily removed by installing a spring or spring to change the mode of action.
- ④ combined pre-spring break Hean whole group, whether in the assembly process or use on-site in both convenient and safe to install or change the
- ⑤ the external side of the two single independent adjustment screw has been number of springs. installed in the valve for the actuator is precisely to facilitate, control valve open and valve closed position, For the whole trip conditioned office is also configured in two cover a longer adjustment screws.
- ⑥ multi-position indicator, on-site visual instructions, consistent with VDI/VDE3845, NAMUR standard slot, the output can be installed and all the accessories, such as limit switch box, electric positioner, position sensor (Pepperl and Fuchs, Turck).
- ⑦ gas source interface line NAMURstandard, direct safety plaquesNAMUR standard solenoid valve.
- ⑧ rack on the back of the composite bearing and piston guide ring and the output shaft bearings to prevent metal on metal friction and increasing lubrication, so a low friction, long life.
- ⑨ All fasteners are stainless steel, long-term corrosion resistance.
- ⑩ connection part of the line with new international standard ISO5211, DIN3337 (F03-F25) makes products with interchangeable, versatile.

## 零部件及材料、防腐 ATD/ATS 32-270

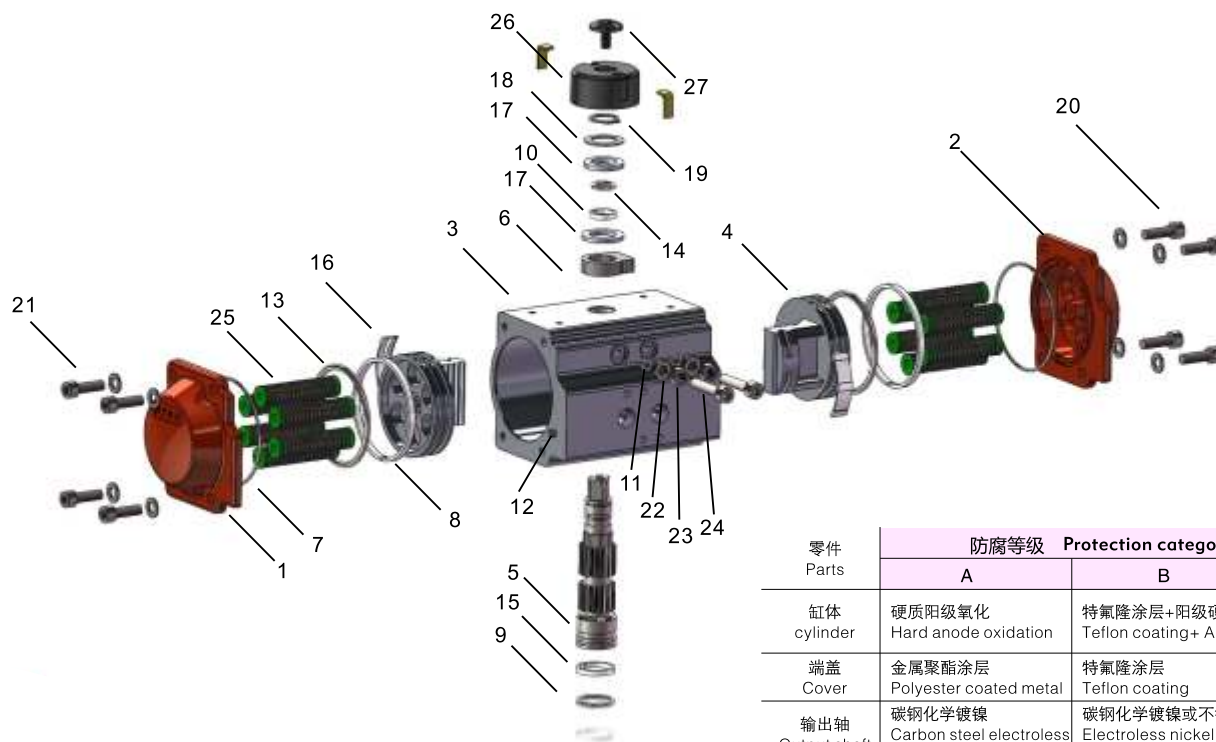
### 型号编制 Model preparation

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



- ⑨.防腐等级：A、B  
⑨. Corrosion Resistance Grade: A,B
- ⑧.环境温度：标准型-B, 低温型-D, 高温型-G  
⑧. Ambient Temp.: Standard-B, Low Temp.: D, High Temp.: G
- ⑦.开关角度：0°~90°, 0°~120°, 0°~180°, 3P、0°~45°~90°  
⑦. Rotation Angle: 0°~90°, 0°~120°, 0°~180°, 3 Position
- ⑥.轴孔代号：P-八角孔, H-平行对边孔, W-两个键槽孔  
⑥. Shaft Size Code: P-Star Square, H-Parallel Opposite Hole, W Two Key Hole
- ⑤.连接尺寸：ISO5211标准：法兰尺寸, F03~F16; 八角孔尺寸, 9~46  
⑤. Connection: ISO5211 Standard, Flange Size, F03-F16, Star Square, 9-46
- ④.弹簧数量：K5/K6/K7/K8/K9/K10/K11/K12, 双作用无此参数  
④. Spring QTY: K5/K6/K7/K8/K9/K10/K11/K12, Not Available for Double Acting
- ③.作用形式：D-双作用, S-单作用  
③. Type: D-Double Acting, S-Spring Return
- ②.执行器缸径：32~300  
②. 32~300 Cylinder Size: 32~300
- ①.AT系列气动执行器  
①. AT Series Pneumatic Actuator

### Components and materials, corrosion 零部件及材料、防腐



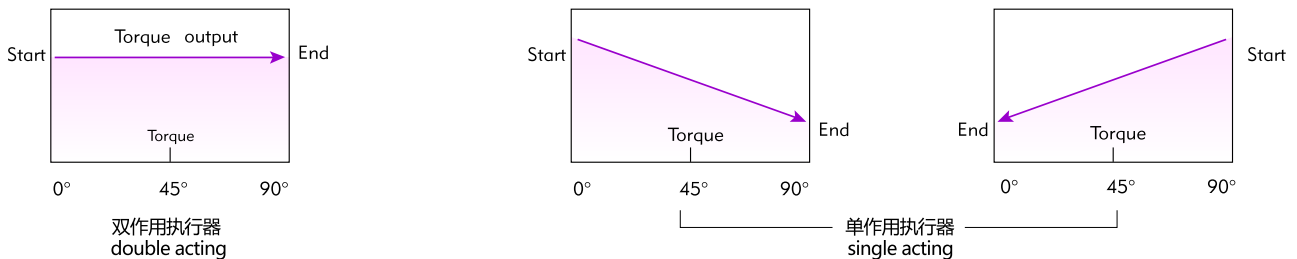
零件 Parts	防腐等级 Protection category	
	A	B
缸体 cylinder	硬质阳极氧化 Hard anode oxidation	特氟隆涂层+阳极硬化 Teflon coating+ Anode sclerosis
端盖 Cover	金属聚酯涂层 Polyester coated metal	特氟隆涂层 Teflon coating
输出轴 Output shaft	碳钢化学镀镍 Carbon steel electroless nickel plating	碳钢化学镀镍或不锈钢 Electroless nickel plating or stainless steel
使用场合 Use Occasion	一般场合 General situation	一般场合或低浓度酸性环境 General occasions or low concentrations of acidic environment

## AT气动执行器

\* 推荐维修用的零部件，包括在备件包中的零件。

零件号 Part Number	每台数量 Each number	零件名称 Part Name	标准材料 Standard Materials	选用材料 Selected materials
01	1	左端盖 Left Cover	压铸铝合金 Aluminum Die Casting	不锈钢 Stainless steel
02	1	右端盖 Right Cover	压铸铝合金 Aluminum Die Casting	不锈钢 Stainless steel
03	1	缸体 body	挤压铝合金 Aluminum extrusion	不锈钢 Stainless steel
04	2	活塞 Piston	压铸铝合金 Aluminum Die Casting	----
05	1	输出轴 Output shaft	碳钢 Carbon Steel	不锈钢 Stainless steel
06	1	调节凸轮 Cam adjustment	不锈钢 Stainless steel	----
07 *	2	O型圈 (端盖) O-ring (cover)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
08 *	2	O型圈 (活塞) O-ring (Piston)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
09 *	1	O型圈 (输出轴底部) O-ring (output shaft bottom)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
10 *	1	O型圈 (输出轴顶部) O-ring (output shaft at the top)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
11 *	2	O型圈 (调节螺栓) O-ring (adjusting screw)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
12 *	2	塞头 (缸体) Plug (Cylinder)	丁腈橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
13 *	2	轴承 (活塞) Bearing (Piston)	聚甲醛 (POM)	----
14 *	1	轴承 (输出轴顶部) Bearing (output shaft at the top)	聚甲醛 (POM)	----
15 *	1	轴承 (输出轴底部) Bearing (output shaft bottom)	聚甲醛 (POM)	----
16 *	1	导同轴承 (活塞背面) Guide with Bearing (Piston back)	聚甲醛 (POM)	----
17 *	2	推力轴承 (输出轴) Thrust bearings (output shaft)	聚甲醛 (POM)	----
18	2	垫片 (输出轴) Gasket (output shaft)	不锈钢 Stainless steel	----
19	1	弹性档圈 Flexible file ring	弹簧钢 Spring steel	----
20	4	端盖螺栓 Cover bolt	不锈钢 Stainless steel	----
21	4	端盖垫片 Cover Gasket	不锈钢 Stainless steel	----
22	2	垫片 Gasket	不锈钢 Stainless steel	----
23	2	螺母 Nut	不锈钢 Stainless steel	----
24	2	调节螺栓 Adjustment bolt	不锈钢 Stainless steel	----
25	5-12	弹簧组件 Spring Components	合金弹簧钢 Alloy spring steel	----
26	1	位置指示器 Position indicator	聚甲醛 (POM)	----
27	1	指示螺钉 Screw of indicator	聚甲醛 (POM)	----

### 扭矩图 Torque Diagram



### 双作用执行器操作原理图 Double Acting Operation

双作用执行器的选型

在正常工作条件下，双作用执行器考虑的安全系数为20%-30%。

例如：

- 阀门力矩=100 N.m
- 安全力矩=100 × (1 + 30%) = 130 N.m
- 气源压力=5 Bar

对照双作用力矩表，选配双作用执行器最小规格为AT-100D。

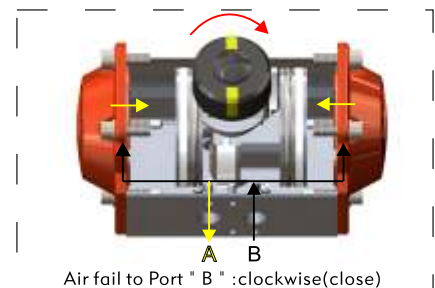
Selection of double action actuators

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

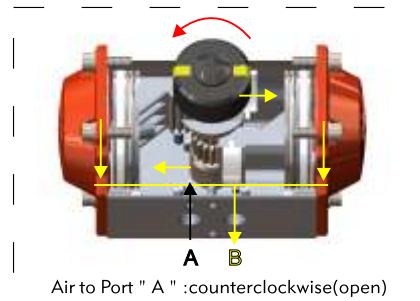
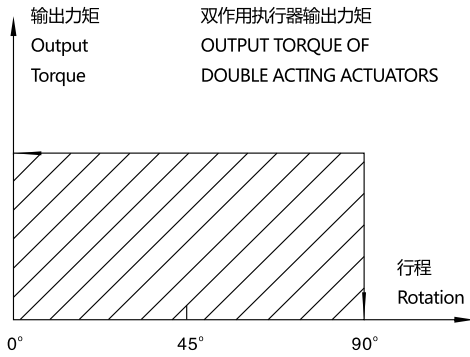
Example:

- The torque needed by valve=100 N.m
- The torque considered safety factor 100 × (1 + 30%) = 130 N.m
- Air Supply=5 Bar

According to double acting torque table, we can choose the minimum model is AT-125.



## AT气动执行器



\* Pistons must be inverted to reverse actuator rotation

### 单作用执行器操作原理图 Spring Return Operation

#### 单作用执行器的选型

在正常工作条件下，单作用执行器考虑的安全系数为30%-50%。

例如：

阀门需要力矩=100N.m

安全力矩=100×(1+30%)=130 N.m

对照单作用执行器输出力矩表，我们可以查

AT-145SK10 输出力矩为

空气执行程0°=285N.m

空气执行程90°=164N.m

弹簧行程0°=193N.m

弹簧行程90°=314N.m

所有输出力矩均大于我们的需求

注意：

单作用执行器弹簧复位过程中，执行器B口通气不影响执行器输出力矩，相反帮助弹簧的复位。

#### 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 = 100X(1 + 30%) = 130N.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

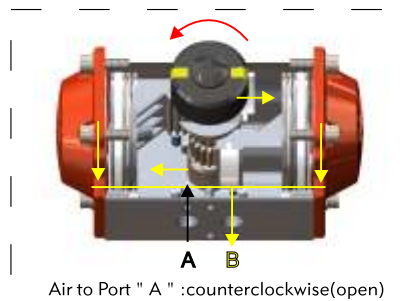
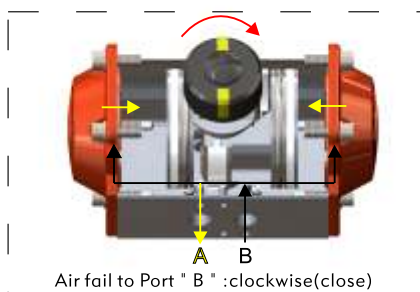
Spring stroke 0° = 193 N.m

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 sping return



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

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

## RT不锈钢气动执行器

### 设计特点 Designing features

316L、316、304、303不锈钢材质执行器，外表电解抛光，光洁美观，抗腐蚀性能强，适合于抗腐蚀要求极高的工程环境。

双活塞齿轮齿条式设计，结构紧凑、安装位置对称、改变输出轴转向方便，使用寿命长、动作迅速。

活塞齿条背面装有复合轴承及导向环，动作精确、摩擦系数小、使用寿命延长。

组合式预负荷镀层弹簧，工作寿命长、抗腐蚀性能强。

高精度齿轮和齿条，啮合间隙小、精度高，输出功率大。

不锈钢紧固件，安全美观，抗腐蚀性强。

采用国际规范尺寸：输出轴槽、螺孔；顶部安装孔尺寸符合NAMUR标准；气源接口尺寸符合NAMUR标准；底部安装孔尺寸符合ISO5211、DIN3337标准,方便安装电磁阀限位开关等附件。



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.

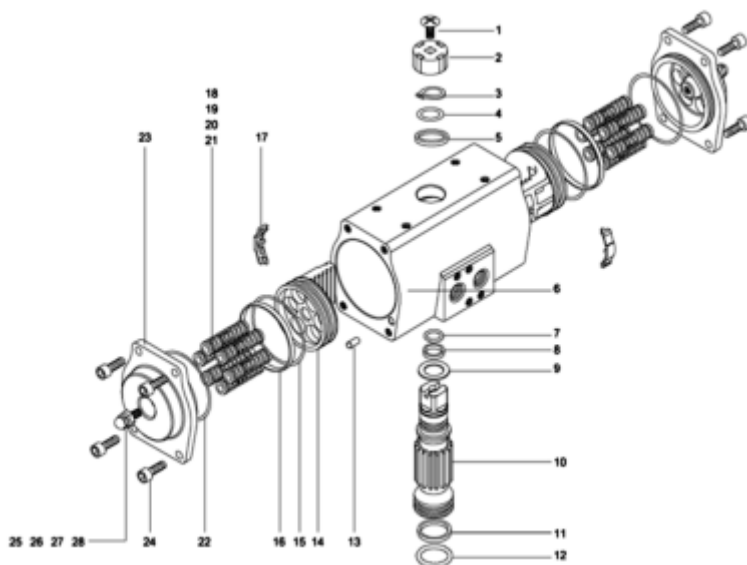
Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency.

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系列执行器零件、材料一览表

### RT Series Actuators Parts and Material Table

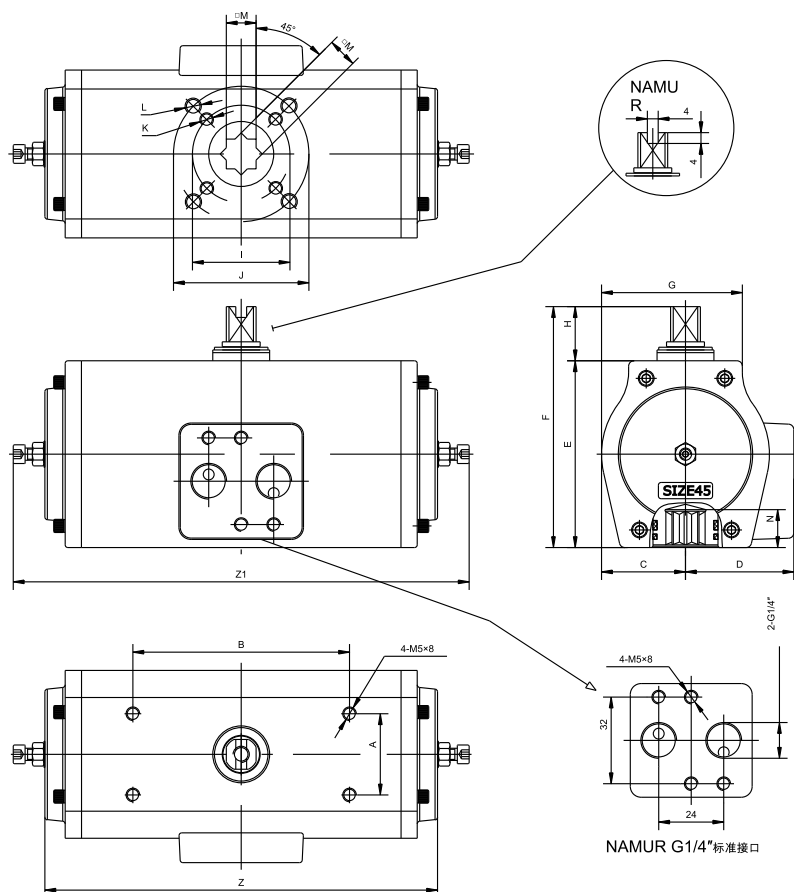


序号 Number	名称 Description	数量 Qty	材料 Standards Material
1	指示器螺钉 Indicator screw	1	聚甲醛 POM
2	指示器 Indicator	1	聚甲醛 POM
3	弹性挡圈 Snap ring	1	弹簧钢 Spring steel
4	垫片 Washer	1	不锈钢 Stainless steel
5	推力轴承 Trust bearing	1	聚甲醛 POM
6	缸体 Body	1	不锈钢 Stainless steel
7	上轴O型圈 O-ring(top)	1	氟橡胶、丁腈橡胶 Viton/NBR
8	上轴支承圈 Bearing top	1	聚甲醛 POM
9	推力轴承 Trust bearing	1	聚甲醛 POM
10	轴 Pinion	1	不锈钢 Stainless steel
11	下轴支承圈 Bearing bottom	1	聚甲醛 POM
12	下轴O型圈 O-ring Bottom	1	氟橡胶、丁腈橡胶 Viton/NBR
13	塞头 Plug	2	橡胶 NBR
14	活塞 Piston	2	不锈钢 Stainless steel
15	活塞O型圈 Piston O-ring	2	氟橡胶、丁腈橡胶 Viton/NBR
16	活塞支承圈 Piston Bearing	2	聚甲醛 POM
17	活塞导板 Guide Piston	2	聚甲醛 POM
18	弹簧 Spring	*	弹簧钢 Spring Steel
19	弹簧左套 Spring Retainer(L)	*	尼龙66 Nylon 66
20	弹簧右套 Spring Retainer(R)	*	尼龙66 Nylon 66
21	弹簧套连杆 Retainer Connector	*	铜 Brass
22	端盖O型圈 End-Cap O-ring	2	氟橡胶、丁腈橡胶 Viton/NBR
23	端盖 End-Cap	2	不锈钢 Stainless steel
24	端盖紧固螺杆 End-Cap Stop Screw	8	不锈钢 Stainless steel
25	调节螺杆 Adjust Screw	2	不锈钢 Stainless steel
26	调节螺杆螺帽 Adjust Screw Nut	2	不锈钢 Stainless steel
27	调节螺杆垫圈 Adjust Screw Washer	2	不锈钢 Stainless steel
28	调节螺杆O型圈 Adjust Screw O-ring	2	氟橡胶、丁腈橡胶 Viton/NBR

## RT不锈钢气动执行器

### RT 系列外形尺寸图、表

### 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系列双作用执行器输出扭矩表 (Nm)

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

型号 Model	Air supply pressure(Unit:Bar) 输入气源压力(单位：巴)									
	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



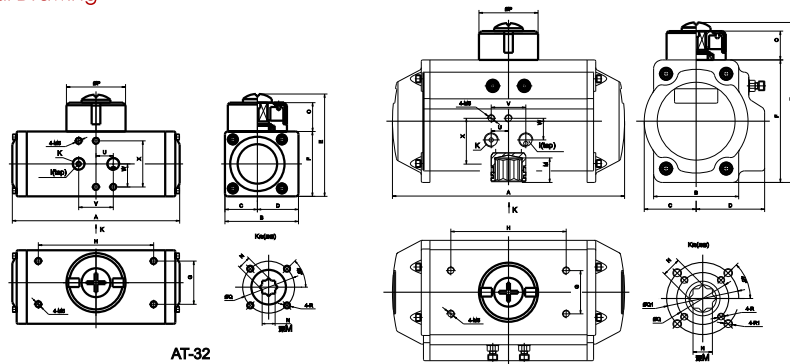


## AT气动执行器

### 双作用执行器输出扭矩表 Double Acting Actuator Output Torque(Nm)

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

### 尺寸图 Dimensional Drawing



AT-50, AT-63, AT-75, AT-88, AT-100, AT-115, AT-125, AT-145, AT-160, AT-190, AT-210, AT-240, AT-270, AT-300

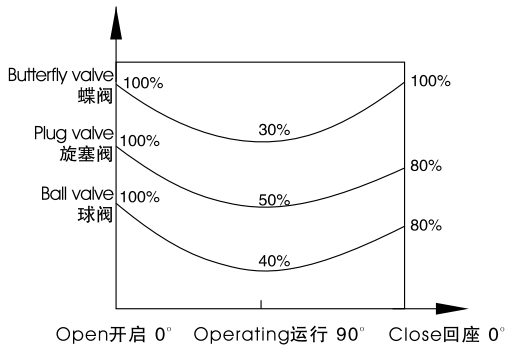
### 尺寸 Dimension

Unit (mm)

型号 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)																	
AT-32	F03	M5			118	51	22.5	28.5	69	45	30	80	PF	1/8"	20	42	12	24	16	32
	Q36	M5/M6	10/9																	
AT-50	F03/F05	M5/M6			146	47	29	41.5	95	69	30	80	PF	1/4"	20	42	12	24	16	32
	Q36/Q50	M5/M6	13/11																	
AT-63	F03/F05	M5/M6			163	59	36	47.5	111	85	30	80	PF	1/4"	20	42	12	24	16	32
	Q36/Q50	M6/M8	16/14																	
AT-75	F05/F07	M6/M8			214	68	43	51	128	102	30	80	PF	1/4"	20	42	12	24	16	32
	Q50/Q70	M8/M10	19/17																	
AT-88	F05/F07	M6/M8			252	68	49.5	55.5	141	115	30	80	PF	1/4"	20	42	12	24	16	32
	Q50/Q70	M8/M10	20/17																	
AT-100	F07/F10	M8/M10			270	95	56	64	153	127	30	80	PF	1/4"	20	42	12	24	16	32
	Q70/Q102	M8/M10	24/22																	
AT-115	F07/F10	M8/M10			316	97	64.5	74.5	181	145	30	80	PF	1/4"	30	62	12	24	16	32
	Q70/Q102	M8/M10	24/22																	
AT-125	F07/F10	M8/M10			354	97	69	78.5	193	157	30	80	PF	1/4"	30	62	12	24	16	32
	Q70/Q102	M10/M12	29/27																	
AT-145	F10/F12	M10/M12			418	115	80	87	214	178	30	80/130	PF	1/4"	30	62	12	24	16	32
	Q102/Q125	M10/M12	30/27																	
AT-160	F10/F12	M10/M12			450	118	89	104	236	200	30	80/130	PF	1/4"	30	80	12	24	16	32
	Q102/Q125	M10/M16	30/27																	
AT-190	F10/F14	M10/M16			552	130	103	103	267	231	30	80/130	PF	1/4"	30	80	12	24	16	32
	Q102/Q140	M16	40/36																	
AT-210	F14	M16			552	130	113	113	293	257	30	130	PF	1/4"	30	90	12	24	16	32
	Q140	M20	40/36																	
AT-240	F16	M20			628	160	130	130	328	292	30	130	PF	1/4"	30	90	12	24	16	32
	Q165	M20	50/46																	
AT-270	F16	M20			750	160	147	147	367	331	30	130	PF	1/2"	30	90	20	40	22.5	45
	Q165	M20	50/46																	
AT-300	F16	M20			780	180	161	168	390	354	30	130	PF	1/2"	30	90	20	40	22.5	45
	Q165	M20	50/46																	

## 选型与订购

### 选型与订购 Sizing information and How to order



例如：

蝶阀原最大扭矩= 80 N.m  
打开后扭矩  $80 \times 30\% = 24 \text{ N.m}$   
气源压力= 6 Bar

我们可以选择 AT-115SK10

空气行程0° = 141 N.m > 80 N.m  
空气行程90° = 81 N.m > 24 N.m  
弹簧行程90° = 155 N.m > 24 N.m  
弹簧行程0° = 95.3 N.m > 80 N.m  
以上数据显示可以满足该蝶阀的正常开启

Forexample:

Butterfly of the original maximum torque=80Nm  
Opened torque  $80 \times 30\% = 24 \text{ N.m}$   
Airpressure = 6Bar

We can choose AT-115SK10

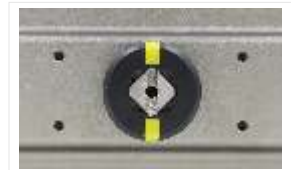
Air travel 0° = 141 N.m > 80 N.m  
Air travel 90° = 81 N.m > 24 N.m  
Spring stroke 90° = 155 N.m > 24 N.m  
Spring stroke 0° = 95.3 N.m > 80 N.m  
The above figures show opening meet of the butterfly valve

### 动作形式(单作用和双作用) Operating type (Double acting and spring return)

气源接口符合NAMUR标准，可简单方便地安装电磁阀。  
Air supply connection is designed in accordance with NAMUR Standard to install solenoid valves.



输出轴的NAMUR标准槽和缸体上部标准安装孔，可使限位开关、定位器直接啮合和安装。  
The Namur drive pinion and the Namur top mounting connection permit direct installation of accessories such as limit switch box and positioner.



底部安装孔设计符合ISO5211、DIN3337标准，可以直接安装离合器（气动手轮机构）或安装支架。  
Bottom mounting connection is designed in accordance with ISO5211、DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.



### 工作技术条件 Operating conditions:

#### 1. 工作介质

干燥或润滑的空气或无腐蚀性气体介质中杂质微粒小于30μm

#### 2. 气源压力

最小气源压力2.5巴，最大气源压力8巴。

#### 3. 介质环境温度

标准：-20°C ~ +80°C

低温：-40°C ~ +80°C

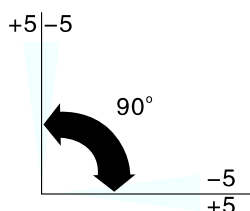
高温：-15°C ~ +150°C

#### 4. 行程调节

0°-90°两个位置有±5°的调节范围

#### 5. 应用

室内或户外



#### 1. Operating media

Dry or lubricated air, or the non-corrosive gases  
The maximum particle diameter must less than 30 μm

#### 2. Air supply pressure

The minimum supply pressure is 2.5 Bar  
The maximum supply pressure is 8 Bar

#### 3. Operating temperature

Standard: -20°C ~ +80°C

Low temperature: -40°C ~ +80°C

High temperature: -15°C ~ +150°C

#### 4. Travel adjustment

Have adjustment range of ±5° for the rotation at 0° and 90°

#### 5. Application

Either indoor or outdoor

## 耗气量计算

### 耗气量计算 Air Consumption

型号 Model	最大气源压力 Maximum pressure	旋转角度 The angle of rotation	操作温度(°C) Temperature	行程调节每1°圈数 1° the need to adjust the number of laps	气缸直径 Diameter	气缸容量(L) Internal volume		开关时间(秒)(A) On-off time		重量(kgs/per)Weight 每根弹簧 A weight Spring weight	
						开向close	关向Open	开向close	关向Open	A weight	Spring weight
AT-50S	干燥或润滑的 洁净压缩空气 8 bar Lubrication or dry of compressed air 8bar	(0°-90°)±5° 或全行程 0°-90° (0°-90°)±5° or full itinerary 0°-90°	ST(标准) 丁腈橡胶O型圈 -20~+80°C HT(高温) 氟橡胶O型圈 -15~+150°C LT(低温) 硅橡胶O型圈 -40~+80°C ST(normal) NBR O-ring -20~+80°C HT(High Temperature) Viton O-ring -15~+150°C LT(Low Temperature) Silicone O-ring -40~+80°C	1/6	50	0.1	0.2	DA0.2 SR0.3	DA0.3 SR0.3	DA1.1 SR1.2	... 0.01
AT-63S				1/6	63	0.2	0.3	DA0.3 SR0.3	DA0.3 SR0.4	DA1.6 SR1.8	... 0.02
AT-75S				1/5	75	0.3	0.5	DA0.3 SR0.4	DA0.4 SR0.5	DA2.8 SR3.2	... 0.03
AT-88S				1/5	88	0.5	0.8	DA0.4 SR0.5	DA0.5 SR0.6	DA4.0 SR4.7	... 0.06
AT-100S				1/5	100	0.7	1.1	DA0.5 SR0.7	DA0.6 SR0.9	DA5.9 SR6.7	... 0.07
AT-115S				1/4	115	1.2	1.8	DA0.7 SR1.0	DA0.9 SR1.2	DA8.4 SR9.8	... 0.10
AT-125S				1/4	125	1.5	2.3	DA0.9 SR1.2	DA1.1 SR1.4	DA10.7 SR12.5	... 0.13
AT-145S				1/4	145	2.4	3.8	DA1.2 SR1.5	DA1.4 SR1.8	DA15.5 SR18.3	... 0.25
AT-160S				1/4	160	3.1	4.9	DA1.5 SR1.8	DA1.7 SR2.1	DA19.5 SR23.3	... 0.36
AT-190S				1/4	190	4.5	7.3	DA2.0 SR2.4	DA2.2 SR2.8	DA26.7 SR32.8	... 0.5
AT-210S				1/4	210	6.8	11.2	DA2.8 SR3.0	DA3.0 SR3.4	DA34.6 SR44.2	... 0.5
AT-240S				1/4	240	10	15.2	SR3.5 DA3.5	SR4.0 DA4.0	SR43.6 DA58.2	0.62 ...
AT-270S				1/4	270	14.5	21.4	SR4.1 DA4.0	SR4.6 DA4.5	SR71.0 DA78.8	1.12 ...
AT-300S				1/4	300	23.8	29.7	SR4.5 DA	SR5.0 DA	SR96.5	1.56

耗气量取决于供气气压、开关行程、体积及动作次数，计算如下：

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

升/分=气缸体积(开向体积+关向体积)×[(供气压力(Kpa)+101.3)÷101.3]×次数/分钟

L/Min=Air volume(Air volume Opening+Air volume closing)×[(Air Supply(Kpa)+101.3)÷101.3]×Action cycle times/(min)

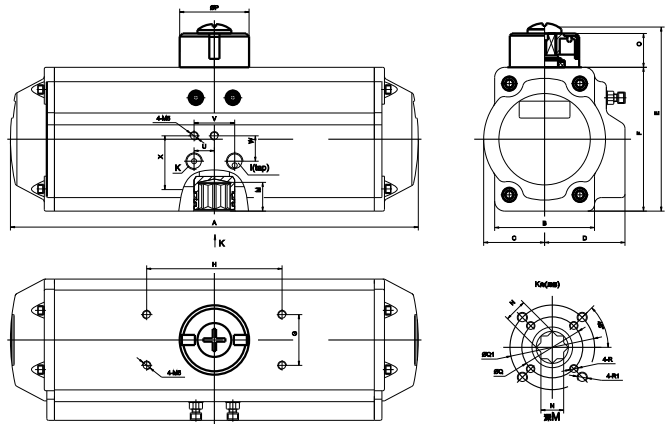
### 常见故障及检查、排除方法 Common faults and inspection, troubleshooting

故障现象 Failure phenomenon	检查项目 Inspection Items	解决方法 Solution
气动阀门不能动作 Pneumatic valve can not move	1、电磁阀是否正常，线圈是否烧坏，电磁阀芯是否被脏物卡死 1, the electromagnetic valve is normal, coil is burned, Electromagnetic valve is stuck being stolen	更换电磁阀、更换线圈、清除脏物。 Solenoid valve replacement, replacement coils, remove stolen property.
	2、对气动执行器单独供气试验，检查密封圈及气缸是否是损坏。 2, a separate air supply pneumatic actuator test, check seals and Whether the cylinder is damaged.	更换已坏密封圈及气缸。 Replace a bad ring and cylinder.
	3、阀内有杂质将阀芯卡住。 3, there are impurities in the spool valve stuck.	清除杂质，更换已损件。 Remove impurities, replace damaged parts.
	4、手动机动的手柄处在手动位置。 4, the handle in a manual motor location.	将手柄转到气动位置 change the handle to pneumatic position
动作迟缓、爬行 Slow motion, crawling	1、气源压力不够。 1, supply pressure is not enough.	增加气源压力 (0.4-0.7Mpa) The increase of gas supply pressure (0.4-0.7Mpa)
	2、气动执行器输出扭矩过小。 2, pneumatic actuator output torque is too small.	增大气动执行器的型号规格。 Increase the pneumatic actuator Production.
	3、阀门阀芯或其他阀件装配太紧。 3, the valve spool or valve assembly too tight.	重新装配调整。 Re-assembly adjustments.
	4、气源管路堵塞，流量过小。 4, air supply pipe plug, flow is too small.	排除堵塞，更换过滤器滤芯。 Exclude plug, replace the filter cartridge.
回讯器没有信号 Reply devices without signal	1、电源线路短路或断路。 1, power line short circuit or open circuit.	检修电源线路。 Maintenance of power lines.
	2、回信凸轮位置不准确。 2, reply within the cam position is not accurate.	调整凸轮至正确位置 Adjust the cam to the correct location
	3、微动开关损坏。 3, micro switch damaged.	更换微动开关 Replacement Micro Switch

## ATC 120°/180°行程双作用执行器

### 120° /180° 行程执行器的外形及连接尺寸 (双作用)

120° /180° actuator outside dimension and connection size (double acting)



- 1、根据需要可提供其他型号规格执行器。
- 2、可提供不同行程的执行器，如140°/160°行程等。
1. we can provide other item actuators according to your requirement
2. we can provide different stroke actuator ,such as 40°/60° etc

120°/180°行程ATC双作用气动执行器尺寸表

型号 Model	FLANGE L(ISO5211)	R/R1	A <sub>(120)</sub>	A <sub>(180)</sub>	B	C	D	E	F	G	H	I	K	O	P	U	V	W	X
	Q/Q1	M/N(min)																	
ATC-50	F03/F05	M5/M6	207	225	47	29	41.5	95	69	30	80	PF	1/4"	20	42	12	24	16	32
	Ø36/Ø50	13/11																	
ATC-63	F03/F05	M5/M6	230	250	59	36	47.5	111	85	30	80	PF	1/4"	20	42	12	24	16	32
	Ø36/Ø50	16/14																	
ATC-75	F05/F07	M6/M8	300	330	68	43	51	128	102	30	80	PF	1/4"	20	42	12	24	16	32
	Ø50/Ø70	19/17																	
ATC-88	F05/F07	M6/M8	325	358	68	49.5	55.5	141	115	30	80	PF	1/4"	20	42	12	24	16	32
	Ø50/Ø70	20/17																	
ATC-100	F07/F10	M8/M10	360	400	95	56	64	153	127	30	80	PF	1/4"	20	42	12	24	16	32
	Ø70/Ø102	24/22																	
ATC-115	F07/F10	M8/M10	420	465	97	64.5	74.5	181	145	30	80	PF	1/4"	30	62	12	24	16	32
	Ø70/Ø102	24/22																	
ATC-125	F07/F10	M8/M10	470	520	97	69	78.5	193	157	30	80	PF	1/4"	30	62	12	24	16	32
	Ø70/Ø102	29/27																	
ATC-145	F10/F12	M10/M12	525	580	115	80	87	214	178	30	80/130	PF	1/4"	30	62	12	24	16	32
	Ø102/Ø125	30/27																	
ATC-160	F10/F12	M10/M12	570	630	118	89	104	236	200	30	80/130	PF	1/4"	30	80	12	24	16	32
	Ø102/Ø125	30/27																	
ATC-190	F10/F14	M10/M16	655	720	130	103	103	267	231	30	80/130	PF	1/4"	30	80	12	24	16	32
	Ø102/Ø140	40/36																	
ATC-210	F14	M16	770	840	130	113	113	293	257	30	130	PF	1/4"	30	90	12	24	16	32
	Ø140	40/36																	
ATC-240	F16	M20	840	916	160	130	130	328	292	30	130	PF	1/4"	30	90	12	24	16	32
	Ø165	50/46																	
ATC-270	F16	M20	940	1020	160	147	147	367	331	30	130	PF	1/2"	30	90	20	40	22.5	45
	Ø165	50/46																	
ATC-300	F16	M20	1140	1230	180	161	168	390	354	30	130	PF	1/2"	30	90	20	40	22.5	45
	Ø165	50/46																	

## 三位置气动执行器

三位置气动执行器有二种型号 $0^{\circ}$  - $45^{\circ}$  - $90^{\circ}$ 和 $0^{\circ}$  - $90^{\circ}$  - $180^{\circ}$ ，在气口“2”进气后活塞向两端运动被两端设计有辅助活塞产生机械限制来实现中间位置的，可直接利用外面两端调节螺栓很容易调节中间位置角度，如 $20^{\circ}$ 、 $30^{\circ}$ 、 $50^{\circ}$ 、 $75^{\circ}$ 和 $95^{\circ}$ 、 $120^{\circ}$ 、 $130^{\circ}$ 、 $150^{\circ}$ 、 $175^{\circ}$ 等。

### 工作原理 working principle

三位置气动执行器的操作需要设计一套电磁阀控制回路系统来完成操作，其控制原理如下：

#### 位置1（中间位置） Position 1 (middle position)

气源压力同时进入2口和D口，空气从4口和C口排出，2口作为内部活塞移动，D口是通过辅助活塞推杆限制内部活塞定位在预定的中间位置。

#### 位置2（全开位置） Position 2 (full-open position)

气源压力同时进入2口和c口，空气从4口和D口排出，2口的内部活塞继续移动，c口为解除辅助活塞推杆限制定位，使内部活塞顺利到达全开位置。

#### 位置3（全关位置） Position 3 (full-closed position)

气源压力进入4口，空气从2口排出的，内部活塞向中间方向中间移动到达全关位置。  
可提供 $0^{\circ}$  - $45^{\circ}$  - $90^{\circ}$ 弹簧回位型号规格，  
在断气断电时（或气源故障），通过弹簧迫使内部活塞回位到全关位置。

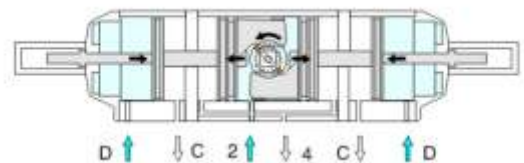
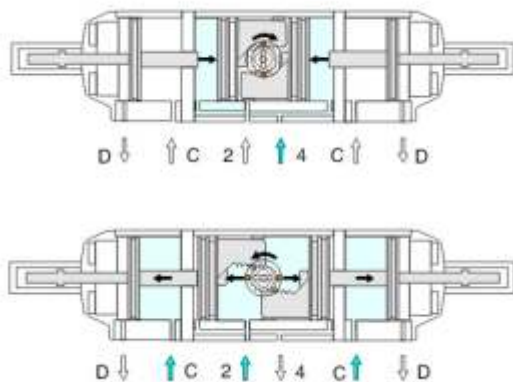
Three position pneumatic actuators have two kinds of models  $0^{\circ}$  - $45^{\circ}$  - $90^{\circ}$  or  $0^{\circ}$  - $90^{\circ}$  - $180^{\circ}$  , In intake 2.the piston move to both ends after air inflow,it through both ends design has auxiliary piston produces mechanical constraints to realize the middle position It Can use outside ends adjusting bolt easily adjust intermediate position Angle directly Such as  $20^{\circ}$   $30^{\circ}$   $50^{\circ}$   $75^{\circ}$  or  $95^{\circ}$   $120^{\circ}$   $130^{\circ}$   $150^{\circ}$   $175^{\circ}$  ,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 enter 2 hole and D hole ate one time,then air from 4 hole and C hole eduction, 2 hole as internal piston movement, D hole through assisted piston push-rod limit internal piston positioning at a predetermined middle position.

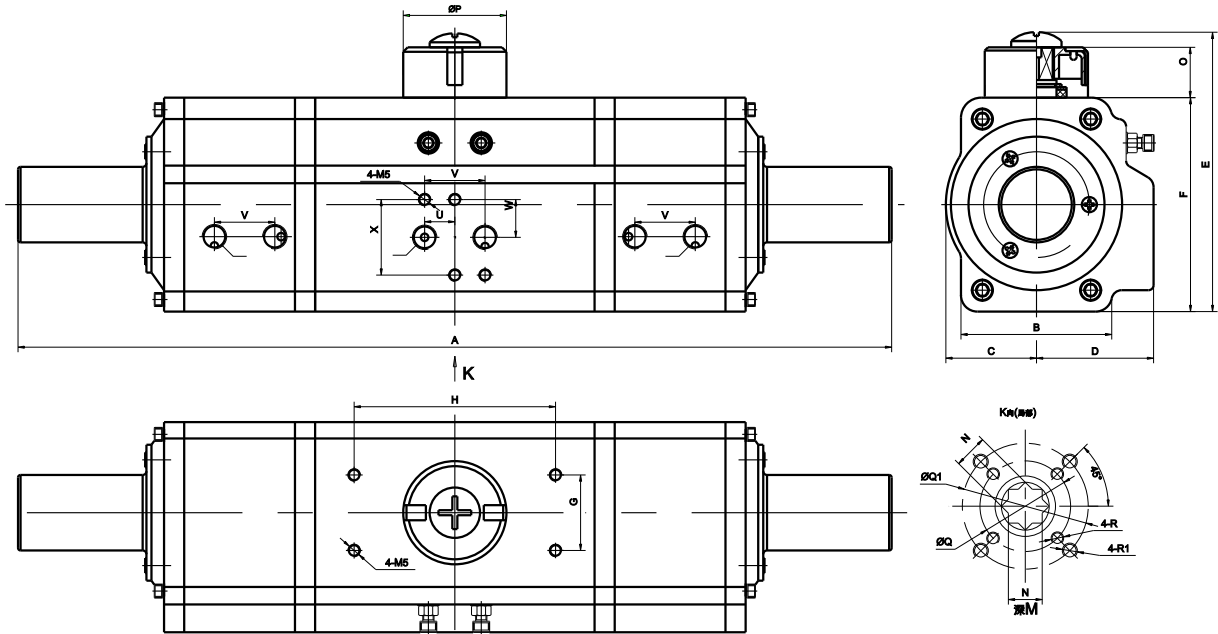
Air pressure enter 2 hole and C hole at one time,then air from 4 hole and D hole eduction, 2 hole internal piston continues to move, C hole remove auxiliary piston push-rod limit positioning,it make the internal piston smooth arrival in full-open position.

Air pressure into 4 hole,then air from 2 hole eduction, internal piston move to the middle direction then reach full-closed position  
We Can provide 0-45-90 spring return type specification,  
When lose air,or cut power(or airfailure), it can return to full-closed position.through the spring force inner piston



Three position pneumatic actuator

## 三位置气动执行器



外形及连接尺寸Dimension

型号 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	F10/F14	M10/M16	892	130	103	103	267	231	30	80/130	PF	1/4"	30	80	12	24	16	32
	Ø102/Ø140	40/36																

Three position pneumatic actuator

## 三位置气动执行器

CT 0°-45°-90°型单作用式输出扭矩 ( 弹簧复位 ) ( NM )

CT 0°-45°-90°Single acting output torque (spring return) ( NM )

执行器型号 Model	弹簧数量 Qty(pcs)	空气压力扭矩 Air pressure																		弹簧复位扭矩 spring return torque				
		2.5bar		3.0bar		3.5bar		4.0bar		4.5bar		5.0bar		5.5bar		6.0bar		7.0bar				8.0bar		
		0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	0° 开始 Start	90° 结束 End	90° 开始 Start	0° 结束 End	
CT-63	05	9.1	6.2	12	9.1	15	12	17.9	15	20.8	17.9	23.7	20.8									8.5	5.5	
	06	8	4.5	10.9	7.4	13.8	10.3	16.8	13.3	19.7	16.2	22.6	19.1	25.6	22.1							10.2	6.7	
	07			9.8	5.7	12.7	8.7	15.7	11.6	18.6	14.5	21.5	17.4	24.5	20.4	27.4	23.3					11.8	7.8	
	08					11.6	7	14.6	9.9	17.5	12.8	20.4	15.8	23.3	18.7	26.3	21.6	32.1	27.5			13.5	8.9	
	09							13.4	8.2	16.4	11.1	19.3	14.1	22.2	17	25.2	19.9	31	25.8	36.9	31.6	15.2	10	
	10									15.3	9.4	18.2	12.4	21.1	15.3	24.1	18.2	29.9	24.1	35.8	29.9	16.9	11.1	
	11											17.1	10.7	20	13.6	22.9	16.5	28.8	22.4	34.7	28.2	18.6	12.2	
	12													18.9	11.9	21.8	14.8	27.7	20.7	33.5	26.6	20.3	13.3	
	CT-75	05	18	11.7	23.8	17.6	29.6	23.4	35.4	29.2	41.2	35	47.1	40.8									17.3	11.1
		06	15.8	8.3	21.6	14.1	27.4	19.9	33.2	25.7	39	31.5	44.8	37.3	50.7	43.2							20.8	13.3
		07			19.4	10.6	25.2	16.4	31	22.3	36.8	28.1	42.6	33.9	48.4	39.7	54.3	45.5					24.2	15.5
		08					23	13	28.8	18.8	34.6	24.6	40.4	30.4	46.2	36.2	52	42	63.7	53.7			27.7	17.7
09								26.6	15.3	32.4	21.1	38.2	27	44	32.8	49.8	38.6	61.5	50.2	73.1	61.8	31.1	19.9	
10										30.2	17.7	36	23.5	41.8	29.3	47.6	35.1	59.2	46.7	70.9	58.4	34.6	22.1	
11												33.8	20	39.6	25.8	45.4	31.7	57	43.3	68.7	54.9	38.1	24.3	
12														37.4	22.4	43.2	28.2	54.8	39.8	66.4	51.4	41.5	26.5	
CT-100		05	41.1	27	54.4	40.3	67.7	53.6	81	66.8	94.2	80.1	108	93.4									39.4	25.3
		06	36.1	19.1	49.3	32.4	62.6	45.7	75.9	58.9	89.2	72.2	103	85.5	116	98.8							47.3	30.4
		07			44.3	24.5	57.6	37.8	70.8	51.1	84.1	64.3	97.4	77.6	111	90.9	124	104					55.2	35.4
		08					52.5	29.9	65.8	43.2	79.1	56.5	92.3	69.7	106	83	119	96.6	146	123			63.1	40.5
	09							60.7	35.3	74	48.6	87.3	61.9	101	75.1	114	88.4	140	115	167	142	71	45.5	
	10									68.9	40.7	82.2	54	95.5	67.3	109	80.5	135	107	162	134	78.8	50.6	
	11											77.2	46.1	90.5	59.4	104	72.7	130	99	157	136	86.7	55.6	
	12													85.4	51.5	98.7	64.8	125	92	152	118	94.6	60.7	
	CT-125	05	85.9	55.9	114	84	141	111	169	139	197	167	224	194									82.5	52.5
		06	75.4	39.4	103	67	131	95	158	122	186	150	214	178	241	205							98.9	62.9
		07			92.6	50.6	120	78	148	106	176	134	203	161	231	189	259	17					115	73.4
		08					110	62	137	89.4	165	117	193	145	221	173	248	200	304	256			132	83.9
09								127	72.9	155	101	182	128	210	156	238	184	293	239	348	294	148	94.4	
10										144	84	172	112	200	140	227	167	283	223	338	278	165	105	
11												161	95.3	189	123	217	151	272	206	327	261	181	115	
12														179	107	206	134	262	190	317	245	198	126	
CT-160		05	171	117	228	174	285	231	341	287	398	344	455	401									166	112
		06	149	84	206	141	262	197	319	254	376	311	432	367	489	424							199	135
		07			183	108	240	164	296	221	353	278	410	334	466	391	523	448					233	157
		08					217	131	274	188	331	244	387	301	444	358	501	414	614	528			266	179
	09							252	154	308	211	365	268	422	324	478	381	592	494	705	608	299	202	
	10									286	178	343	235	399	291	456	348	569	461	683	575	332	224	
	11											320	201	377	258	433	315	547	428	660	541	365	247	
	12													354	225	411	281	524	395	638	508	399	269	
	CT-190	05	319	216	425	323	532	429	638	535	744	641	850	748									315	212
		06	277	153	383	260	489	366	595	472	702	578	808	685	914	791							378	255
		07			340	197	447	303	553	409	659	515	765	622	872	728	978	834					441	297
		08					404	240	510	346	617	452	723	559	829	665	935	771	1148	984			504	340
09								468	283	574	389	680	496	787	602	893	708	1105	921	1318	1133	567	382	
10										532	326	638	433	744	539	850	645	1063	858	1275	1070	630	325	
11												595	h370	702	476	808	582	1020	795	1233	1007	693	467	
12														659	413	766	519	978	732	1191	944	756	510	