

RT Series Pneumatic Actuator
RT系列气动执行器



无锡福斯拓科科技有限公司
WUXI FORCE & TORQUE TECHNOLOGY CO., LTD.

About Us



无锡福斯拓科科技有限公司是一家专业生产制造角行程及直行程气动执行器的厂家，主要配套气动球阀，气动蝶阀，气动闸阀，气动截止阀等。

无锡福斯拓科现有员工数量250人，年产值近3亿元人民币，年产量可达50万台。

产品主要包括不锈钢系列气动执行器、RT系列齿轮齿条气动执行器、高频齿轮齿条气动执行器、HPY系列拨叉式气动执行器、铝合金拨叉式气动执行器、拨叉式液动执行器、HPL系列直行程气动执行器、直行程液动执行器、D系列膜片式气动执行器。扭矩范围覆盖5Nm~ 500000Nm。

公司重视研发投入，取得了50多项发明及实用新型专利。获得了无锡市企业技术中心，江苏省民营科技企业，国家高新技术企业，并获得了无锡市科学技术局颁发的无锡市瞪羚企业称号。

福斯拓科在中石油、中石化、中海油、国家能源、神华宁煤、大连恒力石化、连云港盛虹、浙江石化炼化一体化等大型装置上都有良好的应用业绩。

无锡福斯拓科秉承“专注、专业、快、口碑”的经营理念，竭诚为新老客户提供更好的技术和优质的服务。

Wuxi Force & Torque Technology Co., Ltd. is a professional manufacturer for rotary actuators and linear actuators, mainly equipped with pneumatic ball valve, pneumatic butterfly valve, pneumatic gate valve and pneumatic globe valve etc..

Force & Torque has 250 employees, annual output value reached nearly 300 million RMB, annual production capability can reach 500,000 pcs Actuators.

Products mainly include stainless steel pneumatic actuator, RT series rack and pinion pneumatic actuator, high cycle rack and pinion pneumatic actuator, HPY series scotch yoke pneumatic actuator, aluminum alloy scotch yoke pneumatic actuator, scotch yoke hydraulic actuator, HPL series linear pneumatic actuator, linear hydraulic actuator, D Series linear pneumatic diaphragm actuator. Actuator torque covers from 5Nm to 300000Nm.

Adhering to the mindset 'Focus, Profession, Efficiency, Reputation', Wuxi Force & Torque devotes to serve customers with more excellent technology and superior service.

专注 • 专业 • 快 • 口碑

Focus • Profession • Efficiency • Reputation





优质的产品和一站式服务

专业的精英团队和创新研发能力是福斯拓科在行业领先的重要因素。先进的生产线和检测设备确保了产能最大化，高效的员工效率，严格的质量控制，稳定的产品性能和极高的性价比。

福斯拓科为全球客户提供OEM和ODM服务，通过了ISO9001、TUV、SIL、ATEX、CE、PED、德国TUV莱茵的ATEX防爆认证、CE、PED、IP68防护等级、俄罗斯联盟EAC等。福斯拓科强大的销售及技术力量能够灵活满足市场需求并且提供一站式的成套阀门解决方案。

High Quality Products & One-Stop Service

Highly qualified employees with rich experience and innovation R&D capability are the components of our success. The advanced production and inspection equipments guarantee the maximum productivity performance, excellent labor efficiency, strict quality control, reliable product performance and competitive price.

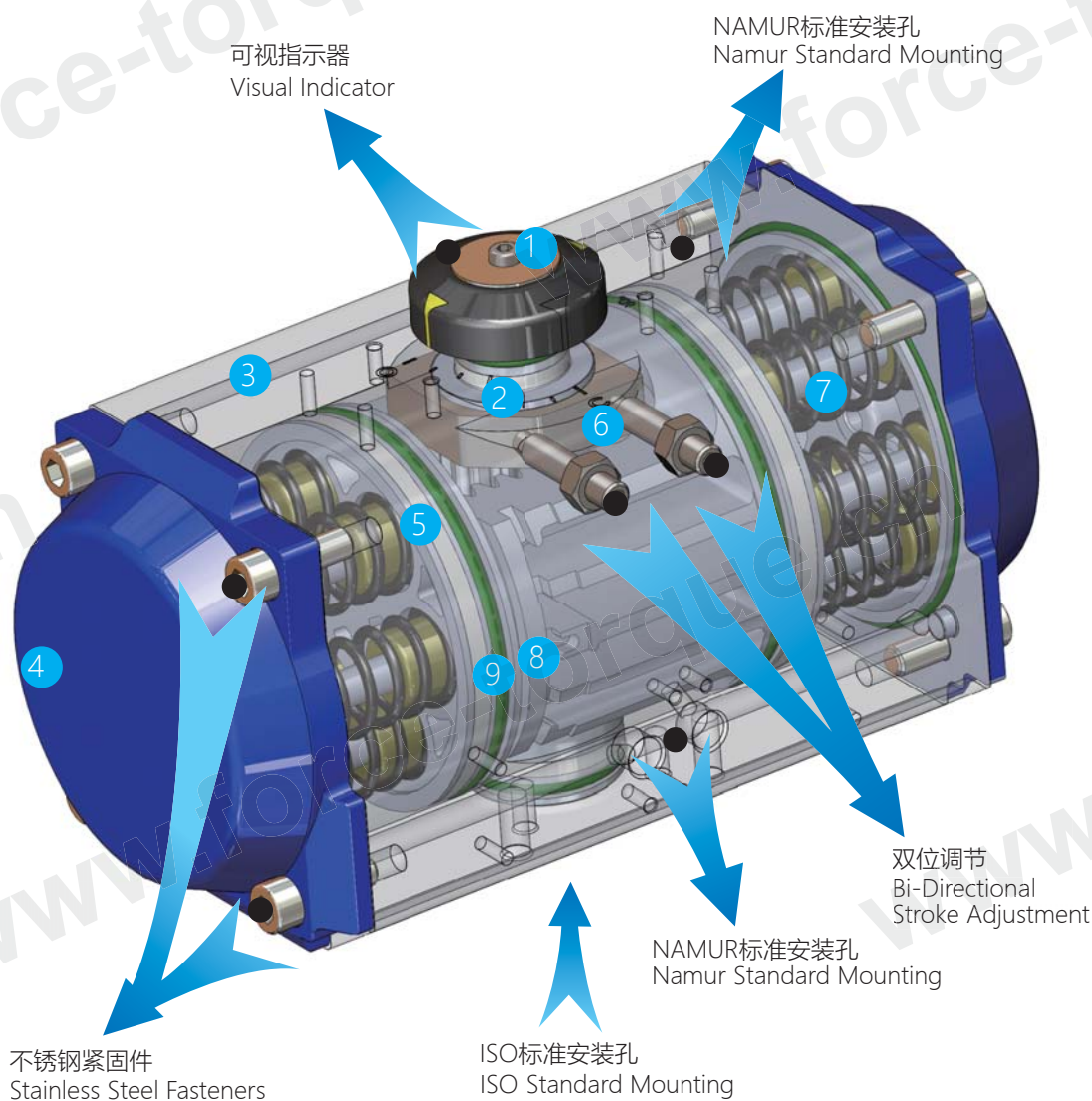
Force & Torque provides OEM and ODM service for customers worldwide. We have certifications such as ISO9001, TUV, SIL, ATEX, CE, PED, IP68, DNV, EAC etc.. The powerful technical background and excellent sales team enable us to react flexibly to market needs and offer professional valve automation solutions for diverse applications.

集中する・専業・速い・評判

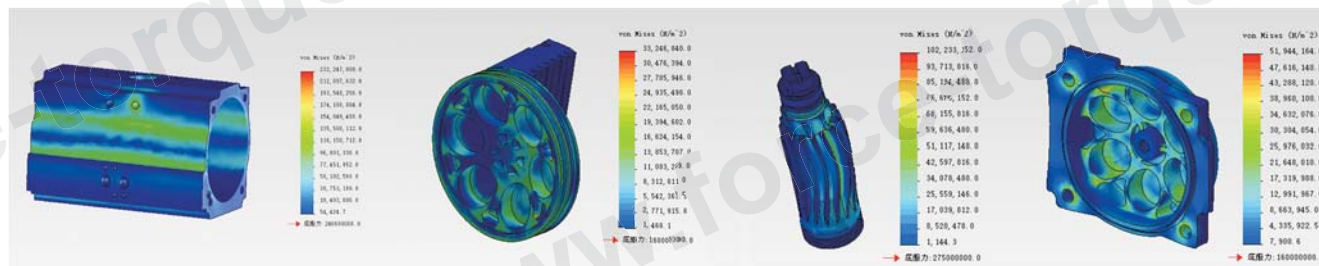
Fokus・Professionalität・Effizienz・Reputation



Construction 产品结构



Professional Design 专业设计



1 指示器 Indicator

NAMUR 标准指示器便于安装位置开关、定位器等附件。
Position indicator with NAMUR is convenient for mounting accessories such as Limit Switch box, Positioner and so on.

2 输出轴 Pinion

镀镍合金钢、高精度一体式输出轴同时符合NAMUR、ISO5211、DIN3337标准。可根据客户要求定制尺寸和不锈钢材料。

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

3 缸体 Actuator Body

ASTM6005压铸铝合金缸体可以采用硬质氧化、环氧树脂喷涂（根据要求喷涂蓝色、橙色、黄色等）、PTFE涂层或镀镍满足不同要求。

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

4 端盖 End Cap

压铸铝合金表面金属粉末喷涂各种颜色、PTFE涂层或镀镍处理。
Die-casting aluminum powder polyester painted in different colours, PTFE or Nickel plated.

5 活塞 Piston

双活塞齿条、采用铸铝硬质氧化或者铸钢镀锌处理，安装位置对称、运作迅速、使用寿命长，简单的颠倒活塞可以改变旋转方向。

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 行程调节 Travel Adjustment

两个独立的行程调节螺钉可以进行方便、精确 $\pm 5^\circ$ 的调节开、关位置。

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



7 高性能弹簧 High Performance Spring

采用优质材料、涂层处理，预压装配。具有较强的抗腐蚀性和使用寿命。能够安全、简单的拆卸单作用执行器，通过改变弹簧数量满足不同的力矩输出范围。

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 轴承、导板 Bearings & Guide

采用低摩擦、长寿命复合材料，避免了金属与金属的直接接触，维修更换简单方便。

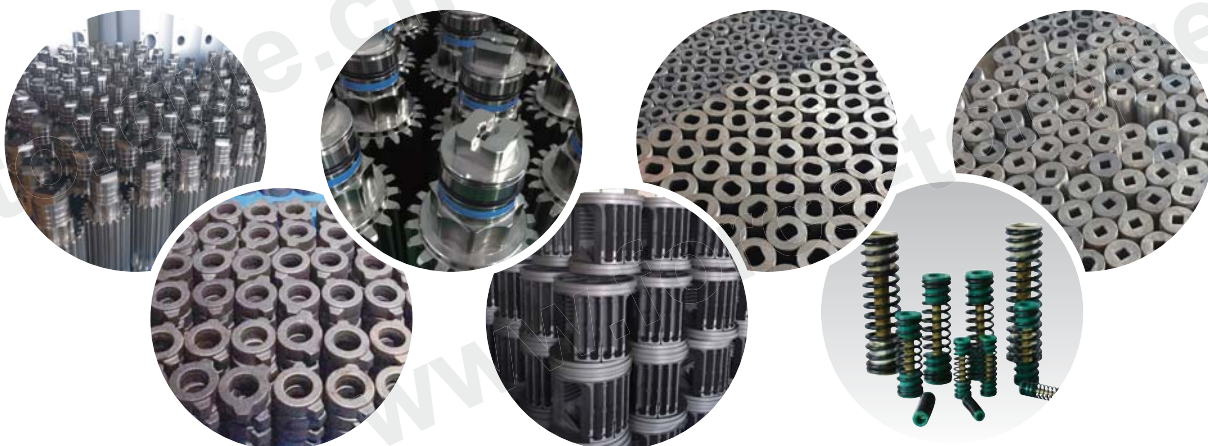
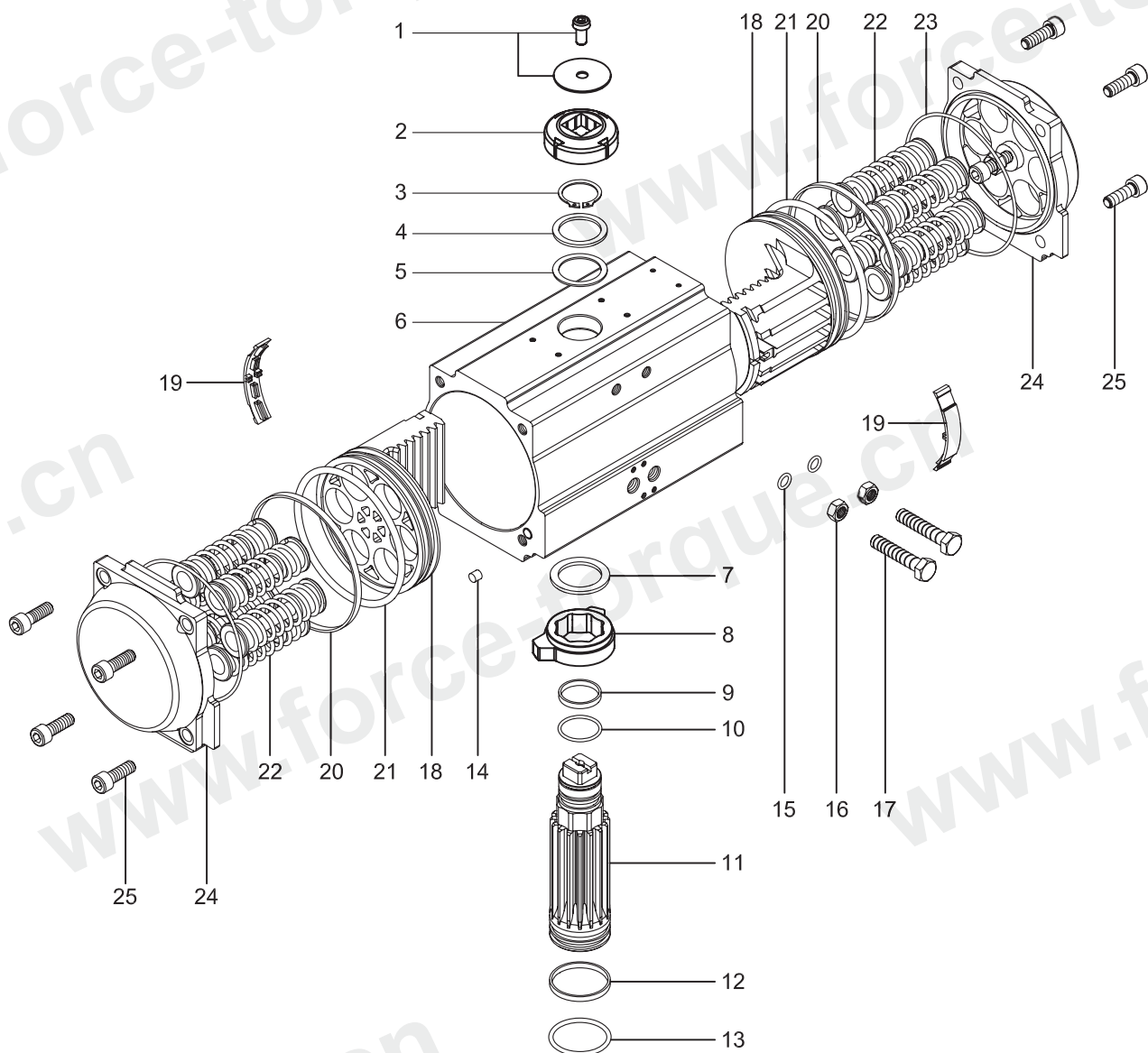
Made from low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

9 密封 O-ring

在常温工作条件下使用丁腈橡胶，在高温或低温时采用氟橡胶或硅橡胶。

NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature applications Viton or Silicone.

Parts and Material 零件和材料



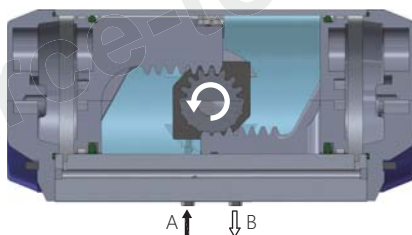
序 号	名 称	数 量	材 料	防腐处理	可选材料
1	指示器螺钉	1	不锈钢		
2	指示器	1	塑 料		
3	卡 簧	1	不锈钢		
4	垫 圈	1	不锈钢		
5	外垫片	1	工程塑料		
6	缸 体	1	铸 铝	硬质氧化等	
7	内垫片	1	工程塑料		
8	凸 轮	1	合金钢		
9	上轴轴承	1	工程塑料		
10	上轴O型圈	1	丁腈橡胶		氟橡胶/硅橡胶
11	齿 轴	1	合金钢	镀镍	不锈钢
12	下轴轴承	1	工程塑料		
13	下轴O型圈	1	丁腈橡胶		氟橡胶/硅橡胶
14	堵 头	2	丁腈橡胶		氟橡胶/硅橡胶
15	调节螺钉O型圈	2	丁腈橡胶		氟橡胶/硅橡胶
16	调节螺钉螺母	2	不锈钢		
17	调节螺栓	2	不锈钢		
18	活 塞	2	铸铝	氧化	不锈钢
19	活塞导板	2	工程塑料		
20	活塞轴承	2	工程塑料		
21	活塞O型圈	2	丁腈橡胶		氟橡胶/硅橡胶
22	弹 簧	0~12	弹簧钢	浸漆	
23	端盖O型圈	2	丁腈橡胶		氟橡胶/硅橡胶
24	端 盖	2	铸 铝	粉末喷涂	
25	端盖螺栓	8	不锈钢		



No.	Description	Qty	Standard Material	Protection	OPTIONAL MATERIAL
1	Indicator screw/washer	1	Stainless Steel		
2	Indicator	1	Plastic		
3	Spring clip	1	Stainless Steel		
4	Thrust washer	1	Stainless Steel		
5	Outside washer	1	Engineering Plastics		
6	Body	1	Extruded Aluminum Alloy	Hard Anodized	
7	Inside washer	1	Engineering Plastics		
8	Cam	1	Alloy Steel		
9	Bearing(pinion top)	1	Engineering Plastics		
10	O-ring (pinion top)	1	NBR		Viton/Silicone
11	Pinion	1	Alloy Steel	Nickel Plated	Stainless Steel
12	Bearing(pinion bottom)	1	Engineering Plastics		
13	O-ring (pinion bottom)	1	NBR		Viton/Silicone
14	Plug	2	NBR		Viton/Silicone
15	O-ring(Adjust screw)	2	NBR		Viton/Silicone
16	Nut(Adjust screw)	2	Stainless Steel		
17	Adjust screw	2	Stainless Steel		
18	Piston	2	Cast Aluminum	Hard Anodized	Stainless Steel
19	Guide(Piston)	2	Engineering Plastics		
20	Bearing(Piston)	2	Engineering Plastics		
21	O-ring(Piston)	2	NBR		Viton/Silicone
22	Spring	0~12	Spring Steel	Dip Coating	
23	O-ring(End cap)	2	NBR		Viton/Silicone
24	End cap	2	Cast Aluminum	Powder Polyester Painted	
25	Cap screw	8	Stainless Steel		

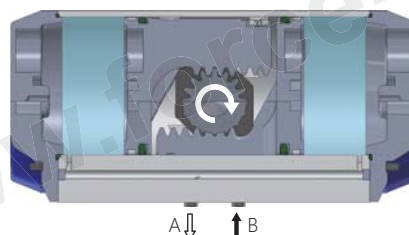
Operating Principle 工作原理

双作用执行器 Double Acting Actuators

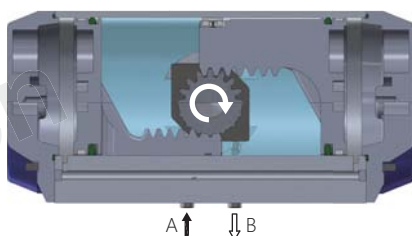


正作用
Air to Counter-clockwise
Rotation

A口进气, 压缩空气推动活塞向外运动, 使执行器输出轴逆时针旋转($0^\circ \rightarrow 90^\circ$), B口排气。
Air to Port A forces the pistons outward, causing the pinion to turn counterclockwise while the air is being exhausted from Port B.

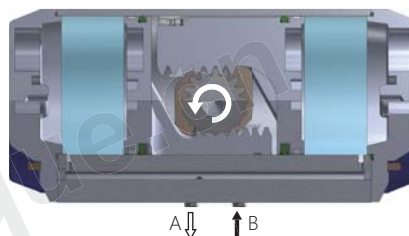


B口进气, 压缩空气推动活塞向内运动, 使执行器输出轴顺时针旋转($90^\circ \rightarrow 0^\circ$), A口排气。
Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.



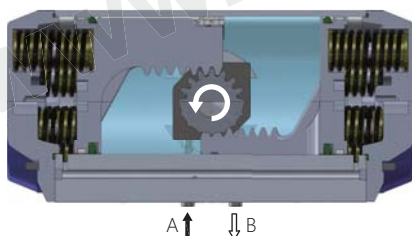
反作用
Air to Clockwise
Rotation

A口进气, 压缩空气推动活塞向外运动, 使执行器输出轴顺时针旋转($0^\circ \rightarrow 90^\circ$), B口排气。
Air to Port A forces the pistons outward, causing the pinion to turn clockwise while the air is being exhausted from Port B.



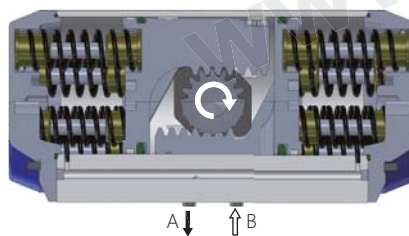
B口进气, 压缩空气推动活塞向内运动, 使执行器输出轴逆时针旋转($90^\circ \rightarrow 0^\circ$), A口排气。
Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

单作用执行器 Spring Return Actuators

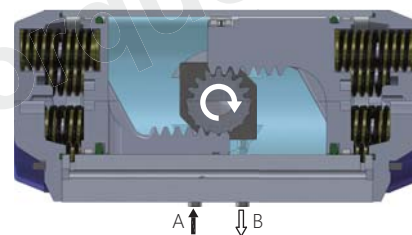


故障关闭FC
Air to Open
Spring to Close

A口进气, 压缩空气克服弹簧力, 推动活塞向外运动, 执行器输出轴逆时针转动($0^\circ \rightarrow 90^\circ$), B口排气;
Air to port A forces the pistons outward, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.

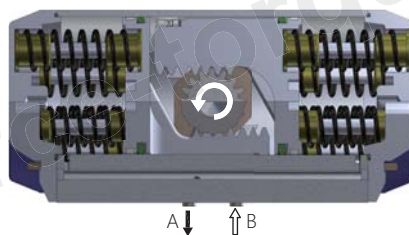


执行器失气, 活塞在弹簧力的作用下向内运动, 执行器输出轴顺时针转动($90^\circ \rightarrow 0^\circ$), A口排气。
Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.



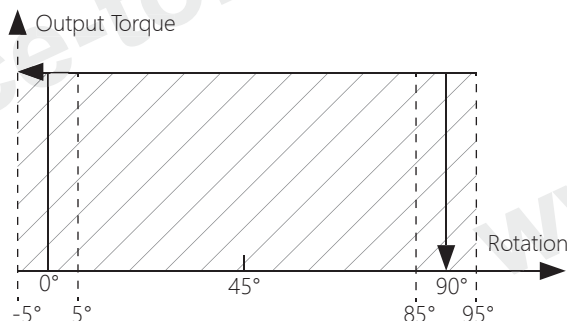
故障开启FO
Air to Close
Spring to Open

A口进气, 压缩空气克服弹簧力, 推动活塞向外运动, 执行器输出轴顺时针转动($0^\circ \rightarrow 90^\circ$), B口排气;
Air to port A forces the pistons outward, causing the springs to compress. The pinion turns clockwise while air is being exhausted from port B.



执行器失气, 活塞在弹簧力的作用下向内运动, 执行器输出轴逆时针转动($90^\circ \rightarrow 0^\circ$), A口排气。
Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns counterclockwise while air is being exhausted from port A.

Output Torque of Double Acting Actuators 双作用输出力矩



Unit: Nm

型号Model	缸径 Cylinder	气源压力Air supply pressure (Unit: bar)									
		2	2.5	3	4	4.5	5	5.5	6	7	8
RT007DA	32	3.3	4.1	4.9	6.5	7.3	8.1	8.9	9.7	11.3	12.9
RT012DA	40	4.8	6.0	7.2	9.5	11.0	11.9	13.1	14.3	16.7	19.1
RT020DA	52	8.1	10.1	12.1	16.1	18.6	20.2	22.2	24.2	28.2	32.3
RT035DA	63	14.2	17.8	21.3	28.4	32.7	35.5	39.1	42.6	49.7	56.8
RT050DA	75	20.1	25.2	30.2	40.3	46.3	50.3	55.4	60.4	70.5	80.5
RT075DA	83	30.8	38.5	46.2	61.6	70.9	77.1	84.8	92.5	107.9	123.3
RT110DA	92	45.4	56.8	68.2	90.9	104.5	113.6	125.0	136.3	159.1	181.8
RT160DA	105	65.8	82.2	98.7	131.6	151.3	164.4	180.9	197.3	230.2	263.1
RT255DA	125	102.5	128.2	153.8	205.1	235.8	256.4	282.0	307.6	358.9	410.2
RT435DA	140	175	219	263	351	403	439	482	526	614	702
RT665DA	160	267	334	401	535	615	668	735	802	935	1069
RT1000DA	190	431	538	646	861	991	1077	1185	1292	1508	1723
RT1200DA	210	526	658	789	1052	1210	1316	1447	1579	1842	2105
RT1800DA	240	773	966	1160	1546	1778	1933	2126	2320	2706	3093
RT2700DA	270	1174	1468	1761	2349	2701	2936	3229	3523	4110	4697
RT3800DA	300	1526	1908	2289	3052	3510	3815	4197	4578	5341	6104
RT5700DA	350	2285	2856	3427	4570	5255	5712	6283	6854	7997	9139
RT8000DA	400	3256	4069	4883	6511	7488	8139	8953	9767	11394	13022
型号Model	缸径 Cylinder	2	2.5	3	4	4.5	5	5.5	6	7	8
气源压力Air supply pressure (Unit: bar)											

双作用执行器的选型:

在正常操作条件下, 双作用执行器考虑的安全系数为20%-30%。

示例:

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

对照双作用力矩表, 选配双作用执行器最小规格为RT160DA。

Sizing: Double Acting Actuator

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

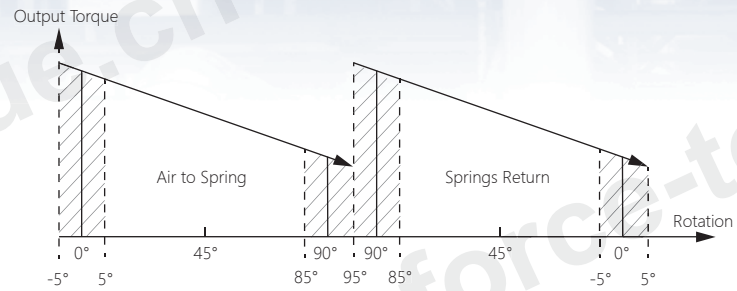
Example:

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

According to the above table, we can choose the minimum model is RT160DA.



Output Torque of Spring Return Actuators 单作用输出力矩



Unit: Nm

		输出扭矩 Output torque of air to springs																				Springs' output	
气压Air pressure	Spring Qty.	2BAR		2.5BAR		3BAR		4BAR		4.5BAR		5BAR		5.5BAR		6BAR		7BAR		8BAR		90° Start	0° End
型号Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End
RT007SR	K2																					4.7	3.4
RT012SR	K2																					7.2	4.7
RT020SR	K5	3.6	1.6	5.6	3.6	7.6	5.6	10.8	8.3	13.9	11.1	17.1	13.9	20.5	16.2	23.5	19.3	26.6	21.6	29.7	24.4	6.2	4.2
	K6			4.7	2.3	6.8	4.3	9.9	7.0	12.3	9.5	15.4	12.3	17.9	14.3	20.5	16.2	23.5	19.3	26.6	21.6	7.4	5.1
	K7					5.9	3.0	9.9	7.0	12.3	9.5	15.4	12.3	17.9	14.3	20.5	16.2	23.5	19.3	26.6	21.6	8.6	5.9
	K8							9.0	5.7	11.4	8.2	13.9	9.8	16.2	12.5	19.3	14.3	21.6	16.2	23.5	19.3	9.9	6.8
	K9							8.1	4.4	10.5	6.9	12.2	8.5	14.2	10.5	16.2	12.5	19.3	14.3	21.6	16.2	11.1	7.6
	K10							7.2	3.1	9.7	5.6	11.3	7.2	13.3	9.2	15.3	11.2	18.4	14.4	22.5	18.0	12.4	8.5
	K11											10.4	5.9	12.4	7.9	14.4	9.9	18.4	14.4	22.5	18.0	13.6	9.3
RT035SR	K5	6.4	2.6	10.0	6.2	13.5	9.7	17.5	12.2	21.8	16.5	24.6	19.3	28.6	21.8	34.1	26.6	43.8	34.1	50.5	39.7	11.0	7.4
	K6			8.4	3.9	12.0	7.4	19.1	14.5	21.8	16.5	24.6	19.3	28.6	21.8	34.1	26.6	43.8	34.1	50.5	39.7	13.2	8.9
	K7					10.4	5.1	17.5	12.2	21.8	16.5	24.6	19.3	28.6	21.8	34.1	26.6	43.8	34.1	50.5	39.7	15.4	10.4
	K8							15.9	9.9	20.2	14.1	23.0	17.0	26.6	20.5	28.6	21.8	34.1	26.6	43.8	34.1	17.6	11.9
	K9							14.4	7.6	18.6	11.8	21.5	14.7	25.0	18.2	28.6	21.8	34.1	26.6	43.8	34.1	19.8	13.3
	K10							12.8	5.3	17.1	9.5	19.9	12.4	23.5	15.9	27.0	19.5	32.6	26.6	43.8	34.1	22.0	14.8
	K11											18.4	10.0	21.9	13.6	25.5	17.1	32.6	26.6	43.8	34.1	24.2	16.3
RT050SR	K5	9.0	4.9	14.1	9.9	19.1	15.0	27.0	22.0	30.8	25.0	34.8	29.0	44.8	36.6	55.5	44.8	69.7	55.5	84.4	65.2	14.5	10.5
	K6			11.8	6.9	16.9	11.9	24.7	18.9	30.8	25.0	34.8	29.0	44.8	36.6	55.5	44.8	69.7	55.5	84.4	65.2	17.4	12.7
	K7					14.7	8.9	27.0	22.0	30.8	25.0	34.8	29.0	44.8	36.6	55.5	44.8	69.7	55.5	84.4	65.2	20.3	14.8
	K8							22.5	15.9	28.6	21.9	32.6	26.0	37.6	31.0	40.4	33.0	48.3	48.3	65.2	50.5	23.2	16.9
	K9							20.3	12.8	26.3	18.9	30.4	22.9	35.4	27.9	40.4	33.0	48.3	48.3	65.2	50.5	26.1	19.0
	K10							18.1	9.8	24.1	15.8	28.1	19.9	33.2	24.9	38.2	29.9	46.1	46.1	65.2	50.5	29.0	21.1
	K11											25.9	16.8	31.0	21.8	36.0	26.9	46.1	46.1	65.2	50.5	31.9	23.2
RT075SR	K5	14.2	6.6	21.9	14.3	29.6	22.0	41.7	32.6	47.6	37.0	53.8	43.1	71.1	58.1	88.4	71.1	109.7	88.4	135.5	102.5	23.0	15.8
	K6			18.6	9.5	26.3	17.2	38.3	27.7	47.6	37.0	53.8	43.1	71.1	58.1	88.4	71.1	109.7	88.4	135.5	102.5	27.6	19.0
	K7					22.9	12.3	41.7	32.6	47.6	37.0	53.8	43.1	71.1	58.1	88.4	71.1	109.7	88.4	135.5	102.5	32.2	22.1
	K8							35.0	22.9	44.3	32.1	50.4	38.3	58.1	46.0	62.5	48.9	74.6	74.6	102.5	79.7	36.8	25.3
	K9							31.7	18.0	40.9	27.3	47.1	33.5	54.8	41.2	59.2	44.0	74.6	74.6	102.5	79.7	41.4	28.5
	K10							28.3	13.2	37.6	22.4	43.8	28.6	51.5	36.3	59.2	44.0	74.6	74.6	102.5	79.7	46.0	31.6
	K11											40.4	23.8	48.1	31.5	55.8	39.2	71.3	71.3	102.5	79.7	50.6	34.8
RT110SR	K5	21	9	32	21	44	32	61	47	70	54	79	63	106	86	126	102	161	126	187	147	34.4	23.3
	K6			27	13	39	25	56	40	70	54	79	63	106	86	126	102	161	126	187	147	41.2	28.0
	K7					34	18	61	47	70	54	79	63	106	86	126	102	161	126	187	147	48.1	32.7
	K8							52	33	65	47	74	56	86	67	92	71	110	110	147	110	55.0	37.3
	K9							47	26	60	39	69	48	81	60	92	71	110	110	147	110	61.9	42.0
	K10							42	19	55	32	64	41	76	53	87	64	110	110	147	110	68.7	46.7
	K11											60	34	71	45	82	57	105	105	128	102	75.6	51.4
RT160SR	K5	31	13	48	29	64	46	90	68	103	77	116	90	142	116	161	126	187	147	216	161	82.5	56.0
	K6			41	19	57	35	83	57	103	77	116	90	142	116	161	126	187	147	216	161	90.3	62.8
	K7					50	25	90	68	103	77	116	90	142	116	161	126	187	147	216	161	102.5	71.1
	K8							76	47	96	67	109	80	126	96	135	102	161	161	216	161	110.5	79.0
	K9							69	36	89	56	102	69	119	86	126	102	161	161	216	161	120.5	85.0
	K10							63	26	82	45	95	59	112	75	128	92	161	161	216	161	130.5	92.0
	K11											89	48	105	65	121	81	154	154	187	147	140.6	102.1
RT255SR	K5	47	19	72	45	98	71	138	105	158	119	178	140	219	178	247	196	287	225	327	247	129	86
	K6			61	28	87	54	127	89	158	119	178	140	219	178	247	196	287	225	327	247	155	103
	K7					76	37	116	72	146	103	167	123	193	149	207	158	247	247	327	247	181	120
	K8							104	55	135	86	156	107	181	132	207	158	247	247	327	247	206	137
	K9							93	39	124	70	145	90	170	116	196	141	247	247	327	247	232	154
	K10											133	73	159	99	185	125	236	236	287	227	258	172
	K11													148	82	174	108	225	225	276	211	284	189
RT435SR	K5	85	40	129	84	173	127	242	188	277	213	312	248	388	306	433	343	503	403	563	433	310	206
	K6			111	56	155	100	224	161	259	186	294	221	338	265	364	282	415	415	563	433	330	216
	K7					137	73	206	134	259	186	294	221	338	265	364	282	415	415	563	433	358	232
	K8							188	106	241	159	276	194	320	238	364	282	415	415	563	433	386	258
	K9							170	79	223	132	258	167	302	211	346	255	433	433	563	433	414	272
	K10											240	140	284	184	328	228	415	415	563	433	442	298
	K11													266	157	309	200	397	397	563	433	470	316
型号Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End
气压Air pressure	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End

输出扭矩 Output torque of air to springs

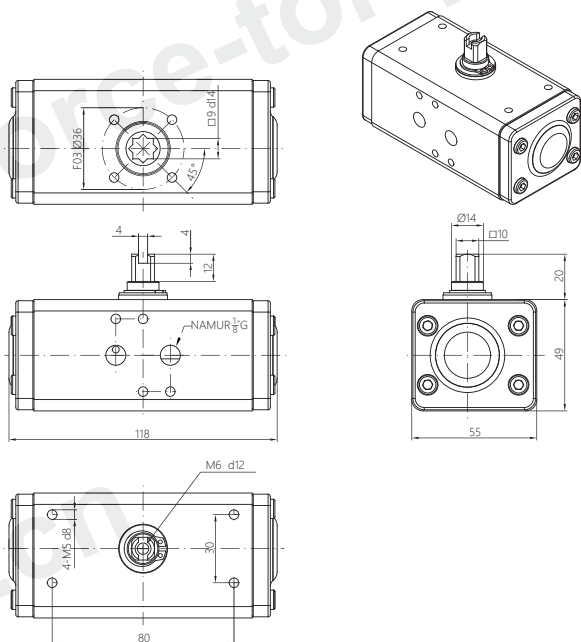
RT 系列气动执行器
RT Series Pneumatic Actuator

Unit: Nm

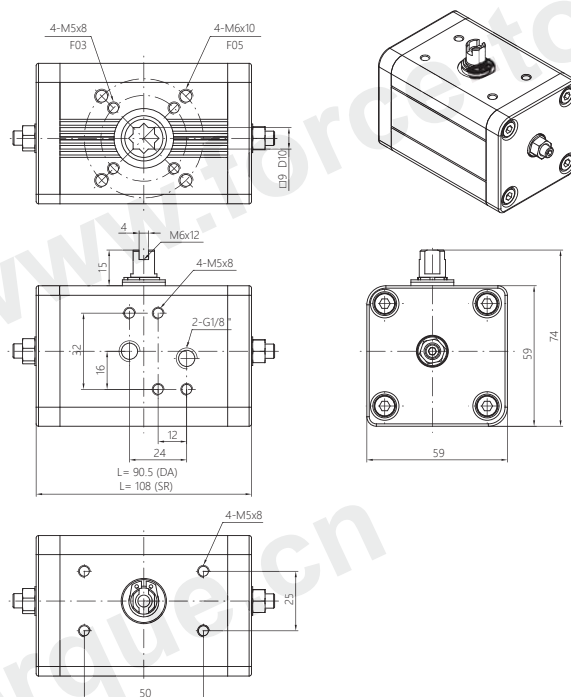
输出扭矩 Output torque of air to springs																							Springs' output	
气压Air pressure	2BAR		2.5BAR		3BAR		4BAR		4.5BAR		5BAR		5.5BAR		6BAR		7BAR		8BAR					
型号Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End	
RT665SR	K5	120	48																			208	140	
	K6			158	71	225	138	358	271													250	168	
	K7					195	94	329	228	409	308	462	361									292	196	
	K8							299	184	380	264	433	317	500	384							333	223	
	K9							270	140	350	220	404	273	470	340	537	407					375	251	
	K10							241	96	321	176	374	230	441	296	508	363	641	497			417	279	
	K11											345	186	412	253	478	319	612	453	746	587	458	307	
K12													382	209	449	276	583	409	716	543	500	335		
RT1000SR	K5	220	105	328	213	436	321															309	200	
	K6			286	148	393	255	609	471													371	240	
	K7					351	190	567	406	696	535	782	621									433	280	
	K8							525	341	654	470	740	556	848	664							495	320	
	K9							482	275	612	405	698	491	805	598	913	706					557	360	
	K10							440	210	570	340	656	426	763	533	871	641	1086	856			619	400	
	K11											614	361	721	468	829	576	1044	791	1260	1007	681	440	
K12													679	403	787	511	1002	726	1218	942	742	480		
RT1200SR	K5	223	108	355	239	486	371															398	288	
	K6			294	155	425	287	689	550													477	346	
	K7					365	203	628	466	786	624	891	729									557	403	
	K8							567	383	725	541	830	646	962	777							636	461	
	K9							507	299	665	457	770	562	901	694	1033	825					716	518	
	K10							446	215	604	373	709	478	841	610	972	741	1235	1005			795	576	
	K11											648	395	780	526	912	658	1175	921	1438	1184	875	634	
K12													719	442	851	574	1114	837	1377	1100	954	691		
RT1800SR	K5	341	190	534	383	728	577															554	410	
	K6			448	267	641	460	1028	847													665	492	
	K7					555	343	942	730	1174	962	1328	1117									776	575	
	K8							855	613	1087	845	1242	1000	1435	1193							886	657	
	K9							769	497	1001	729	1155	883	1349	1077	1542	1270					997	739	
	K10							682	380	914	612	1069	767	1262	960	1456	1153	1842	1540			1108	821	
	K11											983	650	1176	843	1369	1037	1756	1423	2142	1810	1219	903	
K12													1089	727	1283	920	1669	1306	2056	1693	1330	985		
RT2700SR	K5	585	347	879	640	1173	934															786	559	
	K6			761	475	1055	768	1642	1356													943	671	
	K7					937	603	1524	1190	1876	1542	2111	1777									1101	783	
	K8							1406	1024	1759	1377	1994	1612	2287	1905							1258	895	
	K9							1289	859	1641	1211	1876	1446	2169	1740	2463	2033					1415	1007	
	K10							1171	693	1523	1046	1758	1281	2052	1574	2345	1868	2932	2455			1572	1119	
	K11											1640	1115	1934	1409	2227	1702	2814	2289	3402	2877	1730	1231	
K12													1816	1243	2110	1537	2697	2124	3284	2711	1887	1343		
RT3800SR	K5	696	339	1077	720	1459	1102															1128	789	
	K6			911	483	1293	865	2056	1628													1353	946	
	K7					1127	627	1890	1390	2348	1848	2653	2153									1579	1104	
	K8							1724	1153	2182	1611	2487	1916	2868	2297							1804	1262	
	K9							1558	915	2016	1373	2321	1678	2702	2060	3084	2441					2030	1419	
	K10							1392	678	1850	1136	2155	1441	2536	1822	2918	2204	3681	2967			2255	1577	
	K11											1989	1203	2370	1585	2752	1967	3515	2730	4278	3493	2481	1735	
K12													2204	1348	2586	1729	3349	2492	4112	3255	2707	1893		
RT5700SR	K5	981	393	1553	964	2124	1536															1797	1238	
	K6			1292	586	1863	1157	3005	2300													2156	1486	
	K7					1602	779	2745	1921	3430	2607	3887	3064									2516	1734	
	K8							2484	1543	3169	2229	3626	2686	4198	3257							2875	1981	
	K9							2223	1165	2909	1850	3366	2307	3937	2878	4508	3450					3235	2229	
	K10							1963	787	2648	1472	3105	1929	3676	2500	4247	3071	5390	4214			3594	2477	
	K11											2844	1551	3416	2122	3987	2693	5129	3835	6272	4978	3953	2724	
K12													3155	1744	3726	2315	4868	3457	6011	4600	4313	2972		
RT8000SR	K5	1798	970	2611	1783																	2172	1385	
	K6	1506	512	2320	1326	3134	2140	4762	3768													2606	1662	
	K7			2028	869	2842	1683	4470	3311	5447	4287											3040	1939	
	K8					2551	1226	4178	2854	5155	3830											3475	2216	
	K9							3887	2396	4863	3373	5514	4024									3909	2493	
	K10							3595	1939	4572	2916	5223	3567	6037	4381							4343	2770	
	K11									4280	2459	4931	3110	5745	3924	6559	4737					4778	3047	
K12									3989	2001	4640	2652	5454	3466	6267	4280	7895	5908	9523	7536	5212	3324		
K13											4348	2195	5162	3009	5976	3823	7604	5451	9231	7079	5646	3601		
K14											4056	1738	4870	2552	5684	3366	7312	4994	8940	6621	6081	3878		
K15														4579	2095	5393	2909	7020	4536	8648	6164	6515	4155	
K16																5101	2451	6729	4079	8357	5707	6949	4432	
型号Model	Spring Qty.	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 0°	End 90°	Start 90°	End 0°	
气压Air pressure		2BAR		2.5BAR		3BAR		4BAR		4.5BAR		5BAR		5.5BAR		6BAR		7BAR		8BAR		Springs' output		

输出扭矩 Output torque of air to springs

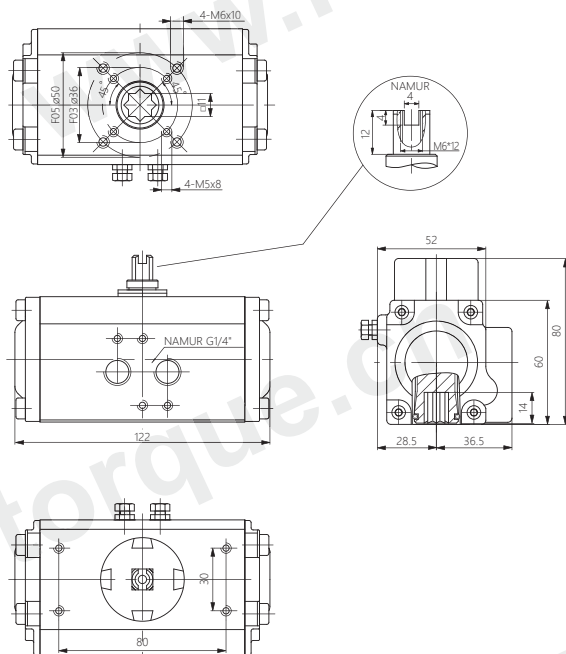
Dimension 外形尺寸



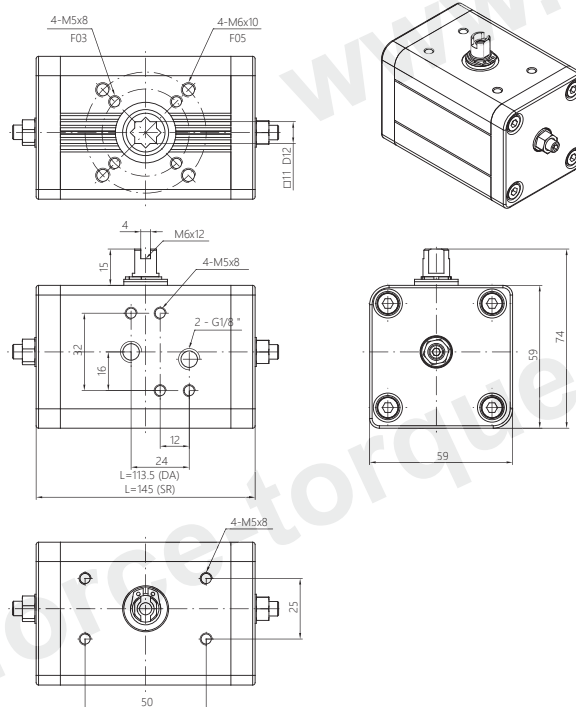
RT007DA



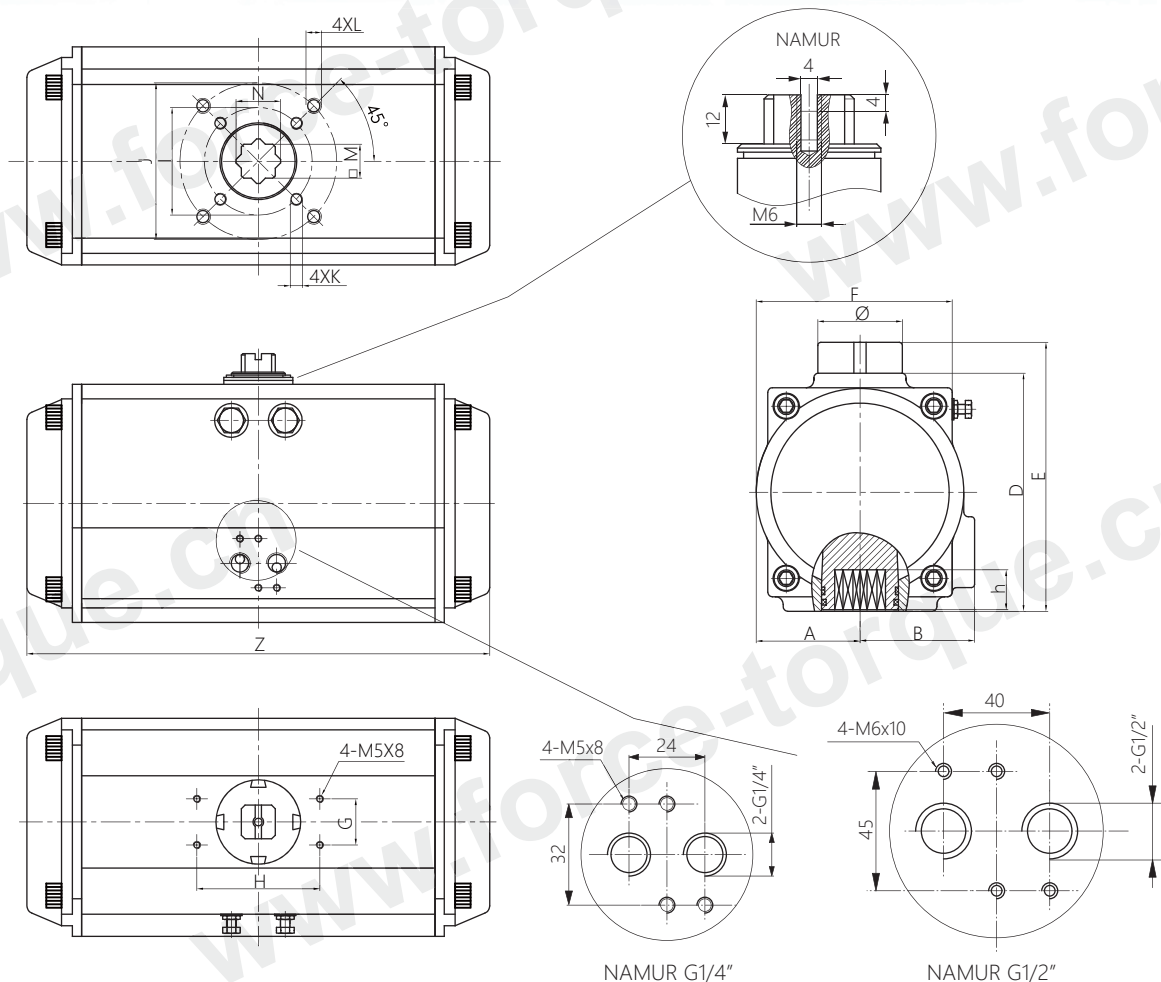
RT007DA/SR-N



RT012DA

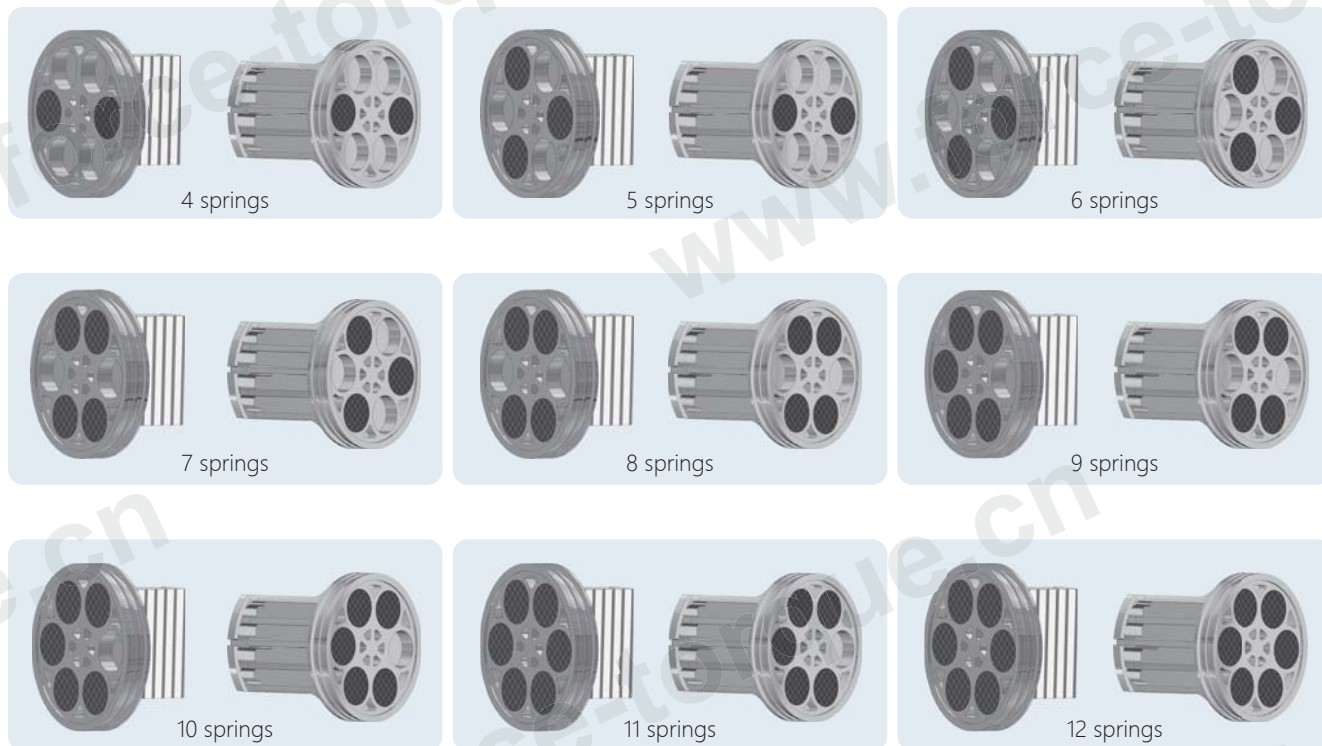


RT012DA/SR-N



型号 Model	缸径 Cylinder	A	B	D	E	F	G	H	I	J	K	L	M	N	h	Z	ø	气源接口 Air Connection
RT020	ø52	30	41.5	72	92	65	30	80	ø36	ø50	M5×8	M6×10	11	ø15.5	14	149	ø40	NAMUR G1/4"
RT035	ø63	36	47	88	108	72	30	80	ø50	ø70	M6×10	M8×13	14	ø19.7	18	168	ø40	NAMUR G1/4"
RT050	ø75	42	53	99.5	119.5	81	30	80	ø50	ø70	M6×10	M8×13	14	ø19.7	18	184	ø40	NAMUR G1/4"
RT075	ø83	46	57	109	129	92	30	80	ø50	ø70	M6×10	M8×13	17	ø24	21	204	ø40	NAMUR G1/4"
RT110	ø92	50	58.5	116.5	136.5	98	30	80	ø50	ø70	M6×10	M8×13	17	ø24	21	262	ø40	NAMUR G1/4"
RT160	ø105	57.5	64	133	153	109.5	30	80	ø70	ø102	M8×13	M10×16	22	ø31	26	268	ø40	NAMUR G1/4"
RT255	ø125	67.5	74.5	155	175	127.5	30	80	ø70	ø102	M8×13	M10×16	22	ø29.5	26	301	ø55	NAMUR G1/4"
RT435	ø140	75	77	172	192	137.5	30	80	ø102	ø125	M10×16	M12×20	27	ø36.7	31	394	ø55	NAMUR G1/4"
RT665	ø160	87	87	197	217	158	30	80	ø102	ø125	M10×16	M12×20	27	ø36.7	31	458	ø55	NAMUR G1/4"
RT1000	ø190	103	103	230	260	189	30	130	/	ø140	/	M16×25	36	ø49.5	40	528	ø80	NAMUR G1/4"
RT1200	ø210	113	113	255	285	210	30	130	/	ø140	/	M16×25	36	ø49.5	40	532	ø80	NAMUR G1/4"
RT1800	ø240	130	130	289	319	245	30	130	/	ø165	/	M20×25	46	ø63.6	50	602	ø80	NAMUR G1/4"
RT2700	ø270	147	147	328	358	273	30	130	/	ø165	/	M20×25	46	ø63.6	50	722	ø80	NAMUR G1/2"
RT3800	ø300	203	203	348	378	290	30	130	ø165	ø215	M20×25	M20×25	46	ø63.6	60	758	ø80	NAMUR G1/2"
RT5700	ø350	230	230	408	438	336	30	130	ø165	ø254	M20×25	8-M16×24	55	ø63.6	60	888	ø80	NAMUR G1/2"
RT8000	ø400	258	258	480	510	360	30	130	ø165	ø254	M20×25	8-M16×25	55	ø77.7	60	930	ø80	NAMUR G1/2"

Spring Configuration 单作用执行器弹簧形式



Operating Conditions 工作技术条件

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30 μm 。

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

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

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

超低温: -60°C

4、行程调节

0° 和 90° 两个位置有 $\pm 5^{\circ}$ 的调节范围

5、使用场合

室内或室外安装

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

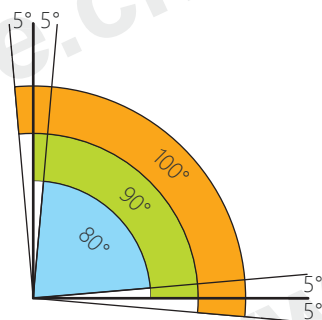
Standard: $-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$
High temperature: $-15^{\circ}\text{C} \sim +150^{\circ}\text{C}$
Low temperature: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$
Ultra-low Temperature: -60°C

4. Travel adjustment

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

5. Application

Either indoor or outdoor



Sizing: Spring Return Actuators 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=80N.m

安全力矩=80(1+30%)=104N.m

气源压力=5Bar

对照单作用执行器输出力矩表，我们可以查到RT435SR K7输出力矩为

- 空气行程0°=308N.m
- 空气行程90°=247N.m
- 弹簧行程90°=181N.m
- 弹簧行程0°=120N.m

所有输出力矩均大于我们需求。

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。

在单作用执行器的选配过程中，如果能够了解阀门在开启、运行和关闭时的扭矩分配，我们就可以更加经济、更加合理地选配执行器。

例如：

蝶阀原最大扭矩=104N.m

打开后扭矩104x30%=32N.m

气源压力=5Bar

我们可以选择RT255SR K11

- 空气行程0°=136N.m > 104N.m
- 空气行程90°=78N.m > 32N.m
- 弹簧行程90°=173N.m > 32N.m
- 弹簧行程0°=115N.m > 104N.m

以上数据显示可以满足该蝶阀的正常启闭。

Example:

The max torque needed by the butterfly valve=104N.m

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

Air Supply=5Bar

We can select the RT255SR K11
output torque is:

- Air stroke 0°136N.m > 104N.m
- Air stroke 90°=78N.m > 32N.m
- Spring stroke 90°=173N.m > 32N.m
- Spring stroke 0°=115N.m > 104N.m

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

The suggested safety factor for spring return actuator under normal working conditions is 30-50%

Example:

The torque needed by valve=80N.m

The torque consider safety factor (1+30%)=104N.m

Air Supply=5Bar

According to the table of spring return actuators' output, we find output torque of RT435SR K7 is:

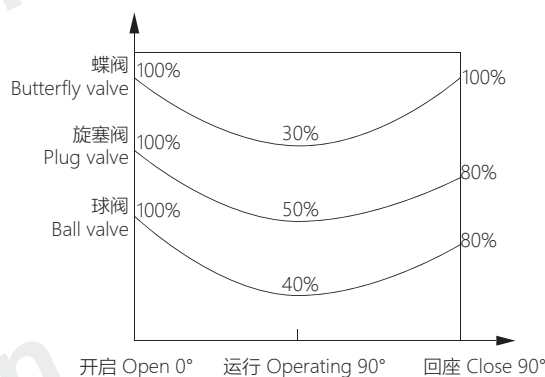
- Air stroke 0°=308N.m
- Air stroke 90°=247N.m
- Spring stroke 90°=181N.m
- Spring stroke 0°=120N.m

All the output torque is larger than we needed.

Attention

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

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, operating and closing.



注意

确保执行器的输出扭矩和驱动阀门所需要的扭矩相符（执行器的型号和气源压力）。

请注意，选型扭矩不仅取决于阀门，还要考虑相关的工作、安全系数等参数。

Note

Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply).

Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.

Double Acting and Spring Return 120°, 135°, 180°双作用与单作用

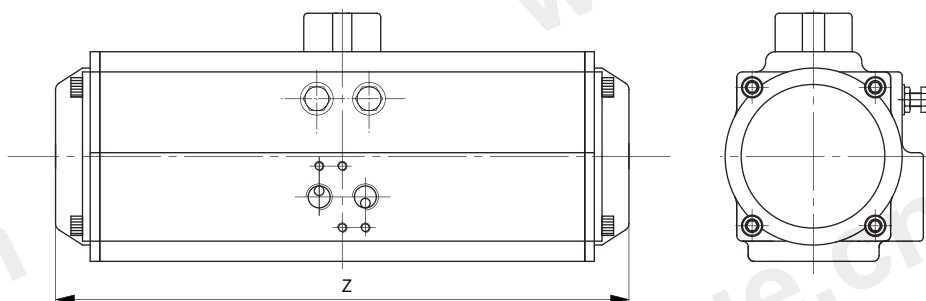
为满足不同类型阀门及机械自动化的驱动要求，我司可根据客户要求定制不同行程（例120°、135°、180°等）的气动执行器。
In order to meet the special requirements of control valve we produced special strokes actuators on costumer request (e.g. 120°, 135°, 180°etc.).

输出扭矩 Output Torque

输出扭矩请参考90°行程气动执行器扭矩表

Output torque of double acting actuators please refer to the torque of 90° actuators.

180°双作用执行器尺寸表 Length of DAx180°



Size	RT020	RT035	RT050	RT075	RT110	RT160	RT255	RT435	RT665	RT1000	RT1200	其他规格
Z(mm)	213	243	258	298	362	386	429	569	652	756	760	enquire

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

Three Position Pneumatic Actuator 三位式执行器

三位式气动执行器是一种特殊规格的执行机构，提供了0°，45°，90°或0°，90°，180°的三位式操作方式。中间位置是依靠两个辅助活塞的移动产生的机械制动来实现的。中间位置是可调的。如90°行程的执行器能提供20°，30°，50°，70°等的中间位置。

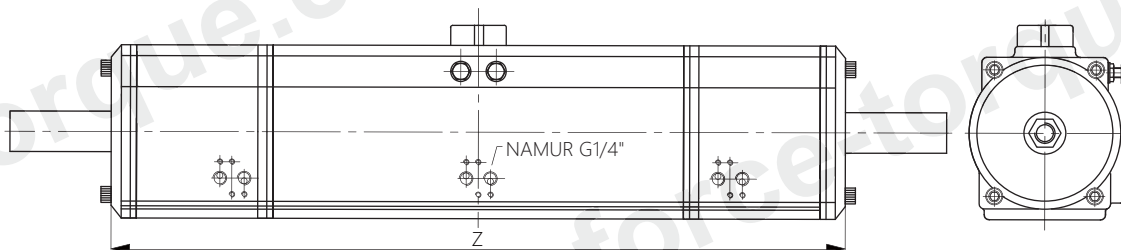
Three position actuator provide an operation of 0°, 45°, 90°or 0°, 90°, 180°, The midway position is achieved by a mechanical stop of movement on the 2 auxiliary pistons. This midway stop positions adjustable. Example: 90°actuator can provide 20°, 30°, 40°, 50°, 70°etc.

输出扭矩 Output Torque

输出扭矩请参考90°行程气动执行器扭矩表

Output torque of double acting actuators please refer to the torque of 90°actuators.

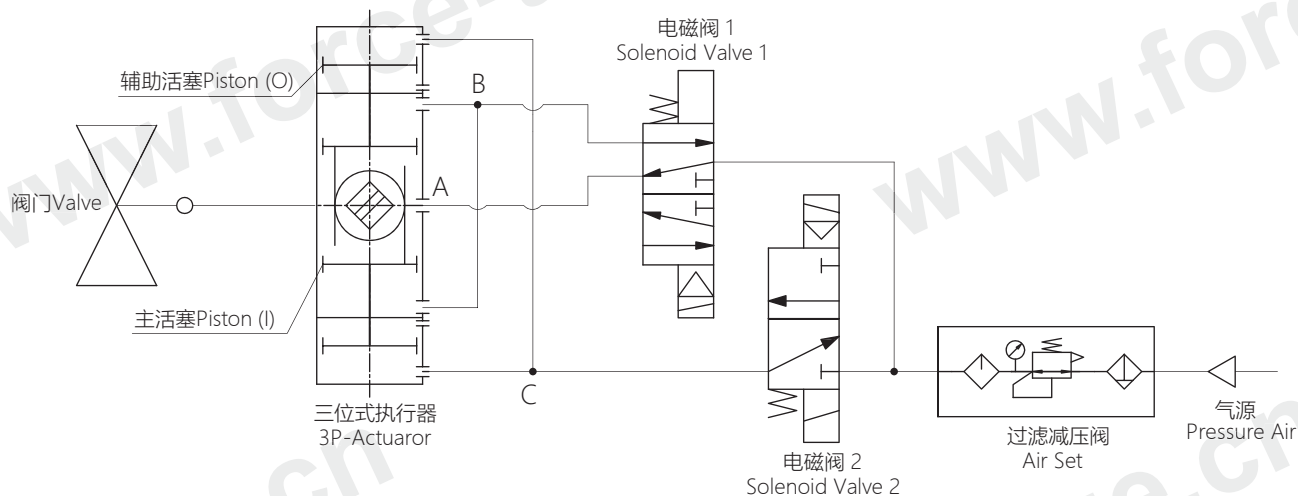
90° 三位式双作用执行器尺寸表 Length of DA-3P (90°)



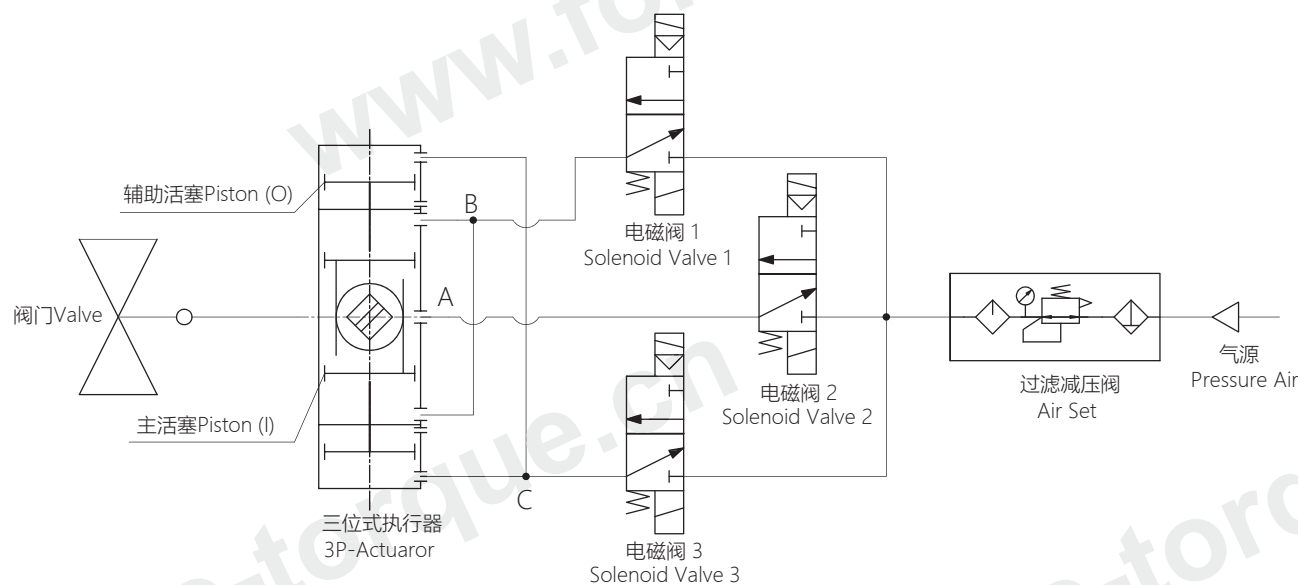
Size	RT020-3P	RT035-3P	RT050-3P	RT075-3P	RT110-3P	RT160-3P	RT255-3P	RT435-3P	RT665-3P	RT1000-3P	RT1200-3P	其他规格
Z(mm)	266	303	306	336	394	410	456	570	646	788	788	enquire

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

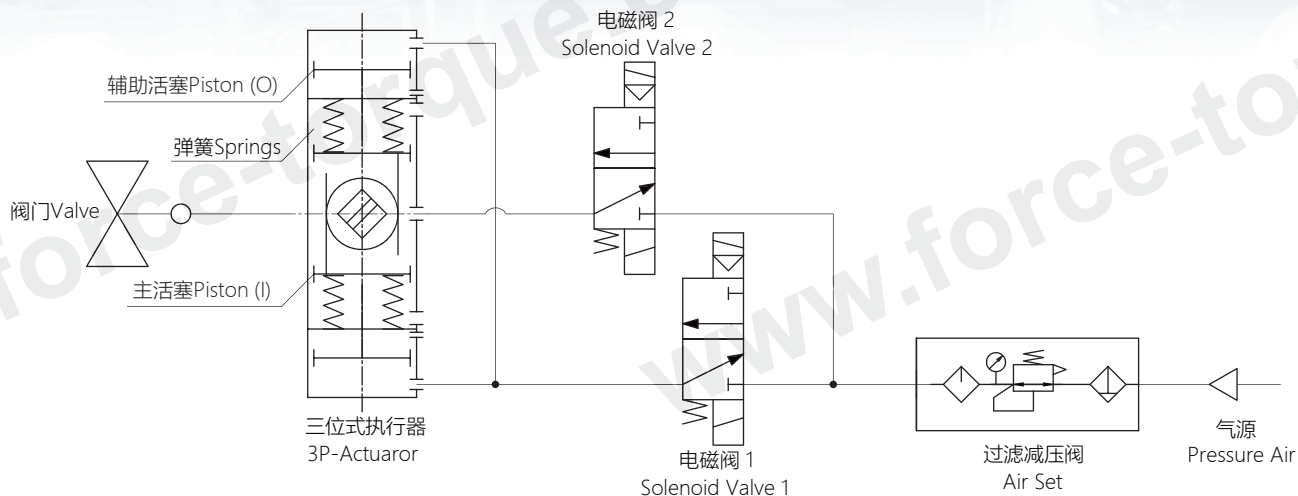
Schematic Diagram 三位式气动执行器工作原理图



	0°	90°	30°	0°
电磁阀1 SOLENOID VALVE1	OFF	ON	OFF	OFF
电磁阀2 SOLENOID VALVE2	OFF	OFF	ON	OFF



	0°	30°	90°	30°	0°
电磁阀1 SOLENOID VALVE1	OFF	OFF	ON	OFF	OFF
电磁阀2 SOLENOID VALVE2	ON	OFF	OFF	ON	ON
电磁阀3 SOLENOID VALVE3	OFF	ON	ON	ON	OFF



	0°	30°	90°	30°	0°
电磁阀1 SOLENOID VALVE1	OFF	ON	OFF	ON	OFF
电磁阀2 SOLENOID VALVE2	OFF	ON	ON	ON	OFF



Air Consumption 耗气量

开向体积和关向体积 Air Volume Opening & Closing

Model 型 号	Air volume opening 开向体积(升)	Air volume closing 关向体积(升)	Effective drift diameter 有效通径(Ø)
RT007	0.04	0.05	Ø3
RT012	0.07	0.08	Ø3
RT020	0.14	0.17	Ø5
RT035	0.23	0.28	Ø5
RT050	0.32	0.45	Ø6
RT075	0.52	0.62	Ø6
RT110	0.75	1.01	Ø6
RT160	1.08	1.32	Ø6
RT255	1.70	2.09	Ø6

Unit: L

Model 型 号	Air volume opening 开向体积(升)	Air volume closing 关向体积(升)	Effective drift diameter 有效通径(Ø)
RT435	2.76	3.68	Ø6
RT665	4.26	5.31	Ø6
RT1000	6.70	8.98	Ø6
RT1200	8.26	11.15	Ø8
RT1800	12.36	16.24	Ø8
RT2700	19.17	25.74	Ø10
RT3800	25.98	31.82	Ø10
RT5700	44.27	52.35	Ø10
RT8000	56.22	68.13	Ø12

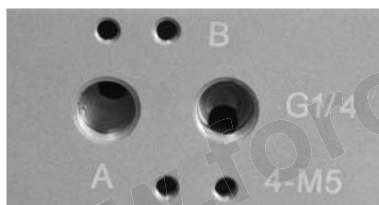
耗气量取决于供气压力、开关行程、体积及动作次数，计算如下：

$$\text{升/分} = \text{气缸体积 (开向体积+关向体积)} \times \left[\frac{\text{供气压力(Kpa)} + 101.3}{101.3} \right] \times \text{次数/分钟}$$

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

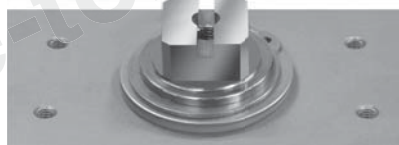
$$\text{L/Min} = \text{Air volume (Air volume Opening+Air volume closing)} \times \left[\frac{\text{Air Supply (Kpa)} + 101.3}{101.3} \right] \times \text{Action cycle times (/min)}$$

Mounting Standard 安装标准



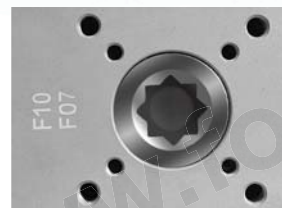
气源接口符合NAMUR标准，可简单方便地安装电磁阀。

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 and DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.

Model Comparison 型号对照表

Unit: mm

型号Model	RT007	RT012	RT020	RT035	RT050	RT075	RT110	RT160	RT255
缸径Cylinder	Ø32	Ø40	Ø52	Ø63	Ø75	Ø83	Ø92	Ø105	Ø125
型号Model	RT435	RT665	RT1000	RT1200	RT1800	RT2700	RT3800	RT5700	RT8000
缸径Cylinder	Ø140	Ø160	Ø190	Ø210	Ø240	Ø270	Ø300	Ø350	Ø400

Weight Table 重量表

Model 型号	RT007	RT012	RT020	RT035	RT050	RT075	RT110	RT160	RT255
重量(DA)	0.75kg	0.843kg	1.2kg	1.9kg	2.5kg	3.22kg	4.36kg	5.83kg	8.43kg
重量(SR)	0.8kg	0.877kg	1.3kg	2.05kg	2.73kg	3.54kg	4.98kg	6.51kg	9.56kg
Model 型号	RT435	RT665	RT1000	RT1200	RT1800	RT2700	RT3800	RT5700	RT8000
重量(DA)	13.0kg	18.975kg	30.8kg	37.2kg	52.8kg	75.5kg	109.0kg	165.4kg	216.1kg
重量(SR)	15.07kg	22.0kg	36.6kg	44.7kg	63.5kg	93.7kg	131.0kg	200.4kg	256.3kg

注：1、SR为12根弹簧；2、重量为净重量；3、重量单位为kg。

How to Order 订购信息

单元 Unit	1	2	3	4	5	6	7	8	产品代号 Product code
内容 Content	系列Series	Model	动作形式 Acting Type	弹簧数量 Spring Qty.	行程 Travel	气源故障关闭 FC	客户定制 Customization	特殊要求 Specific Requirements	RT020SRK10FC-E-LT
举例 Example	Rotary Torque	020	Spring Acting	10 PCS	None	FC	E	LT	
代号 Code	RT		SR	K10					

