

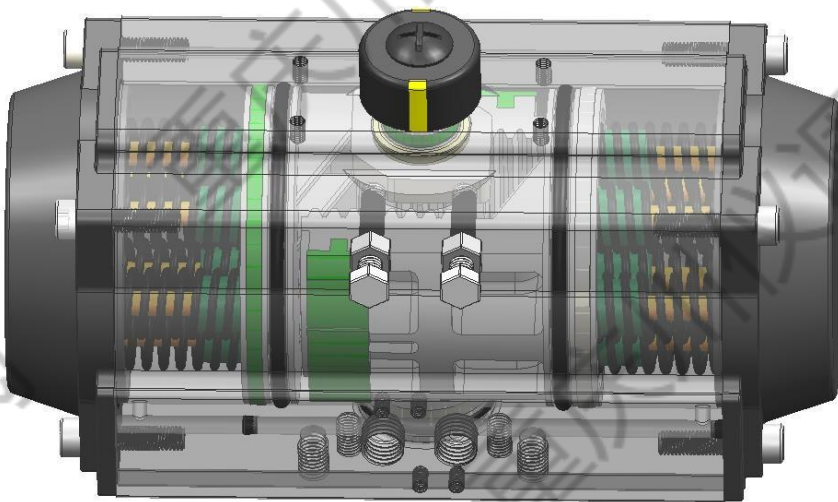
调节阀配件 Accessories

AT 气动齿轮齿条式执行机构

AT pneumatic rack and pinion actuator

AT 气动齿轮齿条式执行机构是工业自动化系统中的驱动装置，属于铝缸式齿轮齿条式结构，具有结构简单、精巧，工作平稳可靠，输出力大的特点。配上定位器后可提高调节精度。特别适用于中小口径、快速动作和要求高可靠性工艺场合的旋转类开关和调节阀使用。

AT pneumatic rack and pinion actuator is the driving gear in the industrial automation system. It has an aluminum cylinder type rack and pinion structure, featuring with a simple and delicate structure, smooth and reliable work, and large output force. What's more, it will act more precisely with a positioner. It is especially suitable for rotary on-off valves and adjusting valves with small and medium calibre, quick action and required high reliability.



结构特点：

Structure Features:

(1) 紧凑且时尚的组合式结构

Compact and stylish combined design

双作用和弹簧复位（单作用）执行机构具有相同的缸体、端盖、活塞等，通用性强，库存少，通过增加和拆减弹簧组件模块、以及活塞齿的装配方式不同，可在现场实现不同作用方式的改变

Double acting actuator and spring return (single acting) actuator have the same cylinder, end cover, piston and so on. Therefore, two actuators have great versatility and small inventory, and through retrofitting or removing spring assemblies, or fitting piston teeth diversely, different modes of action in this field can be realized.

(2) 宽广的供气压力选择:

Wide range of air supply pressure

双作用可使用压力: 200~700kpa

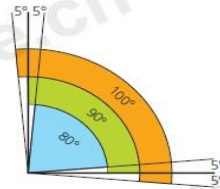
Working pressure for double acting actuator

单作用可使用压力: 300~700kpa

Working pressure for single acting actuator

(3) 两个外部独立的行程限位调节:

Two independent external travel stops



在0°和90°有2个独立的限位调节螺栓, 可方便地进行±5°开关调节。

With 2 independent travel stop bolts at 0° and 90°, it can adjust withing $\pm 5^\circ$.

(4) 高质量密封件:

High-quality seal ring

密封件采用优质的 O 型圈, 常温环境采用丁晴橡胶, 低温和高温采用硅橡胶和氟橡胶, 可满足 -40~+120°范围内使用。

O ring is made up of Buna-N rubber, silicone rubber, and fluororubber respectively, at normal, low, and high temperature, and it's working temperature is -40~+120°.

(5) 高性能油脂:

High-performance oil

采用进口润滑油脂, 热稳定性好、不熔化、低挥发, 且耐化学腐蚀和水汽, 不与橡胶发生反应, 同时抗氧化和老化型好, 可保证气缸长期稳定的润滑效果。

Imported lubricating grease, with good thermal stability, no melting, low volatility, resistance against chemical and water vapor corrosion, non-reaction with rubber, and good oxidation and aging resistance, ensures long-term stable lubrication effect of the cylinder.

(6) 阳极氧化的缸体: **Cylinder block with anodic oxidation**



SPECIFICATIONS 系列 ASTM 6005 铝合金拉拔成型，强度高，外形美观。

The cylinder is moulded with ASTM 6005 aluminum alloy, featuring with high strength and beautiful appearance.

b 加工全部采用加工中心控制，内孔粗糙度 0.4 以下，并整体表面经过阳极氧化处理，实现全面的防腐保护。同时由于阳极氧化的低摩擦系数和耐磨性，极大地增强使用寿命。也可根据不同的环境需求，内腔采用喷特氟龙或镀镍工艺等多种涂层工艺；

The whole manufacturing process is controlled by the machining center, which ensures the inner hole

roughness under 0.4. Besides, overall surface anodic oxidation treatment implements comprehensive anti-corrosion protection. At the same time, thanks to anodic oxidation's low friction coefficient and wear resistance, they greatly lengthen the service life. According to the different environmental requirements, inner cavity coating can adopt teflon or nickel plating process and so on.

(7)活塞式结构：Piston structure

a.双活塞式齿轮齿条式结构，整体结构紧凑、安装对称、使用寿命长及快速动作；

Double piston rack and pinion structure, compact overall structure, symmetrical installation, long service life and quick action;

b.拆装和更换作用方式方便，只需简单地翻转活塞，即可实现反转，实现作用方式变换；

Easy to disassemble and replace action mode. Simply by flipping the piston, reversal or action mode

c.和缸体一样的整体表面阳极氧化处理，使其更具耐腐性和耐磨性。

The whole surface of the cylinder block is anodized to make it more resistant to corrosion and wear.

(8)通用性强且具有防断裂结构的驱动轴：Drive shaft with strong versatility and anti-fracture structure:

a.采用合金钢+表面镀镍处理，高精密、高强度一体式输出轴，

With alloy steel + nickel-plated surface treatment, the one-piece output shaft has high-precision and high-strength

b.顶部采用 Namur 标准设计，可标准化限位开关和定位器安装；

Namur standard design on the top standardizes installation of limit switches and positioners;

c.底部采用 ISO5211、DIN3337 标准设计，且是双正四方结构，通用性强

Bottom design up to ISO5211 and DIN3337 standard, is four-directional with strong versatility.

(9)颜色可变化的端盖:

End cover with changeable color

端盖采用和缸体同等的铝合金材质，表面进行喷塑处理，常规可达到 C3 防护等级，常规深灰色，也可根据现场颜色需求进行特殊颜色喷涂。

Made of the same aluminum alloy material as the cylinder body, the end cover's surface is sprayed. Normally, it can reach the C3 protection level and is dark gray. It can also be sprayed in a specific color according to requirements on site.

(10)组合式预负载弹簧和稳定的输出力矩

Combined preloaded spring and stable output torque

a. 采用优质的弹簧钢材质和合理的热处理工艺等，以及优质的涂层处理技术，保证弹簧的良好使用寿命和抗腐蚀性；

High-quality spring steel material, reasonable heat treatment, and high-quality coating treatment, ensure the spring a good service life and corrosion resistance;

b. 采用组合式多弹簧模式，通过改变弹簧的数量，可以调节不同的输出力矩，以及现场不同的供气压力需求；

The combined multi-spring mode, by changing the number of springs, can adjust different output torques, as well as different air supply pressure. requirements on site;

c. 弹簧采用预负载方式, 拆装更加的方便、安全，同时增加售后密封件更换时的便捷性和安全性。

The preloaded spring makes it easier and more convenient to assemble and disassemble, and makes it safer and more convenient for after-sales seals replacement.

每根弹簧出厂前经过力值检测筛选，保证每台执行机构输出力矩的稳定性。

Each spring is screened by force test before delivery to ensure the stability of the output torque of each actuator.

(11) 不锈钢紧固件

Stainless steel fasteners

所有螺栓、螺母、卡圈等紧固标件全部采用 304 材质，并根据实际需求可提高至 316L 材质等，抗腐蚀性好。

All fasteners such as bolts, nuts, and clamp rings are made of 304 stainless steel, with good corrosion resistance and if needed, they can be changed to 316L.



产品技术规格
SPECIFICATIONS



标准规格 STANDARD SPECIFICATIONS

系列 Series	AT
型式 Type	角行程气缸活塞型 Rotary stem motion type and cylinder piston type
型号 Model	双作用型(Double acting type): AT52D、AT63D、AT75D、AT83D、AT92D、AT105D、AT160D、AT190D、AT210D、AT240D、AT270D、AT300D、AT350D、AT400D 单作用型 (Spring return type) : AT52S、AT63S、AT75S、AT83S、AT92S、AT105S、AT160S、AT190S、AT210S、AT240S、AT270S、AT300S、AT350S、AT400S
尺寸 Dimensions	请参见表 4 及图 1 See Table 4 & Fig.1
气缸容积 Cylinder Valve	请参见表 1 See Table 1
输出力矩 Output torque	请参见表 2 See Table 2
行程 Travel	0~90°
气源压力 Air supply pressure	双作用系列 (Double acting type) 300~700kPa; 单作用系列 (Spring return type) 400~600kPa
气源接口 Air connection	AT52~210 NPT1/4" AT240~400 NPT1/2"
性能 Performance	回差带定位器: 小于全行程的 2% Hysteresis error: Less than 2% of Full stroke with the positioner. 基本误差带定位器: 小于全行程的±2% Intrinsic error: Less than ±2% of Full stroke with the positioner.
环境温度 Ambient Temp.	标准型 Standard type -20~+80°C 高温型 High Temp. -15~+120°C 低温型 Low Temp. -40~+80°C
材质 Materials	气缸 Cylinder 铝合金活塞 Aluminum alloy piston..... 铝合金端盖 end cover..... 铝合金主 轴 Aluminum alloy stem..... 45+ 镀 镍 nickel plating 密封圈 seal-ring 丁晴橡胶 NBR、氟橡胶 FKM、硅橡胶 MVQ
表面涂层 Surface coating	气缸阳极氧化, 浅灰色; 端盖喷塑, 深灰色, 色标RAL7043 Anodized cylinder, light gray; Plastic sprayed end cover, dark grey, color code RAL7043
附件 Accessories	定位器、空气过滤减压阀、行程开关、手轮机构等 Positioner, Air-set, Limit switch, Handwheel and so on

技术参数 TECHNICAL SPECIFICATIONS

空气消耗量 AIR CONSUMPTION

空气消耗量取决于供气压力、开关行程、气缸容积和动作次数，公式如下：
$$\frac{\text{供气压力 (KPa)} \times 101.3}{101.3} \times \text{次数/分钟}$$

升/分=气缸体积（开向体积A+关向体积B）× 101.3 ×次数/分钟

Determined by air supply pressure, travel, cylinder volume and times of action, the formula is as follows: l/m=Cylinder volume (A+B) × 101.3 Air supply (KPa) /101.3 ×times/m

表1 气缸容积

Table 1 CYLINDER VOLUME

单位 UNIT:L

执行机构型号 Model	A	B	A+B
AT52	0.12	0.16	0.28
AT63	0.22	0.33	0.55
75	0.3	0.5	0.8
AT83	0.5	0.7	1.2
AT92	0.9	1.2	2.1
AT105	1	1.3	2.3
AT125	1.6	2.2	3.8
AT140	2.5	2.8	5.3
AT160	3.7	4.1	7.8
AT190	5.9	7.2	13.1
AT210	7.6	10.3	17.9
AT240	11.4	15.1	26.5
AT270	17	18.8	35.8
AT300	23.8	29.7	53.5
AT350	35.1	46.3	81.4
AT400	58	62.1	120.1

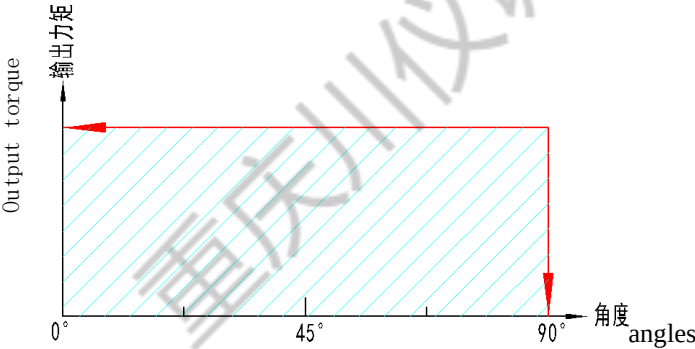
注：A 为单作用动作一次容积，A+B 为双作用动作一次容积
Note: A represents the volume that has been gained by one single action type's operation at one time; A+B represents the volume that has been gained by a double acting type's action at one time.

表 2 执行机构手动驱动装置配置表和手轮参数表

Table 2 MANUAL DRIVEN ACTUATOR AND HANWHEEL PARAMETER

执行机构型号 Model (双作用) (Double acting)	执行机构型号 (单作用) Model(Single acting)	手轮机构 型号 Handwheel	传动比 Gear ratio	手轮输入力矩 N*m Handwheel input torque	手轮输出力矩 N*m Handwheel output torque
AT52D	AT52S	SD-0	26	12	60
AT63D、AT75D	AT63S、AT75S	SD-1	26	12	60
AT83D、AT92D	AT83S、AT92S	SD-2	28	27	135
AT105D、AT125D	AT105S、AT125S	SD-3	38	35	300
AT140D、AT160D	AT140S、160S	SD-4	54	60	800
AT190D、AT210D	AT190S、AT210S	SD-5	80	105	1600
AT240D、AT270D	AT240S	SD-6	78	200	3500
AT300D	AT270S、AT300S	SD-7	98	200	4600
AT350D	AT350S	SD-8	98	250	7000
AT400D	AT400S	SD-9	100	-	-

表 3 双作用输出力矩表 NR/Dm

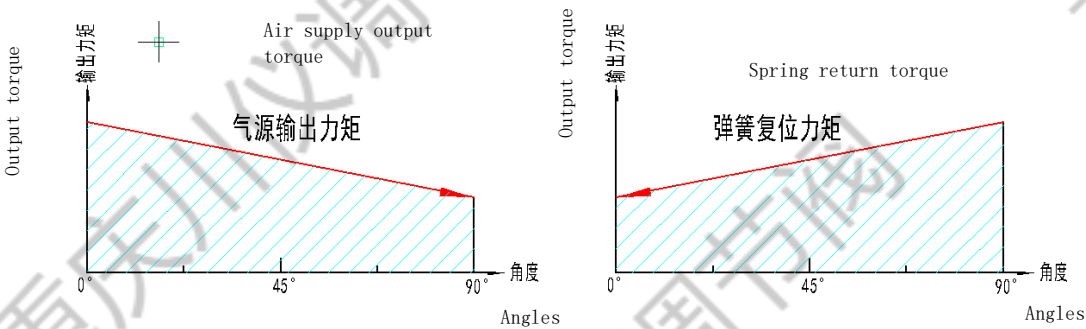


型号 Model	气源输出扭矩(N*m) air supply output torque							重量kg weight
	气源压力（100kpa） air supply pressure							
	3	3.5	4	4.5	5	5.5	6	
AT52DR/D0	12	14	16	18	20	22	24	1.4
AT63DR/D0	22	25	29	32	36	40	44	2.1
AT75DR/D0	30	35	40	45	50	55	60	3
AT83DR/D0	47	55	63	70	78	86	94	3.8
AT92DR/D0	67	78	90	101	113	124	135	5.3
AT105DR/D0	97	113	130	146	165	180	195	6.3
AT125DR/D0	150	175	200	225	250	275	300	11
AT140DR/D0	255	295	340	382	420	470	510	14
AT160DR/D0	400	460	530	595	660	730	790	20.5

AT190DR/D0	640	740	850	955	1060	1170	1270	31
AT210DR/D0	795	925	1060	1190	1330	1460	1590	47
AT240DR/D0	1150	1340	1530	1720	1920	2110	2300	67
AT270DR/D0	1750	2040	2330	2620	2920	3210	3500	97
AT300DR/D0	2300	2670	3050	3430	3810	4190	4570	110
AT350DR/D0	3430	4000	4570	5140	5710	6280	6850	186
AT400DR/D0	4880	5700	6510	7320	8140	8950	9760	290

表 4 单作用输出力矩表 N*m

Table 4 SINGLE ACTING OUTPUT TORQUE N*m



型号 Model	弹簧数量 number of springs	气源输出扭矩(N*m) air supply output torque						弹簧复位扭 矩(N*m) Spring return torque		重量 Kg weight
		气源压力（100Kpa） air supply pressure								
		4		5		6				
		0°	90°	0°	90°	0°	90°	90°	0°	
AT52SR/D4	8	9	6	13	9	17	12	9.5	6.5	1.5
AT52SR/D5	10	7	3.5	11.5	6.5	16	9.5	12	8.5	

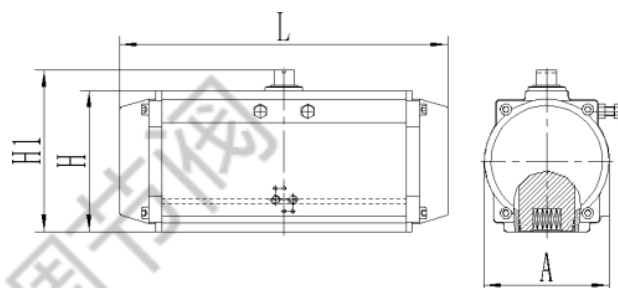
AT63SR/D4	8	18	12	25.5	19.5	33	27	16.5	10.5	2.3
AT63SR/D5	10	14	8	22.5	15.5	31	23	20.5	13.5	
AT75SR/D4	8	23	16	33	27	43	37	23	15	3.3
AT75SR/D5	10	19	11	28	21	37	30	29	20	
AT83SR/D4	8	37	25	53	41	68	55	36	25	4.3
AT83SR/D5	10	31	16	46	32	60	45	46	30	
AT92SR/D4	8	52	35	75	57	98	77	55	35	5.9
AT92SR/D5	10	43	21	66	44	88	65	68	44	
AT105SR/D4	8	81	53	114	86	145	115	78	50	7.2
AT105SR/D5	10	68	33	102	66	135	95	92	63	
AT125SR/D4	8	115	75	165	125	215	170	125	82	12.6
AT125SR/D5	10	95	44	145	94	195	140	157	102	
AT140SR/D4	8	205	135	290	220	370	300	192	132	16
AT140SR/D5	10	170	80	255	165	335	245	240	165	
AT160SR/D4	8	300	190	440	335	570	460	325	215	24
AT160SR/D5	10	250	115	385	245	510	360	410	270	
AT190SR/D4	8	530	355	740	565	950	770	480	300	35
AT190SR/D5	10	450	230	660	445	760	540	600	370	
AT210SR/D4	8	620	455	890	720	1150	980	580	425	55
AT210SR/D5	10	510	300	780	570	1050	820	730	530	
AT240SR/D4	8	880	650	1265	1035	1650	1400	840	640	80
AT240SR/D5	10	715	430	1100	815	1490	1190	1050	800	
AT270SR/D4	8	1440	1080	2025	1665	2600	2200	1200	880	120
AT270SR/D5	10	1220	765	1805	1350	2380	1900	1500	1100	
AT300SR/D4	8	1750	1160	2510	1920	3250	2650	1600	1120	136
AT300SR/D5	10	1420	700	2190	1450	2950	2200	2000	1400	
AT350SR/D4	8	2480	1540	3620	2680	4750	3800	2720	1840	235
AT350SR/D5	10	1960	750	3100	1920	4200	3050	3400	2300	
AT400SR/D4	8	3590	1935	5220	3650	6850	5300	4480	2800	360
AT400SR/D5	10	2500	700	4050	1730	5600	3300	5600	3600	

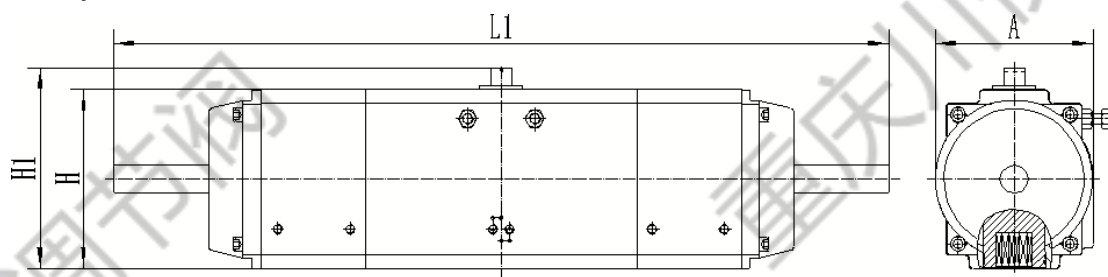
图1 外形尺寸图

Fig 1.
DIMENSIONS

ATxxxx 常规外形尺寸图

Common outline drawing of ATxxxx





ATxxxx-3P 外形尺寸(三段式)

Outline drawing of ATxxxx-3P (three phrases)

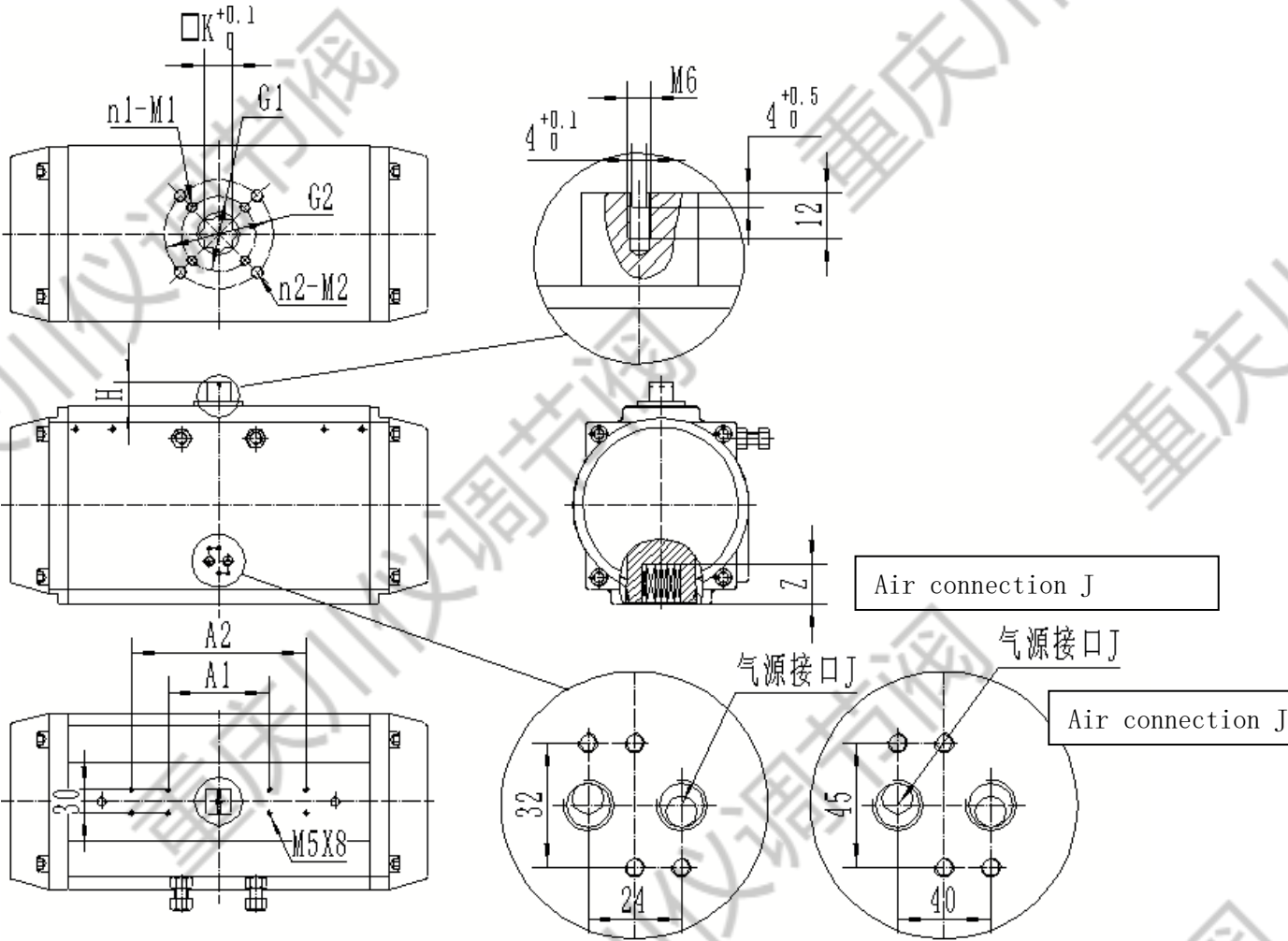
表5 外形尺寸表 mm

Table5 EXTERNAL DIMENSIONSmm

型号 Model	缸径 mm Cylinder diameter	长 L Length L	长 L1 Length L1	宽 A Width A	高 H Height H	总高 H1 Overall height H1
AT52xxx	φ52	160	—	80	80	100
AT63xxx	φ63	195	—	100	95	115
AT63xxx-3P		—	480			
AT75xxx	φ75	220	—	110	105	125
AT75xxx-3P		—	500			
AT83xxx	φ83	235	—	120	120	140
AT83xxx-3P		—	550			
AT92xxx	φ92	275	—	135	130	150
AT92xxx-3P		—	630			
AT105xxx	φ105	285	—	145	145	165
AT105xxx-3P		—	660			
AT125xxx	φ125	350	—	165	170	200
AT125xxx-3P		—	710			
AT140xxx	φ140	405	—	190	190	220
AT140xxx-3P		—	870			
AT160xxx	φ160	470	—	210	210	240
AT160xxx-3P		—	980			
AT190xxx	φ190	540	—	230	245	275
AT190xxx-3P		—	1180			
AT210xxx	φ210	560	—	250	270	300
AT210xxx-3P		—	1180			
AT240xxx	φ240	620	—	275	305	335
AT240xxx-3P		—	1300			

AT270xxx	φ270	740	—	310	345	375
AT270xxx-3P		—	1500			
AT300xxx	φ300	800	—	420	370	400
AT300xxx-3P		—	1700			
AT350xxx	φ350	930	—	475	425	455
AT350xxx-3P		—	1900			
AT400xxx	φ400	970	—	535	495	525

重庆川仪调节阀有限公司
Chongqing Chuanyi Control Valve Co., Ltd.
图 2 法兰连接尺寸图 DIMENSIONS OF FLANGE CONNECTION



气源接口J为NPT1/4吋 气源接口J为NPT3/8、NPT1/2吋

表 6 法兰连接尺寸表 mm

Air connection:NPT1/4 Air connection:NPT3/8、 NPT1/2

型号 Model	缸径 Mm Cylinder diameter	G1	n1-M1	G2	n2-M2	K	Z	气源接 口 J Air c o n n e i o n J	A1	A2	H	连接标准 Connection standard
AT52	52	Φ36	4-M5X8	Φ50	4-M6X10	11	14	NPT 1/4"	80	-	20	F03/F05
AT63	63	Φ50	4-M6X10	Φ70	4-M8X13	14	18	NPT 1/4"	80	-	20	F05/F07
AT75	75	Φ50	4-M6X10	Φ70	4-M8X13	14	18	NPT 1/4"	80	-	20	F05/F07
AT83	83	Φ50	4-M6X10	Φ70	4-M8X13	17	21	NPT 1/4"	80	-	20	F05/F07
AT92	92	Φ50	4-M6X10	Φ70	4-M8X13	17	21	NPT 1/4"	80	-	20	F05/F07
AT105	105	Φ70	4-M8X13	Φ102	4-M10X16	22	26	NPT 1/4"	80	-	20	F07/F10

重庆川仪调节阀有限公司

Chongqing Chuanyi Control Valve Co., Ltd.

AT125	125	Φ70	4-M8X13	Φ102	4-M10X16	22	26	NPT 1/4"	130	-	30	F07/F10
AT140	140	Φ102	4-M10X16	Φ125	4-M12X20	27	31	NPT 1/4"	130	-	30	F10/F12
AT160	160	Φ102	4-M10X16	Φ125	4-M12X20	27	31	NPT 1/4"	130	-	30	F10/F12
AT190	190	-	-	Φ140	4-M16X25	36	40	NPT 1/4"	130	-	30	F14
AT210	210	-	-	Φ140	4-M16X25	36	40	NPT 1/4"	130	-	30	F14
AT240	240	-	-	Φ165	4-M20X25	46	50	NPT 1/2"	130	-	30	F16
AT270	270	-	-	Φ165	4-M20X25	46	50	NPT 1/2"	130	-	30	F16
AT300	300	-	-	Φ165	4-M20X25	46	50	NPT 1/2"	130	-	30	F16
AT350	350	-	-	Φ254	8-M16X25	55	60	NPT 1/2"	130	-	30	F25
AT400	400	-	-	Φ254	8-M16X25	55	60	NPT 1/2"	130	-	30	F25

注：三段式执行机构法兰连接尺寸与非三段式相同

Note: The flange connection size of the three-phase actuator is the same as that of the non-three-phase-actuator.

This exploded view diagram illustrates the assembly of a mechanical device, likely a pump or valve. The components are numbered 1 through 27. The assembly is shown in a disassembled state to show the relationship between parts. Key components include a central rectangular block (6), a cylindrical assembly with internal springs (18, 21, 22, 23), a flange with mounting holes (24), and a central shaft assembly (11, 12, 13). The diagram also shows various fasteners such as screws (15, 16, 17, 25), washers (9, 10), and O-rings (1, 2, 3, 4, 5). The assembly is shown in a disassembled state to show the relationship between parts.

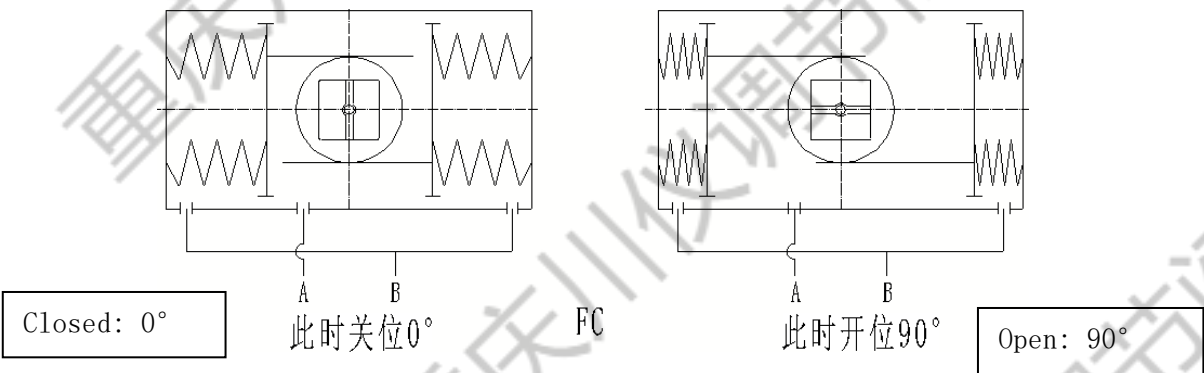
V21.1.0
2021-1-1

5	外垫片 Outer gasket	14	堵头 Choke plug	23	端盖 O 型圈 End cover O ring
6	缸体 cylinder	15	调节螺钉 O 型圈 Adjusting bolt O ring	24	端盖 End cover
7	内垫片 Inner gasket	16	调节螺钉螺母 Adjusting nut	25	端盖螺栓 End cover bolt
8	凸轮 cam	17	调节螺栓 Adjusting bolt	26	限位螺栓 Limit bolt
9	上轴轴承 Upper shaft	18	活塞 plug	27	限位螺栓 Limit bolt

图 4 工作原理图

Table 4. WORKING PRINCIPLES

(1) 单作用 SINGLE ACTING

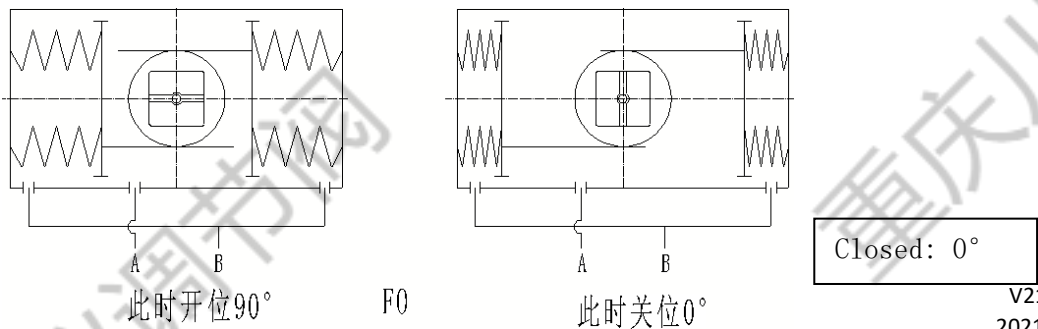


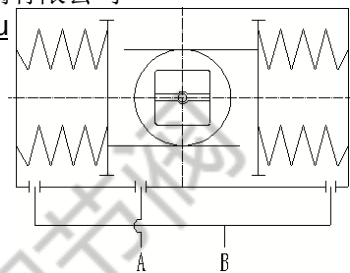
故障关 FC: A 口进气，压缩空气克服弹簧力，推动活塞向外运动，从上往下看，执行机构输出轴逆时针旋转（0°-90°），B 口排气。

断气时，活塞在弹簧力的作用下向内复原，从上往下看，执行机构输出轴顺时针旋转（90°-0°），A 口排气

Fail closed FC: Intaken at port A, compressed air overcomes the force of the spring, and pushes the piston outward. Viewed from top to bottom, the output shaft of the actuator rotates counterclockwise (0°-90°), and port B exhausts.

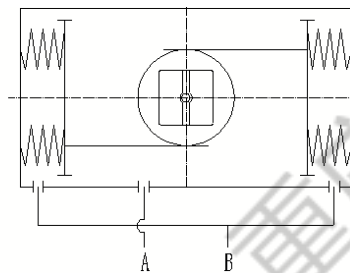
When the air is cut off, the piston returns inwardly under the spring force. Viewed from top to bottom, the output shaft of the actuator rotates clockwise (90°-0°), and A port exhausts.





此时开位 90°

FO



此时关位 0°

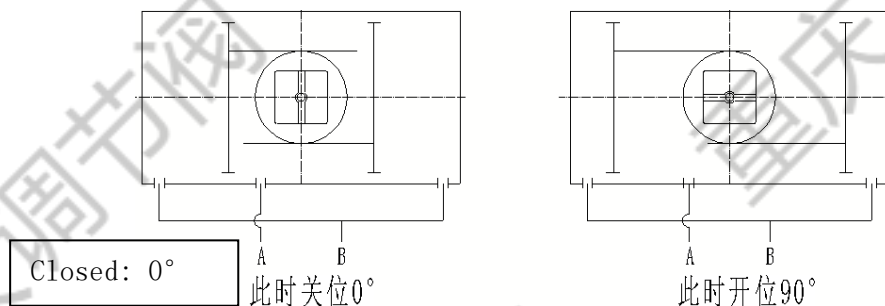
故障开 FO: A 口进气，压缩空气克服弹簧力，推动活塞向外运动，从上往下看，执行机构输出轴顺时针旋转 (90° - 0°)，B 口排气。

断气时，活塞在弹簧力的作用下向内复原，从上往下看，执行机构输出轴逆时针旋转 (0° - -90°)，A 口排气

Fail open FO: Intaken at port A, compressed air overcomes the spring force and pushes the piston to move outward. Viewed from top to bottom, the output shaft of the actuator rotates clockwise (90° - 0°), and port B exhausts.

When the air is cut off, the piston returns inwardly under the spring force. Viewed from top to bottom, the output shaft of the actuator rotates counterclockwise (0° - -90°), and A port exhausts.

(2) 双作用 DOUBLE ACTING

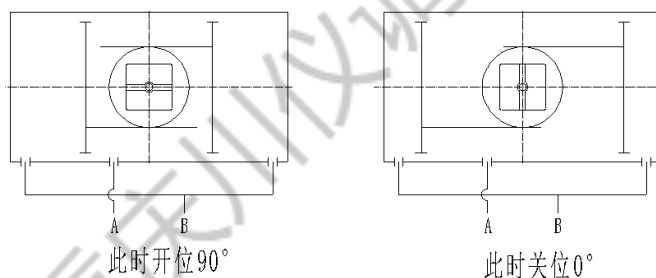


故障关或者限位: A 口进气时, 压缩空气推动活塞向外运动, 从上往下看, 执行机构输出轴逆时针旋转 (0° - 90°), B 口排气;

B 口进气时, 压缩空气推动活塞向内运动, 从上往下看, 执行机构输出轴顺时针旋转 (90° - 0°), A 口排气。

Fail closed or fail limit: Intaken from A port, compressed air pushes the piston to move outwards. Viewed from top to bottom, the output shaft of the actuator rotates counterclockwise (0° - 90°), and port B exhausts;

Intaken from B port, the compressed air pushes the piston to move inward. Viewed from top to bottom, the output shaft of the actuator rotates clockwise (90° - 0°), and A exhausts.



故障开: A 口进气时, 压缩空气推动活塞向外运动, 从上往下看, 执行机构输出轴顺时针旋转 (90° - 0°), B 口排气。

B 口进气时, 压缩空气推动活塞向内运动, 从上往下看, 执行机构输出轴逆时针旋转 (0° - 90°), A 口排气

Fail open: Intaken from A port, the compressed air pushes the piston outwards. Viewed from top to bottom, the output shaft of the actuator rotates clockwise (90° - 0°), and B port exhausts.

Intaken from B port, the compressed air pushes the piston to move inward. Viwed from top to bottom, the output shaft of the actuator rotates counterclockwise (0° - 90°), and A port exhausts.

图 5 手轮外形及连接尺寸图

Fig.5 DIMENSIONS AND CONNECTION SIZE OF HANDWHEEL

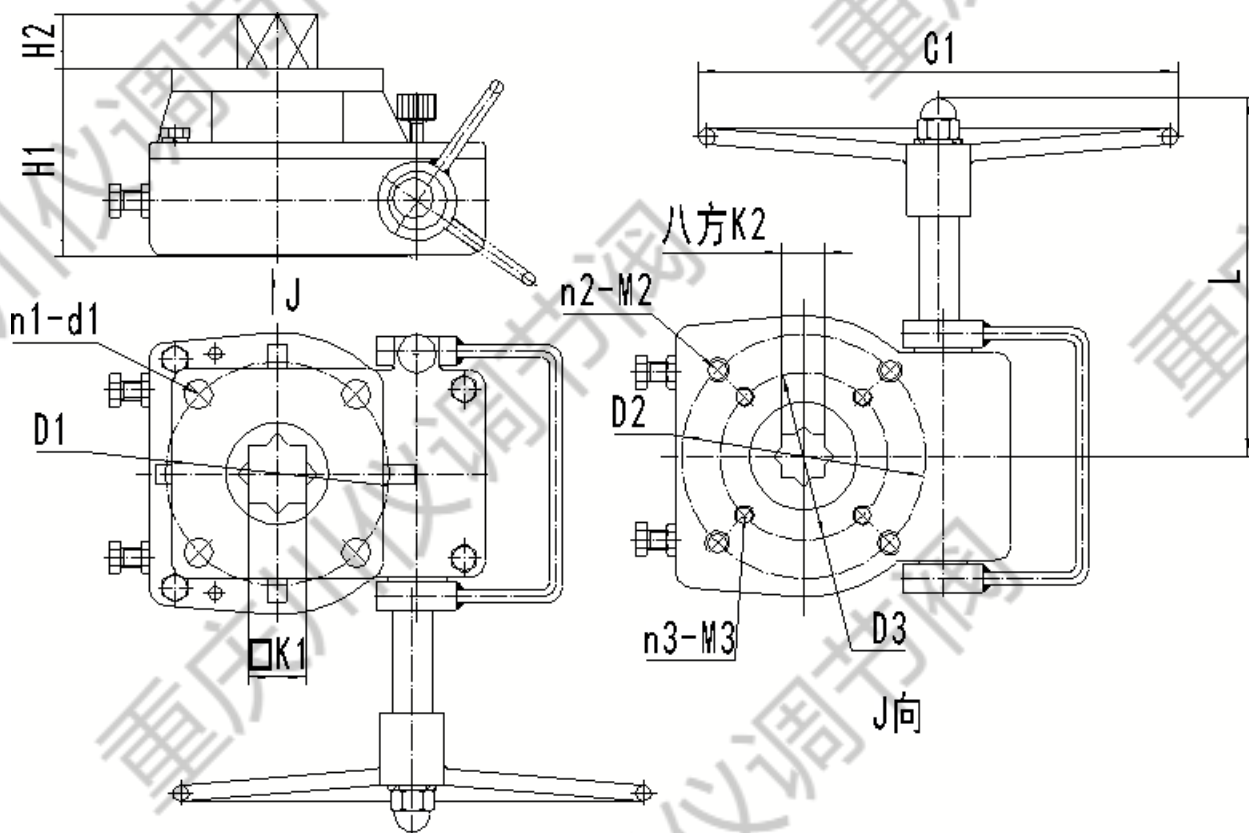


表 7 手轮外形及连接尺寸表 mm

型号 Model	H1	H2	D1	n1-d1	K1	D2	n2-M2	D3	n3-M3	K2	L	C1	重量 Kg Weight
SD-0	110	12	Φ50	4-Φ7	11	Φ50	4-M6	Φ36	4-M5	11	180	Φ180	3
SD-1	110	15	Φ70	4-Φ9	14	Φ70	4-M8	Φ50	4-M6	14	180	Φ180	3
SD-2	130	19	Φ70	4-Φ9	17	Φ70	4-M8	Φ50	4-M6	17	210	Φ200	5
SD-3	130	23	Φ102	4-Φ12	22	Φ102	4-M10	Φ70	4-M8	22	240	Φ280	7
SD-4	165	28	Φ125	4-Φ14	27	Φ125	4-M12	Φ102	4-M10	27	300	Φ320	15
SD-5	185	37	Φ140	4-Φ18	36	Φ140	4-M16	-	-	36	330	Φ400	22
SD-6	200	47	Φ165	4-Φ22	46	Φ165	4-M20	-	-	46	350	Φ500	30
SD-7	200	47	Φ165	4-Φ22	46	Φ165	4-M20	-	-	46	365	Φ600	40
SD-8	230	56	Φ254	8-Φ18	55	Φ254	8-M16	-	-	55	460	Φ800	-
SD-9	-	56	Φ254	8-Φ18	55	Φ254	8-M16	-	-	55	500	Φ800	-

型谱 Typen-Programm										
系列 Series	AT									气动齿轮齿条式执行机构 Pneumatic rack and pinion actuator
规格尺寸 Specifications	5	2								气缸直径 cylinder diameter 52mm
	6	3								气缸直径 cylinder diameter 63mm
	7	5								气缸直径 cylinder diameter 75mm
	8	3								气缸直径 cylinder diameter 83mm
	9	2								气缸直径 cylinder diameter 95mm
	1	0	5							气缸直径 cylinder diameter 105mm
	1	2	5							气缸直径 cylinder diameter 125mm
	1	4	0							气缸直径 cylinder diameter 140mm
	1	6	0							气缸直径 cylinder diameter 160mm
	1	9	0							气缸直径 cylinder diameter 190mm
	2	1	0							气缸直径 cylinder diameter 210mm
	2	4	0							气缸直径 cylinder diameter 240mm
	2	7	0							气缸直径 cylinder diameter 270mm
	3	0	0							气缸直径 cylinder diameter 300mm
	3	5	0							气缸直径 cylinder diameter 350mm
	4	0	0							气缸直径 cylinder diameter 400mm
动作方式 Action manner				D						双作用 Double acting
				S						单作用 Single acting
作用形式 Action type				R						单作用，故障关 FC；双作用，故障关或者保位 FL Single acting, Fail closed FC; Double acting, FC or Fail Limit FL
				D						单作用，故障开 FO；双作用，故障开 Single acting, Fail Open FO; Double acting, FO
弹簧规格 spring specifications				0						双作用 Double acting
				3						3 公斤气源压力的弹簧（6 根） Spring of 3kg air supply pressure (6)
				4						4 公斤气源压力的弹簧（8 根） Spring of 4kg air supply pressure (8)
				5						5 公斤气源压力的弹簧（10 根） Spring of air supply pressure (10)
				6						6 公斤气源压力的弹簧（12 根） Spring of 6kg air supply pressure (12)
间隔符 hyphen					-					
三位式需求 three-phrase requirement				无 None						无 None
				3P						三段式执行机构需求 Three-phrase actuator requirement

订货须知 Ordering instructions

订货时，请写明：

When ordering, please specify:

1. 执行机构型号（包括规格大小、动作方式、作用形式、弹簧规格）

Model of actuator (including specifications、action manner, action type and specification of springs)

2. 供气压力；

重庆川仪调节阀有限公司

Chongqing Chuanyi Control Valve Co., Ltd.

Air supply pressure:

3.环境温度标准为常温（-20~+80°），低温（-40~80°）和高温（-15~120°），属于特殊订货，需备注；

Ambient temperature, normal Temp. (-20~+80°), low Temp. (-40~80°), high Temp. (-15~120°) And if your order is special, please note.

4. 标准不带手轮，如需带侧装手轮，请备注；

The standard type doesn't have any handwheel, if you need one, please note.

5. 标准不带机械限位，如有机械限位请注明限开（阀门不开完），限关(阀门不关死)和限位值

The standard doesn't have fail limit function, if you need it, please note of which type of limit and the limit valve. Open limit: Your valve won't be fully open. Close limit: your valve won't be fully closed.

6. 如果是3 位式执行机构请注明总行程和中间行程的限位值；

And if your actuator is a three-phrase one, please note the limit value of your total travel and mid-travel.

7. 标准防护等级为 C3，如需更高，需备注；

The standard protection level of the spray is level 3, and if you have higher requirements, please note.

8. 标准气缸颜色为阳极氧化后呈现的自然浅灰色，端盖颜色为深灰色，色标 RAL7043，如有特殊，需备注：（标准颜色如有变化，请以最新为准）

The standard color of the cylinder is natural light gray after anodization, and the end cover's color is dark gray, according to the color code RAL7043. If you have any special requirements, please note; **(If there is any change in the color code, please refer to the latest version)**

9. 标准不带支架和连接件，如需求，都属特殊订货，需备注，并提供连接尺寸。

The standard delivery doesn't have yoke or connector, and if required, it is a special order. Please note and provide the connection size.