

深圳市厚隆科技有限公司

○ 气动 . 电动 . 电液联动 . 自动化阀门
Pneumatic. Electric. Electro-hydraulic linkage. Automatic valve

○ AT 执行机构
Pneumatic
Actuators

○ 气动阀门
Pneumatic Actuator Accessories

HOLON

Shenzhen Holon Technology Co., Ltd
深圳市厚隆科技有限公司

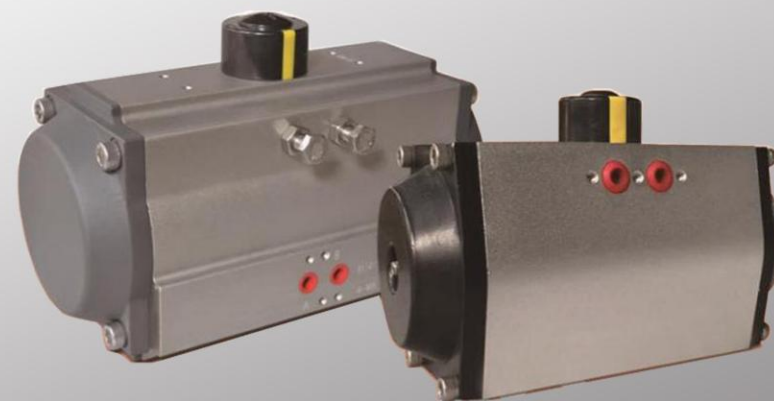
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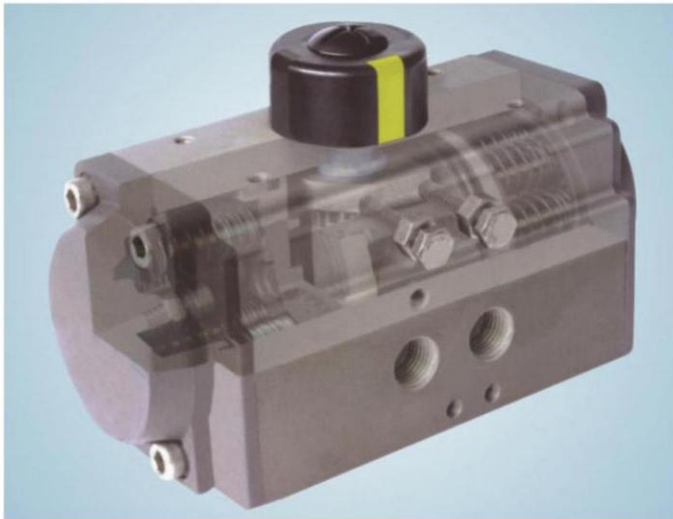
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HC系列 HC Series



气动执行器性能、结构和设计特点 Design & Construction of Pneumatic Actuators

- 挤压铝制 (ASTM6005) 缸体, 内表面细磨精加工, 内部和外部均采用高级防腐技术, 气缸摩擦系数小, 使用寿命长, 抗腐蚀性强。
- 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, 动作准确、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。
- 高精度齿轮和齿条, 齿合间隙小、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。

Extruded aluminum ASTM6005 body with both internal and external corrosion protection having honed cylinder surface for longer life and low coefficient of friction.

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, DIN3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

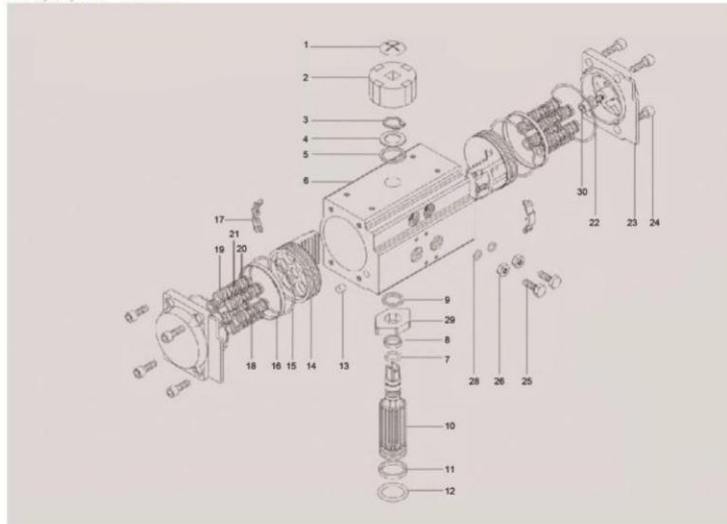
- 厚齿齿轮齿条式结构气动执行器。产品广泛应用于各个领域, 是球阀、蝶阀等良好的驱动装置, 品质卓越的。产品符合Namur, ISO5211标准, 公司及产品通过ISO9001:2000及CE认证。

Houlong has a complete line of rack and pinion actuators, which is the best choice for butterfly and ball valves control. Reliable, readily available products supplying in a broad variety of operating environments. Our products are Namur & ISO compliant and are manufactured under ISO9001:2000 certification and are CE approved.



零件和材料 Parts and Material

HC系列 HC Series



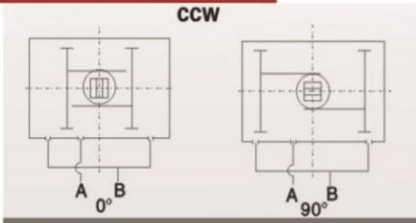
零件和材料 Parts and Material

序号	名称	数量	材料
1	指示器螺钉	1	不锈钢
2	指示器	1	塑料
3	弹性挡圈	1	不锈钢
4	垫片	1	不锈钢
5	外垫片	1	工程塑料
6	缸体	1	铝合金
7	上轴O型圈	1	氟橡胶、丁腈橡胶
8	上轴支承圈	1	工程塑料
9	内垫片	1	工程塑料
10	轴	1	合金钢
11	下轴支承圈	1	工程塑料
12	下轴O型圈	1	氟橡胶、丁腈橡胶
13	塞头	2	橡胶
14	活塞	2	压铸铝/铸钢
15	活塞O型圈	2	氟橡胶、丁腈橡胶
16	活塞支承圈	2	工程塑料
17	活塞导板	2	尼龙66
18	弹簧	*	弹簧钢
19	弹簧左套	*	尼龙66
20	弹簧右套	*	尼龙66
21	弹簧套连杆	*	铜
22	端盖O型圈	2	氟橡胶、丁腈橡胶
23	端盖	2	压铸铝合金
24	端盖紧固螺杆	8	不锈钢
25	调节螺杆	2	不锈钢
26	调节螺杆螺母	2	不锈钢
27	调节螺杆垫圈	2	不锈钢
28	调节螺杆O型圈	2	氟橡胶、丁腈橡胶
29	凸轮	1	合金钢
30	限位螺丝	2	不锈钢

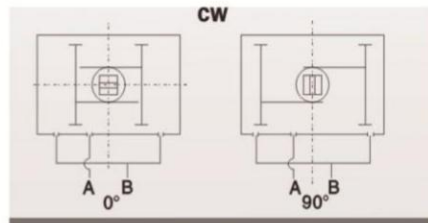
NO.	Description	Qty	Standards Material
1	Indicator Screw	1	Stainless steel
2	Indicator	1	Plastic
3	Snap Ring	1	Stainless steel
4	Washer	1	Stainless steel
5	Outside Washer	1	Engineering Plastics
6	Body	1	Aluminum Alloy
7	O-ring(Top)	1	Viton/NBR
8	Bearing Top	1	Engineering Plastics
9	Inside Washer	1	Engineering Plastics
10	Pinion	1	Alloy steel
11	Bearing Bottom	1	Engineering Plastics
12	O-ring Bottom	1	Viton/NBR
13	Plug	2	NBR
14	Piston	2	Die-casting aluminum/steel
15	Piston O-ring	2	Viton/NBR
16	Piston Bearing	2	Engineering Plastics
17	Guide Piston	2	Nylon 66
18	Spring	*	Spring steel
19	Spring Retainer(L)	*	Nylon 66
20	Spring Retainer(R)	*	Nylon 66
21	Retainer Connector	*	Brass
22	End-Cap O-ring	2	Viton/NBR
23	End-Cap	2	Die-casting aluminum/steel
24	End-Cap Stop Screw	8	Stainless steel
25	Adjust Screw	2	Stainless steel
26	Adjust Screw Nut	2	Stainless steel
27	Adjust Screw Washer	2	Stainless steel
28	Adjust Screw O-ring	2	Viton/NBR
29	Cam	1	Alloy steel
30	Stop screw	2	Stainless steel



双作用执行器
Double acting actuators

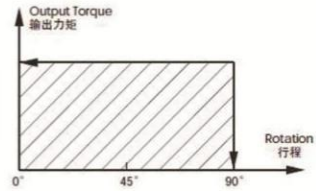


CCW
A口进气，压缩空气推动活塞向外运动，使执行器输出轴逆时针旋转（0~90°），B口排气。
B口进气，压缩空气推动活塞向内运动，使执行器输出轴顺时针旋转（90~0°），A口排气。
Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B.
Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.



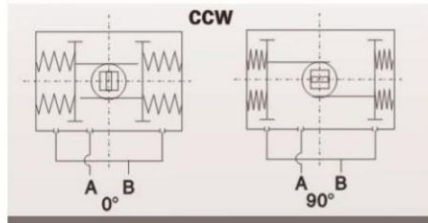
CW
A口进气，压缩空气推动活塞向外运动，使执行器输出轴顺时针旋转（0~90°），B口排气。
B口进气，压缩空气推动活塞向内运动，使执行器输出轴逆时针旋转（90~0°），A口排气。
Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B.
Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

厚隆系列双作用气动执行器输出扭矩（单位：牛米）
Output torque of Houlong Series Pneumatic Actuator With Double Acting (unitnm)

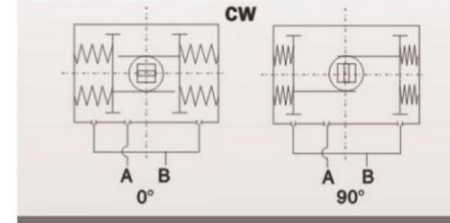


规格 (Model)	气源压力 (巴) Air pressure (Bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
HC-DA-52	8.1	10.1	12.1	16.1	18.1	20	22	24	28	32
HC-DA-63	15	18	22	29	33	36	40	44	51	58
HC-DA-75	20.1	25	30	40	45	50	55	60	70	80
HC-DA-83	30.8	39	47	63	70	78	86	94	110	125
HC-DA-92	45	56	68	90	102	113	124	135	158	181
HC-DA-105	66	83	99	132	149	165	182	198	231	264
HC-DA-125	100	125	150.1	200	226	251	276	301	351	401
HC-DA-140	171	214	256	342	385	427	470	513	598	684
HC-DA-160	267	332	399	532	598	665	731	798	931	1064
HC-DA-190	426	532	638	852	958	1064	1170	1277	1490	1702
HC-DA-210	530	665	798	1064	1197	1330	1463	1596	1862	2128
HC-DA-240	769	966	1154	1539	1731	1924	2116	2308	2693	3078
HC-DA-270	1174	1462	1754	2339	2632	2924	3216	3509	4094	4679
HC-DA-300	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
HC-DA-350	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
HC-DA-400	3256	4069	4883	6511	7325	8139	8953	9767	11394	13022

单作用执行器
Spring return actuators

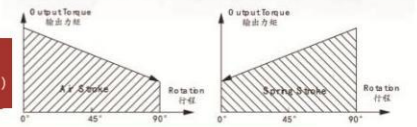


CCW
A口进气压缩空气克服弹簧力，推动活塞向外运动，执行器输出轴逆时针转动（0°~90°），B口排气；
执行器失气，活塞在弹簧力的作用下向内运动，执行器输出轴顺时针转动（90°~0°），A口排气。
Air to Port A forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.
Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.



CW
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°~90°），B口排气；
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°~0°），A口排气。
Air to Port B forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.
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.

厚隆系列单作用气动执行器输出扭矩（单位：牛米）
Output torque of Houlong Series Pneumatic Actuator With Spring Return (unitnm)



规格 (Model)	气源压力 (巴) Air pressure (Bar)																		
	弹簧根数 (Spring Qty)		2.5		3		4		5		6		7		8		弹簧输出扭矩 (Spring output)		
	Start	End	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
HC-SR-52	5	5.7	3.6	7.6	5.7												6.2	4.3	
	6	4.8	2.5	6.9	4.5	10.9	8.5										7.4	5.0	
	7	3.9	1.3	6.1	3.3	9.8	7.3	14	10.4								8.6	5.9	
	8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1						9.9	6.7	
	9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8				11.1	7.6	
	10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6				12.4	8.5	
	11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3		13.6	9.3	
	12							9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1	14.8	10.2		
	HC-SR-63	5	11.4	7.7	15.0	11.4	22.3	14.9										10.4	6.8
		6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9								12.5	8.2
		7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9								14.6	9.6
		8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27	40.1	34.3				16.7	10.9
9						16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2				18.8	12.3	
10						1.4	8.2	22.8	15.6	30	22.8	37.3	30.1	44.7	37.4	20.9	13.7		
11								21.5	13.5	28.7	20.7	36	28	43.3	35.3	22.9	15		
12								20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25	16.4		
HC-SR-75		5	14.5	10.6	19.4	15.5	29.5	25.7										14.5	10.5
		6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8								17.4	12.7
		7	10.4	4.8	15.2	9.7	25.3	20	35.4	30								20.3	14.8
		8			13.1	6.8	23.1	17	33.3	27	43.2	37	53.3	47				23.2	16.9
	9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2				26	19	
	10					19.0	11.1	28.9	21.2	39	31.2	49	41.2	59	51	29	21		
	11							27	18.3	37	28.3	47	38.4	57	48.5	32	23.2		
	12							25	15.4	34.9	25.4	45	35.4	55	45.4	34.8	25.3		
	HC-SR-83	5	23.3	16	31	24	46.8	39.7										23	15.8
		6	20	11.5	28	19.3	43.7	35	59.5	51								27.6	19
		7	17	7	25	15	40.5	30.5	56.2	46.2								32.2	22
		8			22	10	37.5	25.8	53	41.5	69	57.2	84.5	73				36.8	25.3
9						34.2	2.3	50	37	66	52.6	81.2	68.3				41.4	28.5	
10						31	16.6	46.7	32.3	62.5	48	78	63.7	93.8	79.3	46	31.6		
11								43.6	27.7	59.3	43.4	75	59	91	74.8	50.6	34.8		
12								40.5	23.2	56	39	72	54.5	87.4	70.2	55.2	38		

单作用执行器的选型

Sizing spring return actuators

- 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

SR140K7 输出力矩为
空气行程0° =308 N.m
空气行程90° =247 N.m
空气行程90° =180 N.m
空气行程0° =120 N.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。

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 SR140 K7is:

Air stroke 0° =308N.m
Air stroke 90° =247N.m
Spring stroke 90° =180N.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 inputing air from the PortB.

On the contrary ,it will help the restoration of springs.

单作用执行器的选型

Sizing spring return actuators

- 在单作用执行器的选型过程中，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。

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.

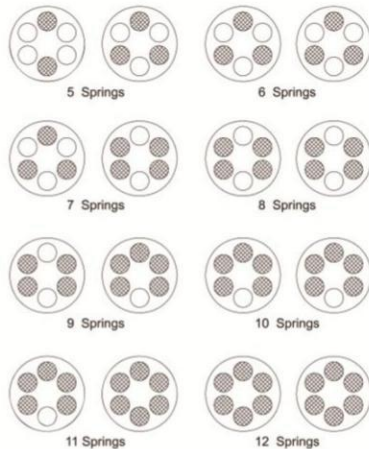
■ 例如：

蝶阀原最大扭矩=104N.m
打开后扭矩104×30%=32N.m
气源压力=5Bar
我们可以选择SR125K11
空气行程0° =134N.m>104N.m
空气行程90° =74N.m>32N.m
弹簧行程90° =172N.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。

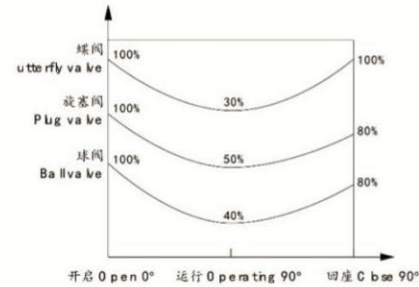
单作用执行器弹簧安装形式

Springs mounting from for spring return actuators



单作用执行器

Spring return actuators



Example:

The max torque needed by the butterfly valve=104N.m
The torque after opening(operating)=104×30%=32N.m
Air supply=5Bar
We can select the SR 125 K11 output torque is:
Air stroke 0° =134N.m>104N.m
Air stroke 90° =74N.m>32N.m
Spring stroke 90° =172N.m>32N.m
Spring stroke 0° =115N.m>104N.m
The above data show the actuator's torque can satisfy the requirement of the butterfly valve.

双作用执行器的选型

Sizing Double Acting Actuator

- 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
安全力矩=100×(1+30%)=130N.m
气源压力=5Bar

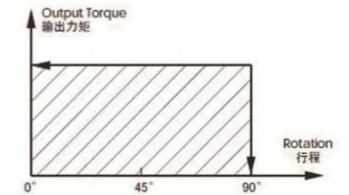
对照双作用力矩表，选配双作用执行器最小规格为DA105。

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 DA105



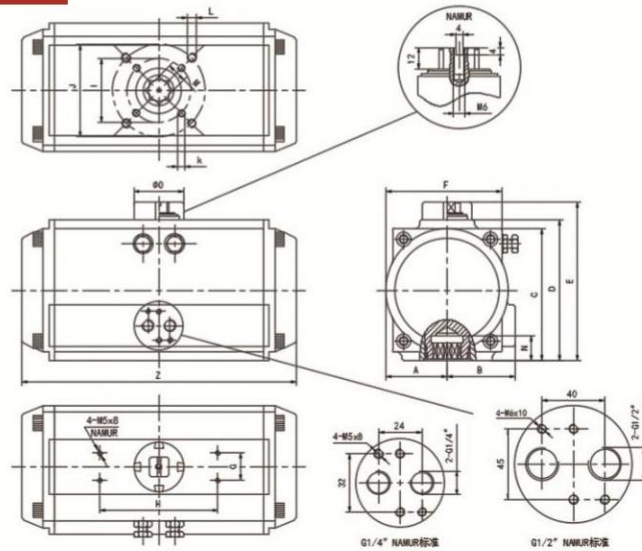
双作用执行器输出力矩
Output torque of Double acting actuators

工作技术条件

Operating conditions

- 使用介质：压缩空气、无腐蚀性气体和油；
 - 压力范围：双作用2~8巴 (Bar)，单作用2~8巴 (Bar)
 - 工作温度：-20℃~+80℃ 标准型 (使用丁腈橡胶O型圈)
-40℃~+80℃ 低温型 (使用硅橡胶O型圈)
-20℃~+150℃ 高温型 (使用氟橡胶O型圈)
 - 行程调整：在90°位置有±4°的可调范围；
 - 润滑：在正常工作条件下，不需添加润滑剂；
 - 安装：适合室内或室外安装；
 - 最高使用压力：输入气压不超过8巴。
- Operating media Dry or lubricated air,the non-corrosive gases or oil.
 - Air supply pressure Double acting:2~8Bar;
Spring return:2~8Bar
 - Operating temperature Standard:-20℃~+80℃
Low temperature : -40℃~ +80℃
High temperature : -20℃~ +150℃
 - Travel adjustment Have adjustment range of ±4° for the rotation at 90°
 - Lubrication Under normal operating condition, need not accrete lubricant
 - Application Either indoor or outdoor
 - Highest pressure The maximum input pressure is 8 Bar

HC 系列执行器安装尺寸表
HC serie actuator dimension table



尺寸表 dimension table

单位Unit :mm

型号	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	O	气源接口
HC52	30	41.5	65.5	72	92	65	30	80	φ36	φ50	4-M5x8	4-M6x10	11	14	147	40	NAMUR G1/4"
HC63	36	47	81	87.5	107.5	72	30	80	φ50	φ70	4-M6x10	4-M8x13	14	18	168	40	NAMUR G1/4"
HC75	42	53	94	99.5	119.5	81	30	80	φ50	φ70	4-M6x10	4-M8x13	14	18	184	40	NAMUR G1/4"
HC83	46	57	98.5	108.7	128.7	92	30	80	φ50	φ70	4-M6x10	4-M8x13	17	21	204	40	NAMUR G1/4"
HC92	50	58.5	111	116.5	136.5	98	30	80	φ50	φ70	4-M6x10	4-M8x13	17	21	262	40	NAMUR G1/4"
HC105	57.5	64	122.5	133	153	109.5	30	80	φ70	φ102	4-M8x13	4-M10x16	22	26	268	40	NAMUR G1/4"
HC125	67.5	74.5	145.5	155	185	127.5	30	130	φ70	φ102	4-M8x13	4-M10x16	22	26	301	55	NAMUR G1/4"
HC140	75	77	161	172	202	137.5	30	130	φ102	φ125	4-M10x16	4-M12x20	27	31	390	55	NAMUR G1/4"
HC160	87	87	184	197	227	158	30	130	φ102	φ125	4-M10x16	4-M12x20	27	31	458	55	NAMUR G1/4"
HC190	103	103	216	230	260	189	30	130		φ140		4-M16x25	36	50	525	80	NAMUR G1/4"
HC210	113	113	235.5	255	285	210	30	130		φ140		4-M16x25	36	50	532	80	NAMUR G1/4"
HC240	130	130	264.5	290	320	245	30	130		φ165		4-M20x25	46	60	602	80	NAMUR G1/4"
HC270	147	147	299	330	360	273	30	130		φ165		4-M20x25	46	60	722	80	NAMUR G1/2"
HC300	162	173	330	354	384	312	30	130		φ165		4-M20x25	46	60	820	80	NAMUR G1/2"
HC350	190	195	383	410	440	362	30	130	φ165	φ254	4-M20x25	8-M16x25	46	60	900	80	NAMUR G1/2"
HC400	260	260	441	466	496	450	30	130	φ165	φ254	4-M20x25	8-M16x25	46	60	940	80	NAMUR G1/2"

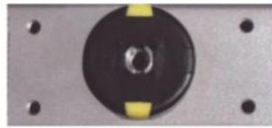
连接配件

Mounting accessories



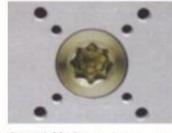
气源接口符合NAMUR标准，可简单方便地安装电磁阀。

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、定位器直接齿合和安装。

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

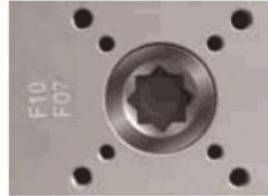


底部安装孔设计符合ISO5211、DIN3337标准，可以直接安装离合器（气动手轮机构）或安装支架。

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

2. 产品序列号、气源接口及底部安装孔全部电脑打字，易于辨识和跟踪服务。

Each actuator is marked with a serial number, air connection and bottom mounting holes are marked for easy track and distinction.



3. NAMUR 标准转接板，适用于45~105 规格执行器，用于NAMUR 电磁阀的直接安装。

NAMUR standard adapters suit for pneumatic actuators size SR/DA45~105 connecting with NAMUR solenoid valve

多种规格转接套，为执行器输出轴的连接尺寸提供多种选择。

Variety of insert adapter specification provide with multiful choices for the actuator shaft sizes.



耗气量计算

Air Consumption

耗气量取决于供气压力、开关行程、体重及动作次数

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:

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

Unit:L

Model 型号	Volume opening 开向体积 (升)	Volume closing 关向体积 (升)	Model 型号	Volume opening 开向体积 (升)	Volume closing 关向体积 (升)
HC-DA-32	0.04	0.04	HC-DA-140	2.43	3.20
HC-DA-45	0.08	0.11	HC-DA-160	3.65	5.03
HC-DA-52	0.11	0.14	HC-DA-190	5.9	7.9
HC-DA-63	0.20	0.23	HC-DA-210	7.4	9.7
HC-DA-75	0.29	0.38	HC-DA-240	10.7	14.3
HC-DA-83	0.41	0.55	HC-DA-270	16.9	22.5
HC-DA-92	0.62	0.91	HC-DA-300	23.8	29.7
HC-DA-105	0.94	1.18	HC-DA-350	35.1	46.3
HC-DA-125	1.47	1.85	HC-DA-400	52.6	36

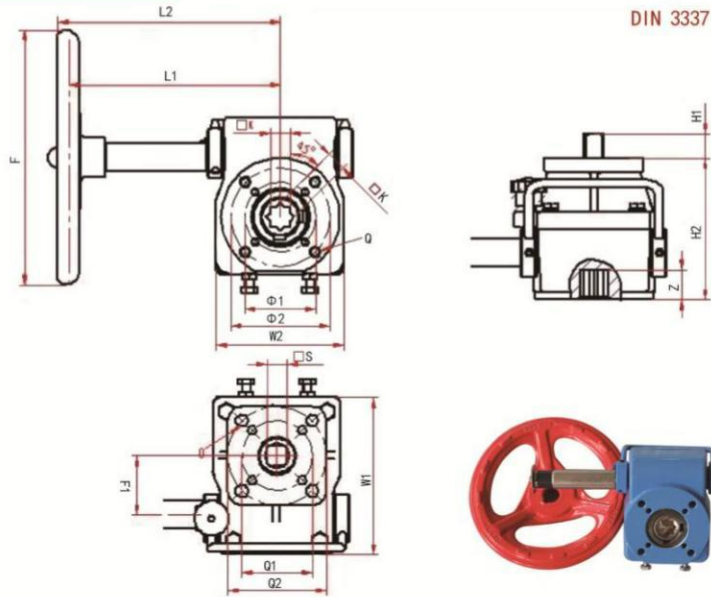
HC 系列重量表 HC Series Weight Table

型号 Model	52	63	75	83	92	105	125
Weight(SR)	1.38Kg	2.03Kg	2.70Kg	3.13Kg	4.60Kg	6.77Kg	8.90Kg
Weight(DA)	1.45Kg	2.05Kg	2.90Kg	3.60Kg	5.22Kg	6.85Kg	10.10Kg

型号 Model	140	160	190	210	240	270
Weight(SR)	13.25Kg	20.14Kg	31.30Kg	46.80Kg	67.28Kg	96.90Kg
Weight(DA)	15.55Kg	24.00Kg	35.25Kg	54.80Kg	80.20Kg	118.00Kg

手轮机构

Hand wheel agencies



ISO 5211

DIN 3337

Features 特性

- ISO5211 Compliant upper and lower mounting patterns. 顶部气缸连接和底部阀门连接符合ISO5211安装形式。
- ISO5211 Compliant upper male square drive provide mount to ISO compliant actuators without adapters, and female "double square" lower drive provide direct mount to ISO compliant valves. 顶部连接杆符合ISO5211标准使得与同样为ISO标准的执行器直接连接时, 无需转接器, 同时底部八角孔可与符合ISO标准的阀门直接连接。
- Dual position limit stops. 两个限位螺栓
- External lube fitting. 外置分油嘴
- Roller thrust bearings on worm gear for improve efficiency. 蜗齿轮上的止推滚柱轴承提高工作效率

单位: mm

型号	L1	L2	W2	Φ1	Φ2	D1	D2	F	H1	H2	Z	K	S	M1	M2	Q1	Q2	W1	
SL-1	135	152	90	Φ50	Φ70	Φ50	Φ70	Φ180	17	100	18	14	14/17	M6X22	M8X23	Φ7	Φ9	110	48
SL-2	155	200	125	Φ70	Φ102	Φ70	Φ102	Φ280	20	110	21	17	17/22	M8X24	M10X25	Φ9	Φ11	135	63
SL-3	170	245	140	Φ102	Φ125		Φ125	Φ320	25	128	26	27	22/27	M10X25	M12X25		Φ13	160	70
SL-4	230	280	188	Φ140			Φ140	Φ400	30	162	31	36	27/36		M16X35		Φ17	200	90
SL-5	270	310	238	Φ165			Φ165	Φ500	38	166	40	36	36/46		M20X24		Φ22	258	128
SL-6	265		340	Φ165			Φ165	Φ600	60	150	60	46	46		M20		Φ22	360	
SL-7	410		530	Φ165				Φ800	60	195	60	46	46	M20		Φ22		550	
SL-8	430		585	Φ254				Φ800	60	195	60	55	55	M16		Φ18		605	
SL-9	550		870	Φ356				Φ1000	60	250	60	55	55	M30		Φ32		900	
SL-10	600		900	Φ483				Φ600	60	275	60	55	55	M36		Φ38		1050	

APL限位开关

APL Limit Switch

特征 Features

- 坚固漂亮的设计, 压铸铝合金壳体, 粉末涂层
- 开关位置可由指示器清楚辨识
- 快速装置凸轮, 可调节凸轮通过花键和弹簧安装
开关凸轮的位置不用工具即可进行快速调整
- 双接线口 (APL-5N弹簧式螺栓)
- 防脱螺栓, 拆装时螺栓附在上盖上不会脱落
APL-5N弹簧式螺栓
- 安装方便, 不锈钢主轴连接部分及安装支架
均符合NAMUR标准

- Solid and beautiful design, aluminum die-casting housing and powder coated
- Switch position can be clearly identified by the indicator
- Quick-set cam, adjustable cam is installed by spline and spring
Switch cam position can be quickly adjusted without tools
- Two-wire interface (APL-5N spring-loaded bolt)
- Anti-off bolts, the bolts attached to the cover will not fall off during the dismantlement
APL-5N spring-loaded bolt
- Easy installation, stainless steel main shaft connecting part and the mounting bracket are in accordance with NAMUR standard



标准件技术参数 Standard Parts Technical Data

型号Model		APL-210N系列Series	APL-310N系列Series	APL-410N系列Series	APL-510N系列Series
结构Specification					
外壳 Housing		防水Waterproof IP67/Nema4&4X	防水Waterproof IP67/Nema4&4X	防水Waterproof IP67/Nema4&4X 防爆区Explosion proof Ex d IIB T6	防水Waterproof IP67/Nema4&4X 防爆区Explosion proof Ex d IIC T6
接线孔 Wiring hole		2 × 1/2 "NPT		2 × 3/4 "NPT	
环境温度 Ambient temperature		-20°C ~ 80°C		-20°C ~ 80°C	
端子数 Terminal number		8点			
阀位指示 Valve position indicator		0~90° 自由旋转 关--红色 开--黄色 0~90° free rotation Close: red Open: yellow			
开关 Switch		机械开关: 2 接近开关: 2 Mechanical switch: 2 Proximity switch: 2			
外部涂层 External coating		机械开关: 2 Mechanical switch: 2		聚酯 黑色 Polyester coated Black	

选项件技术参数 Options Parts Technical Data

型号Model		APL-210N系列Series	APL-310N系列Series	APL-410N系列Series	APL-510N系列Series
结构Specification					
外壳 Housing		防水Waterproof IP67		防水Waterproof IP67 防爆Explosion proof Ex ia IIC T6	
接线孔 Wiring hole		2NPT1/2", PT1/2", M20		2NPT3/4", PT3/4", M20, M25	
环境温度 Ambient temperature		-40°C ~ 80°C		-20°C ~ 150°C	
端子数 Terminal number		Three position 关: 红色 开: 绿色 Three position Close: red Open: green			
阀位指示 Valve position indicator		1kΩ 标准standard. 5kΩ. 0-10kΩ			
开关 Switch		4~20mA DC 12.5 to 37VDC (24V typical)			
外部涂层 External coating		尼龙涂料加长轴、红、绿、兰、黄、银月色 Nylon coated extended shaft: red, green, blue, yellow, silver moonlight			

APL限位开关 APL Limit Switch

型号说明Type Description:

壳体-4Body-4

- | | |
|--------------------|-------------------------------------|
| 2 微型 气候防护型 (IP67) | 2 Micro type Weatherproof (IP67) |
| 3 普通型 气候防护型 (IP67) | 3 Ordinary type Weatherproof (IP67) |
| 4 Exd II BT6 防爆型 | 4 Exd II BT6 Explosion proof |
| 5 Exd II CT6 | 5 Exd II CT6 |

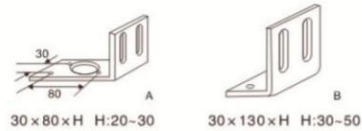
微型开关-10Micro Switch-10

- | | | |
|---|---|---|
| 机械式 Mechanical type | 感应式 Inductive type | 弹簧接近式 Spring proximity type |
| 10 2-SPDT 10 2-SPDT | 20 P&F.NJ2-V3-N 20 P&F.NJ2-V3-N | 30 一般型 30 Ordinary type |
| 11 3-SPDT 11 3-SPDT | 21 Autonics.PS17-5DNU 21 Autonics.PS17-5DNU | 31 高温型 (100°C) 31 High temperature type (100°C) |
| 12 4-SPDT 12 4-SPDT | 22 P&F.NJ412GM-N 22 P&F.NJ412GM-N | |
| 13 2-SPDT 13 2-SPDT | 23 NBB2-V3 23 NBB2-V3 | |
| 14 2-SPDT+电位计 14 2-SPDT+potentiometer | | |
| 15 2-SPDT+电流反馈 (4-20mA) 15 2-SPDT+current feedback (4-20mA) | | |

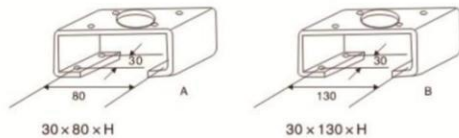
支架A.B.-ABracket A.B.-A



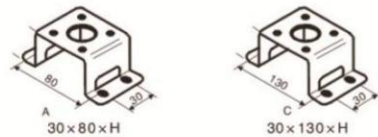
APL-210N



APL-310N



APL-410N



APL-510N

注: ①H: 指气动执行装置上部输出轴的高度。②特殊规格可另行订货。

Note: ①H: height of the upper output shaft of pneumatic actuator. ② Special specification can be customized.

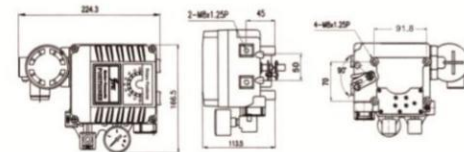
电-气阀门定位器 Electric-Gas Valve Positioner

YT系列阀门定位器YT Series Valve Positioner

- | | | | | | |
|-----------|--|--|---|--|---|
| YT-1000 | ■ | ■ | ■ | ■ | ■ |
| 定位器型号Type | 执行器机构动作Actuator action | 作用形式Form | 防爆等级Explosion proof degree | 反馈杆形式Feedback rod form | |
| YT-1000 | L 直线型Linear type
R 回转型Rotary type | S 单作用Single acting
D 双作用Double acting | m Exd II BT6
c Ex d II CT6
l Ex ia II BT6
n 非防爆Not explosion proof | 直线型Linear type
1 10-40mm
2 240-70mm
3 370-100mm
4 100-130mm
5 130-150mm | 回转型Rotary type
1 1 M6 × 40L
2 2 M6 × 63L
3 3 M8 × 40L
4 4 M8 × 63L
5 5 NUMER |
| YT-1000 | ■ | ■ | ■ | ■ | ■ |
| 定位器型号Type | 先导阀排气孔Priority valve exhaust hole | 选项Options | | | |
| YT-1000 | 1 执行机构容积小于90cm ³
Actuator volume < 90cm ³
2 执行机构容积90cm ³ -180cm ³
Actuator volume 90-180cm ³
3 执行机构容积大于180cm ³
Actuator volume > 180cm ³ | 0 无No
1 +PTM (内置两位反馈built-in valve feedback)
2 +PTM (外置两位反馈outlay valve feedback)
3 +L/S (内置限位开关built-in limit switch)
4 +L/S (外置限位开关outlay limit switch)
5 +PTM+L/S
(内置两位反馈及限位开关built in valve feedback and limit switch) | | | |

参数Technical data

项目 Type	型号 Item	YT-1000L		YT-1000R	
		单作用 Single	双作用 Double	单作用 Single	双作用 Double
输入信号	Input signal	DC 4-20mA			
阻抗	Impedance	250 ± 15 Ω			
供气压力	Supply pressure	1.4 ~ 7kgf/cm ² (20 ~ 100psi)			
行程范围	Stroke	10 ~ 150mm 0 ~ 90°C			
气源接口	Air connection	PT (NPT) 1/4			
压力表接口	Gauge connection	PT (NPT) 1/8			
电源接口	Conduit	PF1/2 (G1/2)			
防爆等级	Explosion proof	Ex d II BT6 Ex d II CT6 Ex ia II BT6			
防护等级	Protection	IP66			
环境温度	Ambient temperature	-20°C ~ 70°C			
直线性	Linearity	± 1%F.S ± 2%F.S			
滞后性	Hysteresis	± 1%F.S			
灵敏度	Sensitivity	± 2%F.S ± 0.5%F.S			
重复性	Repeatability	± 0.5%F.S			
空气消耗量	Air consumption	2LPM (Sup=1.4kgf/cm ² , 20psi)			
流量	Flow capacity	80LPM (Sup=1.4kgf/cm ² , 20psi)			
材质	Material	压铸铝Cast Aluminum			
重量	Weight	2.8kg (6.2lb)			



电-气阀门定位器 Electric-Gas Valve Positioner

电-气阀门定位器YT-1000R是一种从控制器或控制系统中接受4~20mA直流电流信号，并向角行程气动执行器机构输送空气来控制阀门位置的装置。

Electric-gas valve positioner YT-1000R is a device that receive 4~20mA DC current signal from controller or control system and deliver air to rotary pneumatic actuator to control valve position.

在5~200Hz范围内无共振现象；

正向和反向，单作用和双作用之间可方便转换；

对于小型执行机构可通过缩小定位器的节流孔来防止振动；

空气消耗量少，经济性好；

不用更换零件就可以实现1/2范围的分程控制；

No covibration in 5~200Hz.

Convenient for the transform of positive action and counteraction, single acting and double acting.

For small actuator, preventing vibration can be done by narrowing the orifice of positioner.

Little air consumption, economical energy saving.

1/2 split range available by simple adjustments without changing parts.

3V. 4V系列电磁阀 3V.4V Series solenoid valve

板式电磁阀Plate Type Solenoid Valve

4V

3V:三方口电磁阀
three-way solenoid valve
4V:五方口电磁阀
five-way solenoid valve

1

1:100系列series
2:200系列series
3:300系列series
4:400系列series

10

型式Type:
10: 单线圈双位置single coil double position
20: 双线圈双位置double coil double position
30C: 双线圈三位置封闭型double coil three position closed type
30E: 双线圈三位置开放型double coil three position open type
30P: 双线圈三位置压力型double coil three position pressure type

06

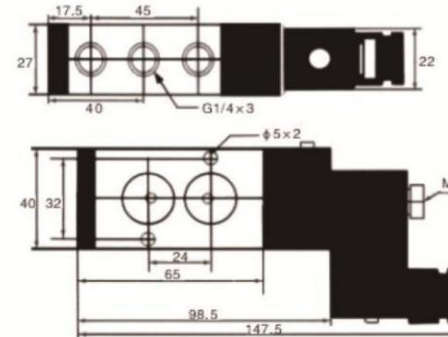
接管口径Connect pipe diameter:
M5:M5*0.8
0.6: PT1/8
0.8: PT1/4
10: PT3/8
15: PT1/2

AC110V

电压标准Standard Voltage:
DC12V
DC24V
AC24V 50/60HZ
AC110V 50/60HZ
AC220V 50/60HZ
AC380V 50/60HZ

3V. 4V系列电磁阀 3V.4V Series solenoid valve

尺寸Size:



使用维护须知Notes of use and maintenance:

- 1、使用前注意检查元件，在运输过程中是否损坏，然后安装使用。
 - 2、安装时，请注意气体流动方向及接管是否正确。
 - 3、使用时，请严格遵守各项技术要求，如工作电压、动作频繁、工作压力大；
- 使用温度：整机调试时，建议先用手动装置调试，然后在通电测试。
- 4、请注意防尘，建议排气口安装消声器或消声节流阀。
 - 5、连边接管路时，注意泄带缠绕不可超过接头牙端面，并注意消除管接头，管子内的金属颗粒、粉尘及油污等。

1. Before the usage, check the element, if it is broken during the transport, then install and use.
 2. Please note the gas flow direction and if the connect pipe is right during the installation.
 3. Please strictly obey the technical requirement during the usage, such as working voltage, action frequency, and working pressure.
- Use temperature: when debug the whole machine, advice to debug with manual device first, then test with electricity.
4. Please note dust proof, advice to install muffler or throttle valve at the blow vent.
 5. Note the leakage proof belt winding can not exceed the joint teeth face, and note the metal particles, dust and oil in the remove pipe joint and pipe.

3V. 4V系列电磁阀 3V.4V Series solenoid valve

型号Type	说明Instruction
使用流体Media	空气 (经40微米滤网过滤) Air (filtrate by 40 μm strainer mesh)
动作方式Manner of operation	内部引导式Inner guide type
润滑Lubrication	不需要 (适当润滑可提高使用寿命, 建议润滑油ISOVG32) No need (proper lubrication can raise working life, recommend lubricating oil ISOVG32)
使用压力Pressure kgf/cm ²	1.5~8.0

工作温度 Working temperature ℃	5~60	
最大耐压力Max pressure resistance kgf/cm ²	12	
电压范围Voltage range	100系列series	±10%
	2/3/400系列series	-20%~+10%

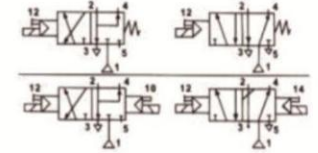
耗电量 Power consumption	100系列series	DC:2.5W AC:3.0VA
	2/3/400系列series	DC24V:3.0W AC220V:2.0VA AC110V:2.5VA AC380V:2.5VA
绝缘性Insulativity	等级Class F	
使用寿命Working Life	正常使用情况下1000万次以上Under normal usage, more than 10 million times	

最大动作频率 (次/秒) The max operation frequency	3V1/2/300系列series	5
	4V100系列series	4V110、4V120型type: 5 4V130型type: 3
	4V200系列series	4V210、4V220型type: 5 4V230型type: 3
	4V300系列series	4V310、4V320型type: 5 4V330型type: 3
	4V400系列series	3
励磁时间 (秒) Excitation time (s)		0.05

ASCO电磁阀系列 ASCO Solenoid Valve Series

特点Features:

- 1、铝制阀体, 带螺纹接口和NAMUR界面, 防爆线圈符合EN 50014、50018 (EEXd)、EN50028 (EEXm)、EN50028+EN50019 (EExme) 和EN50020 (EExi) 标准。
- 2、同一滑阀可配接为3/2常闭或5/2, 用于控制双作用和单作用执行机构
- 3、能防液体、灰尘和异物的浸入 (实现外界影响防护)
- 4、标准配置手动操作器
- 5、可外接控制气源, 接口: 15/16 " -26UNS



- 1、Aluminum body, with screw thread and NAMUR interface, explosion proof coil conform to EN 50014, 50018 (EEXd), EN528 (EEXm), EN50028+EN50019 (EExme) and EN50020 (EExi);
- 2、The same slide valve can be connected with 3/2 normally closed or 5/2, to control the double acting and spring return actuators;
- 3、Liquid proof, dust-proof and eyewinker proof (protect from the outside influence)
- 4、Standard equipped with manual operator
- 5、Can connect with the control air supply external, interface: 15/16 " -26UNS

概述Description:

操作压差: 2~10bar	Operation differential pressure: 2~10bar
最大许可压力: 10bar	The permitted maximum pressure: 10bar
流量 (在6bar条件下): 700L/min (ANR)	Flow (under 6bar pressure): 700L/min (ANR)
密封件: NBR (丁腈橡胶) +PUR (聚氨酯)	Seal: NBR+PUR

介质Media	温度范围Temperature range	密封件Seal
空气、中性气体 (经滤网过滤) Air, neutral gas (filtrate by the strainer mesh)	0~60℃	NBR (丁腈橡胶) PUR (聚氨酯) NBR PUR

ASCO电磁阀系列 ASCO Solenoid Valve Series

结构Structure

阀体	Body	铝, 黑色阳极极化处理	aluminum, black anodic polarization
端盖	Cap	铝, 黑色阳极极化处理	aluminum, black anodic polarization
外部先导阀	External pilot valve	尼龙填充玻璃纤维	nylon filled with glass fiber
连接板	Connector	尼龙填充玻璃纤维	nylon filled with glass fiber
内部零件	Internal components	锌基合金、钢、乙缩醛、铝	zinc-base alloy, steel, acetal, aluminum

EEx先导电磁阀EEx pilot solenoid valve

15/16"-26UNS螺纹接口	15/16"-26UNS screw connection	线圈UF、PV、EM、WPIS和ISSC	Coil UF, PV, EM, WPIS and ISSC
整体式	Unitary	线圈PV, 带M5排放口	Coil PV, with M5 discharge outlet
CNOMO配合面	CNOMO matching face	线圈UF、PV和EK (先导192)	Coil UF, PV and EK (pilot192)
规格30 (E06.05.80)	Specification30 (E06.05.80)	和ISSC (先导195)	With ISSC (pi195)

规格Specification

管径 Pipe diameter	口径 Diameter	流量系数 Flow coefficient		操作压差(Bar) Operation differential pressure (Bar)		EEx保护类型 EEx Protection type	线圈前缀 Coil prefix	手动操作器 Manual operator	型号 Model
		(m/h)	(L/min)	最小Min	最大Max				
(G)	(mm)								
					~/+				
1/4	6	0.6	10	2	10	NEMA7型9型防爆 NEMA7,9 type explosion proof	EF	●	EFG551 A001 MS
+A	6	.75	12.5	2	10	NEMA7型9型防爆 NEMA7,9 type explosion proof	EF	●/▲	EFG551 A401 MS

单线圈—弹簧复位, 带或不带排放变径接口 Single coil—spring return, with or without discharge reduce union

手动操作器: ●螺旋型 ▲瞬间动作 ●/▲时间动作, 处于压下位置时, 可锁定 (压下-旋转)

备注: EFG551A001MS防爆符合CL1、DIVJ、GRA、B、C、D、CL11、DIVI、GRE、F、&G

Manual operator: ●screw-type ▲instant action ●/▲time action, it can be locked when it force down (force down-rotate)

Remark: EFG551A001MS explosion proof conform to CL1, DIVJ, GRA, B, C, D, CL11, DIVI, GRE, F&G

选项和附件

- 1、防爆外壳符合CENELEC EEx d, m, em, i标准
- 2、防爆、防水外壳符合NEMA标准和UL标准
- 3、CM25型线圈带符合ISO4400、Type30型插座
- 4、尼龙线圈
- 5、其他类型:
气动操作, 弹簧复位
--不带排放变径接头, 型号: G551A101
--带排放变径接头, 型号: G551A101M
双气动操作, 气动复位:
--不带排放变径接头, 型号: G551A102
--带排放变径接头, 型号: G551A102M
- 6、一套不锈钢安装螺栓, 型号: 978 022 12
- 7、2个排放变径接头, 型号: 881 003 44
- 8、插头带可视指示器和抗电涌器或2m长引线

Option and accessories

1. Explosion proof hull conform to "CENELEC" EEx d, m, em, i standard
2. Explosion proof and waterproof hull conform to "NEMA" "UL" standard
3. CM25 coil conform to ISO4400, type 30 jack
4. Nylon coil
5. Other type:
Pneumatic operation, spring return:
- without discharge reducer union, model: G551A101
- with discharge reducer union, model: G551A101M
Double pneumatic operation, pneumatic return:
- without discharge reducer union, model: G551A102
- with discharge reducer union, model: G551A102M
6. A set of stainless steel installation bolt, model: 978 022 12
7. Two discharge reducer union, model: 881 003 44
8. Plug with visible indicator and anti surge device or 2 meters

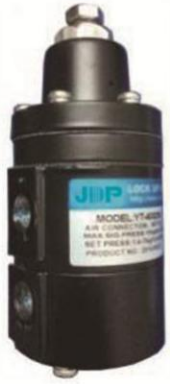
气动法兰球阀



气动对夹蝶阀



气锁阀 LOCK UP VALVE



型号：YT-400

气锁阀YT-400、YT-405 系列产品是把主气源作为信号压力，当信号压力低于气锁阀设定压力时，切断YT-400 内部气路，阻止空气流动的装置。主要用途是安装在控制阀上，当工厂的主气源压力因停电，泄漏等原因下降到设定压力以下时，自动关闭从定位器通往执行机构的气路，保持当前阀位开度。

特征

- 尺寸小、重量轻，不用支架固定安装，可直接用导管固定连接。
- 对于0.1kgf/ 以下微小压差变化，反应也非常敏感。
- YT-400 涂层经环氧聚酯电喷处理，耐腐蚀性能强，且YT-405 是不锈钢材质，可在腐蚀性，环境使用。
- 内置100微米滤网，可防止异物进入。

General

Snap acting relay, YT-400/405/430/435 series, senses the main supply pressure and shutsdown the air flow when the pressure is lower than the setting level to avoid system's shutdown.

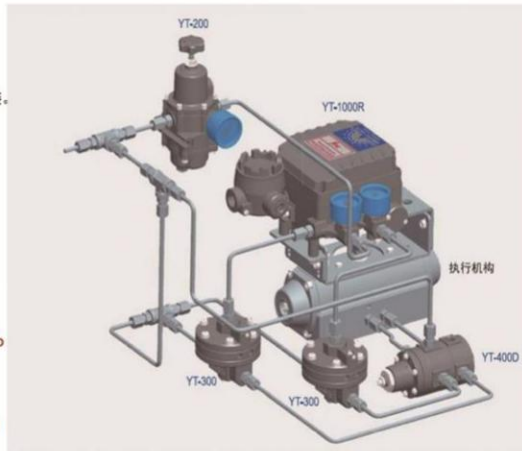
Main Features and Functions

- Responses to very small changes to supply pressure with high accuracy.
- Enhanced versatility by having different material of body and options.
- Internal 100 mesh screen filters small dust entering into the product.

安装图例



YT-400S YT-420S YT-430S 单作用安装图例



YT-400D YT-420D YT-430D 双作用安装图例

气锁阀 LOCK UP VALVE

Items 项目.形式	YT-400S	YT-400D	YT-420S	YT-420D	YT-430S	YT-430D
Maximum signal pressure 最大信号压力	7kgf / (100psi)					
Set pressure range 设定压力范围	1.4~7kgf/ (20~100psi)					
The air lock pressure is the highest 气锁压力最高	7kgf / (100psi)					
Top input/output 最高输入/输出	10.2kgf / (140psi)					
Motion differential pressure 动作压差	0.1kgf / (1.4psi) 以下					
Degree of lag 滞后度	1%					
Flow coefficient (CV) 流量系数 (CV值)	0.9		3.6		1.8	
The environment temperature 环境温度	-20~70°C (-4~158° F)					
Input/output/signal interface 输入/输出/信号接口	PT 1/4 , NPT1/4 , G1/4		PT1/2 , NPT1/2, G1/2		PT3/8, NPT3/8, G3/8	
Material is qualitative 材质	压铸铝					
Heavy volume 重量	0.5kg	0.85kg	1.2kg	1.6kg	1.2kg	1.6kg

The order code 订货代号:	YT-400			
Model 型号	作用形式	连接形式	环境温度	
YT-400	单作用	PT1/4	① -20°C~70°C	
	双作用	NPT1/4	② -20°C~120°C	
		G1/4	③ -40°C~70°C	
The order code 订货代号:	YT-420			
Model 型号	作用形式	连接形式	环境温度	
YT-420	单作用	PT1/2	① -20°C~70°C	
	双作用	NPT1/2	② -20°C~120°C	
		G1/2	③ -40°C~70°C	
The order code 订货代号:	YT-430			
Model 型号	作用形式	连接形式	环境温度	
YT-430	单作用	PT3/8	① -20°C~70°C	
	双作用	NPT3/8	② -20°C~120°C	
		G3/8	③ -40°C~70°C	