

aumakl

智能型执行器
Intelligent Actuators

www.aumakl.com

Company Profile
公司简介

浙江奥马科智能设备有限公司专注于工业自动控制阀门的各类液/电动执行器、气动执行器的设计、制造及技术服务。主要产品有ZSC系列齿轮齿条式气动执行机构、ZSH系列拨叉式气动执行机构、ZSZ系列直行程气动执行机构、ZSS系列气动立推式执行机构、ZDY系列电液动执行机构等各类执行器。产品已取得SIL、防爆等相关认证。产品具有模块化设计，可实现模块式单独订货，自由组装功能。根据客户的需求，实现成本最低化，功能最优化。

公司已取得ISO9001质量管理体系认证，是国家高新技术企业，石油化工高端领域的专业配套商。

公司地处浙江省湖州市，3万平方米的智能化工厂，100+人的专业团队，年产30万台套加工能力，具有用户专属的成品库存，最快时间供货的能力。

公司全力打造中国顶级执行器品牌企业。奥马科愿与您精诚合作，共创美好明天。



全球化科技品质
GLOBALIZED TECHNOLOGY QUALITY

全方位安全保障
ALL-ROUND SAFETY GUARANTEE



Zhejiang Aumakl Intelligent Equipment Co., Ltd. focuses on the design, manufacture and technical services of various types of hydraulic/electric actuators and pneumatic actuators for industrial automatic control valves. The main products are ZSC series Rack and pinion pneumatic actuator, ZSH series Scotch Yoke pneumatic actuators, ZSZ series Linear pneumatic actuators, ZSS series Pneumatic crank train actuators, ZDY series Electro-Hydraulic actuators and other types of actuators. Products have obtained SIL, explosion-proof and other related certification. The product has the modular design, can realize the module type separate order, the free assembly function. To minimize cost and optimize function according to customer requirements.

The company has obtained the ISO9001 quality management system certification, is a national high-tech enterprise, petrochemical high-end field of professional suppliers.

The company is located in Huzhou City, Zhejiang Province, 30,000 square meters of intelligent factory, professional team of 100+ people, annual output of 300,000 sets of processing capacity, with the user's exclusive finished product inventory, the fastest delivery ability.

Company to build China's top actuator brand enterprises. Aumakl is willing to cooperate with you sincerely to create a better tomorrow.



Production Workshop 生产车间

奥马科将产品质量视为公司的生命，基于此，我们不惜投入大量资金引进现代化的生产设备、建设现代化车间，规范了生产程序，使每个员工都能按科学的生产程序生产，使我们的生产程序能得到最大可能的优化，满足日益发展的企业需要，从而在生产中杜绝了浪费，加快了速度，提高了品质，最终赢得了市场。

Aumakl regards product quality as the life of our enterprise. Based on this, we have made a huge investment in introducing modern production equipment, building modern workshops and standardizing production procedures, so that every employee is able to work following scientific production procedures, our production procedures are optimized as much as possible, the increasing demands of our enterprise are met, and the waste in production is avoided. Production speed and quality have been improved, and finally, we have won the market.







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ZSH

系列气动拨叉式执行器

Scotch Yoke Pneumatic Actuator

ZSH 系列





1 安全 Safety

ZSH系列弹簧预压缩后固定在弹簧模块内部，在安装和维护弹簧模块时以便操作稳定性及安全性。

After pre-compression, the ZSH series spring is fixed inside the spring module, so as to realize operation stability and safety during installation and maintenance of the spring module.

2 标准化的附件安装尺寸 Standard installation size of accessories

ZSH系列气动执行器顶部输出附属连接均符合NAMUR VDI/VDE 3845标准，方便标准的自控附件安装操作。

The connection of output accessories at the top of the ZSH series pneumatic actuator conforms to NAMUR VDI/VDE 3845 standard, making it convenient to carry out installation operations of standard automatic control accessories.

3 标准连接尺寸 Standard connection size

ZSH系列气动执行器与阀门的连接尺寸均符合ISO-5211标准的要求，方便用户选择安装。

The connection size of the ZSH series pneumatic actuator and valve conforms to the requirements in ISO-5211 and facilitates the installation by users.

4 模块化设计 Modular design

ZSH系列气动执行器由传动模块、气缸模块、弹簧模块和附属机构装置模块化构成，这些模块在安装时方便拆装、更换和稳固。根据客户需求选择进行安装、维修。

The ZSH series pneumatic actuator is composed of driving module, cylinder module, spring module and accessory mechanisms. During installation, these modules are easy to assemble, disassemble, replace and stabilize. Installation and maintenance can be carried out according to customer needs.

Product Features

产品特点



5 经久耐用性 Durability

ZSH系列气动执行器经过特殊处理的气缸内表面、活塞杆及导向杆与自润滑的轴承结合，保证优良的滑动和耐磨性，延长所有滑动零件的使用寿命。

The combination of the cylinder inner surfaces, piston rod and guide rod of the ZSH series pneumatic actuator that have been subjected to special treatment with the self-lubricating bearing ensures excellent sliding and anti-wear performance and prolongs the service life of all sliding parts.

7 防水保护 Waterproof protection

ZSH系列气动执行器箱体、箱盖等处装有密封圈，阻止外界的水分进入执行器内部，防护等级可达到IP67，可在恶劣的环境气候下持续稳定的运行。

The box body and box cover of the ZSH series pneumatic actuator are installed with seal rings to prevent water outside from entering the actuator. With the protection grade reaching IP67, it can run under severe environmental climate continuously and stably.

6 防腐 Anticorrosion

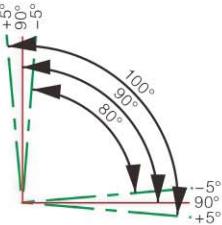
ZSH系列气动执行器喷漆了防护涂层，连接螺栓螺帽均采用不锈钢材质，使用时对现场环境的要求，能满足不同恶劣环境的要求。

The ZSH series pneumatic actuator is sprayed with protective coating. The connection bolts and screw caps are made of stainless steel. It can meet requirements for the working sites and requirements for different severe conditions.

8 行程调节范围 Travel adjustment range

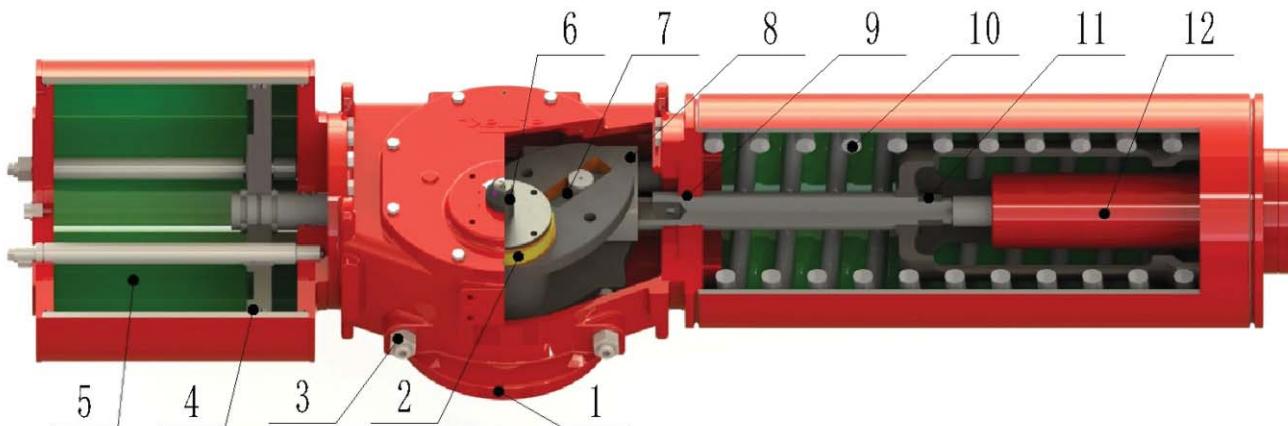
ZSH系列气动执行器有两个独立的行程调节螺丝可以进行方便、精准 $\pm 5^\circ$ 的调节开、关位置。

The ZSH series pneumatic actuator is provided with two independent travel adjusting screws for conveniently and accurately making $\pm 5^\circ$ adjustment of on-off positions.



Structural Features

结构特点

**1**

标准法兰连接 Standard flange Connection

ZSH系列气动执行器安装法兰与阀门连接尺寸，符合ISO5211标准。

The connection size of the ZSH series pneumatic actuator installation flange and valve conforms to ISO5211.

2

传动轴 自润滑轴承 Self-lubricating bearing of driving shaft

传动轴上下配有自润滑轴承，用于支撑定位、耐磨性、旋转滑动性、减少摩擦力等作用，更好的使产品发挥运行性能。

The driving shaft is provided with self-lubricating bearing, which is used for supporting, positioning, anti-wear, rotary sliding and reduction of friction, so as to make the product better exert its running performance.

3

行程调节螺栓 Travel adjusting bolt

ZSH系列气动执行器可以进行 $\pm 5^\circ$ 的行程调节。

The ZSH series pneumatic actuator can carry out $\pm 5^\circ$ travel adjustment.

4

活塞支撑环 Piston support ring

活塞支撑环采用复合材料组成的专用支撑环，对活塞运行时避免损伤气缸内表面，具有良好的润滑耐用性能，延长气缸使用寿命。

The piston support ring is a special support ring composed of composite materials. It can avoid damage to the cylinder inner surfaces when the piston is running and prolong the cylinder's service life with good lubrication and durability.

5

缸体内表面处理 Treatment of cylinder inner surfaces

气缸内表面经特殊处理后，具有耐腐蚀、良好的润滑耐用等特点，提高使用寿命和效率。

After special treatment, the cylinder inner surfaces have such features as anticorrosion and good lubrication and durability, enhancing the service life and efficiency.

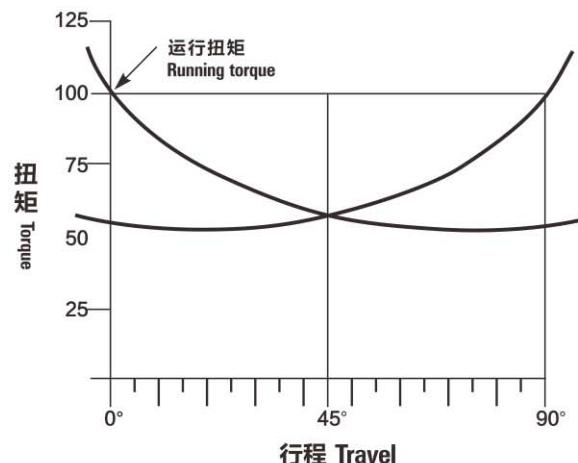
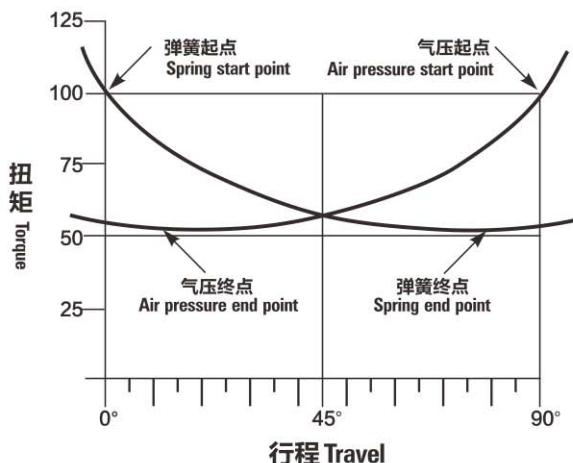
6

标准附件安装 Standard installation of accessories

传动轴的输出附件接口全部相同，符合NAMUR 标准，安装附件方便、快捷。

The connections for output accessories of the driving shaft are the same, conforming to NAMUR standard. The installation of accessories is convenient and quick.

扭矩特性 Torque features



7

拨叉轴套结构 Yoke shaft sleeve structure

销轴上安装了轴套，减少了运行时摩擦力，使扭矩传动更加稳定，高效运行。

The pin shaft is installed with shaft sleeve to reduce friction during running, so as to make the torque driving more stable with efficient running.

8

导向装置 Guiding device

创新独特的双导向结构设计，使扭矩分配更加合理。

The innovative unique double-guiding structure design makes torque distribution more reasonable.

9

活塞杆自润滑轴承设计 Piston rod self-lubricating bearing design

具有自润滑、支撑作用，降低滑动摩擦力，加强了弹簧力的传递效率。

It is provided with self-lubricating and supporting functions to reduce sliding friction and enhance transfer efficiency of spring force.

10

弹簧模块 Spring module

弹簧压缩后牢固封闭的弹簧模块，增强了操作安全性。

The firmly enclosed spring module after spring compression enhances operation safety.

11

弹簧安全锁定 Spring safe locking

特殊螺母防止弹簧工作时松动脱落。

The special nut prevents the spring from loosening and dropping during working.

12

液压手动机构 Hydraulic Manual-operated mechanism

利用弹簧内部空间，装入液压手动机构，可使用液压手动操作，减小外部安装空间。

The inner space of the spring is used to install the hydraulic Manual-operated mechanism, which can realize hand operation by using hydraulic pressure and reduces external installation space.

离合手动模块
Clutch Handwheel module



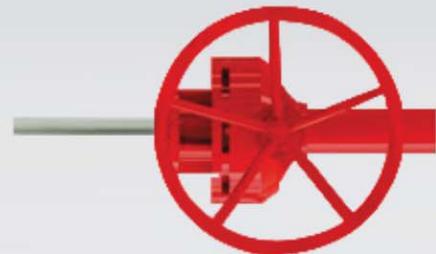
丝杆手动模块
Screw lever Handwheel module



驱动模块
Driving module



伞齿轮手动模块
Bevel gear Handwheel module



液压手动模块
Hydraulic Manual-operated module





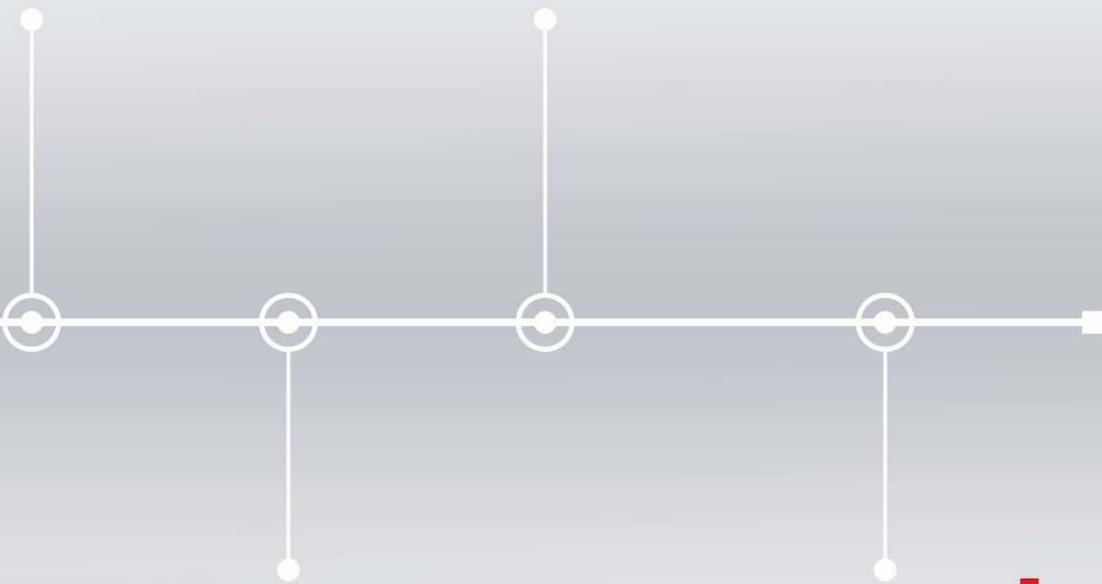
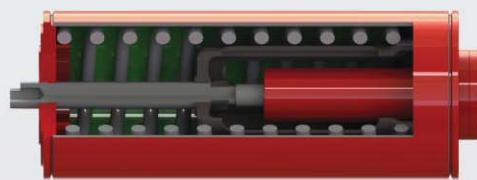
Modular Design 模块化设计

气动模块

Pneumatic module



弹簧模块带液压手动
Spring module with hydraulic hand operation



弹簧模块
Spring module

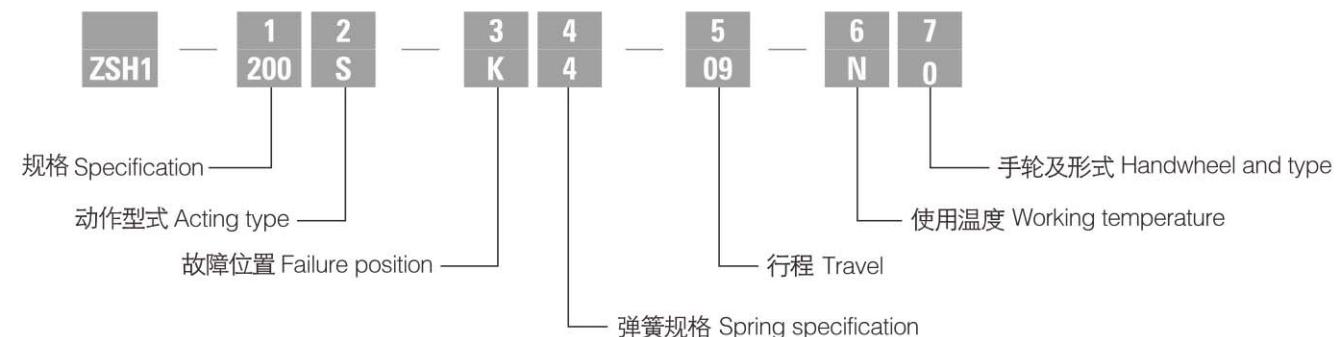


液压模块
Hydraulic module



Product Specification And Model Description

产品规格型号说明



1. 规格 Specification

代号 Code	尺寸 Size	代号 Code	尺寸 Size
180	180	550	550
200	200	600	600
250	250	700	700
300	300	800	800
350	350	900	900
400	400	1000	1000
450	450	1100	1100
500	500		

2. 动作型式 Acting type

代号 Code	说明 Description
S	单作用 Single acting
D	双作用 Double acting

3. 故障位置 ①Failure position

代号 Code	说明 Description
K	故障关位FC(弹簧关)Fail to close FC (spring off)
B	故障开位FO(弹簧开)Fail to open FO (spring on)

4. 弹簧规格 ①Spring specification

代号 Code	说明 Description
4	4bar弹簧Spring
5	5bar弹簧Spring
6	6bar弹簧Spring

5. 行程 ②Travel

代号 Code	说明 Description
07	行程Travel: 0~70°
09	行程Travel: 0~90°

6. 使用温度 Working temperature

代号 Code	说明 Description
N	标准型 Standard type: -20~+80°C
L	低温型 Low temperature type: -40~+80°C
H	高温型 High temperature type: -20~+150°C

7. 手轮及形式 Handwheel type

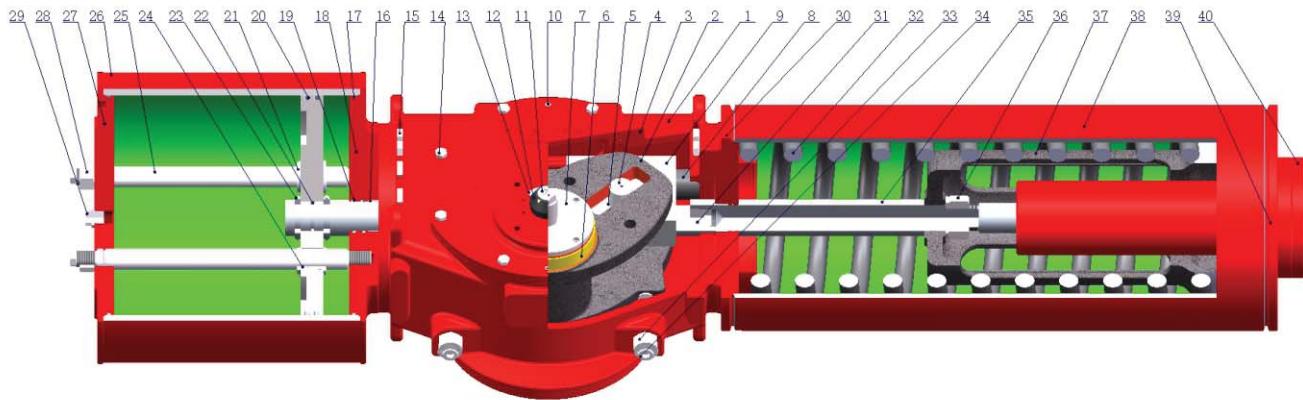
代号 Code	说明 Description
0	无手轮 Without handwheel
1	离合式手轮 Clutch type handwheel
2	丝杠手轮 Screw lever handwheel
3	伞齿轮 Bevel gear
4	液压手操 Hydraulic manual-operated-operated mechanism

注: ①—双作用无此代号。

②—规格和行程可根据用户要求定制。

Note: ①—No code for double acting.

②—Specifications and itinerary can be customized according to customer requirements.



零件名称与材质 Part name and material

序号 No.	零件名称 Part name	材质 Material	序号 No.	零件名称 Part name	材质 Material
1	箱体 Box body	球墨铸铁 Ductile iron	21	导向套 Guide sleeve	7075-T7651
2	拨叉 Fork	球墨铸铁 Ductile iron	22	O型圈 O ring	橡胶 Rubber
3	箱盖 Box cover	球墨铸铁 Ductile iron	23	卡键 Key	碳钢 Carbon steel
4	销轴 Pin shaft	20CrMnTi	24	O型圈 O ring	橡胶 Rubber
5	轴套 Shaft sleeve	铜合金 Copper alloy	25	拉杆 Pull rod	碳钢 Carbon steel
6	轴承 Bearing	复合材料 Composite material	26	气缸 Cylinder	碳钢 Carbon steel
7	指示轴 Indicating shaft	304	27	外盖 Outer cover	碳钢 Carbon steel
8	导向杆 Guide rod	碳钢 Carbon steel	28	六角螺母 Hexagonal nut	304
9	导向块 Guide block	碳钢 Carbon steel	29	六角螺塞 Hexagonal screw plug	碳钢 Carbon steel
10	圆柱销 Cylindrical pin	碳钢 Carbon steel	30	弹簧中盖 Spring middle cover	碳钢 Carbon steel
11	指示盖螺钉 Indicating cover screw	304	31	连接螺杆 Connection screw	碳钢 Carbon steel
12	指示盖 Indicating cover	塑料 Plastic	32	弹簧 Spring	优质弹簧钢 High-quality spring steel
13	指示牌 Indicating plate	304	33	六角螺母 Hexagonal nut	304
14	六角螺栓 Hexagonal bolt	304	34	调节螺杆 Adjusting screw	304
15	六角螺栓 Hexagonal bolt	304	35	弹簧拉杆 Spring pull rod	碳钢 Carbon steel
16	轴承 Bearing	复合材料 Composite material	36	防松螺母 Lock nut	碳钢 Carbon steel
17	O型圈 O ring	橡胶 Rubber	37	弹簧座 Spring retainer	碳钢 Carbon steel
18	中盖 Middle cover	碳钢 Carbon steel	38	弹簧缸 Spring cylinder	碳钢 Carbon steel
19	O型圈 O ring	橡胶 Rubber	39	弹簧外盖 Spring outer cover	碳钢 Carbon steel
20	O型圈 O ring	橡胶 Rubber	40	液压手动模块 Hydraulic hand-operated module	碳钢 Carbon steel



Table Of Torque Parameters 扭矩参数表

双作用扭矩表 Double acting torque table

单位Unit: N.m

规格型号 Type specification	气源压力 Air supply pressure(MPa)									
	0.3		0.4		0.5		0.6		0.7	
	开始/结束 Start/stop	运行 Run	开始/结束 Start/stop	运行 Run	开始/结束 Start/stop	运行 Run	开始/结束 Start/stop	运行 Run	开始/结束 Start/stop	运行 Run
ZSH0-180D	534	378	712	504	890	629	1068	755	1246	881
ZSH0-200D	659	466	879	622	1099	777	1319	933	1539	1088
ZSH1-250D	1236	874	1649	1166	2061	1457	2473	1749	2885	2040
ZSH1-300D	1780	1259	2374	1679	2967	2098	3561	2518	4154	2938
ZSH2-300D	2226	1574	2967	2098	3709	2623	4451	3147	5193	3672
ZSH2-350D	3029	2142	4039	2856	5049	3570	6059	4284	7068	4998
ZSH3-350D	3837	2713	5116	3618	6395	4522	7674	5426	8953	6331
ZSH3-400D	5012	3544	6682	4725	8353	5906	10023	7088	11694	8269
ZSH3-450D	6343	4485	8457	5980	10572	7475	12686	8970	14800	10465
ZSH4-450D	8012	5665	10683	7554	13354	9442	16024	11331	18695	13219
ZSH4-500D	9892	6994	13189	9326	16486	44657	19783	13989	23080	16320
ZSH4-550D	11969	8463	15958	11284	19948	14105	23937	16926	27927	55706
ZSH4-600D	14244	10072	18992	13429	23740	16786	28488	20144	33235	23501
ZSH5-550D	14961	10579	19948	14105	24935	17632	29922	21158	34909	24684
ZSH5-600D	17805	12590	23740	16786	29675	20983	35609	25180	41544	29376
ZSH5-700D	24234	17136	32312	22848	40390	28560	48468	34272	56546	39984
ZSH7-600D	20179	14268	26905	19025	33631	23781	40357	28537	47084	33293
ZSH7-700D	27465	19421	33621	25895	45776	32368	54931	33842	64086	45316
ZSH7-800D	35873	25366	47831	33822	59789	42277	71746	50732	83704	59188
ZSH8-800D	42204	29843	56272	39790	70340	49738	88408	59685	98475	69633
ZSH8-900D	53414	37769	71219	50359	89024	62949	106828	75539	124633	88129
ZSH8-1000D	65943	46629	87924	62172	109906	77715	131887	93258	153868	108801
ZSH9-900D	72109	50989	96145	67985	120182	84981	144218	101978	168254	118974
ZSH9-1000D	89024	62949	118698	82932	148373	104915	178047	125898	207722	146881
ZSH9-1100D	107718	76168	143625	101558	179531	126947	215437	152337		

单位: N.m

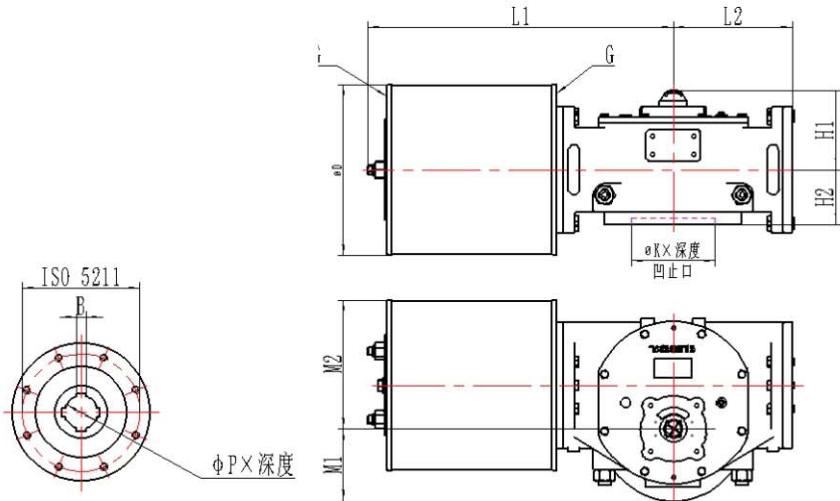
单作用扭矩表 Single acting torque table

ZSH 系列

规格型号 Type specification	弹簧输出扭矩 Spring output torque			气源输出扭矩 Air supply output torque		
	90°	45°	0°	0°	45°	90°
ZSH0-180S	570	342	392	677	406	499
ZSH0-200S	703	422	484	835	501	615
ZSH1-250S	1319	791	907	1154	940	1566
ZSH1-300S	1899	1140	1306	2255	1353	1662
ZSH2-300S	2374	1424	1632	2819	1691	2077
ZSH2-350S	3231	1939	2221	3837	2302	2827
ZSH3-350S	4093	2456	2814	4860	2916	3581
ZSH3-400S	5346	3207	3675	6348	3809	4678
ZSH3-450S	6766	4059	4651	8034	4821	5920
ZSH4-450S	8546	5128	5876	10149	6089	7478
ZSH4-500S	10551	6331	7254	12529	7518	9232
ZSH4-550S	12767	7660	8777	15160	9096	11171
ZSH4-600S	15193	9116	10445	18042	10825	13294
ZSH5-550S	15958	9575	10971	18950	11370	13964
ZSH5-600S	18992	11395	13057	22553	13532	16618
ZSH5-700S	25850	15510	17772	30697	18418	22619
ZSH7-600S	21524	12914	14798	25560	15336	18833
ZSH7-700S	29296	17578	20141	34790	20874	25634
ZSH7-800S	38265	22959	26307	45439	27264	33482
ZSH8-800S	45017	27010	30949	53458	32075	39390
ZSH8-900S	56975	34185	39170	67658	40595	49853
ZSH8-1000S	70340	42204	48358	83528	50117	61547
ZSH9-900S	76916	46150	52880	76916	46150	52880
ZSH9-1000S	94958	56975	65284	112763	67658	83089
ZSH9-1100S	114900	68940	78994	136443	81866	100537

Dimensions And Data Sheet

外形尺寸及数据表



双作用型 Double acting type

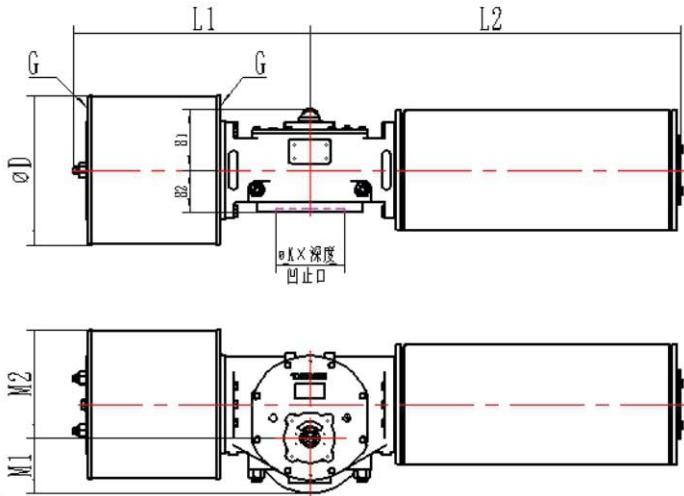
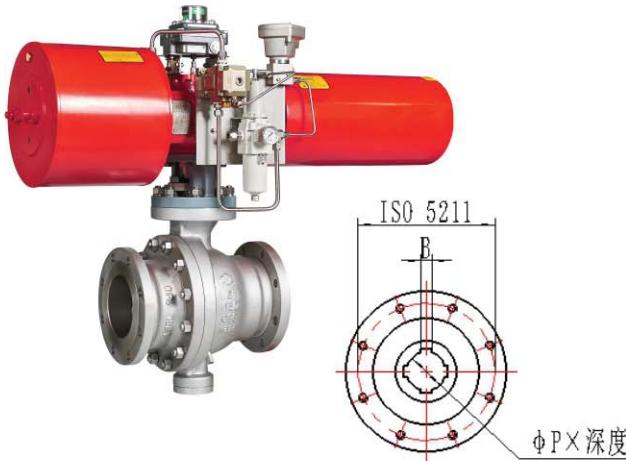
规格型号 Type specification	L1	L2	H1	H2	M1	M2	Φ D	ISO5211	ΦP × 深度 Depth	ΦK × 深度 Depth	B	气源接口"G" Air supply connection
ZSH0-180D	410	145	118	70	75	172	240	F12	36×80	85×4	10	G3/8"
ZSH0-200D	410	145	118	70	75	182	266	F12	36×80	85×4	10	G3/8"
ZSH1-250D	478	169	131	84	92	195	270	F14	48×135	100×4	14	G3/8"
ZSH1-300D	478	169	131	84	92	222	324	F14	48×135	100×4	14	G1/2"
ZSH2-300D	570	206	149	106	113	237	324	F16	60×145	120×4	18	G1/2"
ZSH2-350D	577	206	149	106	113	262	374	F16	60×145	120×4	18	G1/2"
ZSH3-350D	667	260	174	120	158	282	374	F25	72×155	200×5	20	G1/2"
ZSH3-400D	672	260	174	120	158	307	424	F25	72×155	200×5	20	G3/4"
ZSH3-450D	682	260	174	120	158	334	478	F25	72×155	200×5	20	G3/4"
ZSH4-450D	783	303	183	128	185	359	478	F30	100×200	220×5	28	G3/4"
ZSH4-500D	783	303	183	128	185	385	530	F30	100×200	220×5	28	G3/4"
ZSH4-550D	783	303	183	128	185	410	580	F30	100×200	220×5	28	G3/4"
ZSH4-600D	783	303	183	128	185	450	700	F30	100×200	220×5	28	G1"
ZSH5-550D	940	345	195	160	210	475	650	F35	120×240	230×5	32	G3/4"
ZSH5-600D	940	345	195	160	210	500	700	F35	120×240	230×5	32	G1"
ZSH5-700D	940	345	195	160	210	550	800	F35	120×240	230×5	32	G1"
ZSH7-600D	1020	390	212	185	230	520	700	F40	180×280	260×8	45	G1"
ZSH7-700D	1020	390	212	185	230	570	800	F40	180×280	260×8	45	G1 1/2"
ZSH7-800D	1020	390	212	185	230	626	910	F40	180×280	260×8	45	G1 1/2"
ZSH8-800D	1175	460	235	200	300	655	910	F48	220×320	370×8	50	G1 1/2"
ZSH8-900D	1175	460	235	200	300	740	1010	F48	220×320	370×8	50	G1 1/2"
ZSH8-1000D	1175	460	235	200	300	765	1124	F48	220×320	370×8	50	G1 1/2"
ZSH9-900D	1475	565	280	235	360	775	1010	F60	220×380	470×8	50	G1 1/2"
ZSH9-1000D	1530	565	280	235	360	840	1124	F60	220×380	470×8	50	G1 1/2"
ZSH9-1100D	1530	565	280	235	360	890	1225	F60	220×380	470×8	50	G1 1/2"

ZSH 系列

Dimensions And Data Sheet

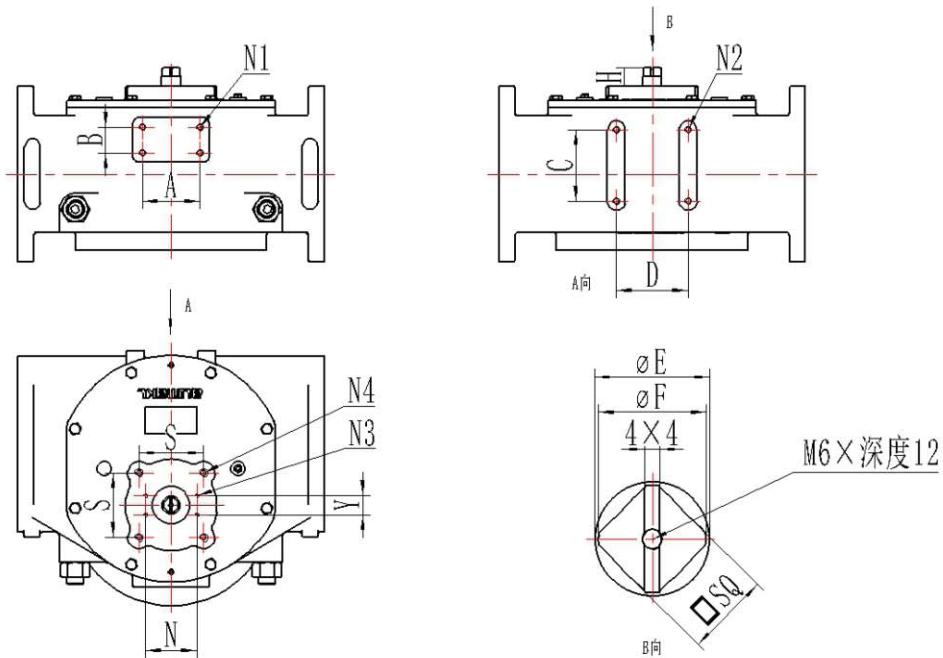
外形尺寸及数据表

ZSH 系列



单作用型 Single acting table

规格型号 Type specification	L1	L2	H1	H2	Φ D	M1	M2	ISO5211	ΦP × 深度 Depth	ΦK × 深度 Depth	B	气源接口"G" Air supply connection
ZSH0-180S	410	570	118	70	240	75	172	F12	36×80	85×4	10	G3/8"
ZSH0-200S	410	570	118	70	266	75	182	F12	36×80	85×4	10	G3/8"
ZSH1-250S	478	679	131	84	270	92	195	F14	48×135	100×4	14	G3/8"
ZSH1-300S	478	680	131	84	324	92	222	F14	48×135	100×4	14	G1/2"
ZSH2-300S	570	804	149	106	324	113	237	F16	60×145	120×4	18	G1/2"
ZSH2-350S	577	856	149	106	374	113	262	F16	60×145	120×4	18	G1/2"
ZSH3-350S	667	1005	174	120	374	158	282	F25	72×155	200×5	20	G1/2"
ZSH3-400S	672	1055	174	120	424	158	307	F25	72×155	200×5	20	G3/4"
ZSH3-450S	682	1065	174	120	478	158	334	F25	72×155	200×5	20	G3/4"
ZSH4-450S	783	1206	183	128	478	185	359	F30	100×200	220×5	28	G3/4"
ZSH4-500S	783	1197	183	128	530	185	385	F30	100×200	220×5	28	G3/4"
ZSH4-550S	783	1224	183	128	580	185	410	F30	100×200	220×5	28	G3/4"
ZSH4-600S	783	1230	183	128	700	185	450	F30	100×200	220×5	28	G1"
ZSH5-550S	940	1450	195	160	650	210	475	F35	120×240	230×5	32	G3/4"
ZSH5-600S	940	1490	195	160	700	210	500	F35	120×240	230×5	32	G1"
ZSH5-700S	940	1530	195	160	800	210	550	F35	120×240	230×5	32	G1"
ZSH7-600S	1020	1600	212	185	700	230	520	F40	180×280	260×8	45	G1"
ZSH7-700S	1020	1600	212	185	800	230	570	F40	180×280	260×8	45	G1 1/2"
ZSH7-800S	1020	1780	212	185	910	230	626	F40	180×280	260×8	45	G1 1/2"
ZSH8-800S	1175	1985	235	200	910	300	655	F48	220×320	370×8	50	G1 1/2"
ZSH8-900S	1175	1785	235	200	1010	300	740	F48	220×320	370×8	50	G1 1/2"
ZSH8-1000S	1175	1975	235	200	1124	300	765	F48	220×320	370×8	50	G1 1/2"
ZSH9-900S	1475	2265	280	235	1010	360	775	F60	220×380	470×8	50	G1 1/2"
ZSH9-1000S	1530	2425	280	235	1124	360	840	F60	220×380	470×8	50	G1 1/2"
ZSH9-1100S	1530	2425	280	235	1225	360	890	F60	220×380	470×8	50	G1 1/2"



规格型号 Type specification	A × B	N1	D × C	N2	N × Y	N3	S × S	N4	ΦE	ΦF	□SQ	H
ZSH0	60 × 30	M6 × 10	60 × 60	M6 × 10	80 × 30	M5 × 10	76.2 × 76.2	M12 × 18	18	16	14 × 14	20
ZSH1	60 × 30	M6 × 10	80 × 80	M6 × 10	80 × 30	M5 × 10	76.2 × 76.2	M12 × 18	18	16	14 × 14	20
ZSH2	60 × 30	M8 × 12	90 × 90	M8 × 12	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH3	90 × 40	M10 × 15	112 × 112	M10 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH4	110 × 45	M12 × 15	200 × 110	M12 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH5	140 × 80	M12 × 15	200 × 110	M12 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH7	150 × 110	M12 × 15	150 × 150	M12 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH8	140 × 80	M12 × 15	200 × 110	M12 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30
ZSH9	140 × 80	M12 × 15	200 × 110	M12 × 15	80 × 30	M5 × 10	101.6 × 101.6	M12 × 18	30	28	22 × 22	30

ZSZ

系列气动直行程执行器

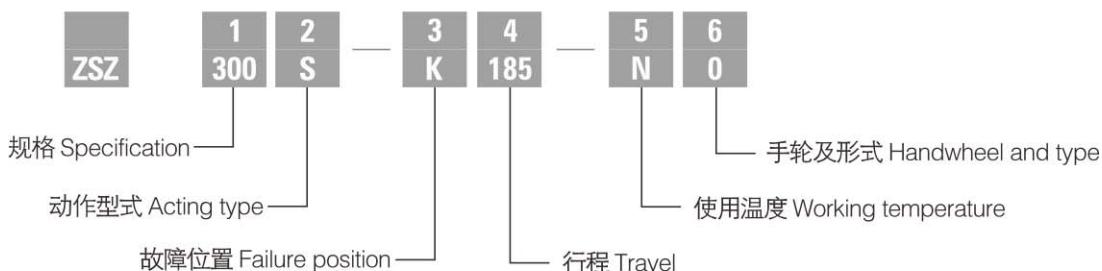
Linear Pneumatic Actuator



ZSZ 系列

Product Specification And Model Description

产品规格型号说明



1. 规格 ②Specification

代号(单缸) Code (single cylinder)	尺寸 Size	代号(双缸) Code (double cylinder)	尺寸 Size
160	160 mm	162	160 mm × 2
200	200 mm	202	200 mm × 2
250	250 mm	252	250 mm × 2
300	300 mm	302	300 mm × 2
350	350 mm	352	350 mm × 2
400	400 mm	402	400 mm × 2
450	450 mm	452	450 mm × 2
500	500 mm	502	500 mm × 2
550	550 mm	552	550 mm × 2
600	600 mm	602	600 mm × 2
700	700 mm	702	700 mm × 2
800	800 mm	802	800 mm × 2
900	900 mm	902	900 mm × 2
.....

2. 动作型式 Acting type

代号 Code	说明 Description
S	单作用 Single acting
D	双作用 Double acting

3. 故障位置 ①Failure position

代号 Code	说明 Description
K	故障关位FC(弹簧关) Fail to close FC (spring off)
B	故障开位FO(弹簧开) Fail to open FO (spring on)

注: ①——双作用无此代号。

②——规格和行程可根据用户要求定制。

Note: ①—No code for double acting.

②—Specifications and itinerary can be customized according to customer requirements.

4. 行程 ②Travel

代号 Code	说明 Description
70	70 mm
110	110 mm
130	130 mm
155	155 mm
185	185 mm
235	235 mm
290	290 mm
340	340 mm
400	400 mm
450	450mm
500	500mm
550	550mm
650	650mm
.....

5. 使用温度 Working temperature

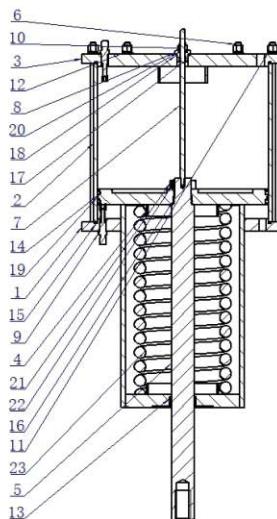
代号 Code	说明 Description
N	标准型 Standard type: -20~+80°C
L	低温型 Low temperature type: -40~+80°C
H	高温型 High temperature type: -20~+150°C

6. 手轮及形式 Handwheel type

代号 Code	说明 Description
0	无手轮 Without the handwheel
1	顶置插销手轮 Overhead bolt handwheel
2	中置侧装手轮 Middle side mounted handwheel
3	顶置伞齿轮式手轮 Overhead bevel gear handwheel
4	液压手操 Hydraulic manual-operated
5	顶置丝杆手轮 Overhead screw handwheel

Parts And Materials

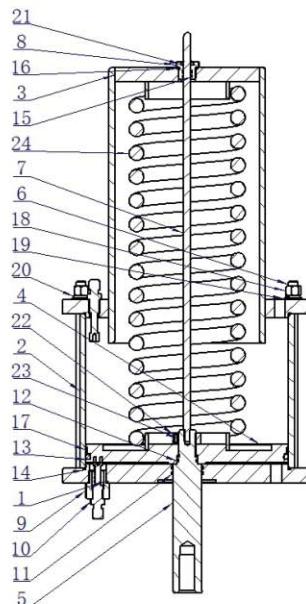
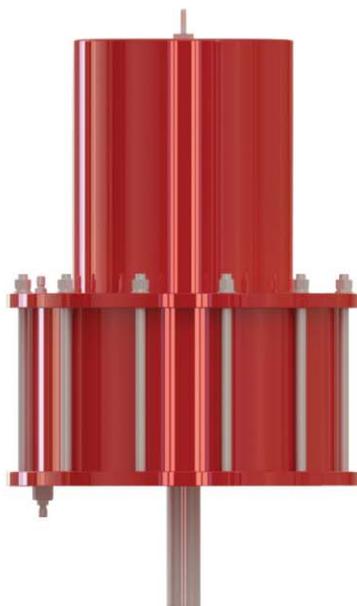
零部件及材料



单作用常开 Single acting normally on

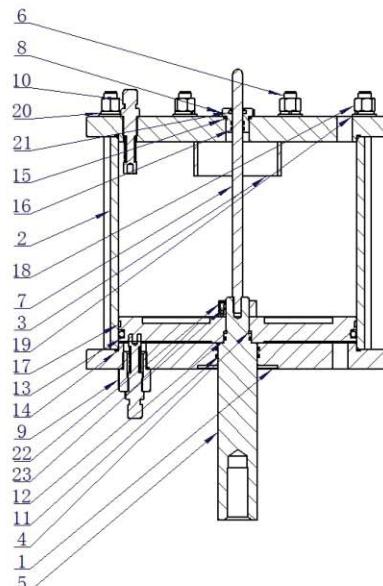
序号No.	零件名称 Part name	材料 Material
1	下盖 Under the cover	A3
2	气缸 Cylinder	20
3	上盖 On the cover	A3
4	活塞 Piston	A3
5	活塞杆 Piston rod	合金钢 Alloy steel
6	拉杆 Rod	304
7	指示杆 Indication rod	304
8	指示杆盖 Indication rod cover	7050-T7651
9	限位顶杆 Limit plunger	碳钢 Carbon steel
10	六角螺母 Hexagonal nut	304
11	弹性垫圈 Elastic washer	304
12	平垫圈 Flat washer	304
13	O型圈 O-rings	丁腈橡胶 Nitrile rubber
14	O型圈 O-rings	丁腈橡胶 Nitrile rubber
15	O型圈 O-rings	丁腈橡胶 Nitrile rubber
16	O型圈 O-rings	丁腈橡胶 Nitrile rubber
17	O型圈 O-rings	丁腈橡胶 Nitrile rubber
18	O型圈 O-rings	丁腈橡胶 Nitrile rubber
19	支撑环 Support ring	四氟+铜粉 Tetrafluoro + copper powder
20	防尘圈 Shield	进口 Import TPU
21	六角圆柱头螺栓 Hexagon cylindrical head bolts	304
22	K型锁紧螺母 K type lock nut	42CrMo
23	弹簧 Spring	60Si2MnA

ZSZ 系列



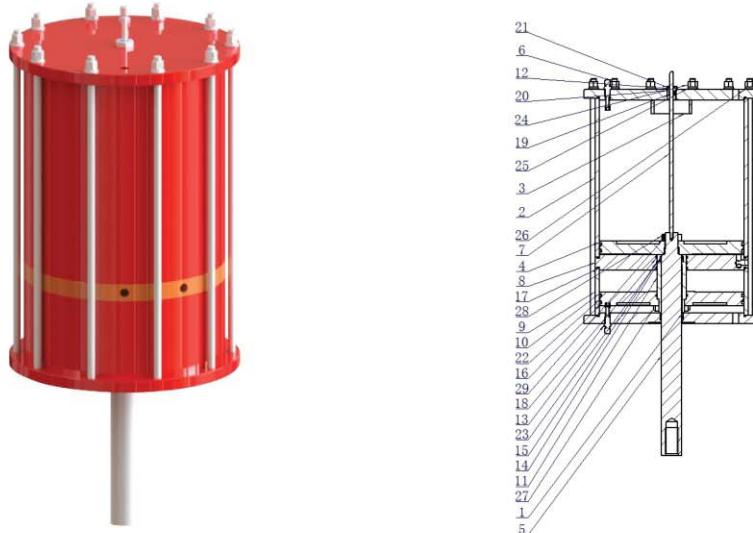
单作用常闭 Single acting normally closed

序号No.	零件名称 Part name	材料 Material
1	下盖 Under the cover	A3
2	气缸 Cylinder	20
3	上盖 On the cover	A3
4	活塞 Piston	A3
5	活塞杆 Piston rod	合金钢 Alloy steel
6	拉杆 Rod	304
7	指示杆 Indication rod	304
8	指示杆盖 Indication rod cover	7050-T7651
9	限位顶杆转接套 Limit jacking rod adapter sleeve	7050-T7651
10	限位顶杆 Limit plunger	碳钢 Carbon steel
11	O型圈 O-rings	丁腈橡胶 Nitrile rubber
12	O型圈 O-rings	丁腈橡胶 Nitrile rubber
13	O型圈 O-rings	丁腈橡胶 Nitrile rubber
14	O型圈 O-rings	丁腈橡胶 Nitrile rubber
15	O型圈 O-rings	丁腈橡胶 Nitrile rubber
16	O型圈 O-rings	丁腈橡胶 Nitrile rubber
17	支撑环 Support ring	四氟+铜粉 Tetrafluoro + copper powder
18	六角螺母 Hexagonal nut	304
19	平垫圈 Flat washer	304
20	弹性垫圈 Elastic washer	304
21	防尘圈 Shield	进口 Import TPU
22	六角圆柱头螺栓 Hexagon cylindrical head bolts	304
23	K型锁紧螺母 K type lock nut	42CrMo
24	弹簧 Spring	60Si2MnA



单缸双作用 Single cylinder double action

序号No.	零件名称 Part name	材料 Material
1	下盖 Under the cover	A3
2	气缸 Cylinder	20
3	上盖 On the cover	A3
4	活塞 Piston	A3
5	活塞杆 Piston rod	合金钢 Alloy steel
6	拉杆 Rod	304
7	指示杆 Indication rod	304
8	指示杆盖 Indication rod cover	7050-T7651
9	限位顶杆转接套 Limit jacking rod adapter sleeve	7050-T7651
10	限位顶杆 Limit plunger	碳钢 Carbon steel
11	O型圈 O-rings	丁腈橡胶 Nitrile rubber
12	O型圈 O-rings	丁腈橡胶 Nitrile rubber
13	O型圈 O-rings	丁腈橡胶 Nitrile rubber
14	O型圈 O-rings	丁腈橡胶 Nitrile rubber
15	O型圈 O-rings	丁腈橡胶 Nitrile rubber
16	O型圈 O-rings	丁腈橡胶 Nitrile rubber
17	支撑环 Support ring	四氟+铜粉 Tetrafluoro + copper powder
18	六角螺母 Hexagonal nut	304
19	平垫圈 Flat washer	304
20	弹性垫圈 Elastic washer	304
21	防尘圈 Shield	进口 Import TPU
22	六角圆柱头螺栓 Hexagon cylindrical head bolts	304
23	K型锁紧螺母 K type lock nut	42CrMo



双缸双作用 Double cylinder double action

序号 No.	零件名称 Part name	材料 Material
1	下盖 Under the cover	A3
2	气缸 Cylinder	20
3	上盖 On the cover	A3
4	活塞 Piston	A3
5	活塞杆 Piston rod	合金钢 Alloy steel
6	拉杆 Rod	304
7	指示杆 Indication rod	304
8	中隔板 Partition	A3
9	下气缸 Cylinder	20
10	下活塞 Piston	A3
11	下活塞杆 Piston rod	合金钢 Alloy steel
12	指示杆盖 Indication rod cover	7050-T7651
13	限位顶杆 Limit plunger	碳钢 Carbon steel
14	O型圈 O-rings	丁腈橡胶 Nitrile rubber
15	O型圈 O-rings	丁腈橡胶 Nitrile rubber
16	O型圈 O-rings	丁腈橡胶 Nitrile rubber
17	O型圈 O-rings	丁腈橡胶 Nitrile rubber
18	O型圈 O-rings	丁腈橡胶 Nitrile rubber
19	O型圈 O-rings	丁腈橡胶 Nitrile rubber
20	O型圈 O-rings	丁腈橡胶 Nitrile rubber
21	防尘圈 Shield	进口 Import TPU
22	支撑环 Support ring	四氟+铜粉 Tetrafluoro + copper powder
23	支撑环 Support ring	四氟+铜粉 Tetrafluoro + copper powder
24	六角螺母 Hexagonal nut	304
25	弹性垫圈 Elastic washer	304
26	平垫圈 Flat washer	304
27	圆螺母 Round nut	45
28	六角圆柱头螺栓 Hexagon cylindrical head bolts	304
29	K型锁紧螺母 K type lock nut	42CrMo

Type Selection And Data 选型及数据

单作用&单气缸执行器弹簧输出力 Single acting & single cylinder actuator spring output force 单位: N

单作用-单缸 Single acting - single cylinder		弹簧复位输出力 Spring returns the output force		0.4MPa(G)		0.5MPa(G)		0.6MPa(G)	
缸径型号 Bore model	行程 Trip	终点力 End	起始力 Start	终点力 End	起始力 Start	终点力 End	起始力 Start	终点力 End	起始力 Start
ZSZ160S	60	3768	5900	1580	3242	3450	7190	5320	6752
ZSZ200S	70	5966	8692	2998	4994	5918	7734	7066	10464
ZSZ250S	70	9322	13738	4522	8208	9092	12588	13652	16978
	110								
	130								
ZSZ300S	130	13424	20489	5811	11816	12381	18126	18951	24436
	155								
	185								
ZSZ350S	185	19233	27887	7903	15507	16853	24187	25803	32877
	235								
ZSZ400S	185	23864	36424	10326	21836	22006	33256	33696	44676
	235								
	290								
ZSZ450S	235	30203	46099	13061	27527	27861	41967	42651	56397
	290								
	340								
ZSZ500S	290	33363	54950	18090	38247	36350	56147	54610	74057
	340								
ZSZ550S	450	42743	66490	21890	43267	43990	64777	66080	86277
	500								
	550								
	650								
ZSZ600S	500	50868	79128	26052	51942	52352	77652	78642	103352
	550								
	650								
	750								
ZSZ700S	650	69237	107702	35458	71563	71248	106753	107038	141953
	750								
	850								
ZSZ800S	750	90432	140672	46318	94188	93058	140348	139808	186498
	850								
	950								
ZSZ900S	850	114453	178038	58622	119277	117782	177717	176942	236147
	950								
	1050								

注：气缸直径、行程及所需推力可以根据客户需求订制。

Note: cylinder diameter, stroke and required thrust can be customized according to customer requirements.

ZSZ 系列

顶置丝杆手轮
Overhead screw handwheel



顶置插销手轮
Overhead bolt handwheel



顶置伞齿轮
Overhead bevel gears



双作用气缸-单缸
Double acting cylinder -single cylinder



双作用气缸-双缸
Double acting cylinder -double cylinder



单作用气缸-常开(FO)
Single acting cylinder -normally open (FO)



支架
Supports



支架
Supports



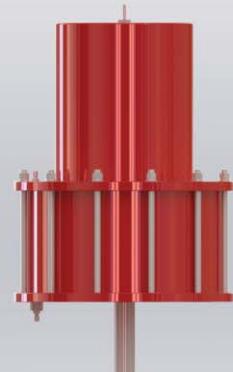


Modular Design 模块化设计

中置旁侧手轮
Middle side handwheel



液压手操
Hydraulic manual-operated



单作用气缸-常闭(FC)
Single acting cylinder
-normally closed (FC)

单作用气缸-双缸
Single acting cylinder
- double cylinder



储气罐
Storage tanks

ZSZ 系列

单作用—单缸外形尺寸表(仅供参考)

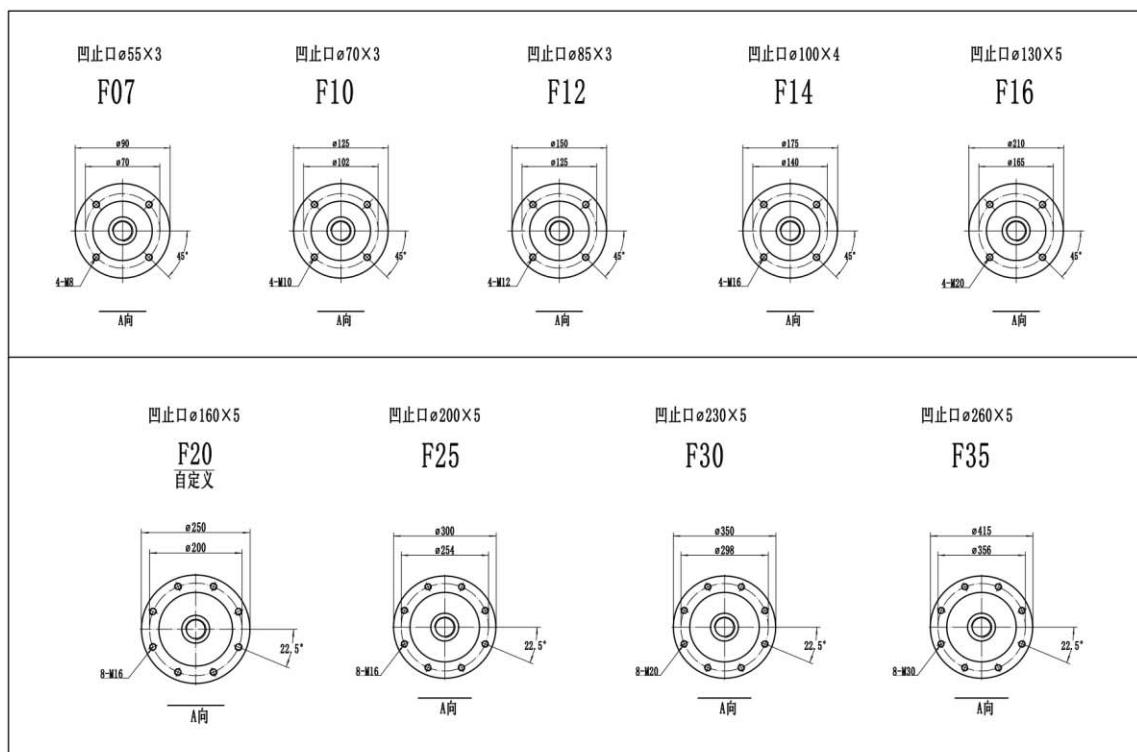
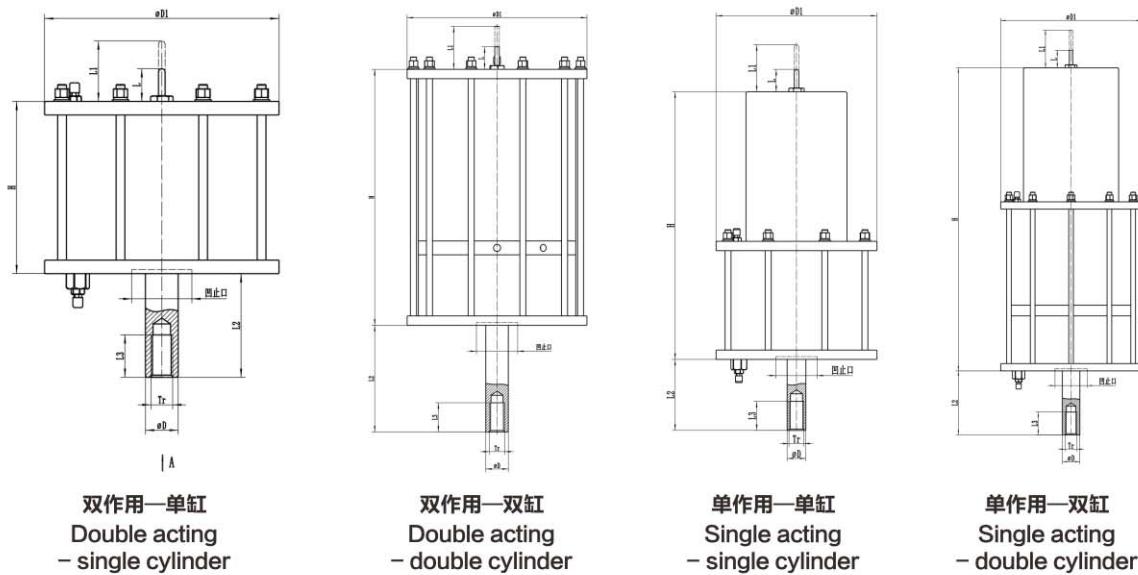
Single acting – single cylinder external dimension table(for reference only)

缸径型号 Bore model	气缸行程 Cylinder stroke	阀门口径 Valve diameter	φ D	φ D1	L	L1	L2	L3	H	Tr	连接法兰 Connecting flange				F
											凹止口 φ * 深度 Depth of concave stop	法兰外径 φ Flange diameter	螺纹孔 中心距 φ Threaded hole Center distance	螺纹规格 Thread Specification	
160S	70	DN25/40	35	225	60	130	75	39	360	Tr18*4LH	55*3	90	70	4-M8	F07
200S	70	DN50	40	265		130	75	48	460	Tr22*5LH	55*3	90	70	4-M8	F07
250S	110	DN80	40	315		170	115	54	500	Tr26*5LH	70*3	125	102	4-M10	F07
300S	130	DN100	40	380		190	135	54	550	Tr26*5LH	85*3	150	125	4-M12	F12
350S	185	DN150	50	430		245	190	66	665	Tr32*6LH	85*3	150	125	4-M12	F12
400S	235	DN200	50	480		295	240	69	845	Tr34*6LH	100*4	175	140	4-M16	F14
450S	290	DN250	60	530		340	295	72	970	Tr36*6LH	130*5	210	165	4-M20	F16
500S	340	DN300	60	600		400	345	78	950	Tr40*6LH	160*5	250	200	8-M16	F20
550S	400	DN350	60	650		460	405	81	1180	Tr42*6LH	160*5	250	200	8-M16	F20
600S	450	DN400	70	700		510	455	96	1280	Tr48*8LH	200*5	300	254	8-M16	F25
650S	500	DN450	70	750		560	505	96	1330	Tr48*8LH	230*5	350	298	8-M20	F30
700S	550	DN500	80	800		610	555	102	1430	Tr52*8LH	230*5	350	298	8-M20	F30
800S	650	DN600	90	920		710	655	120	1530	Tr60*10LH	260*5	415	356	8-M30	F35
900S	750	DN700	90	1020		810	755	135	1530	Tr65*10LH	260*5	415	356	8-M30	F35

单作用—双缸外形尺寸表(仅供参考)

Single acting – dual cylinder external dimension table(for reference only)

缸径型号 Bore model	气缸行程 Cylinder stroke	阀门口径 Valve diameter	φ D	φ D1	L	L1	L2	L3	H	Tr	连接法兰 Connecting flange				F
											凹止口 φ * 深度 Depth of concave stop	法兰外径 φ Flange diameter	螺纹孔 中心距 φ Threaded hole Center distance	螺纹规格 Thread Specification	
252S	110	DN80	40	315	60	170	115	54	685	Tr26*5LH	70*3	125	102	4-M10	F10
302S	130	DN100	50	380		190	135	54	735	Tr26*5LH	85*3	150	125	4-M12	F12
352S	185	DN150	50	430		245	190	66	850	Tr32*6LH	85*3	150	125	4-M12	F12
402S	235	DN200	60	480		295	240	69	1030	Tr34*6LH	100*4	175	140	4-M16	F14
452S	290	DN250	60	530		340	295	72	1155	Tr36*6LH	130*5	210	165	4-M20	F16
502S	340	DN300	60	600		400	345	78	1135	Tr40*6LH	160*5	250	200	8-M16	F20
552S	400	DN350	60	650		460	405	81	1365	Tr42*6LH	160*5	250	200	8-M16	F20
602S	450	DN400	70	700		510	455	96	1465	Tr48*8LH	200*5	300	254	8-M16	F25
652S	500	DN450	70	750		560	505	96	1515	Tr48*8LH	230*5	350	298	8-M20	F30
702S	550	DN500	80	800		610	555	102	1615	Tr52*8LH	230*5	350	298	8-M20	F30
802S	650	DN600	90	920		710	655	120	1715	Tr60*10LH	260*5	415	356	8-M30	F35
902S	750	DN700	90	1020		810	755	135	1715	Tr65*10LH	260*5	415	356	8-M30	F35



Ordering Instructions 订货须知

ZSZ系列阀门气动执行机构是复杂的自动化控制仪表，由气动执行器、阀门及多种气动元件、附件组成，用户根据现场控制需要，请详细选择各部件，并在技术合同上标示。

气动执行器：气源压力、作用方式、气缸推力、全行程时间、连接支架、手动机构。

阀门： 规格型号、公称压力、公称通径、阀门推力、流通介质、实际工作压力、使用温度、安装位置。

定位器： 品牌和型号、双作用或单作用、防护等级、防爆等级、输入信号、输出信号、反馈信号、反馈支架、LED显示、使用温度等实际需求。

电磁阀： 品牌和型号、双作用或单作用、单电控或双电控、二位三通或二位五通、电压、功率、防护等级、防爆等级、电气接口尺寸、气源接口尺寸、使用温度、手动操作。

过滤减压阀： 品牌和型号、油雾器、自动排水、使用温度、阀体和压力表材质、气源接口尺寸。

行程开关： 品牌和型号、机械或接近式、防护等级、防爆等级、电气接口尺寸、附件材质。

其他附件： 气控阀、单向阀、快排阀、调速阀、锁止阀、增速放大器等。

特殊要求： 材质、油漆、接口尺寸、安装空间等，请联系厂家销售代表。

ZSZ series valve pneumatic actuators are complex automatic control instruments, composed of pneumatic actuators, valves and a variety of pneumatic components, accessories, users according to the field control needs, please select each component in detail, and mark on the technical contract.

Pneumatic actuators: air pressure, mode of action, cylinder thrust, full travel time, connection bracket, manual mechanism.

Valve: specification, nominal pressure, nominal diameter, valve thrust, circulation medium, actual working pressure, service temperature, installation position.

Positioner: brand and model, double role or single role, protection level, explosion-proof level, input signal, output signal, feedback signal, feedback bracket, LED display, use temperature and other actual requirements.

Solenoid valve: brand and model, double role or single role, single electronic control or double electronic control, two three or two five, voltage, power, protection grade, explosion-proof grade, electrical interface size, air source interface size, use temperature, manual operation.

Filter valve: brand and model, oil mist, automatic drainage, operating temperature, valve body and pressure gauge material, air source interface size.

Limit switch: brand and model, mechanical or close type, protection grade, explosion-proof grade, electrical interface size, accessory material.

Other accessories: air control valve, check valve, quick discharge valve, speed regulating valve, lock valve, increase amplifier, etc.

Special requirements: material, paint, interface size, installation space, etc., please contact the manufacturer's sales representative.

Installation And Use 安装与使用

1. 气动执行器在出厂时已经经过必要的性能测试，且按订单要求进行了整定，用户一般可直接安装使用，底部安装连接尺寸，符合客户提供的数据或ISO5211标准连接尺寸，可以直接安装支架；
2. 打开包装箱后要检查产品是否有意外损坏，所配零件是否齐全，特别是经过长时间存放后的产品要全面维护后才可以安装并使用；
3. 执行器与阀门安装前应核对型号规格，是否与阀门所需推力的要求相符合；
4. 检查执行器与阀门连接的支架法兰尺寸是否相符，安装空间是否充足；
5. 如选用气/手动切换机构，执行器安装后，应核对切换机构工作状态是否与实际相符，防止误操作。带手动操作机构的阀门在弹簧复位（关闭阀门）或是气动开启（关闭）阀门过程中，任何一个开度都不能使用“气动-手动”切换；
6. 如选用气/手动切换机构，使用手轮操作前，先将气缸内的残余气体通过电磁阀（或控制元件）排空（在气缸内有残余气体的情况下），手动操作确认无误后再进行气动试用检查；
7. 如选用气/手动切换机构，试用手轮操作时，不得用力过大，且不可使用外力工具作用在手动机构上。

1. Pneumatic actuators in the factory has passed the necessary performance test, and according to the requirements of the order set, users generally can be directly installed and used, the bottom installation connection size, in line with the data provided by the customer or ISO5211 standard connection size, can be directly installed bracket;
2. After opening the packing box, check whether the product is damaged accidentally and whether the parts are complete. In particular, after a long time of storage, the product should be fully maintained before installation and use;
3. Before installation, the actuator and valve should be checked to see if the model and specification are in accordance with the thrust required by the valve;
4. Check whether the size of the bracket flange connecting the actuator and the valve is consistent and whether the installation space is sufficient;
5. If the pneumatic/manual switching mechanism is selected, after the installation of the actuator, the working state of the switching mechanism should be checked whether it conforms to the actual condition to prevent misoperation. Valve with manual operation mechanism in the spring return (close the valve) or pneumatic opening (close) valve process, any one of the opening can not use "pneumatic manual" switch;
6. If the pneumatic/manual switching mechanism is selected, the residual gas in the cylinder shall be emptied through the solenoid valve (or control element) before using the handwheel operation (in the case of residual gas in the cylinder), and then the pneumatic trial inspection shall be carried out after the manual operation is confirmed correct;
7. If pneumatic/manual switching mechanism is selected, try the hand wheel operation, do not exert too much force, and do not use external force tools on the manual mechanism.

Common Faults And Elimination Methods

常见故障和排除法

故障现象 Fault phenomenon	检查项目 Check the project	排除法 Exclusions
阀门不动作 Valve not operating	电磁阀是否正常、线圈是否烧坏、电磁阀是否被赃物卡死 Whether the solenoid valve is normal, whether the coil is burned out, whether the solenoid valve is trapped by stolen goods.	更换电磁阀、更换线圈、清除脏物 Replace the solenoid valve, replace the coil and remove the dirt.
	对执行器单独供气，是否正常工作，如气缸窜气不正常，拆开执行器检查密封件是否损坏，气缸内表面是否损坏 For the gas supply of the actuator alone, whether it works normally, such as the gas channeling of the cylinder is not normal, open the actuator to check whether the seal is damaged, whether the inner surface of the cylinder is damaged.	更换已坏密封圈，更换气缸 Replace the broken sealing ring and replace the cylinder.
	阀内有杂质将阀芯卡主 There are impurities in the valve spool card main.	清除杂质更换阀件 Remove impurities and replace valve parts.
	手动操作机构的手柄处在手动位置 The handle of the manual operation mechanism is in the manual position.	将手柄扳到自动位置 Turn the handle to automatic position.
阀门动作迟缓爬行 Valve moves slowly and crawls	气源压力不够 Insufficient air source pressure.	增加气源压力 Increase air source pressure.
	气动执行器推力过小 The thrust of pneumatic actuator is too small.	增大执行器型号规格 Increase the actuator size specification.
	阀门阀芯或其他阀件装配太紧不合理 Valve spool or other valve assembly is too tight to be reasonable.	修理装配，调整推力 Repair assembly, adjust thrust.
	气源管路堵塞流量过小 The air source pipeline is blocked and the flow is too small.	排除堵塞 Eliminate blockages.
回讯器无信号 There is no signal in the echo unit	信号电源线路、短路、短路 Signal power line, short circuit, short circuit.	维修电源线路 Repair power lines.
	凹轮位置不准确 The position of concave wheel is not accurate.	调整凹轮至正确位置 Adjust concave wheel to correct position.
	微动开关损坏 The microswitch is damaged.	更换微动开关 Replace the microswitch.

After-sales Service

售后服务

本公司产品从出厂之日起一年内实行“三包”，如客户在订货检验、使用过程中需要技术咨询或故障处理，请拨打本公司售后服务热线，我们将以最快的速度为您排忧解难！

The company's products from the factory within a year from the implementation of the "three guarantees", such as customers in order to test, use the process of technical advice or troubleshooting, please call the company's after-sales service hotline, we will be the fastest speed for you to solve the problems!

ZDY

系列电液联动执行器

Electro-hydraulic Actuator



ZDY 系列

Overview

概述

智能型一体化电液动执行机构是目前最先进的执行机构之一，集机、电、液、信于一体，由手操机构、液压集成系统、电子控制系统、油箱及油缸五大部分合理组合。具有功能齐全、控制精度高、速度快、体积小、输出力大、使用寿命长等优点。广泛应用于石油、化工、轻工、电力等工业部门，特别适用于大口径且控制速度快的阀门。在生产过程中进行就地控制和远距离自动控制，具有调节或切断功能。

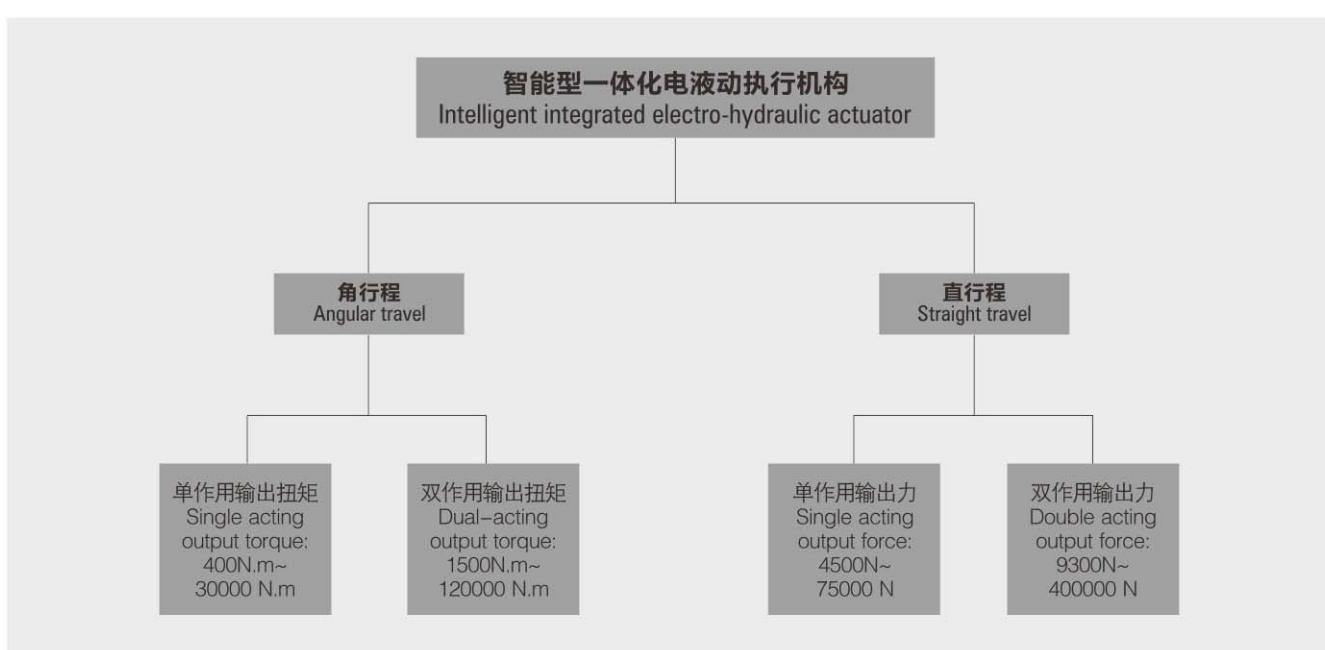
The intelligent integrated electro-hydraulic actuator is one of the most advanced actuators at present, which integrates machine, electricity, hydraulic and information into one, and is reasonably combined by five parts: hand operation mechanism, hydraulic integrated system, electronic control system, oil tank and cylinder. It has the advantages of complete function, high control precision, fast speed, small volume, large output force, long service life and so on. Widely used in petroleum, chemical, light industry, electric power and other industrial sectors, especially for large diameter and fast control of the valve. In the production process for local control and remote automatic control, with adjustment or cut off function.



角行程 Angular travel



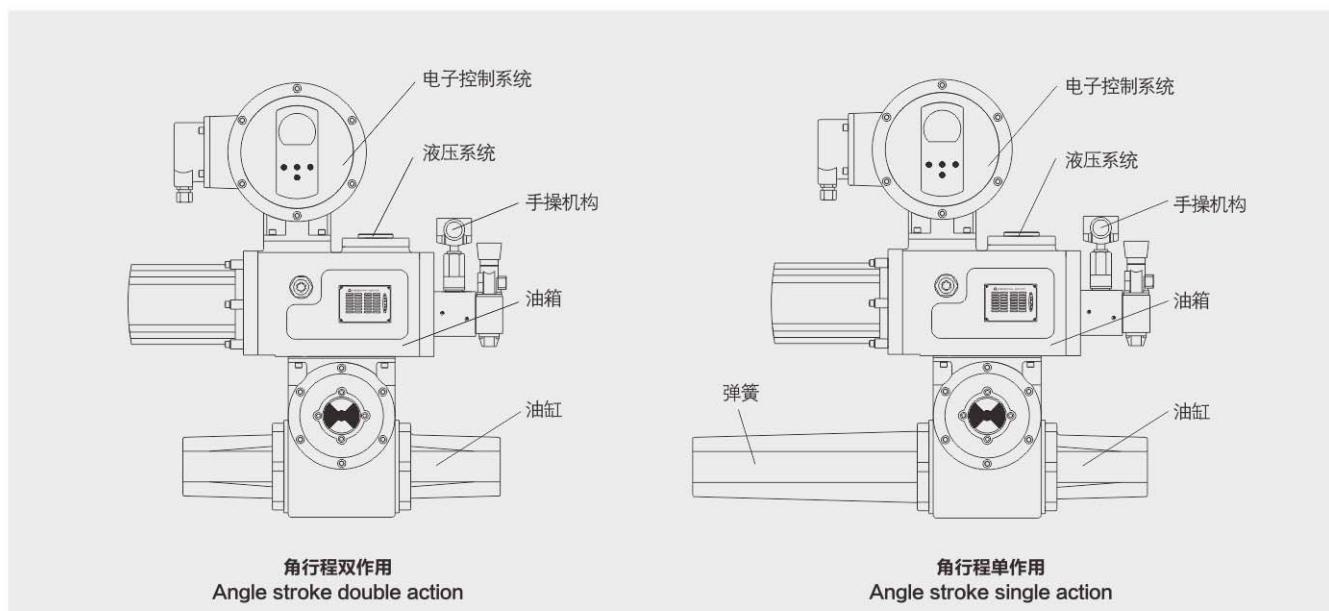
直行程 Straight travel



Structure 结构

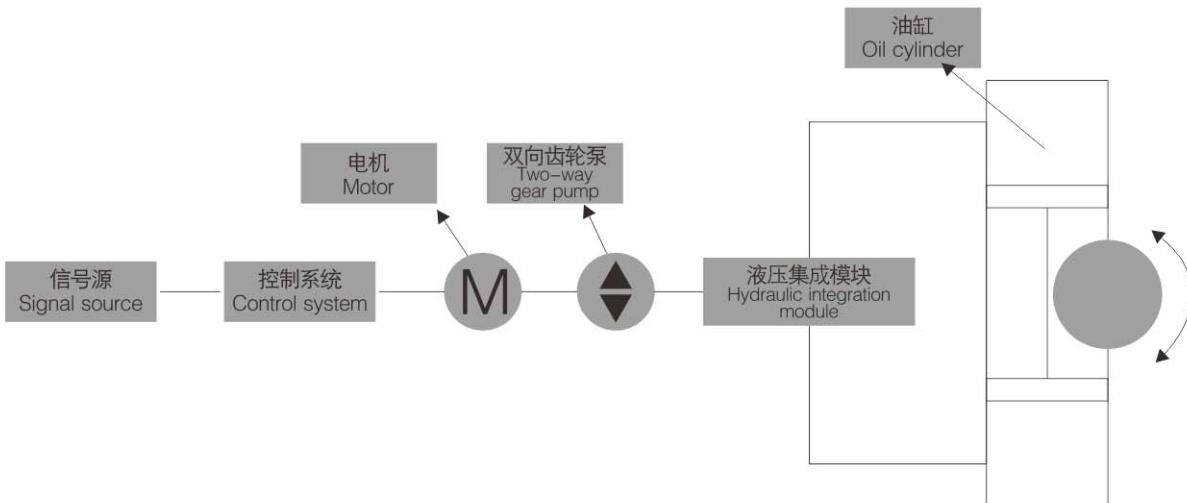
智能型一体化电液动执行机构集传统气动执行机构、电动执行机构优点于一身，具有输出扭矩大、控制速度快、控制精度高、故障安全复位等功能。主要由手操机构、液压集成系统、电子控制系统、油箱和油缸五大部分组成。

The intelligent integrated electro-hydraulic actuator integrates the advantages of traditional pneumatic actuator and electric actuator, and has the functions of large output torque, fast control speed, high control precision, safe failure reset, etc. Mainly by the hand operation mechanism, hydraulic integrated system, electronic control system, oil tank and cylinder five components.



电子控制系统接受信号源，将输入信号与反馈信号比较放大后控制电机，通过调节电机的转向和转速来控制定量双向高精度泵转向和流量输出，采用电控换向原理，实现执行机构正反动作，并经机械转换成执行机构角行程力矩或直线推力输出。

Electronic control system receive signal source, the input signal and feedback signal is enlarged control motor, by adjusting the steering and speed of motor to control the steering and two-way high-precision quantitative pump output flow, using electronic commutation principle, realize the actuators are positive and negative action, and the mechanical into actuator angular or linear thrust output torque.



Control System 控制系统

控制系统全部采用电子集成原理，人机对话等功能，并采用内接口集中于主控箱。将执行机构信号传递转换，实现各项故障处理与保护。

电液执行机构控制系统采用数字化闭环控制方式，通过给定位置指令和位置反馈信号比较进行控制电机转向。是一种理想的数字式积分环节，并将给定指令信号与反馈信号通过集成控制系统运算，对系统的运行进行最少节拍的控制。

而且可对各种干扰和非线性因素进行有效的动态校正，使任何时刻运行的实际位移量严格跟随指令值变化，从而保证运动的位移度有较高动态精度。

The control system adopts the principle of electronic integration, man-machine dialogue and other functions, and the internal interface is concentrated in the main control box. Actuator signal transfer and conversion, to achieve various fault processing and protection.

The electro-hydraulic actuator control system adopts the digital closed-loop control mode, and controls the motor steering by comparing the given position instruction with the position feedback signal. It is an ideal digital integral link, and the given instruction signal and feedback signal through the integrated control system operation, the operation of the system to control the minimum beat.

Moreover, effective dynamic correction can be carried out for various interference and non-linear factors, so that the actual displacement of the operation at any time strictly follows the change of the instruction value, so as to ensure that the displacement degree of the motion has a high dynamic accuracy.

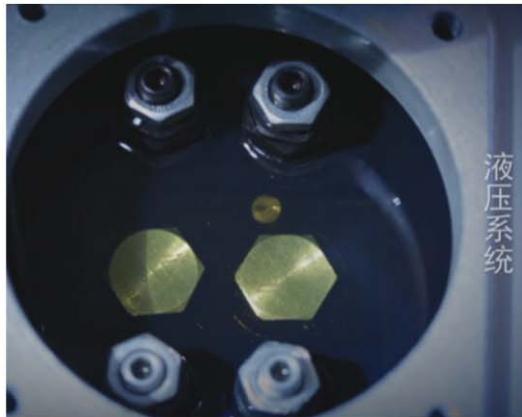


Hydraulic Integrated System 液压集成系统

液压驱动采用高精度双向定量齿轮泵换向原理，压力和流量定位控制的溢流阀、节流阀、单向阀、插装阀集成技术，集中一液压集成块引到各自回路，简化了液压油路，并减少外接油管接头，从而减少泄漏量。它由双向齿轮泵、液压集成块、油箱、油缸组

合一体，大大缩小了执行机构的体积和重量。它是通过改变双向齿轮泵转速和油的流量方向来控制液压缸的运动方向和速度，回路中液压油压力的大小取决于负载的大小，具有工作效率高、节能等特点。

Hydraulic drive adopts high precision two-way quantitative gear pump reversing principle, pressure and flow positioning control of relief valve, throttle valve, check valve, cartridge valve integration technology, centralized a hydraulic integrated block to lead to the respective circuit, simplifies the hydraulic oil circuit, and reduce the external tubing joint, so as to reduce leakage. It is composed of two-way gear pump, hydraulic integrated block, oil tank, cylinder combination, greatly reduce the volume and weight of the actuator. It is by changing the two-way gear pump speed and oil flow direction to control the direction of motion and speed of the hydraulic cylinder, the size of the hydraulic oil pressure in the loop depends on the size of the load, with high efficiency, energy saving and other characteristics.



Performance and Characteristics 性能及特点

1. 功能齐全

可实现模拟量、开/关量、总线、电力通信等多种信号控制。具有远程控制、就地控制、就地手操控制等功能，可随时切换。

2. 执行机构具有力矩过载保护和电子限位保护功能

力矩过载保护通过压力传感器和信号单元检测设定的额定工作压力点，过高时CPU将切断电机电源，从而实现过载保护，并输出过载报警信号与控制系统；限位保护通过位置传感器和信号单元检测设定位置，若到极限位置时CPU将切断电源实现限位保护。

3. 电机过热保护和电机全面保护功能

油箱内温度传感器可连续检测油的实际工作温度，电机绕组中的温度传感器可连续检测电机的实际工作温度，可实现超温报警和过热保护。同时具有相位自动校正功能，及断相、欠压、过压和电流瞬间反向等保护功能。

4. 阀位输出精准

采用新型磁电式位置绝对编码器对执行机构输出轴连续检测，并在显示屏上精准显示阀位正确性。

5. 非侵入式设计和红外遥控技术

电液动执行机构的防护等级满足IP67。在无需卸掉电气端盖的情况下，可通过红外遥控器对所有参数进行设定。

6. 状态指示

以继电器触点输出来指示阀门的开、关到位及故障报警与信号输出（可选4~20mA），反映阀门开度等多种指示。

7. 智能屏显

具有人机对话功能，中文液晶显示屏，实时显示阀门的开度、参数设定、信号查询设置等功能。

8. 复位及保位

当执行机构失电或故障时，可通过内部弹簧或外置储能器使执行机构快速复位切断或开启，实现阀门自锁及复位功能。

9. 防火功能

电液执行机构可加装防火罩，在火灾情况下表面温度<1093℃时，能保持30分钟执行机构可正常工作，当防火罩内温度达到所设定的防火放泄阀温度时，电液执行机构可在防火放泄阀作用下自动实现快速关闭或开启阀门的目的，无需人为进行控制。防火罩可选为刚性和柔性两种。

1. Fully functional

Can realize analog, on/off, bus, power communication and other signals control. Remote control, local control, local hand control and other functions, can be switched at any time.

2. Actuator has torque overload protection and electronic limit protection function

Torque overload protection through the pressure sensor and signal unit to detect the set rated working pressure point, too high when the CPU will cut off the motor power, so as to achieve overload protection, and output overload alarm signal and control system; Limit protection detects the set position through the position sensor and signal unit. If it reaches the limit position, the CPU will cut off the power to realize limit protection.

3. Motor overheating protection and motor comprehensive protection function

The temperature sensor in the oil tank can continuously detect the actual working temperature of the oil, and the temperature sensor in the motor winding can continuously detect the actual working temperature of the motor, which can realize over temperature alarm and overheat protection. At the same time with automatic phase correction function, and phase break, under voltage, over voltage and current instant reverse protection functions.

4. Accurate output of valve position

The new type absolute encoder of magnetoelectric position is used to continuously detect the output shaft of the actuator and accurately display the correctness of valve position on the display screen.

5. Non-invasive design and infrared remote control technology

The protection class of electro hydraulic actuator meets IP67. All parameters can be set by infrared remote control without removing the electrical end cover.

6. Status Indicators

Relay contact output to indicate the valve open, close in place and fault alarm and signal output (optional 4 ~ 20mA), reflect the valve opening and other indications.

7. Smart screen display

With man-machine dialogue function, Chinese LCD screen, real-time display of valve opening, parameter setting, signal query Settings and other functions.

8. Reset and maintain position

When the actuator loses power or fails, the actuator can be quickly reset and cut off or opened by internal spring or external energy storage device to realize self-locking and reset function of the valve.

9. Fire protection function

Electro-hydraulic actuators can be mounted to the flameproof enclosure, in the case of a fire surface temperature < 1093 °C, 30 minutes to keep actuator can work normally, when the temperature reached in the flameproof enclosure is set by the fire when the temperature of the drain valve, electro-hydraulic actuators can be under fire drain valve is automatically achieve the purpose of quickly closed or open valve, without human control. Fireproof cover can be selected for rigid and flexible two kinds.

10. 低噪音

采用无刷电机直接驱动高精度双向齿轮泵，进入液压集成系统控制，无机械转换、噪音最高40分贝。

11. 安全性

工作参数设置，开/关调试通过面板按钮完成，不需要打开电器罩，防止环境中的灰尘潮气及有害物质等进入电机和电气壳体内部。

12. 蓄能器自动补偿功能

当带蓄能器执行机构蓄能器油压低于控制压力时，液压系统自动补偿。

13. 数据储存

对动作频率、运行时间、过扭矩关断次数等重要运行数据进行监控、储存和累计处理，用户可查询相关数据，即使执行机构断电数据也不会丢失。

10. Less noise

Brushless motor is used to drive the high precision bidirectional gear pump directly, which is controlled by the hydraulic integrated system, with no mechanical conversion and maximum noise of 40 dB.

11. The security

Working parameter setting, on/off debugging is completed through the panel button, do not need to open the electrical cover, to prevent the dust moisture and harmful substances in the environment into the motor and electrical housing.

12. Accumulator automatic compensation function

When the oil pressure of the accumulator is lower than the control pressure with the accumulator actuator, the hydraulic system automatically compensates.

13. Data storage

It monitors, stores and accumulates important operation data such as action frequency, running time and times of over-torque turnoff, so that users can query relevant data, and the data will not be lost even if the actuator is off power.



智能屏显
Intelligent screen



刚性防火罩
Rigid fireproof cover



柔性防火罩
Flexible fireproof cover



Performance and Characteristics 主要技术参数

输入信号: 4 ~ 20mA DC ;
1VDC ~ 5VDC ;
24VDC 脉冲和电平信号;
现场总线信号 (Modbus、Profibus、Device、CAN、FF等)

输出信号: 阀位反馈信号 4 ~ 20mA DC
阀位状态信号
无源干触点 触点容量DC30V/5A AC250V/5A
状态报警信号
无源干触点 触点容量DC30V/5A AC250V/5A

基本误差: ± 1%

回 差: 0.5%

死 区: 0.5%

防火控制温度: 79°C, 107°C, 163°C, 204°C, 控制范围±5°C

液压缸额定压力: 12MPa, 16MPa

电源电压: 220V AC/50Hz, 380V AC/50Hz

环境温度: 标准型 -30°C ~ +80°C; 低温型 -40°C ~ +80°C

液压油: 低温抗磨液压油L-HV46#

防爆等级: ExdIIIBT4、ExdIICt4

Input signal: 4 ~ 20mA DC;
VDC 1 ~ 5 VDC;
24VDC pulse and level signal;
Fieldbus signals (Modbus, Profibus, Device, CAN, FF, etc.)

Output signal: Valve position feedback signal 4 ~ 20mA DC
Valve position status signal

Passive dry contact contact capacity DC30V/5A AC250V/5A
Status alarm signal

Passive dry contact contact capacity DC30V/5A AC250V/5A

Basic error: ± 1%

Back to the poor: 0.5%

Dead zones: 0.5%

Fire control temperature: 79°C, 107°C, 163°C, 204°C,
Control range ± 5°C

Rated pressure of hydraulic cylinder: 12MPa, 16MPa

Power supply voltage: 220V AC/50Hz, 380V AC/50Hz

Ambient temperature: Standard -30°C ~ +80°C;
Low temperature type -40°C ~ +80°C

Hydraulic oil: low temperature anti-wear
hydraulic oil L-HV46#

Explosion grade: ExdIIIBT4, ExdIICt4





Rated Torque of Actuator

执行机构额定扭矩

角行程-- ZDYJS单作用系列 (见表1) Angle stroke -- ZDYJS single acting series (see Table 1)

规格代号 No.	电机功率 Motor power (kW)	泵排量 Pump delivery (ml/r)	弹簧力矩 Spring torque (N.M)	12MPa 额定力矩 Rated torque (N.M)	运行时间(s) Elapsed time		规格代号 No.	电机功率 Motor power (kW)	泵排量 Pump delivery (ml/r)	弹簧力矩 Spring torque (N.M)	12MPa 额定力矩 Rated torque (N.M)	运行时间(s) Elapsed time	
					液压 Hydraulic	弹簧 Spring						液压 Hydraulic	弹簧 Spring
01	0.75	2	400	1100	18	2	10	1.5	4	3300	6800	40	7
02			600	1400	20	2.5	11			4000	7000	41	8
03			800	1700	23	3	12	2.2	6	5300	7700	41	10
04			1000	2000	25	3.5	13			6500	9500	43	12
05		3	1300	2100	27	4	14			8000	10000	44	13
06			1600	2400	27	4	15	3	8	10000	18000	45	14
07			1900	5100	35	5	16			13000	19000	46	15
08			2300	5400	37	6	17			15500	24500	47	16
09			2800	5700	38	6	18	4	10	20000	30000	50	18

角行程-- ZDYJD双作用系列 (见表2) Angle stroke -- ZDYJD double-acting series (see Table 2)

规格代号 No.	电机功率 Motor power (kW)	泵排量 Pump delivery (ml/r)	输出力矩 Output torque (N.M)		运行时间 Elapsed time (s)	规格代号 No.	电机功率 Motor power (kW)	泵排量 Pump delivery (ml/r)	输出力矩 Output torque N.M		运行时间 Elapsed time (s)	
			12MPa	16MPa					12MPa	16MPa		
01	0.75	2	1500	2000	7	13	1.5	4	13000	17000	25	
02			2000	2500	8	14			15000	20000	30	
03			2500	3000	10	15			18000	24000	33	
04			3000	4000	11	16	2.2		22000	29000	34	
05			3400	4500	13	17			25000	30000	35	
06		3	4000	5000	12	18			30000	40000	40	
07			5000	6500	13	19			40000	50000	50	
08			6000	8000	16	20	3	8	50000	65000	50	
09			7000	9000	18	21			60000	80000	50	
10			8500	11000	21	22	4	10	70000	90000	55	
11			9500	12500	23	23			80000	100000	60	
12	1.4	4	11000	14500	21	24			100000	120000	70	

注：1. 表中运行时间为标准型，如有特殊要求可根据用户要求设定；

2. 工作压力为16MPa时，电机功率应增加30%。

Note: 1. The running time in the table is standard. If there are special requirements, it can be set according to user's requirements;

2. When the working pressure is 16MPa, the motor power should be increased by 30%.

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直行程--ZDYZS单作用系列参数表（见表3）**Straight stroke --ZDYZS single action series parameter table (see Table 3)**

规格代号 NO.	电机功率 Motor power (KW)	液压力 Fluid pressure (N)	弹簧力 Spring force (N)	最快速度 Fastest speed (mm/s)	最大行程 Largest travel (mm)
01	0.37	4500	4500	11	65
02	0.55	10000	7500	11	150
03	0.75	12500	12000	11	200
04	1.1	20000	15000	11	250
05	1.5	35000	30000	9	250
06	1.5	55000	50000	9	250
07	2.2	75000	70000	9	250

注：1. 油缸的额定压力为12MPa；

2. 运行时间(s)、额定行程(mm)可根据用户要求而定；

3. 关闭推力为弹簧力，开启推力为液压力。

Note: 1. The rated pressure of the oil cylinder is 12MPa;

2. Running time (s), rated stroke (mm) can be determined according to user requirements;

3. The closing thrust is spring force, while the opening thrust is liquid pressure.

直行程--ZDYZD双作用系列参数表（见表4）**Straight stroke --ZDYZD double-acting series parameter table (see Table 4)**

规格代号 NO.	电机功率 Motor power (KW)	额定力 Rated force (N)	最快速度 Fastest speed (mm/s)	最大行程 Largest travel (mm)
01	0.37	9300	13	65
02	0.55	12400	13	150
03	0.75	20000	13	250
04	1.1	37000	13	400
05	1.5	48000	13	500
06	1.5	58000	11	500
07	2.2	70000	11	600
08	2.2	91000	10	600
09	2.2	115000	8	800
10	3	148000	8	900
11	4	200000	8	1000
12	4	245000	6.5	1100
13	4	280000	6.5	1200
14	5	360000	5.8	1300
15	5.5	400000	5.3	1400

注：1. 油缸的额定压力为12MPa；

2. 运行时间(s)、额定行程(mm)可根据用户要求而定。

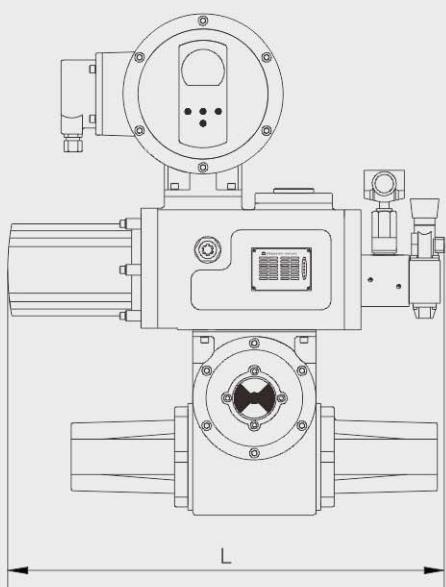
Note: 1. The rated pressure of the oil cylinder is 12MPa;

2. Running time (s), rated stroke (mm) can be determined according to user requirements.

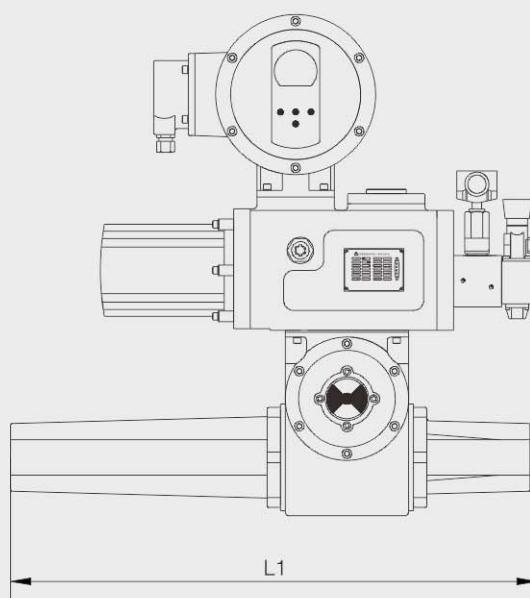
Dimensions And Data Sheet

外形尺寸及数据表

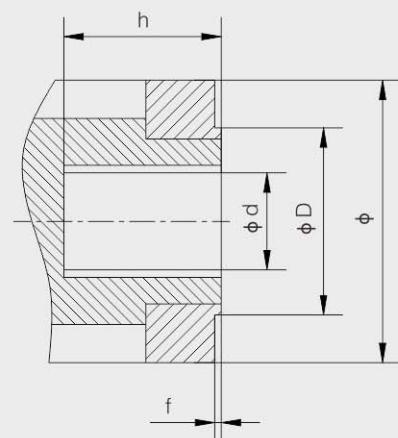
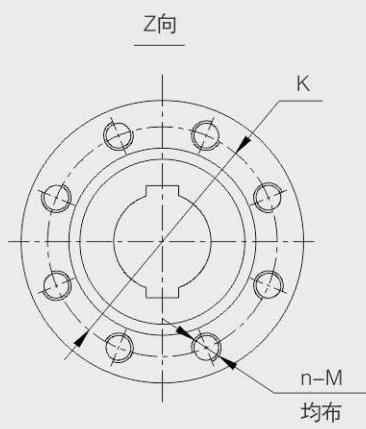
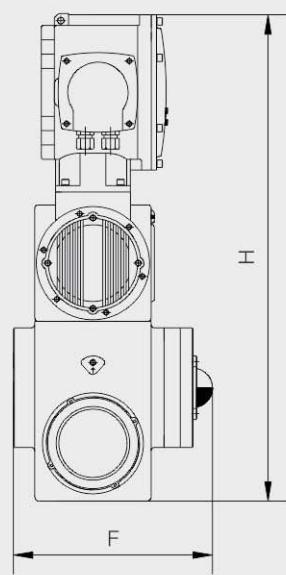
角行程外形尺寸 External dimensions of angular stroke



双作用
Double-acting



单作用
Single-acting



ZDY 系列



Dimensions And Data Sheet

外形尺寸及数据表

角行程单作用外形尺寸 (见表5)

Single acting external dimensions of angular stroke (see Table 5)

法兰 代号 Flange code	代号 No.	L		L1	F	f	H	φ	φ D	φ d	K	n-M	h	± x
		氮气 Nitrogen	机械 Mechanical											
F14	ZDYJS-01	800	1300	760	300	3	600	182	100	25	140	4-16	60	
	ZDYJS-02	800	1300	760	300	3	600	182	100	30	140	4-16	60	
	ZDYJS-03	800	1500	760	300	3	600	182	100	32	140	4-16	60	
	ZDYJS-04	800	1600	760	300	5	600	182	100	36	140	4-16	60	
	ZDYJS-05	800	1700	760	300	5	600	182	100	40	140	4-16	60	
	ZDYJS-06	800	1700	760	300	5	600	182	100	42	140	4-16	60	
F25	ZDYJS-07	1030	1100	1100	380	5	940	300	200	48	254	8-16	90	
	ZDYJS-08	1030	1100	1100	380	5	940	300	200	50	254	8-16	90	
	ZDYJS-09	1030	1100	1100	380	5	940	300	200	50	254	8-16	90	
	ZDYJS-10	1030	1100	1100	380	5	940	300	200	55	254	8-16	90	
	ZDYJS-11	1030	1100	1100	380	5	940	300	200	60	254	8-16	90	
	ZDYJS-12	1030	1100	1100	380	5	940	300	200	65	254	8-16	90	
	ZDYJS-13	1050	1100	1100	380	5	940	300	200	70	254	8-16	90	
F35	ZDYJS-14	1050	1100	1100	380	5	940	300	200	72	254	8-16	90	
	ZDYJS-15	1300	4000	1400	500	5	120	415	260	76	356	8-30	105	
	ZDYJS-16	1300	4200	1400	500	5	120	415	260	80	356	8-30	105	
	ZDYJS-17	1350	4400	1450	500	5	120	415	260	98	356	8-30	105	
	ZDYJS-18	1350	4600	1450	500	5	120	415	260	110	356	8-30	105	

注：阀关时弹簧在执行机构右端

Note: when the valve is closed, the spring is at the right end of the actuator

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角行程双作用外形尺寸(见表6)

External dimensions of double acting angular stroke (see Table 6)

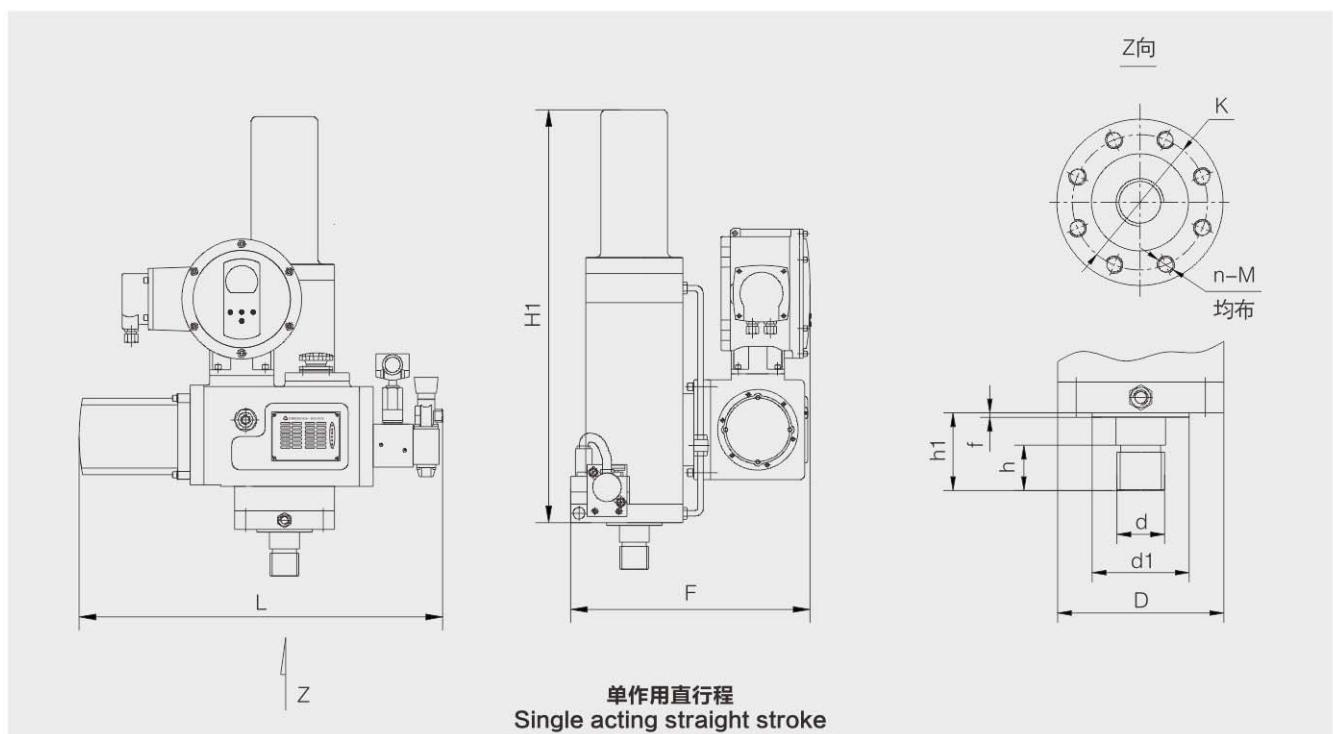
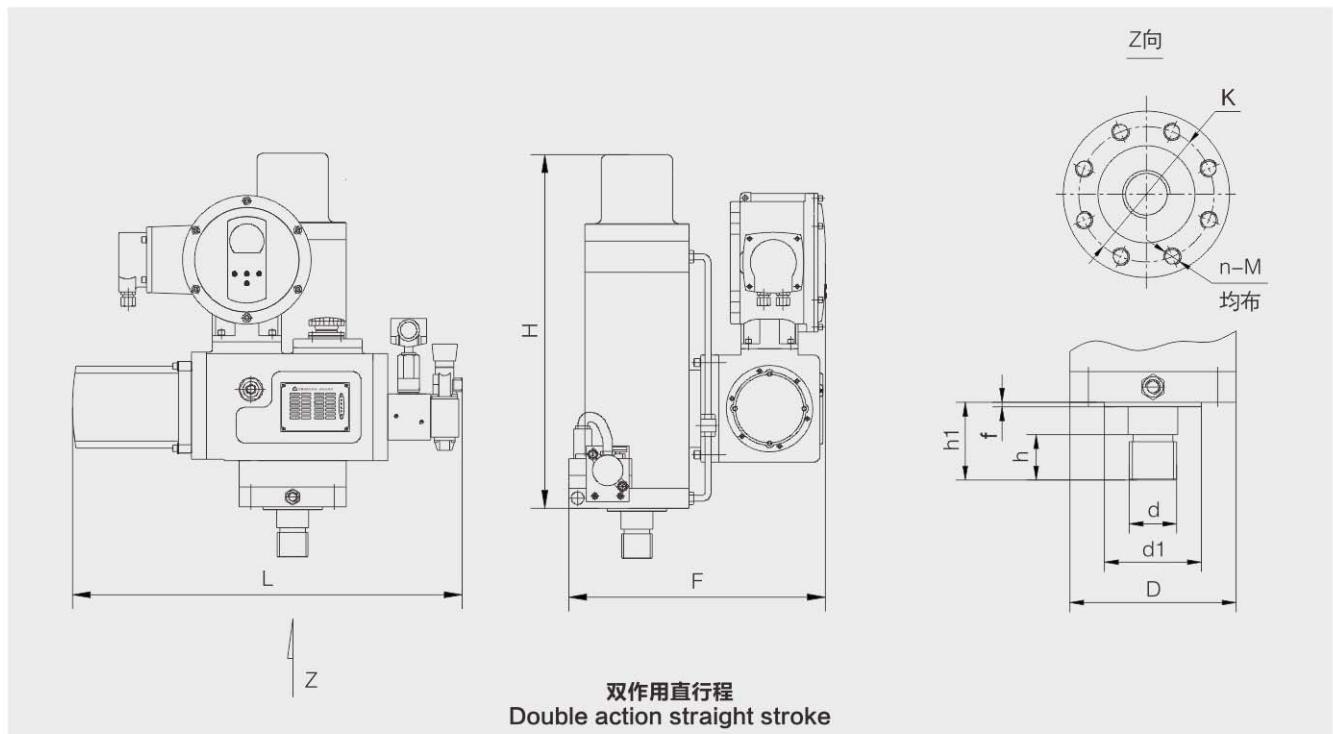
法兰 代号 Flange code	代号 No.	L	L1	F	f	H	φ	φ D	φ d	K	n-M	h	±x
F14	ZDYJD-01	690	650	300	3	810	182	100	42	140	4-16	65	
	ZDYJD-02	690	650	300	3	810	182	100	48	140	4-16	65	
	ZDYJD-03	690	650	300	5	810	182	100	48	140	4-16	65	
	ZDYJD-04	690	650	300	5	810	182	100	50	140	4-16	65	
	ZDYJD-05	690	650	300	5	810	182	100	55	140	8-16	65	
	ZDYJD-06	690	650	300	5	810	182	100	60	140	8-16	65	
F25	ZDYJD-07	800	870	380	5	1010	300	200	65	254	8-16	90	
	ZDYJD-08	800	870	380	5	1010	300	200	70	254	8-16	90	
	ZDYJD-09	800	870	380	5	1010	300	200	72	254	8-16	90	
	ZDYJD-10	800	870	380	5	1010	300	200	75	254	8-16	90	
	ZDYJD-11	800	870	380	5	1010	300	200	80	254	8-16	90	
	ZDYJD-12	800	870	380	5	1010	300	200	85	254	8-16	110	
	ZDYJD-13	800	870	380	5	1010	300	200	95	254	8-16	110	
	ZDYJD-14	800	870	380	5	1010	300	200	98	254	8-16	110	
	ZDYJD-15	800	870	380	5	1010	300	200	100	254	8-16	110	
F40	ZDYJD-16	1000*	1100	500	5	1280	415	260	110	356	8-30	150	
	ZDYJD-17	1000	1100	500	5	1280	415	260	115	356	8-30	150	
	ZDYJD-18	1000	1100	500	5	1280	415	260	120	356	8-30	150	
	ZDYJD-19	1000	1100	500	5	1280	415	260	125	356	8-30	150	
	ZDYJD-20	1000	1100	500	5	1280	415	260	130	356	8-30	150	
	ZDYJD-21	1000	1100	500	5	1280	415	260	140	356	8-30	150	
	ZDYJD-22	1000	1100	500	5	1280	415	260	145	356	8-30	180	
	ZDYJD-23	1000	1100	500	5	1280	415	260	150	356	8-30	180	
	ZDYJD-24	1000	1100	500	5	1280	415	260	160	356	8-30	180	

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Dimensions And Data Sheet 外形尺寸及数据表

直行程外形尺寸 Straight stroke dimensions



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直行程单作用外形尺寸 (见表7) Straight stroke single action dimensions (see Table 7)

代号 No.	法兰代号 Flange code	H1	F	f	L	D	D1	D	K	n-M	h	H1	±x
1	F14	450+S	457	4	570	180	100	14	140	4-16	18	50	
2	F14	720+S	457	4	570	180	100	16	140	4-16	22	55	
3	F14	915+S	475	4	570	180	100	20	140	4-16	24	70	
4	F14	930+S	490	4	570	180	100	24	140	4-16	32	70	
5	F16	940+S	505	5	570	210	130	26	165	4-20	38	70	
6	F16	960+S	535	5	750	210	130	28	165	4-20	40	70	
7	F16	975+S	555	5	750	250	130	35	165	4-20	40	70	

注: S--阀门实际行程

Note: S-- actual valve stroke

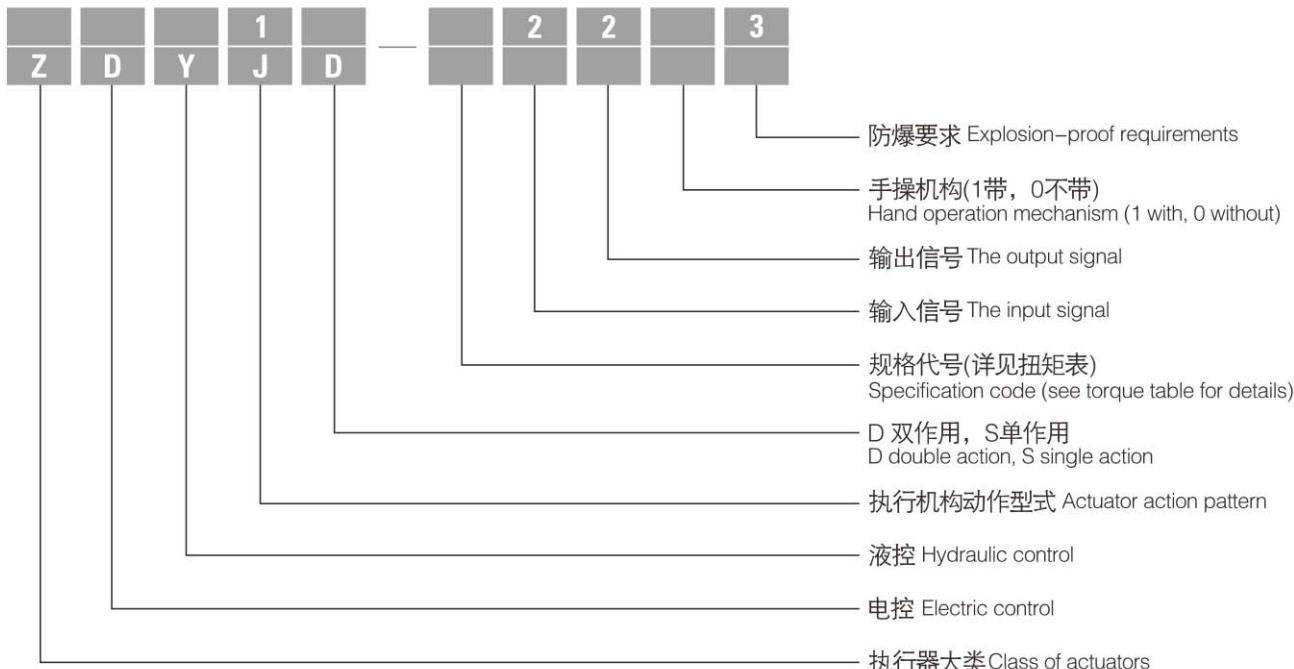
直行程双作用外形尺寸 (见表8) Straight stroke double action dimensions (see Table 8)

代号 No.	法兰代号 Flange code	H1	F	f	L	D	D1	D	K	n-M	h	H1	±x
1	F14	350+S	457	4	570	180	100	16	140	4-16	22	50	
2	F14	355+S	457	4	570	180	100	24	140	4-16	30	65	
3	F14	360+S	457	4	570	180	100	36	140	4-16	38	70	
4	F14	365+S	457	4	570	180	100	39	140	4-16	54	85	
5	F16	370+S	490	5	570	210	130	44	165	4-20	54	85	
6	F16	375+S	490	5	570	210	130	49	165	4-20	60	90	
7	F16	380+S	525	5	570	250	130	54	165	4-20	60	90	
8	F16	390+S	525	5	570	250	130	54	165	4-20	60	90	
9	F25	400+S	580	5	750	300	200	64	254	8-16	70	100	
10	F25	410+S	580	5	750	300	200	74	254	8-16	80	110	
11	F25	420+S	580	5	750	300	200	83	254	8-16	80	110	
12	F30	430+S	625	5	750	350	200	92	298	8-20	100	120	
13	F30	430+S	625	5	750	350	230	100	298	8-20	100	120	
14	F40	430+S	738	8	750	475	300	105	406	8-36	100	120	
15	F40	430+S	738	8	750	475	300	110	406	8-36	100	120	

注: S--阀门实际行程

Note: S-- actual valve stroke

Product Specification And Model Description 产品规格型号说明



1. 执行机构动作型式 Actuator action pattern

执行机构动作型式 Actuator action pattern	角行程 Angular travel	直行程 Straight travel
代号 Code	J	Z

2. 输入/输出信号 Input/Output signal

输入/输出信号 Input/Output signal	开/关量 On/off	模拟量 Analog 4~20mA, 1~5VDC, 1~10VDC	数字量 Digital quantity
代号 Code	1	2	3

3. 防爆要求 Explosion-proof requirements

防爆要求 Explosion-proof requirements	防爆型 Explosion-proof type	防护型 Protected	防火型 Type of fire prevention
代号 Code	B	S	H

示例 Example

ZDYJS-05221B

电、液动角行程单作用(弹簧复位)执行机构：转角0~70°或0~90°，输出力矩1200N.M，输入模拟量信号4~20mA，输出模拟量信号4~20mA，带手操防爆型执行机构。

ZDYZD-06331

机电液直行程双作用执行机构：额定行程500mm，输入数字量信号，输出数字量信号，带手操的标准型执行机构。

ZDYJS-05221B

Electric and hydraulic dynamic Angle stroke single acting (spring return) actuator: Angle 0 ~ 70° or 0 ~ 90°, output torque 1200N.M, input analog signal 4~20mA, output analog signal 4~20mA, with hand operation explosion-proof actuator.

ZDYZD-06331

Electromechanical hydraulic direct stroke double acting actuator: rated stroke of 500mm, input digital signal, output digital signal, with hand operation of the standard actuator.



Control and Wiring 控制与接线

接线端子见下图，用途对应见表12

Wiring terminals are shown in the figure below, and the corresponding use is shown in Table 12

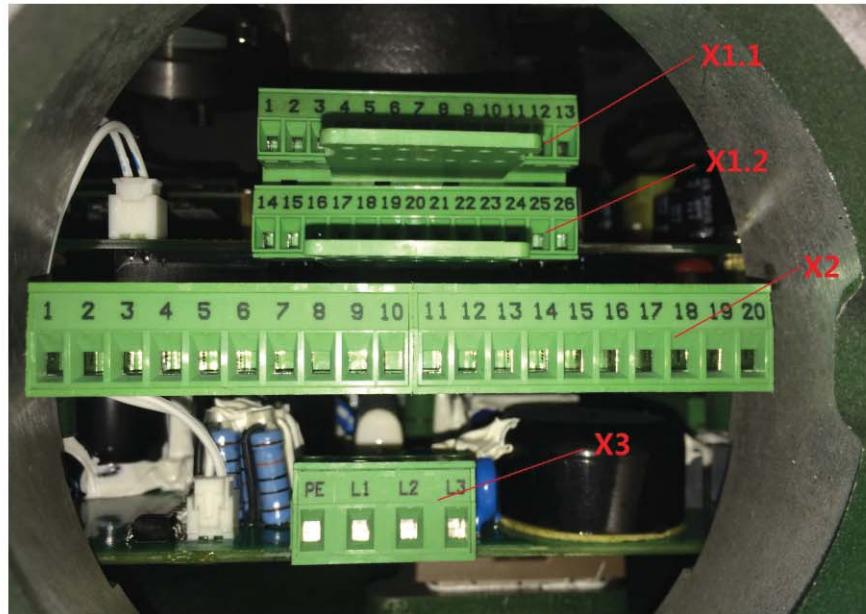
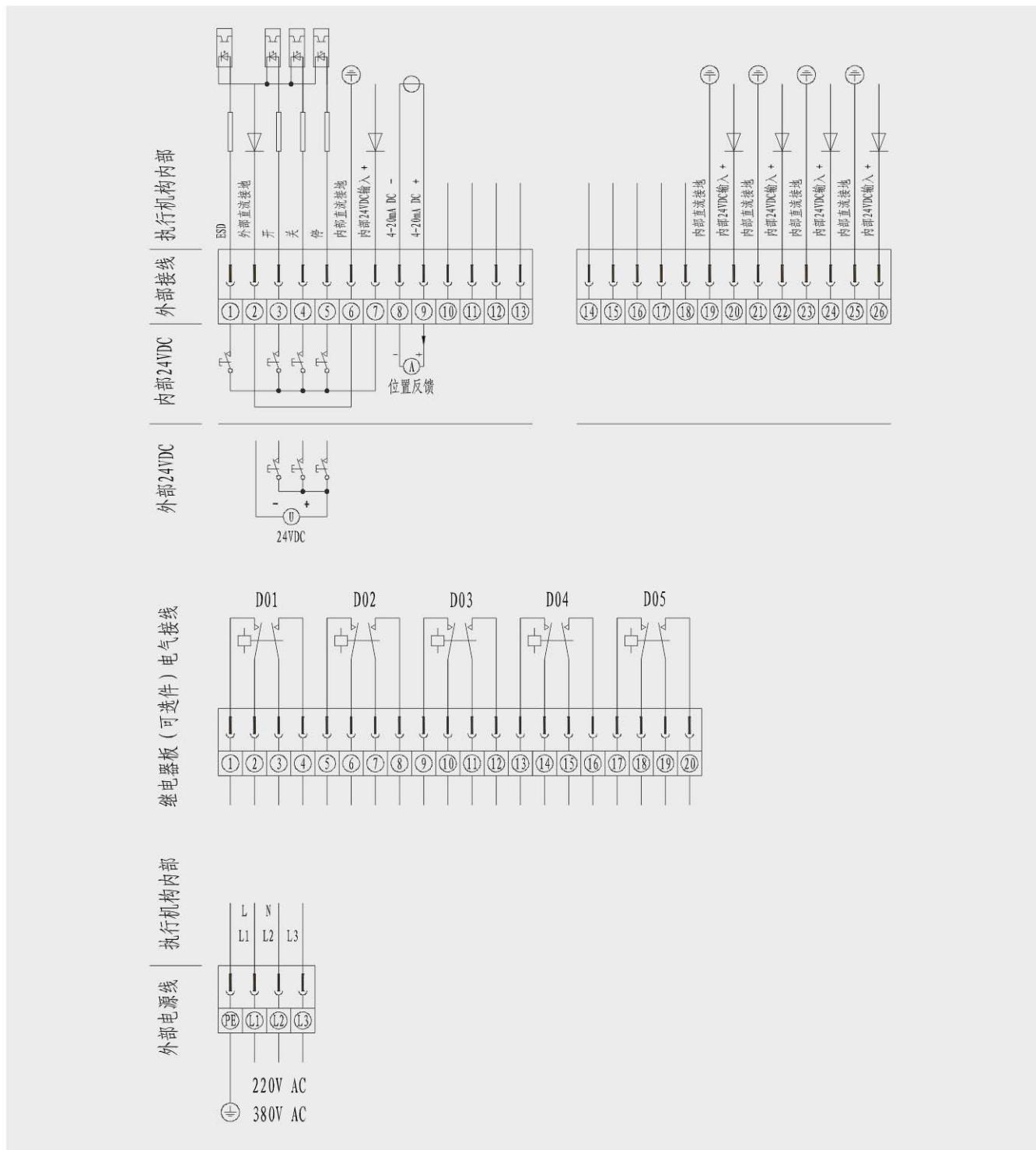


表 Table (12)

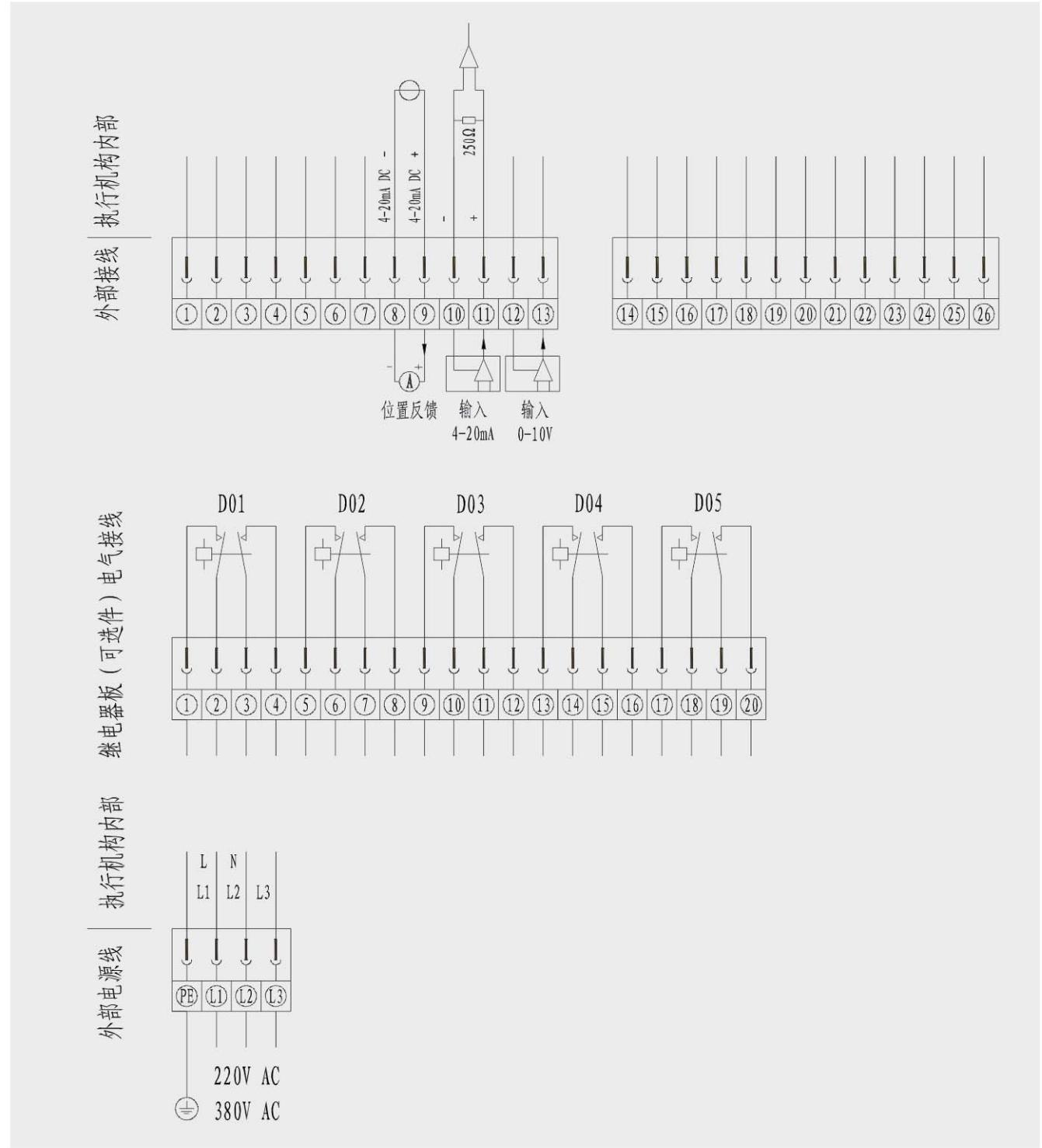
输入和输出 Input and Output		接线端子序号 Terminal serial number	端子排 Terminal row
供电电源 Power supply	220VAC	L1、L2、L3和PE	X3
	380VAC	L1、L2、L3和PE	
开关量 Switch quantity	输入Input	1、3、4、5	X1.1
	输出Output	10、11 8、9	
内部24VDC输出 Internal 24VDC output		6、7	
继电器干接点输出 Relay dry contact output		1、2、3、4、5、6、7、8、9、10、11、12、13、14、15、16、17、18、19、20	X2
内部24VDC输出输入 Internal 24VDC output input		19、20、21、22、23、24、25、26	X1.2

Control and Wiring 控制与接线

电液动执行机构调节型接线图
Regulating wiring diagram of electro-hydraulic actuator



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电液动执行机构切斷型接线图**Electro-hydraulic actuator cut-off type wiring diagram**

Ordering Instructions 订货须知

1. 开关型开关量输入端子3、4、5对应开、关、停三个信号，1为内接ESD信号端子，若内部提供24V开关电源，端子7为公共端（24VDC 正极），2与6需短接为24VDC负极；

2. 调节型模拟量输入分：

- A、电流输入(4~20mAADC)对应接线端子为11(+)和10(-);
- B、电压输入(1~10VDC)对应接线端子为9(+)和8(-);

3. 调节型和开关型都带五组继电器干接点输出。

继电器输出1(DO1)对应1、2、3、4端子，1和2为常闭接点3和4是常开接点。

继电器输出2(DO2)对应5、6、7、8端子，5和6为常闭接点7和8是常开接点。

继电器输出3(DO3)对应9、10、11、12端子，9和10为常闭接点11和12是常开接点。

继电器输出4(DO4)对应13、14、15、16端子，13和14为常闭接点15和16是常开接点。

继电器输出5(DO5)对应17、18、19、20端子，17和18为常闭接点19和20是常开接点。

本执行机构带有五组继电器，每个输出继电器都带有一组常闭触点供用户选择，且每个输出继电器所代表的含义都可根据用户的需求进行组态定义。

出厂设定为：

- DO1--关到位报警输出；
- DO2--开到位报警输出；
- DO3--总故障报警输出；
- DO4--远程/就地；
- DO5--备用（ESD内接）。

1. Switch-type input terminals 3, 4 and 5 correspond to on, off and stop signals. 1 is the internal ESD signal terminal, if the internal 24V switching power supply is provided, terminal 7 is the common terminal (24VDC positive terminal), 2 and 6 need to be short-connected as 24VDC negative terminal;

2. Adjustable analog input points:

- A. The current input (4~20MADC) corresponding terminal 11(+) and 10(-);
- B. Voltage input (1~10VDC) corresponding terminal 9(+) and 8(-);

3. Regulating type and switch type both with five groups of dry contact relay output.

Relay output 1(DO1) corresponds to terminals 1, 2, 3 and 4. 1 and 2 are normally closed contacts 3 and 4 are normally open contacts.

Relay output 2(DO2) corresponds to terminals 5, 6, 7, and 8. 5 and 6 are normally closed contacts and 7 and 8 are normally open contacts.

Relay output 3(DO3) corresponds to terminals 9, 10, 11 and 12. 9 and 10 are normally closed contacts 11 and 12 are normally open contacts.

Relay output 4(DO4) corresponds to terminals 13, 14, 15 and 16. 13 and 14 are normally closed contacts 15 and 16 are normally open contacts.

Relay output 5(DO5) corresponds to terminals 17, 18, 19 and 20. 17 and 18 are normally closed contacts 19 and 20 are normally open contacts.

The actuator has five groups of relays, each output relay has a group of normally closed contacts for users to choose, and the meaning of each output relay represents can be configured according to the needs of users.

Factory setting:

- DO1--Alarm output when closed properly;
- DO2--Open alarm output in place;
- DO3--Total fault alarm output;
- DO4--Remote/in-place; DO5 Standby (ESD internal connection).

ZSS

系列气动立推式执行器

Pneumatic Crank Train Actuators



ZSS 系列

Overview

概述

ZSS系列气动活塞式执行机构以压缩空气度动力能源，接受模拟量或开关量两种信号，随着信号变化产生角位移。执行器可带如下附件：阀门定位器、位置变送器、空气过滤减压器、电磁阀、回讯器、接线箱等附件。

ZSS系列执行机构以直行程位移，通过支点变换为0~70°或0~90°转角，并利用气缸最合理位置设置顶装或旁装手操机构，形成执行机构，手操机构一体化。

该气动执行器是引进国外先进技术国产化产品。其特点是始终点输出力矩大，结构简单，摩擦力小，机械效率高。它广泛应用石油、化工、电力、冶金、污水处理等工业部门来控制各种旋转式阀门的切断作用。

ZSS series pneumatic piston actuators with compressed air degree of dynamic force energy, receive analog or switching signals, with the signal changes to produce angular displacement. Actuator can be equipped with the following accessories: valve positioner, position transmitter, air filter decompressor, solenoid valve, echo device, junction box and other accessories.

ZSS series actuator by straight stroke displacement, through the fulcrum transformation into 0 ~ 70° or 0 ~ 90° Angle, and the most reasonable position of the cylinder set up top or side mounted hand operation mechanism, the formation of the actuator, hand operation mechanism integration.

The pneumatic actuator is the introduction of foreign advanced technology domestic products. Its characteristics are always point output torque, simple structure, small friction, high mechanical efficiency. It is widely used in petroleum, chemical industry, electric power, metallurgy, sewage treatment and other industrial sectors to control the cutting off effect of various rotary valves.



Main Technical Parameters And Performance Indexes

主要技术参数及性能指标

项目 Project	型号 Model	ZSS-S系列 Series	ZSS-D系列 Series	附件选购 Attachment of choose and buy
	双作用型 Double role	单作用型 Single acting type		
用途 With the way		调节或切断 To adjust or cut off		
动力源 Power supply		气源压力 300~1000kPa Air source pressure 300~1000kPa		
气源接头 Air supply connection		G1/4、G3/8、G1/2、G1		定位器、 The locator,
输入信号 The input signal		电信号4~20mA.DC 气信号20~100kPa Electrical signal 4~20mA.DC gas signal 20~100kPa		空气过滤减压器、 Air filter pressure reducer,
输出角度 The output Angle		0~90(范围内可调) 0~90(adjustable in range)		限位开关、 Limit switch,
允许环境温度 Permissible ambient temperature		-40°C ~ +80°C		电磁阀、 Solenoid valve,
动作 Move for				位置变送器、 Position transmitter,
基本误差 The basic error		带进口定位器±1%，带国产定位器±1.5% With imported locator ±1%, with domestic locator ±1.5%		手操机构、 Hand operation mechanism,
回差 Back to the poor		带进口定位器≤1%，带国产定位器≤1.5% With imported locator ≤1%, with domestic locator ≤1.5%		贮气罐等 Air tank etc.
始终点偏差 Constant point deviation		小于行程±1.5%，小于全行程±2% Less than stroke ±1.5%, less than the full stroke ±2%		
死区 Dead zone		0.5%, 0.8%		
标准涂色 The standard color		PANTONE 173C		

Structure And Working Principle 结构及工作原理

气动立推转角式执行机构是一种立推直线运动、曲柄连杆机构转换成 $0 \sim 70^\circ$ 或 $0 \sim 90^\circ$ 角行程，执行器主要由气缸和箱体构成（见图3~5），它同旋转阀门配套使用，如：蝶阀、球阀、旋转阀等。旋转阀在开启或关闭时所需力矩为最大，特别是蝶阀。我公司生产的气动立推式执行机构正是结合旋转阀的这一特性，在 0° 或 90° 时实现力矩最大利用化。转角式立推执行机构特有的输出力矩曲线（见图1），很好的实现了阀门的开启和关闭。该执行机构分双作用与单作用（弹簧复位）两种，双作用输出力矩可达70000Nm，能满足特大阀门配套。

Pneumatic vertical thrust rotary actuator is a vertical thrust linear motion, crank connecting rod mechanism into $0 \sim 70^\circ$ or $0 \sim 90^\circ$ stroke, the actuator is mainly composed of cylinder and box (see figure 3~5), it is used with rotary valves, such as: butterfly valve, ball valve, rotary valve, etc. Rotating valves require the greatest torque when opening or closing, especially butterfly valves. The pneumatic vertical push actuator produced by our company is combined with this characteristic of the rotary valve to realize the maximum utilization of torque at 0 or 90° . The unique output torque curve of the rotary vertical push actuator (see figure 1) enables the valve to be opened and closed. The actuator is divided into double acting and single acting (spring return) two, double acting output torque can reach 70000Nm, can meet the extra-large valve matching.

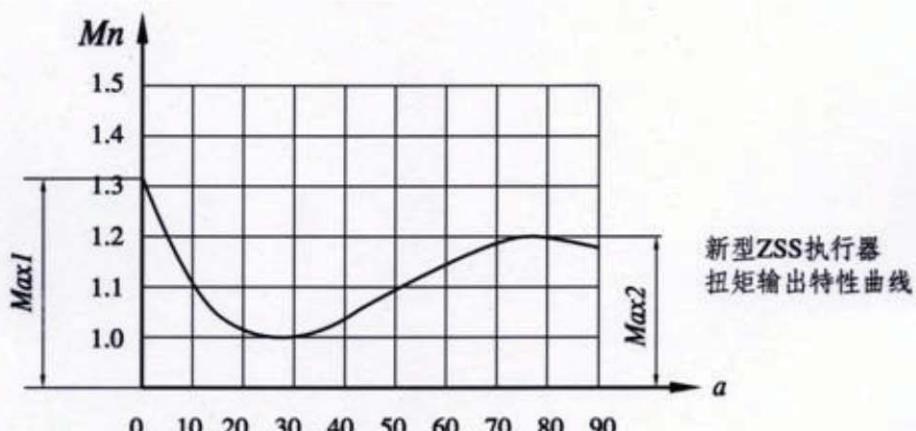


图1
Figure 1

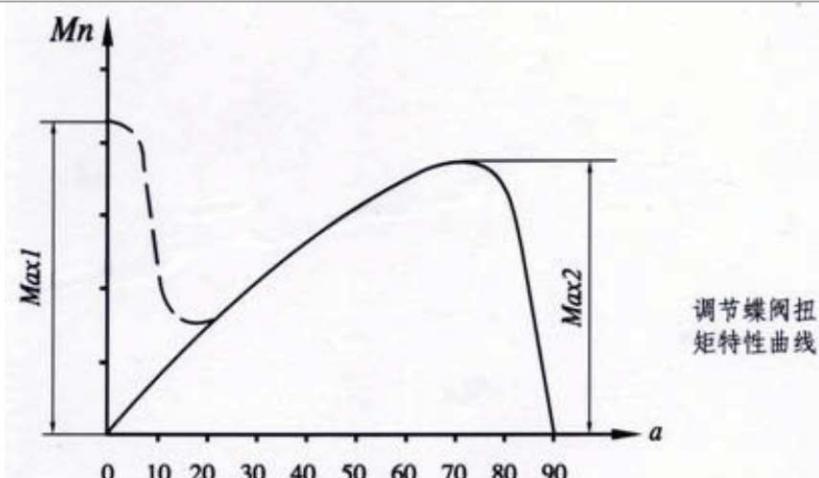


图2
Figure 2

执行机构动作原理 Principle of action of actuator

1. 气动立推式执行机构动作原理：

气缸活塞在空气压力作用下运动，通过活塞杆带动拐臂转动，从而转化为箱体主轴输出，使阀门运动。气动立推式执行机构分双作用和单作用两种，单作用分为气开式（弹簧关）和气关式（弹簧开）（见图4、图5）。

双作用执行机构通过气源压力，推动活塞向下（阀开）或向上（阀关）运动，实现阀门开启或关闭。上下气缸间通过一手动平衡阀相连，需自动控制时，将平衡阀关闭。手动操作时需将平衡阀打开。（见图3）

Pneumatic vertical push type actuator action principle:

The cylinder piston moves under the action of air pressure, through the piston rod to drive the crank to rotate, thus converted into the box spindle output, so that the valve movement. Pneumatic vertical push actuator is divided into two kinds of double acting and single acting. Single acting is divided into gas open type (spring off) and gas closed type (spring on) (see figure 4, figure 5).

The double-acting actuator pushes the piston down (valve open) or up (valve close) to open or close the valve through the air source pressure. The upper and lower cylinders are connected by a manual balance valve. When automatic control is needed, the balance valve is closed. Open the balance valve for manual operation. (see figure 3)

单作用执行机构是气缸内自带弹簧，空气压力推动气缸活塞单向运动，此时活塞必须克服弹簧阻力，所以单作用执行机构输出力矩相对双作用执行机构偏小。当气源故障时，通过气缸弹簧力带动主轴旋转运动，实现阀门安全复位。（见图4、5）

Single acting actuator is the cylinder with a spring, air pressure to promote the cylinder piston one-way movement, at this time the piston must overcome the spring resistance, so the single acting actuator output torque is smaller than the double acting actuator. When the air source fails, the cylinder spring force drives the spindle to rotate and realize the safe reset of the valve. (See Figure 4 and 5)

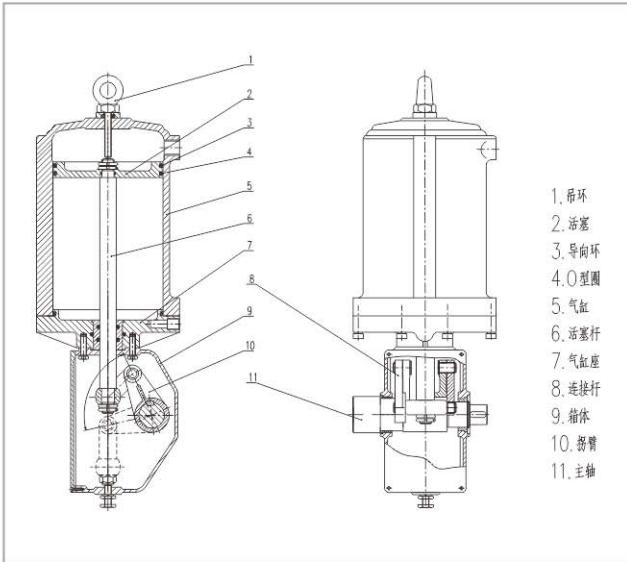


图3. 气动立推式双作用执行机构结构图

Fig. 3 Structure diagram of pneumatic vertical double acting actuator

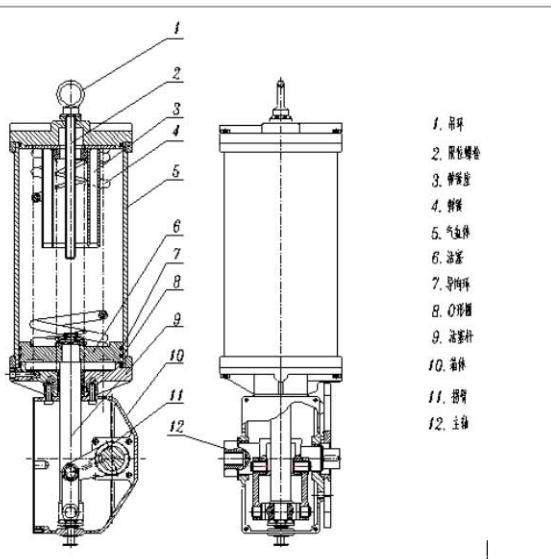


图4. 气动单作用执行机构（弹簧开）
Fig. 4 Pneumatic single acting actuator (spring open)

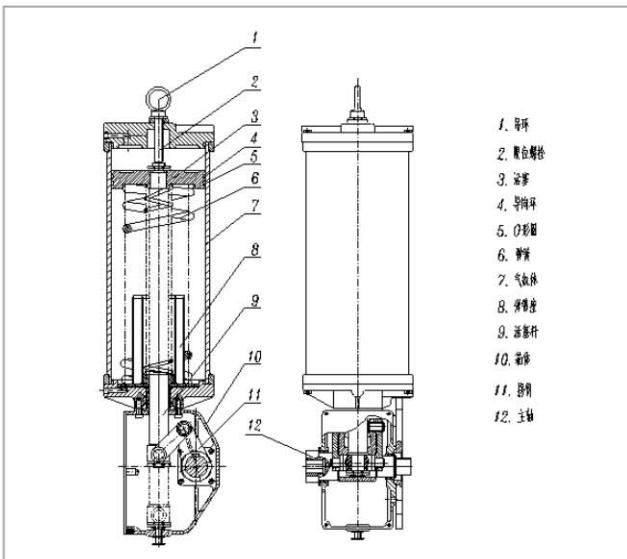


图5. 气动单作用执行机构（弹簧关）
Fig. 5 Pneumatic single acting actuator (spring shut)

2. 手操机构：

本产品采用离合操作（图6），通过手动—自动切换手柄带动蜗杆和蜗轮脱离或吻合，实现阀门气动或手动操作。阀门需仪表控制时，只需将切换手柄打到自动位置，即可实现气动执行机构动作；需现场手动操作时，将切换手柄打到手动位置即可。

Hand operation mechanism:

This product adopts clutch operation (Fig. 6). Through manual—automatic cutting handle, the worm and worm wheel can be disengaged or matched to realize pneumatic or manual operation of the valve. When the valve needs instrument control, it only needs to hit the switch handle to the automatic position to realize the action of pneumatic actuator. When manual operation is needed on site, press the switch handle to the manual position.

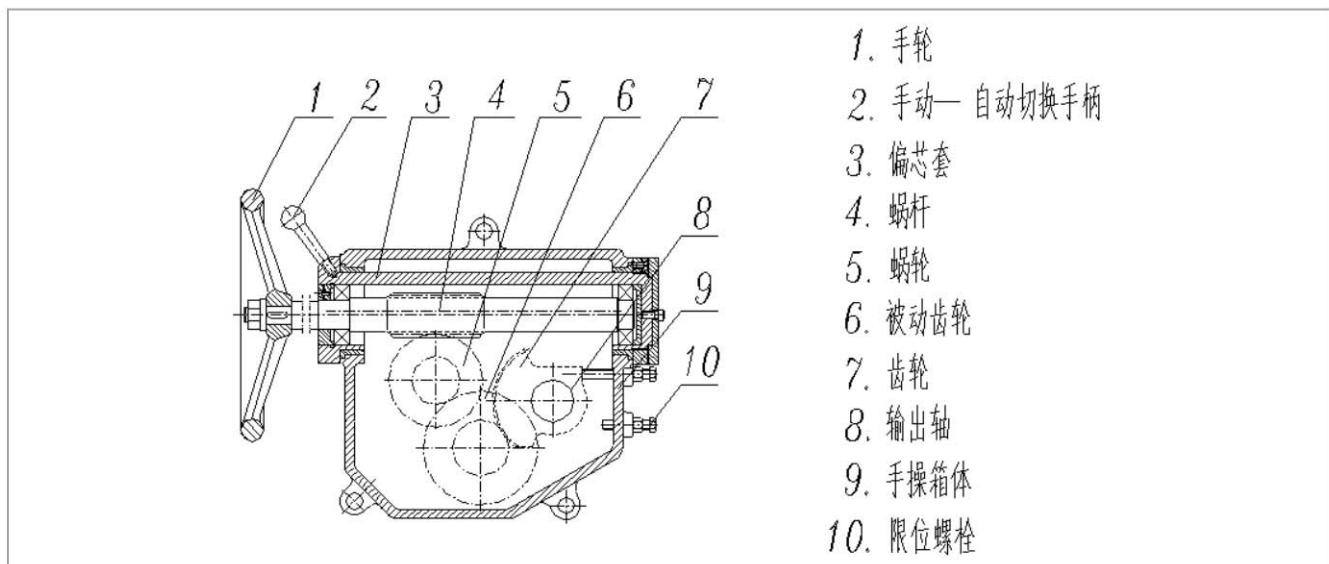


图6. 手操机构

Figure 6. Hand operation mechanism

3. 气动立推式执行机构和手操机构配合使用，很好的利用了两者的特点，操作、安装方便。达到阀门同执行器的合理化使用。(见图7)

Pneumatic vertical push actuator and hand operation mechanism are used together, which makes good use of the characteristics of both, and is easy to operate and install. Achieve the reasonable use of valves and actuators. (see figure 7)

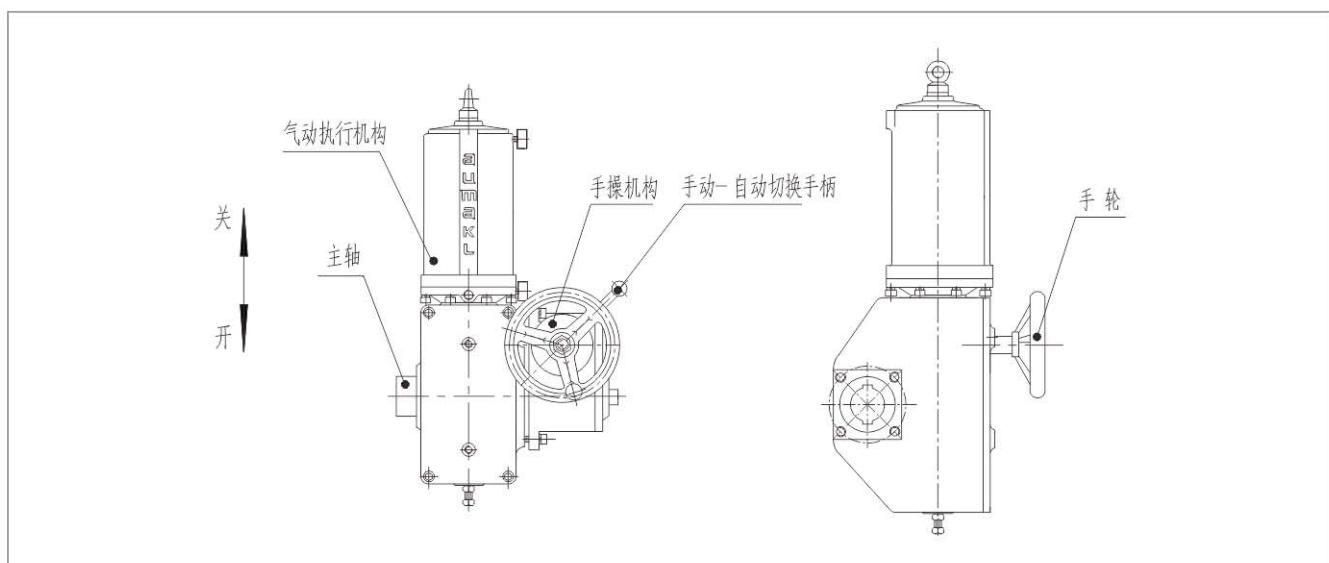


图7. 气动立推式执行机构带手操

Fig. 7 Pneumatic vertical push actuators with hand operation

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特别提示：阀门在弹簧复位（关闭阀门）或是气动开启（关闭）阀门过程中，任何一个开度都不能使用“自动—手动”切换。

使用手轮操作时，先将气缸内的残余气体通过电磁阀（或阀门控制箱）上的手控按钮排空（在气缸内有残余气体的情况下），双作用气缸先将执行器的平衡阀打开，然后将转换手柄置于“手动”位置，使蜗杆与蜗轮处于完全吻合状态。用手轮操作时请勿用力过大（不可借用其他的外力工具）。

注：操作时，请参照执行器上铭牌指示。

Special note: the valve in the spring return (close the valve) or pneumatic opening (close) valve process, any one of the opening can not be used "auto-manual" switch.

Using the handwheel operation, first the residual gas in the cylinder through the electromagnetic valve or valve control box on the manual button emptying (in the case of a cylinder with residual gas), double-acting cylinder actuators first balancing valve open, and then convert the handle in the "manual" position, the worm and worm wheel in a fully consistent state. Do not use too much force when operating with hand wheel (do not borrow other external force tools).

Note: Please refer to the instructions of the nameplate on the actuator during operation.

执行机构工作型式 Operating type of actuator

1. 调节型

执行器的比例和动作是由阀门定位器来完成的，它是靠平衡相对力而动作。平衡杆一头靠铰链连接，另一头与导阀边接。定位器根据输入信号的不同分为两种类型，一种是输入电信号，称为电/气阀门定位器，一种是输入气信号，称为气信号阀门定位器。电/气阀门定位器输入信号（0~10mA或4~20mA）。气动阀门定位器输入信号（20~100kPa）。执行器随着信号的增加使用执行器在不同位置进行调节。

2. 二位式

执行器的二位式切断动作是由电磁阀来完成的，它是靠触点信号来控制执行器的角位移带动阀门关闭或打开。

3. 手动操作机构

在自动运行时，用偏心套蜗轮，蜗杆分离。需要手动作用时，先将切换机构拨到手动位置上，同时关闭总气源与打开平衡阀。

4. ZPC-01位置变送器（也称阀位传送器）

是利用电位器原理，实现电压与电流的转换，输入24V.DC二线制，输出4~20mA。

1. The external regulation

The proportion and action of the actuator is performed by the valve positioner, which acts by balancing the relative forces. One end of the balance bar is connected by a hinge, and the other end is connected with the edge of the pilot valve. The positioner is divided into two types according to the different input signals, one is the input electrical signal, called the electric/gas valve positioner, the other is the input gas signal, called the gas signal valve positioner. Electrical/gas valve positioner input signal (0~10mA or 4~20mA). Pneumatic valve positioner input signal (20~100kPa). Actuators use actuators to adjust in different positions as the signal increases.

2. Two type

The two – position cutting action of the actuator is completed by the solenoid valve, which controls the angular displacement of the actuator by the contact signal to drive the valve to close or open.

3. Manual operation mechanism

In automatic operation, with eccentric worm gear, worm separation. When manual action is required, the switching mechanism shall be moved to the manual position first, and the total air source shall be closed and the balance valve opened at the same time.

4. ZPC-01 position transmitter (also known as valve position transmitter)

Is the use of potentiometer principle, voltage and current conversion, input 24V.DC two-wire, output 4~20mA.



Output Torque

输出力矩

双作用扭矩表**Double acting torque****单位 Unit: N.m**

型号 Model	气源压力 Air pressure (MPa)							
	0.3		0.4		0.5		0.6	
	0°	90°	0°	90°	0°	90°	0°	90°
ZSS1-100D	258	145	343	193	429	241	515	290
ZSS1-125D	402	226	536	302	671	377	805	453
ZSS1-160D	659	373	879	497	1099	621	1319	746
ZSS2-160D	879	497	1172	663	1465	828	1758	994
ZSS2-200D	1373	773	1831	1030	2289	1288	2747	1546
ZSS2-250D	2146	1217	2861	1623	3577	2028	4292	2434
ZSS3-250D	2574	1460	3433	1947	4291	2433	5149	2920
ZSS3-280D	3229	1844	4306	2458	5382	3073	6459	3688
ZSS3-350D	5046	2884	6728	3846	8410	4807	10092	5769
ZSS4-350D	6934	3960	9245	5280	11557	6600	13868	7920
ZSS4-400D	9057	5189	12076	6918	15095	8648	18113	10378
ZSS4-450D	11462	6556	15283	8741	19104	10926	22925	13111
ZSS5-450D	13628	7794	18171	10392	22713	12990	27256	15588
ZSS5-500D	16825	9609	22433	12811	28041	16014	33649	19217
ZSS5-550D	20358	11612	27144	15483	33930	19354	40716	23225
ZSS6-550D	25550	14574	34066	19432	42583	24290	51099	29147
ZSS6-600D	30406	17374	40541	23166	50677	28957	60812	34749
ZSS6-650D	35685	20420	47580	27227	59475	34033	71370	40840

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单作用扭矩表**Single acting torque**

单位 Unit: N.m

型号 Model	弹簧复位扭矩 Spring return torque		气源压力 Air pressure (MPa)	
	0°	90°	0°	90°
ZSS1-100S	95	149	194	99
ZSS1-125S	148	233	303	154
ZSS1-160S	244	382	497	253
ZSS2-160S	325	510	662	338
ZSS2-200S	505	797	1035	525
ZSS2-250S	795	1245	1617	828
ZSS3-250S	954	1493	1939	993
ZSS3-280S	1205	1873	2433	1254
ZSS3-350S	1884	2927	3801	1961
ZSS4-350S	2587	4022	5224	2693
ZSS4-400S	3390	5253	6823	3528
ZSS4-450S	4283	6648	8635	4458
ZSS5-450S	5092	7904	10266	5300
ZSS5-500S	6278	9758	12675	6534
ZSS5-550S	7587	11807	15336	7896
ZSS6-550S	9521	14819	19247	9910
ZSS6-600S	11351	17636	22906	11815
ZSS6-650S	13341	20697	26883	13886

单作用扭矩表**Single acting torque**

单位 Unit: N.m

型号 Model	弹簧复位扭矩 Spring return torque		气源压力 Air pressure (MPa)	
	0°	90°	0°	90°
ZSS1-100S	120	189	240	122
ZSS1-125S	187	295	376	191
ZSS1-160S	308	484	615	314
ZSS2-160S	410	645	820	418
ZSS2-200S	638	1007	1282	650
ZSS2-250S	1004	1574	2003	1024
ZSS3-250S	1204	1888	2403	1229
ZSS3-280S	1521	2368	3014	1552
ZSS3-350S	2380	3700	4709	2428
ZSS4-350S	3267	5085	6472	3333
ZSS4-400S	4281	6642	8453	4367
ZSS4-450S	5408	8406	10698	5518
ZSS5-450S	6430	9994	12719	6560
ZSS5-500S	7927	12338	15703	8087
ZSS5-550S	9580	14929	19001	9774
ZSS6-550S	12023	18736	23846	12266
ZSS6-600S	14334	22298	28379	14623
ZSS6-650S	16847	26169	33306	17187

**单作用扭矩表****Single acting torque****单位 Unit: N.m**

型号 Model	弹簧复位扭矩 Spring return torque		气源压力 Air pressure (MPa)	
	0°	90°	0°	90°
ZSS1-100S	143	224	291	147
ZSS1-125S	224	350	455	229
ZSS1-160S	368	574	745	377
ZSS2-160S	491	765	993	503
ZSS2-200S	763	1195	1552	782
ZSS2-250S	1202	1867	2425	1232
ZSS3-250S	1442	2240	2909	1478
ZSS3-280S	1822	2810	3649	1866
ZSS3-350S	2850	4390	5702	2919
ZSS4-350S	3913	6033	7835	4008
ZSS4-400S	5126	7879	10234	5251
ZSS4-450S	6477	9972	12953	6634
ZSS5-450S	7701	11856	15400	7888
ZSS5-500S	9493	14637	19012	9724
ZSS5-550S	11473	17711	23004	11752
ZSS6-550S	14399	22228	28871	14749
ZSS6-600S	17166	26453	34359	17583
ZSS6-650S	20175	31046	40324	20665

Outline and Connection Dimensions

外形及连接尺寸

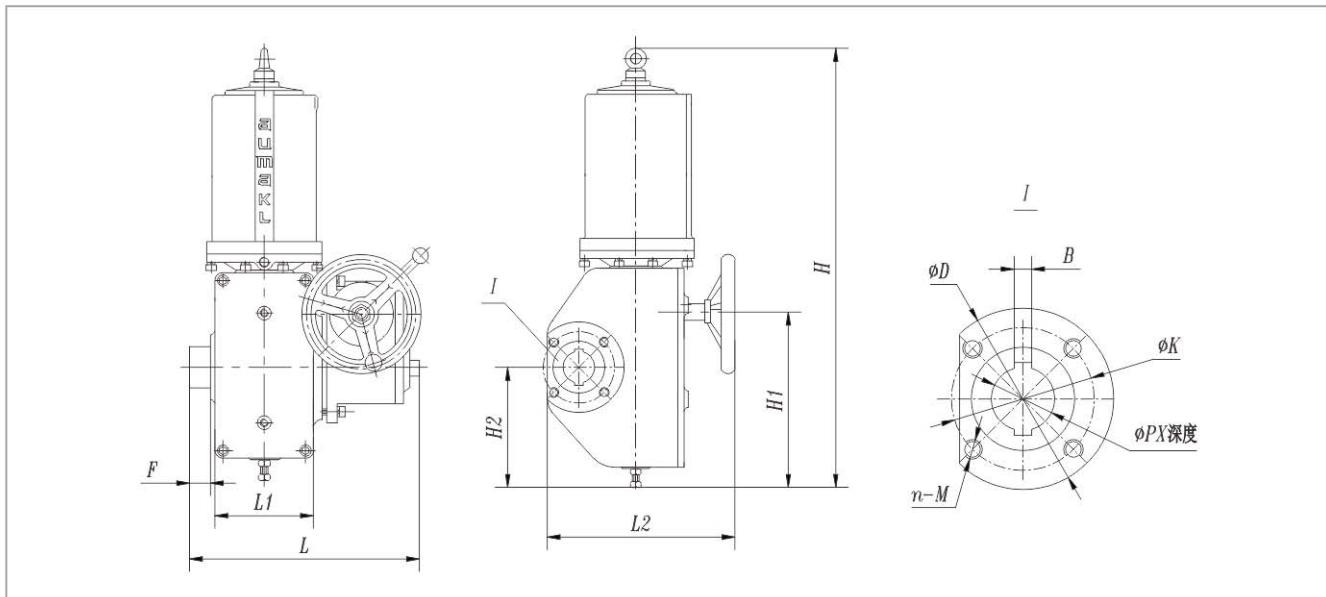


Fig. 8 Outline and Connection dimensions of double acting actuators

表1 双作用型执行机构外形及连接尺寸

Table 1 Outline and Connection dimensions of double acting actuators

单位unit: mm

代号 No. 规格 Specifications	H	H1	H2	L	L1	L2	F	φD	φK	φP×深度 Depth	2-B	n-M
ZSS1-D	625	280	225	380	185	330	25	150	125	36×50	10	4-M12
ZSS2-D	995	320	270	540	250	460	40	210	165	50×65	14	4-M20
ZSS3-D	1280	465	405	680	315	540	40	300	254	72×80	20	8-M16
ZSS4-D	1500	555	460	755	350	650	60	350	298	100×120	28	8-M20
ZSS5-D	1790	605	500	795	420	1030	80	415	356	120×145	32	8-M30
ZSS6-D	2200	715	600	880	460	1030	100	475	406	160×180	40	8-M36

注：执行机构连接尺寸可根据用户需求定制。

Note: Connecting dimension of actuator can be customized according to user's requirement.

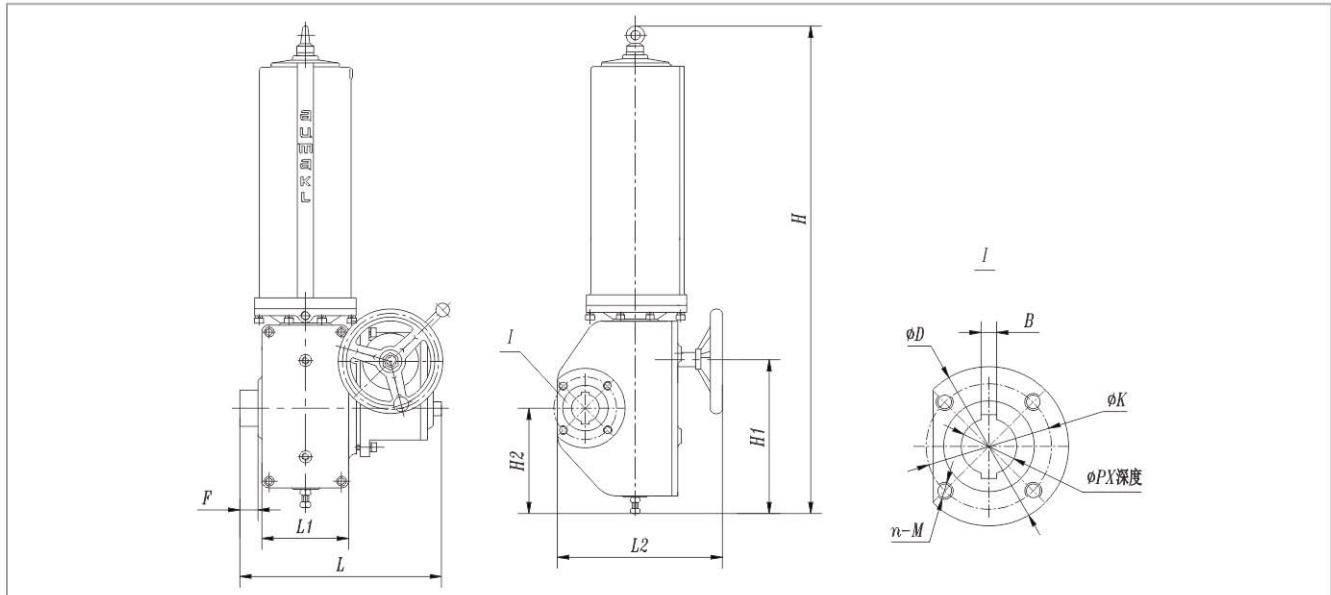


图9 单动作型外形及连接尺寸图
Fig. 9 Single action shape and connection size diagram

表2单作用型执行机构外形及连接尺寸

Table 2 outline and connection dimensions of single acting actuators

代号 No. 规格 Specifications	H	H1	H2	L	L1	L2	F	φD	φK	φP×深度 Depth	2-B	n-M
ZSS1-S	950	280	225	380	185	330	25	150	125	36×50	10	4-M12
ZSS2-S	1160	320	270	540	250	460	40	210	165	50×65	14	4-M20
ZSS3-S	1500	465	405	680	315	540	40	300	254	72×80	20	8-M16
ZSS4-S	1750	555	460	755	350	650	60	350	298	100×120	28	8-M20
ZSS5-S	2150	605	500	795	420	1030	80	415	356	120×145	32	8-M30
ZSS6-S	2540	715	600	880	460	1030	100	475	406	160×180	40	8-M36

Material Of Main Parts And Components

主要零部件材料

零件名称 Part name	材料及牌号 Material and brand
气缸体 Cylinder block	ZG230 ~ 450 (内径表面镀硬铬) / 铝合金 ZG230 ~ 450 (inner diameter surface plated with hard chrome)/aluminum alloy
轴套 Shaft sleeve	直线轴承 Linear bearing
箱体 Enclosure	ZG230 ~ 450
密封环 Sealing ring	丁腈橡胶或氟橡胶(低温时用硅橡胶) Nitrile or fluorine rubber (silicone rubber at low temperature)

Installation, Maintenance And Maintenance

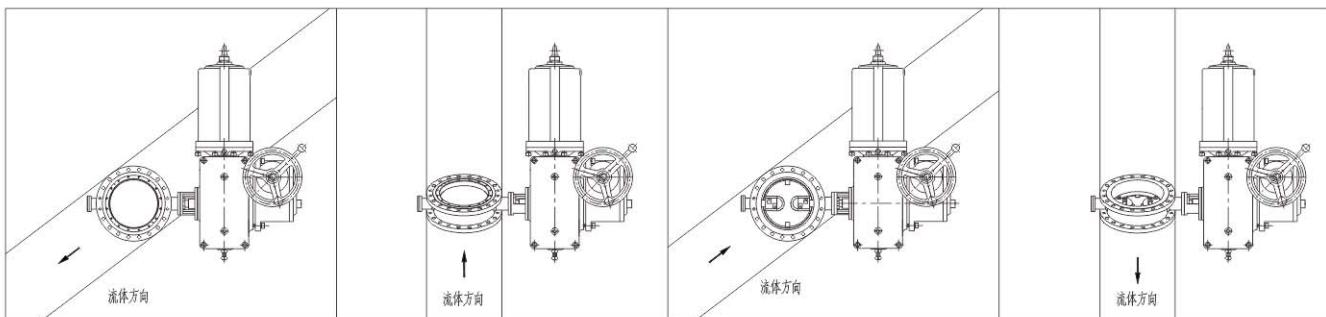
安装、维护与保养

1. 气动立推式执行机构一般正立安装（除特殊说明外），阀门可以在水平或垂直管道上安装。

对于 $\geq ZSS4-D$ 或 $\geq ZSS3-S$ ，考虑执行机构重量，执行机构需打支撑或者悬吊。

Pneumatic vertical push actuators are generally installed vertically (except for special instructions), the valve can be installed on the horizontal or vertical pipeline.

For $\geq ZSS4-D$ or $\geq ZSS3-S$, considering the weight of the actuator, the actuator shall be supported or suspended.



2. 正常检查：每年进行一次，检查各管接着部分有无漏气，应换O型密封圈或有关螺钉，检查空气的净化情况，排除过滤器中冷凝水，检查各螺纹连接部有无松动。

3. 输出轴上的轴承、手操机构：切换轴上的轴承，等转动部位每三个月或半年加一次足够的润滑油脂。

4. 检修时应检查并清洗缸套及活塞，如发现O型密封圈有损坏或老化时应及时更换，装配时应在气缸壁和密封圈沟槽内涂涂滑油，并注意缓慢将活塞轻轻推入气缸，以免损坏O型密封圈。

5. 气源压力应在0.3~1.0MPa (G) 范围内，气源应经除尘、脱水、除油等净化处理。

6. 对于单作用执行机构，在撤卸气缸时，一定要使用专用工具。

2. Normal inspection: once a year, check whether there is air leakage in the next part of the pipe, O type sealing ring or relevant screws should be replaced, check the purification of air, exclude condensate water in the filter, check whether the thread connection part is loose.

3. Bearings on the output shaft and hand operation mechanism: the bearings on the switching shaft and other rotating parts should be lubricated once every three months or half a year.

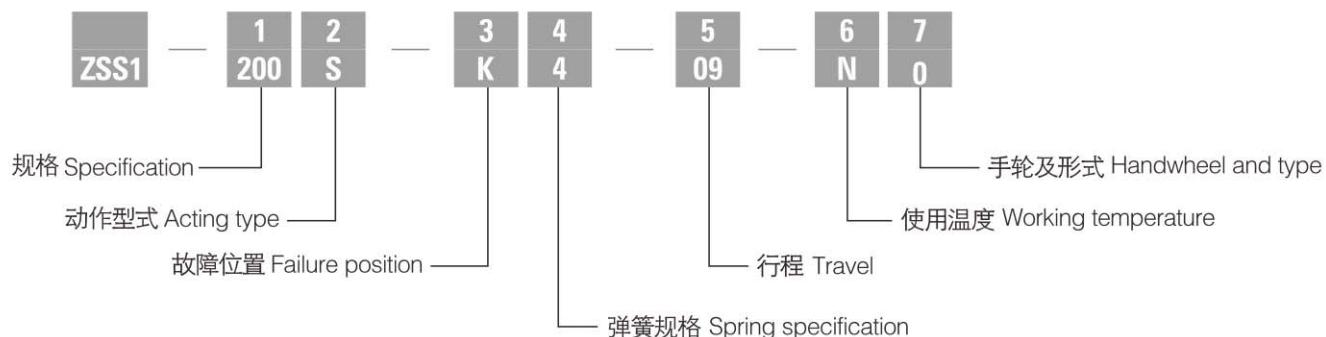
4. The cylinder liner and piston should be checked and cleaned during maintenance. If the O-ring is found damaged or aging, it should be replaced in time.

5. The air source pressure should be within the range of 0.3~1.0MPa (G). The air source should be purified by dust removal, dehydration, oil removal and other treatment.

6. For single-acting actuators, special tools must be used when unloading the cylinder.

Model Preparation Description

型号编制说明



1. 规格 Specification

代号 Code	尺寸 Size	代号 Code	尺寸 Size
130		400	400
160	180	450	450
200	200	500	500
250	250	550	550
300	300	600	600
350	350	

2. 动作型式 Acting type

代号 Code	说明 Description
S	单作用 Single acting
D	双作用 Double acting

3. 故障位置 ①Failure position

代号 Code	说明 Description
K	故障关位FC(弹簧关) Fail to close FC (spring off)
B	故障开位FO(弹簧开) Fail to open FO (spring on)

注: ①—一双作用无此代号。

②—规格和行程可根据用户要求定制。

Note: ①—No code for double acting.

②—Specifications and itinerary can be customized according to customer requirements.

4. 弹簧规格 ①Spring specification

代号 Code	说明 Description
4	4bar弹簧 Spring
5	5bar弹簧 Spring
6	6bar弹簧 Spring

5. 行程 ②Travel

代号 Code	说明 Description
07	行程Travel: 0~70°
09	行程Travel: 0~90°

6. 使用温度 Working temperature

代号 Code	说明 Description
N	标准型 Standard type: -20~+80°C
L	低温型 Low temperature type: -40~+80°C
H	高温型 High temperature type: -20~+150°C

7. 手轮及形式 Handwheel type

代号 Code	说明 Description
0	无手轮 Without handwheel
1	离合式手轮 Clutch type handwheel
4	液压手操 Hydraulic manual-operated mechanism



Ordering Instructions 订货须知

订货时请详细注明：

型号规格及输入信号范围。

订货时应详细列出配套供货登记表附件，如阀位开关、电磁阀及电/气阀门定位器等的防爆等级（根据阀门安装地的防爆区域等级确定）。

Please specify when ordering:

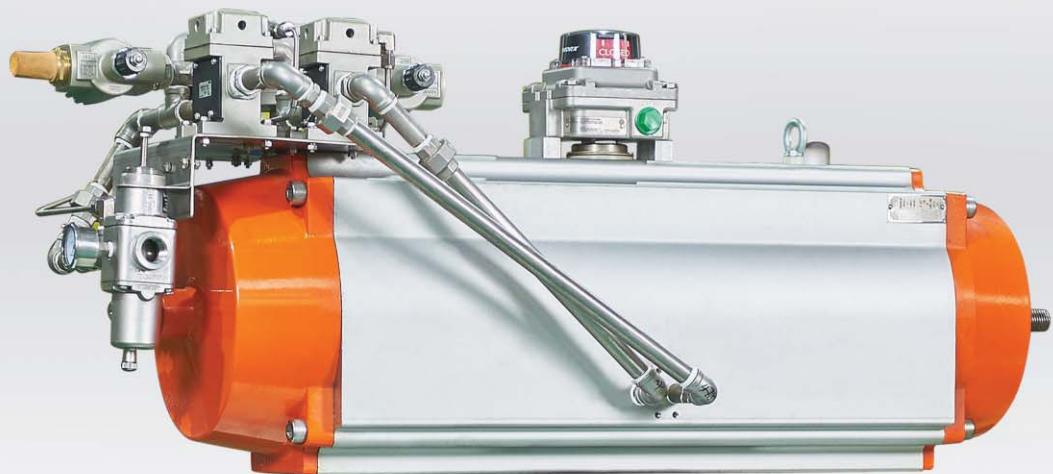
Type specification and input signal range.

When placing an order, the appendix of the matching supply registration form should be listed in detail, such as the explosion-proof grade of valve position switch, solenoid valve and electric/gas valve positioner (according to the explosion-proof zone grade of the valve installation site).

ZSC

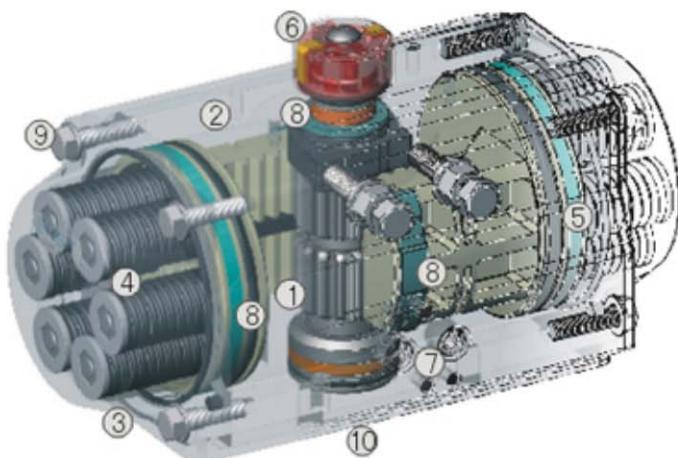
系列气动齿轮齿条式执行器

Rack and Pinion Pneumatic Actuator



ZSC 系列

Model Compilation 型号编制及说明

**1**

对称结构设计 Symmetrical structure design

齿轮齿条双活塞对称结构设计，动作快速平稳，精度高，输出功率大，通过简单的改变活塞装配位置可得到反方向旋转。

Rack and pinion double piston symmetrical structure design, fast and stable action, high precision, large output power, through simple change of piston assembly position can be obtained in the opposite direction of rotation.

2

铝合金缸体 Aluminum alloy cylinder block

挤压的优质铝合金缸体，经精密加工的内孔和外部表面进行硬质阳极氧化处理（特殊情况下阳极氧化+特氟隆涂层），使用寿命更长，摩擦系数低。

Extruded high quality aluminum alloy cylinder body, through precision machined inner hole and external surface are hard anodized treatment (anodized + Teflon coating in special cases), long service life, low friction coefficient.

3

一体式设计 Integrated design

一体式设计，所有的双作用和单作用执行器型号，都具有相同的缸体和端盖，很方便通过加装弹簧或拆除弹簧来改变作用方式。

Integrated design, all double-acting and single-acting actuators have the same cylinder block and end cover, which makes it easy to change the mode of action by adding or removing springs.

4

组合式弹簧组 Combined spring group

组合式预荷安全弹簧组，不论在装配过程或使用现场中，都能方便而安全的安装或增减弹簧数量。

The combination type preloaded safety spring group, whether in the assembly process or in the use of the site, can be convenient and safe installation or increase or decrease the number of springs.

5

调节螺钉 Adjust the screw

外部侧面两个单独调节螺钉对于已安装在阀门上的执行器更是精确方便，调节阀开和阀关位置，如需全行程调节时则另外在两个端盖处配置较长调节螺钉。

Two separate regulating screws on the external side of the actuator has been installed on the valve is more accurate and convenient, regulating valve open and valve close position, if the need for full stroke adjustment, the other two end cover at the configuration of longer regulating screws.

概述 Overview

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

ZSC new pinion and rack type pneumatic actuators by our company integrated the latest technology at home and abroad, through CAD three-dimensional model innovation and optimization design, beautiful and compact appearance, modern modeling; The utility model materials and new processes are adopted to make the quality and performance of the products more reliable. Multi-specification selection is more economical and affordable; The products are in full compliance with the latest international standards and specifications to meet the current and future needs.



6

可视化指示 Visual indication

多功能位置指示器，现场可视化指示，符合VDI/VDE 3845、NAMUR标准槽，能安装并输出所有附件，如限位开关盒、电气定位器、位置传感器(倍福、图尔克)。

Multi-function position indicator, field visual indication, in line with VDI/VDE3845, NAMUR standard slot, can install and output all accessories, such as limit switch box, electrical locator, position sensor (Pepperl + Fuchs Turck).

7

符合NAMUR VDI/VDE 3845 标准

Compliance with NRMAR standards

气源接口符合NAMUR VDI/VDE 3845 标准，可直接安装NAMUR VDI/VDE 3845标准电磁阀。

Air source interface in accordance with NAMUR VDI/VDE 3845 standard, can be directly installed NAMUR VDI/VDE 3845 standard solenoid valve.

8

增加润滑 Increasing lubrication

齿条背面的复合材料轴瓦和活塞导向环以及输出轴的轴承等为防止金属对金属的摩擦，并且增加润滑，使其低摩擦、长寿命。

The composite bearing bush on the back of the rack and the piston guide ring and the bearing of the output shaft are designed to prevent the metal-to-metal friction and increase lubrication, so that it has low friction and long life.

9

采用 不锈钢材料 Made of stainless steel

所有的紧固件均采用不锈钢材料，长期抗腐蚀。

All fasteners are made of stainless steel for long-term corrosion resistance.

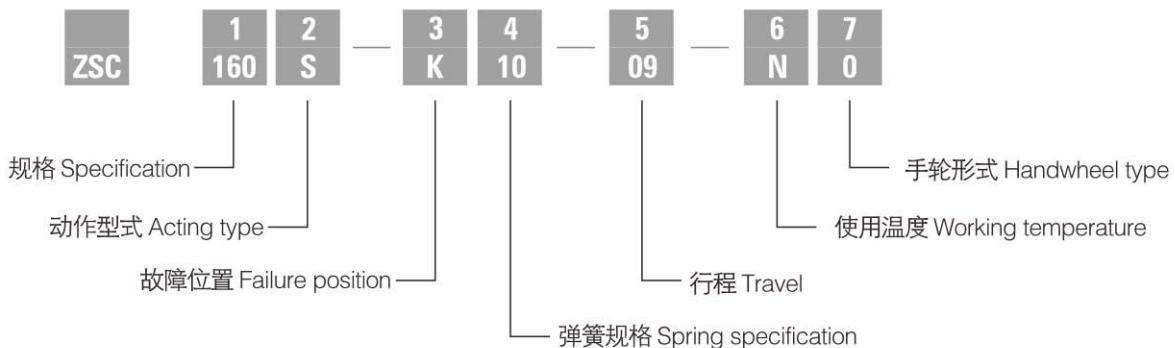
10

符合国际标准 Compliance with international standards

连接部分符合全国际标准规范ISO5211, DIN3337(F03-F25)使产安装具有互换性、通用性。

The connection part is in accordance with the new international standard ISO5211, DIN3337(F03-F25), so that the production and installation have interchangeability and versatility.

Product Specification And Model Description 产品规格型号说明



1. 规格 Specification

代号 Code	尺寸 Size	代号 Code	尺寸 Size
032	32	160	160
050	50	190	190
063	63	210	210
075	75	240	240
090	90	270	270
100	100	300	300
115	115	350	350
125	125	400	400
140	140		

2. 动作型式 Acting type

代号 Code	说明 Description
S	单作用 Single acting
D	双作用 Double acting

3. 故障位置 ①Failure position

代号 Code	说明 Description
K	故障关位FC(弹簧关) Fail to close FC (spring off)
B	故障开位FO(弹簧开) Fail to open FO (spring on)

7. 手轮及形式 Handwheel type

代号 Code	说明 Description
0	无手轮 Without handwheel
1	离合式手轮 Clutch type handwheel

4. 弹簧规格 ①Spring specification

代号 Code	说明 Description
05	5只弹簧Spring
06	6只弹簧Spring
07	7只弹簧Spring
08	8只弹簧Spring
09	9只弹簧Spring
10	10只弹簧Spring
11	11只弹簧Spring
12	12只弹簧Spring

5. 行程 ②Travel

代号 Code	说明 Description
07	行程Travel: 0~70°
09	行程Travel: 0~90°

6. 使用温度 Working temperature

代号 Code	说明 Description
N	标准型 Standard type: -20~+80°C
L	低温型 Low temperature type: -40~+80°C
H	高温型 High temperature type: -20~+150°C

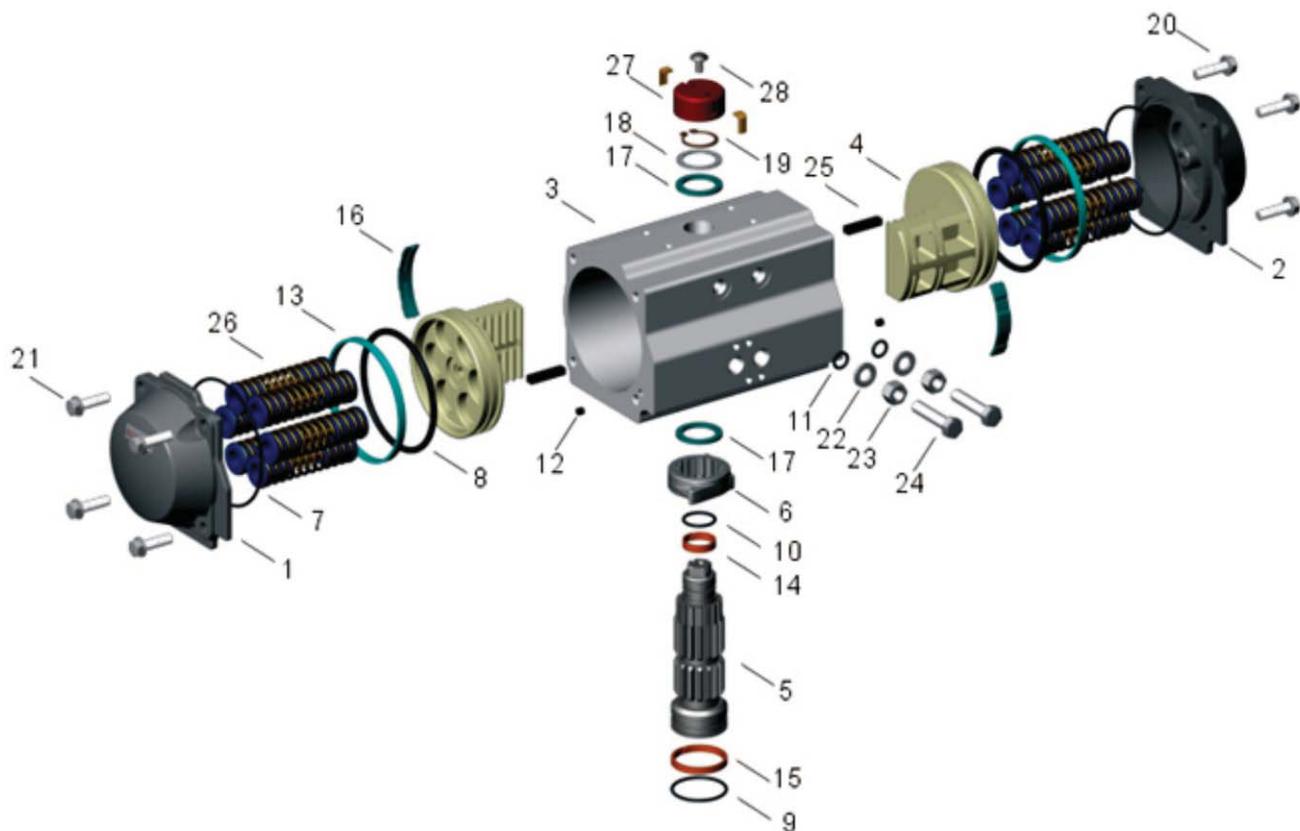
注: ①——双作用无此代号。

②——规格和行程可根据用户要求定制。

Note: ① — No code for double acting.

② — Specifications and itinerary can be customized according to customer requirements.

● Parts And Materials、Corrosion Protection 零部件及材料、防腐



零件 Parts	防腐等级 Anti-corrosion class	
	A	B
缸体 Cylinder block	阳极硬化 Anode hardening	特氟隆涂层+阳极硬化 Teflon coating + anodic hardening
端盖 End cover	金属聚酯涂层 Metallized polyester coating	特氟隆涂层 Teflon coating
输出轴 The output shaft	碳钢化学镀镍 Electroless nickel plating on carbon steel	碳钢化学镀镍或不锈钢 Electroless nickel plated or stainless steel for carbon steel
使用场合 Use occasions	一般场合 General situations	一般场合或低浓度酸性环境 General occasions or low concentration acidic environment

Part Name And Material

零件名称与材质

序号 No.	每台数量 Each number	零件名称 Part name	标准材料 Standard material	选用材料 Choose materials
01	1*	左端盖 Left end cover	压铸铝合金 Die-cast aluminium alloy	不锈钢 Stainless steel
02	1*	右端盖 Right end cover	压铸铝合金 Die-cast aluminium alloy	不锈钢 Stainless steel
3	1	缸体 Cylinder block	挤压铝合金 Extruded aluminium alloy	不锈钢 Stainless steel
04	2	活塞 Piston	压铸铝合金 Die-cast aluminium alloy	—
05	1	输出轴 Output shaft	碳钢 Carbon steel	不锈钢 Stainless steel
06	1	调节凸轮 Adjust the cam	不锈钢 Stainless steel	—
07*	2	O型圈(端盖) O-ring (end cover)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
08*	2	O型圈(活塞) O-ring (piston)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
09*	1	O型圈(输出轴底部) O-ring (bottom of output shaft)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
10*	1	O型圈(输出轴顶部) O-ring (top of output shaft)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
11*	2	O型圈(调节螺栓) O-ring (adjusting bolt)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
12*	2	塞头(缸体) Plug head (cylinder block)	丁晴橡胶 NBR	氟或硅橡胶 Fluorine or silicone rubber
13*	2	轴承(活塞) Bearing (piston)	氟碳复合材料 Fluorocarbon composites	—
14*	1	轴承(输出轴顶部) Bearing (top of output shaft)	尼龙46 Nylon 46	—
15*	1	轴承(输出轴底部) Bearing (bottom of output shaft)	尼龙46 Nylon 46	—
16*	1	导向轴承(活塞背面) Guide bearing (piston back)	尼龙46 Nylon 46	—
17*	2	推力轴承(输出轴) Thrust bearing (output shaft)	尼龙46 Nylon 46	—
18	2	垫片(输出轴) Gasket (output shaft)	尼龙46 Nylon 46	—
19	1	弹性挡圈 Elastic gear ring	不锈钢 Stainless steel	—
20	8/12/16*	端盖螺栓 End cover bolts	不锈钢 Stainless steel	—
21	8/12/16*	端盖垫片 End cover gasket	不锈钢 Stainless steel	—
22	2	垫片 Gasket	不锈钢 Stainless steel	—
23	2	螺帽 Nut	不锈钢 Stainless steel	—
24	2	调节螺栓 Adjust the bolt	不锈钢 Stainless steel	—
25	2	导向块 Guide block	尼龙66+30%FG Nylon 66 + 30% FG	—
26	5-12	弹簧组件 Spring components	合金弹簧钢 Alloy spring steel	—
27	1	位置指示器 Position indicator	聚丙烯PP+30%GF Polypropylene PP + 30% GF	—
28	1	螺钉 Screw	不锈钢 Stainless steel	—

* 推荐维修用的零部件，包括在备件包中的零件。

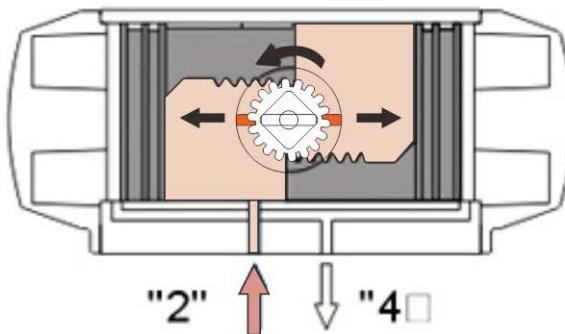
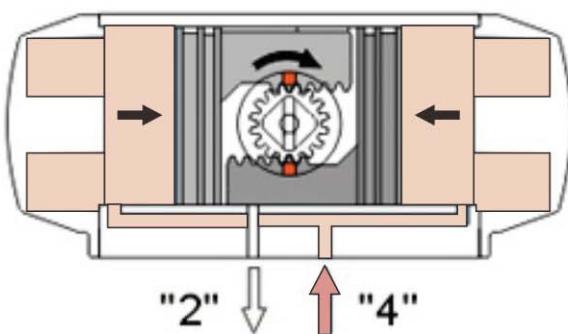
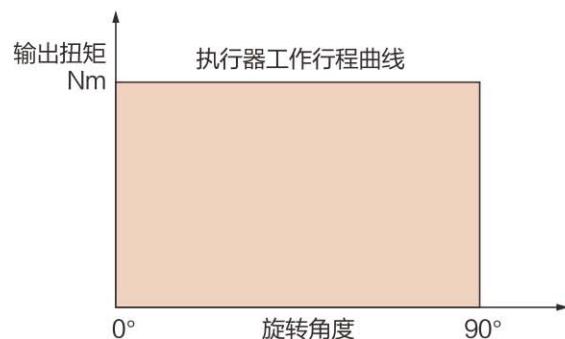
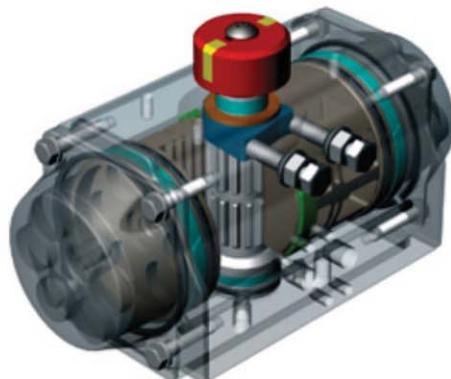
* Recommended parts for maintenance, including those included in the spare parts package.

Working Principle 工作原理

双作用式工作原理 Working Principle Of Double Acting Type

当气源压力从气口(2)进入气缸两活塞之间中腔时，使两活塞分离向气缸两端方向移动，两端气腔的空气通过气口(4)排出，同时使两活塞齿条同步带动输出轴(齿轮)逆时针方向旋转。反之气源压力从气口(4)进入气缸两端气腔时，使两活塞向气缸中间方向移动，中间气腔的空气通过气口(2)排出，同时使两活塞齿条同步带动输出轴(齿轮)顺时针方向旋转。（如果把活塞相对反方向安装，输出轴变为反向旋转，即为双作用反转型）。

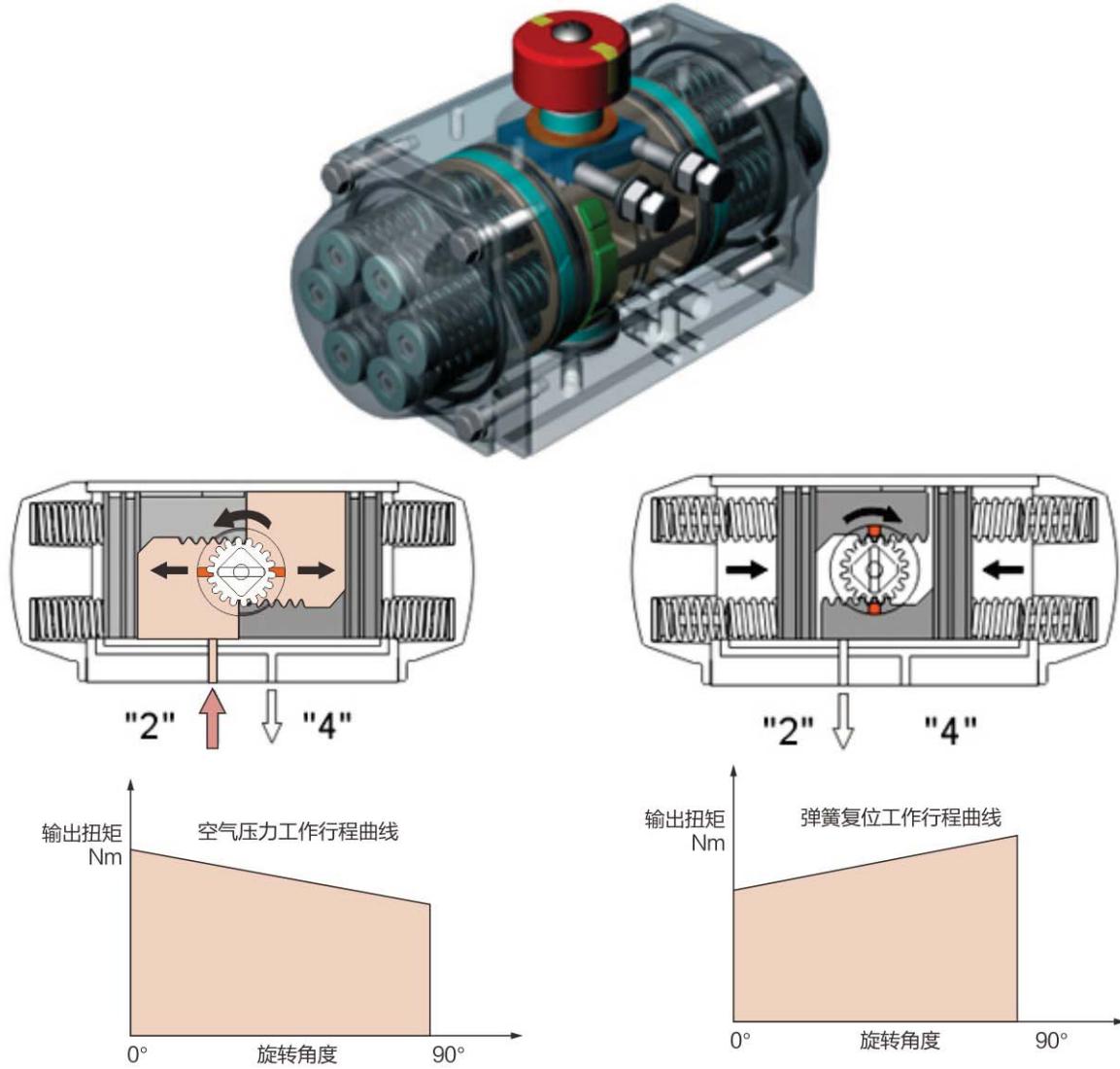
When the air source pressure from the air port (2) into the middle chamber between the two pistons of the cylinder, the two pistons are separated to move to the direction of the two ends of the cylinder, the air in the air cavity at both ends is discharged through the air port (4), and the two piston rack synchronously drives the output shaft (gear) to rotate counterclockwise. Conversely, when the air source pressure enters the air cavity at both ends of the cylinder from the air port (4), the two pistons move to the middle direction of the cylinder, and the air in the middle air cavity is discharged through the air port (2), and the two piston rack synchronously drives the output shaft (gear) to rotate clockwise. If the piston is mounted in the opposite direction, the output shaft is rotated in the opposite direction, which is a double-acting reverse type.



单作用式工作原理 Working Principle Of Single Acting Type

当气源压力从气口(2)进入气缸两活塞之间中腔时，使两活塞分离向气缸两端方向移动，迫使两端的弹簧压缩，两端气腔的空气通过气口(4)排出，同时使两活塞齿条同步带动输出轴(齿轮)逆时针方向旋转。在气源压力经过电磁阀换向后，气缸的两活塞在弹簧的弹力下向中间方向移动，中间气腔的空气从气口(2)排出，同时使两活塞齿条同步带动输出轴(齿轮)顺时针方向旋转。（如果把活塞相对反方向安装，弹簧复位时输出轴变为反向旋转，即为单作用反转型）。

When the air source pressure from the air port (2) into the middle chamber between the two pistons of the cylinder, make the two pistons separate to move to both ends of the cylinder direction, forcing the spring at both ends of the compression, air at both ends of the air cavity through the air port (4) discharge, at the same time make the two piston rack synchronous drive output shaft (gear) counterclockwise rotation. After the air source pressure is reversed by the solenoid valve, the two pistons of the cylinder move to the middle direction under the elastic force of the spring, the air in the middle chamber is discharged from the air port (2), and the two piston rack synchronously drives the output shaft (gear) to rotate in the clockwise direction. (If the piston is mounted in the opposite direction, the output shaft turns to reverse rotation when the spring is returned, it is single-acting reverse type).



Type Selection And Data 选型及数据

执行器选用 Actuator Selection

选用气动执行器时，在已确定阀门的扭矩上再增加安全值，水蒸气或非润滑的液体介质增加25%安全值；非润滑的浆料液体介质增加30%安全值；非润滑的干气介质增加40%安全值；非润滑用气体输送的颗粒粉料介质增加60%安全值；对于清洁、低摩擦的润滑介质增加20%安全值（上述安全值为本公司理论推荐，仅供参考）。

When choosing pneumatic actuators, the safety value is increased on the torque of the valve, and the safety value is increased by 25% for water vapor or non-lubricated liquid medium. Non-lubricated slurry liquid medium increased by 30% safety value; Non-lubricated dry gas medium increases 40% safety value; Non-lubricating gas conveying particle powder medium increased by 60% safety value; For clean, low friction lubrication medium increase 20% safety value (the above safety value for the company's theoretical recommendation, for reference only).

双作用式执行器选用示例 Double Acting Actuators Are Selected For Example

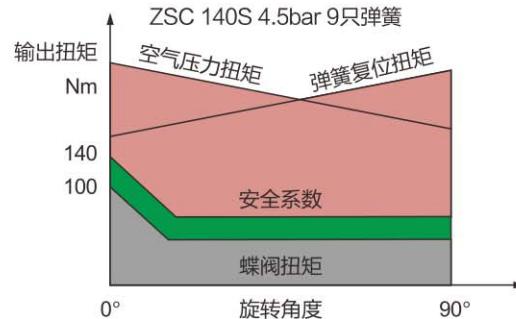
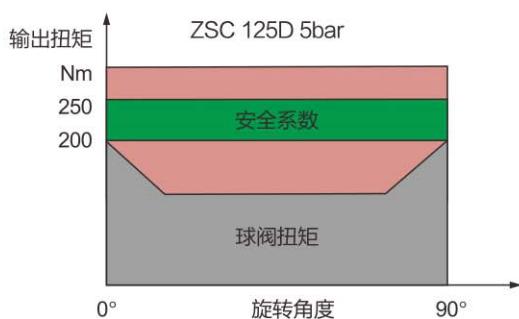
当控制一个需要扭矩200N.m的球阀，气源压力只有5bar，介质为非润滑的水蒸气，考虑到安全因素，增加25%安全值等于250N.m，按双作用输出扭矩表查找气源压力5bar，然后沿该列垂直查找等于或相近的扭矩数据，选251N.m，再沿该行向左查找其型号，选择ZSC125D型。

When controlling a ball valve with a torque of 200N.m, the air pressure is only 5bar, and the medium is non-lubricated water vapor, considering safety factors, increase the safety value by 25% to 250N.m, find the air pressure of 5bar according to the double-acting output torque table, and then find the torque data equal to or close to it vertically along the column, select 251N.m. Then look up the model line to the left and select ZSC125D.

单作用式执行器选用示例 Single-acting Actuators Are Selected As Examples

当控制一个需要扭矩100N.m的蝶阀，气源压力为4.5bar，介质为非润滑的干燥气体，考虑到安全因素，增加40%安全值等于140N.m，按单作用输出扭矩表查找弹簧复位终点得到相近扭矩155N.m，然后沿该行向左查找气源压力4.5bar的终点扭矩157.8N.m，必须考虑气源压力扭矩和弹簧复位扭矩相对力平衡，再沿该行向左查找其型号和弹簧数量，选择ZSC140S型、9只弹簧。

When controlling a butterfly valve requiring torque of 100N.m, air source pressure of 4.5bar, medium of non-lubricated dry gas, considering safety factors, increase the safety value by 40% to 140N.m, search the end point of spring reset according to the single action output torque table, and get the similar torque of 155N.m. Then look up the end torque of 157.8N.m at the air source pressure of 4.5bar along the left line. The relative force balance between the air source pressure torque and the spring return torque must be considered. Then look up the model and the number of springs along the left line, and select ZSC140S type and 9 springs.





Type Selection And Data 选型及数据

执行器有关数据 Actuator related data

(A) 执行器的动作时间是下列条件测试;

- (1) 常温
- (2) 90° 行程
- (3) 电磁阀4mm口径, 流量为Qn400L/min
- (4) 管子内径8mm
- (5) 中性干净空气
- (6) 气源压力5.5bar
- (7) 执行器空载

注: 在现场测试中一个或多个参数不同, 动作时间会发生变化。

(B) 型号ZSC-S重量为10根弹簧计算; 需要增加或减少弹簧数量按每根弹簧重量来计算增加或减少每一台重量。

(A) The action time of the actuator is tested under the following conditions;

- (1) Normal temperature
- (2) 90° Travel
- (3) Solenoid valve 4mm diameter, flow QN400L /min
- (4) Inner diameter of pipe is 8mm
- (5) Neutral clean air
- (6) Air source pressure is 5.5bar
- (7) No load of actuator

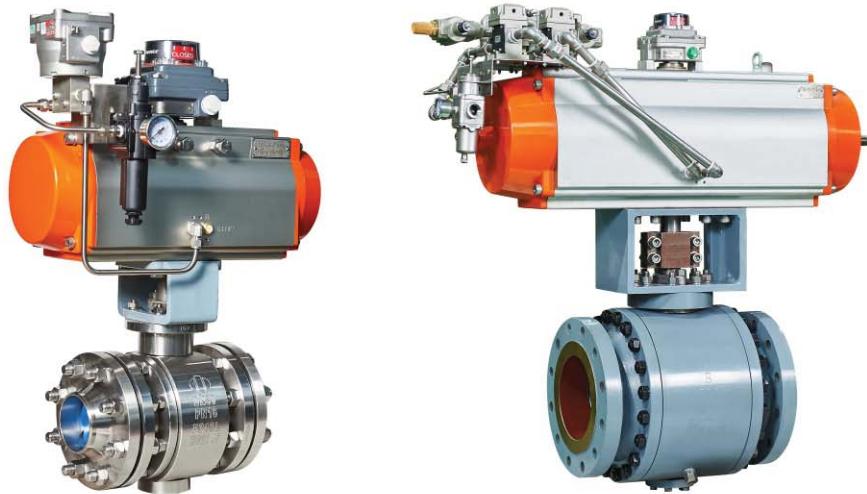
Note: When one or more parameters are different in the field test, the action time will change.

(B) The weight of model ZSC-S is calculated as 10 springs; The number of springs that need to be increased or decreased is calculated according to the weight of each spring.

ZSC Series Product Overview										
型号 Model	最大气源压力 Max air source pressure	旋转角度 Rotation angle	操作温度(℃) Operating temperature	气缸直径 Cylinder diameter ϕ (mm)	气缸容量(L) Cylinder capacity		开关时间(秒) Switching time		重量(kg)Weight 每台 Each	备注 Note
					开向 Open	关向 Close	开向 Open	关向 Close		
ZSC 040	干燥或 润滑的 洁净 压缩空气 8 bar Dry or lubricated clean compressed air 8bar	90° ± 5° 或全行程 0° -90° 90° ± 5° or full stroke 0° -90°	N (标准) : 丁腈橡胶 O型圈 -20—+80; H (高温) : 氟橡胶O型圈 -15—+150; L (低温) : 硅橡胶O型圈 -40—+80 N (standard): NBR O-ring -20—+80; H (high temperature): Fluorine rubber O-ring -15—+150; L (low temperature): silicone rubber O-ring -40—80	40	0.09	0.11	< 0.5	< 0.5	0.9	双作用 Double-acting
ZSC 052				50	0.12	0.16	/	/	/	单作用 Single-acting
ZSC 063				63	0.21	0.23	< 1	< 1	1.4	双作用 Double-acting
ZSC 075				75	0.3	0.34	0.5	0.3	1.5	单作用 Single-acting
ZSC 083				83	0.43	0.73	< 1	< 1	2.1	双作用 Double-acting
ZSC 092				92	0.64	0.73	0.5	0.3	2.3	单作用 Single-acting
ZSC 105				105	0.95	0.88	< 1	< 1	2.7	双作用 Double-acting
ZSC 125				125	1.6	1.4	2	1	2.9	单作用 Single-acting
ZSC 140				140	2.5	2.3	< 1	< 1	3.3	双作用 Double-acting
ZSC 160				160	3.8	3.4	3.9	1.8	3.6	单作用 Single-acting
ZSC 190				190	6.1	5.6	< 1.5	< 1.5	4.7	双作用 Double-acting
ZSC 210				210	7.8	7.8	5	2.5	5.3	单作用 Single-acting
ZSC 240				240	11.3	9.5	< 2	< 2	6.0	双作用 Double-acting
ZSC 270				270	17.5	14.8	5.5	3	6.8	单作用 Single-acting
ZSC 300				300	23.8	29.7	< 3	< 3	10.6	双作用 Double-acting
ZSC 350				350	35.1	46.3	9	4	14.2	单作用 Single-acting
ZSC 400				400	52.6	56	< 9	< 9	16.0	双作用 Double-acting
							18	9	20.7	单作用 Single-acting
									23.7	
									32.8	
									37.4	
									38.9	
									46.7	
									56.7	
									67.9	
									79.0	
									96.5	
									114.8	
									141.3	
									141.0	
									191.0	
									222.0	
									293.0	



Output Torque 输出扭矩



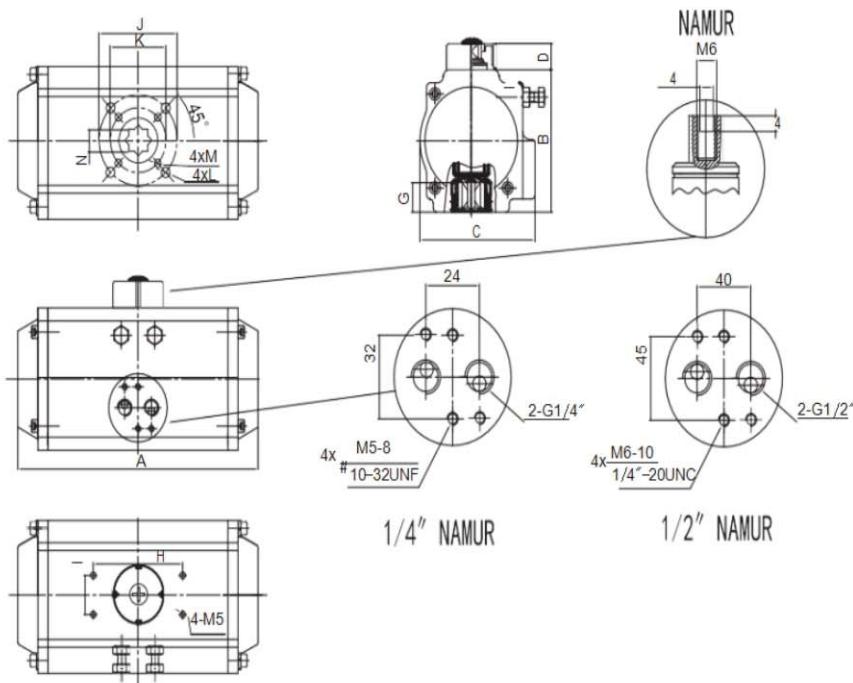
ZSC-D型双作用式输出扭矩(N.m) ZSC-D type double acting output torque

型号 Model	输入气源压力 (单位 bar) Pressure of input air source (unit bar)										
	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8
气源输出扭矩 (N.m) Air source output torque (N.m)											
ZSC 040D	7.2	8.4	9.6	10.8	12.0	13.2	14.4	15.6	16.8	18.0	19.2
ZSC 052D	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0
ZSC 063D	21.6	25.2	28.8	32.4	36.0	39.6	43.2	46.8	50.4	54.0	57.6
ZSC 075D	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0
ZSC 083D	46.8	54.6	62.4	70.2	78.0	85.8	93.6	101.4	109.2	117.0	124.8
ZSC 092D	67.6	78.8	90.1	101.3	112.6	123.9	135.1	146.4	157.6	168.9	180.2
ZSC 105D	97.7	114.0	130.3	146.6	162.9	179.2	195.5	211.8	228.1	244.4	260.6
ZSC 125D	150	176	201	226	251	276	301	326	351	376	401
ZSC 140D	260	304	347	390	434	477	521	564	607	651	694
ZSC 160D	397	463	530	596	662	728	794	861	927	993	1059
ZSC 190D	640	747	854	960	1067	1174	1280	1387	1494	1601	1707
ZSC 210D	798	931	1064	1197	1330	1463	1596	1729	1862	1995	2128
ZSC 240D	1154	1347	1539	1732	1924	2116	2309	2501	2694	2886	3078
ZSC 270D	1754	2047	2339	2632	2924	3216	3509	3801	4094	4386	4678
ZSC 300D	2291	2673	3055	3437	3819	4201	4583	4965	5347	5729	6110
ZSC 350D	3426	3997	4568	5139	5710	6281	6852	7423	7994	8565	9136
ZSC 400D	4872	5684	6496	7308	8120	8932	9744	10556	11368	12180	12992



Dimensions And Data Sheet

外形尺寸及数据表



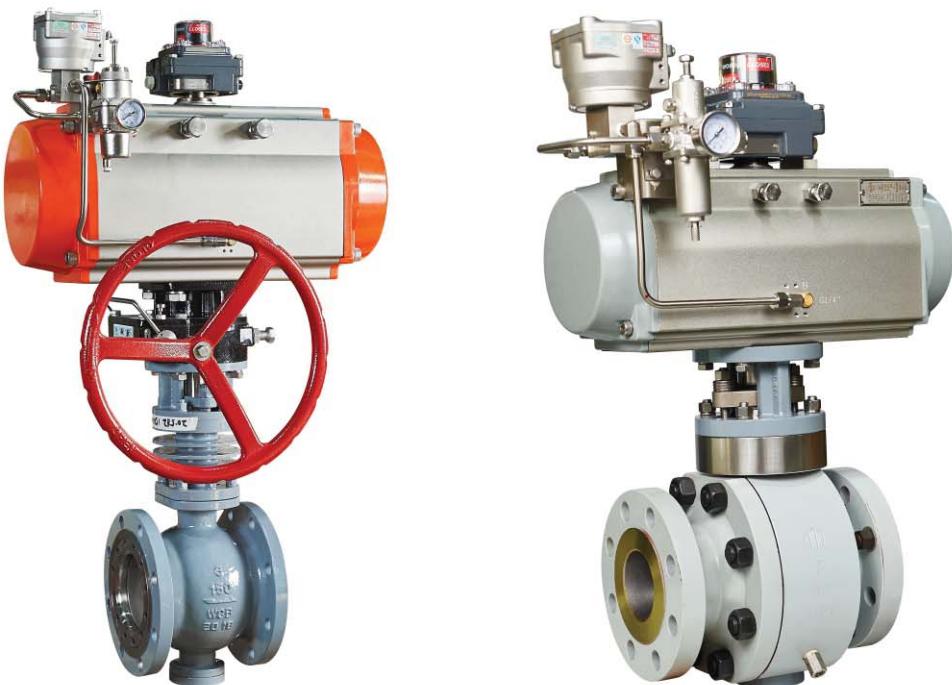
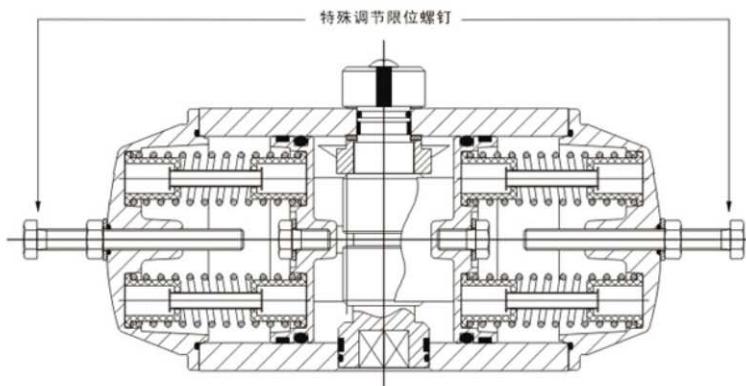
型号 Model	A	B	C	D	HxI	G	N	J	K	L	M	气源接口 Air interface
ZSC 040	122	60	65	20	80*30	14	11	φ 50	φ 36	M6*10	M5*7.5	G1/8"
ZSC 052	147	72	72	20	80*30	14	11	φ 50	φ 36	M6*10	M5*7.5	NAMUR G1/4"
ZSC 063	167	88	83	20	80*30	18	14	φ 70	φ 50	M8*13	M6*10	NAMUR G1/4"
ZSC 075	184	100	95	20	80*30	20	14	φ 70	φ 50	M8*13	M6*10	NAMUR G1/4"
ZSC 083	210	109	103	20	80*30	21	17	φ 70	φ 50	M8*13	M6*10	NAMUR G1/4"
ZSC 092	262	117	109	20	80*30	22	17	φ 70	φ 50	M8*13	M6*10	NAMUR G1/4"
ZSC 105	268	133	121	20	80*30	26	22	φ 102	φ 70	M10*16	M8*13	NAMUR G1/4"
ZSC 125	301	155	143	20	80*30	27	22	φ 102	φ 70	M10*16	M8*13	NAMUR G1/4"
ZSC 140	394	173	152	20	80*30	32	27	φ 125	φ 102	M12*20	M10*16	NAMUR G1/4"
ZSC 160	458	198	174	20	80*30	34	27	φ 125	φ 102	M12*20	M10*16	NAMUR G1/4"
ZSC 190	528	232	206	30	130*30	40	36	φ 140		M16*24		NAMUR G1/4"
ZSC 210	532	257	226	30	130*30	40	36	φ 140		M16*24		NAMUR G1/4"
ZSC 240	608	291	260	30	130*30	50	46	φ 165		M20*25		NAMUR G1/4"
ZSC 270	716	330	294	30	130*30	50	46	φ 165		M20*25		NAMUR G1/2"
ZSC 300	820	354	336	30	130*30	60	46	φ 165		M20*25		NAMUR G1/2"
ZSC 350	926	408	385	30	130*30	60	46	φ 254	φ 165	8-M16*25	M20*25	NAMUR G1/2"
ZSC 400	934	464	516	30	130*30	60	55	φ 254	φ 165	8-M16*25	M20*25	NAMUR G1/2"

Full Stroke Adjuster 全行程调节执行器

全行程调节限位执行器 Full-stroke Adjustable Limit Actuator

新型气动执行器在两端提供特殊调节限位螺钉，客户可根据需要调节 $0^\circ - 90^\circ$ 、 $0^\circ - 120^\circ$ 或 $0^\circ - 180^\circ$ 范围内任意角度，在所有系列执行器上都可进行全行程调节。

The new pneumatic actuators provide special adjusting limit screws at both ends. Customers can adjust any Angle in the range of $0^\circ - 90^\circ$, $0^\circ - 120^\circ$ or $0^\circ - 180^\circ$ according to their needs. Full stroke adjustment can be made on all series of actuators.





给您的核心价值

- 一、产品模块化设计，基于客户需求，自由组合，实现产品性能最优化，成本最低化。
 - 二、奥马科所有系列产品按照库存生产的模式，最大限度的保证货期；且可根据客户需求建立专用库，随时供货。
 - 三、智能选型、自主选型，解决客户在阀门和执行机构配置方面的短板。
 - 四、为客户提供各种气动控制系统的解决方案或成套，包括调节控制、开关控制、联锁控制、分段式控制、部分行程测试控制等多种气动控制方式。
 - 五、为客户提供专家级的现场支持，包括安装、调试、测绘及改造等服务。
-
- I . Product modular design, based on customer needs, free combination, to achieve product performance optimization, cost minimization.
 - II . All series products of Aumakl are produced in accordance with the model of inventory production, and the delivery time is guaranteed to the maximum extent. And according to customer needs to establish a special library, supply at any time.
 - III . Intelligent selection, independent selection, to solve the customer's shortcomings in valve and actuator configuration.
 - IV . Provide customers with various pneumatic control system solutions or complete sets, Including Contorl, ON-OFF, ESD, Segmental contorl, PST and other pneumatic contorl modes.
 - V . Provide expert-level on-site support for customers, including installation, commissioning, surveying and mapping, transformation and other services.



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