



科威納 COVNA®



**SPECIALIZED FLUID CONTROL VALVE MANUFACTURER**

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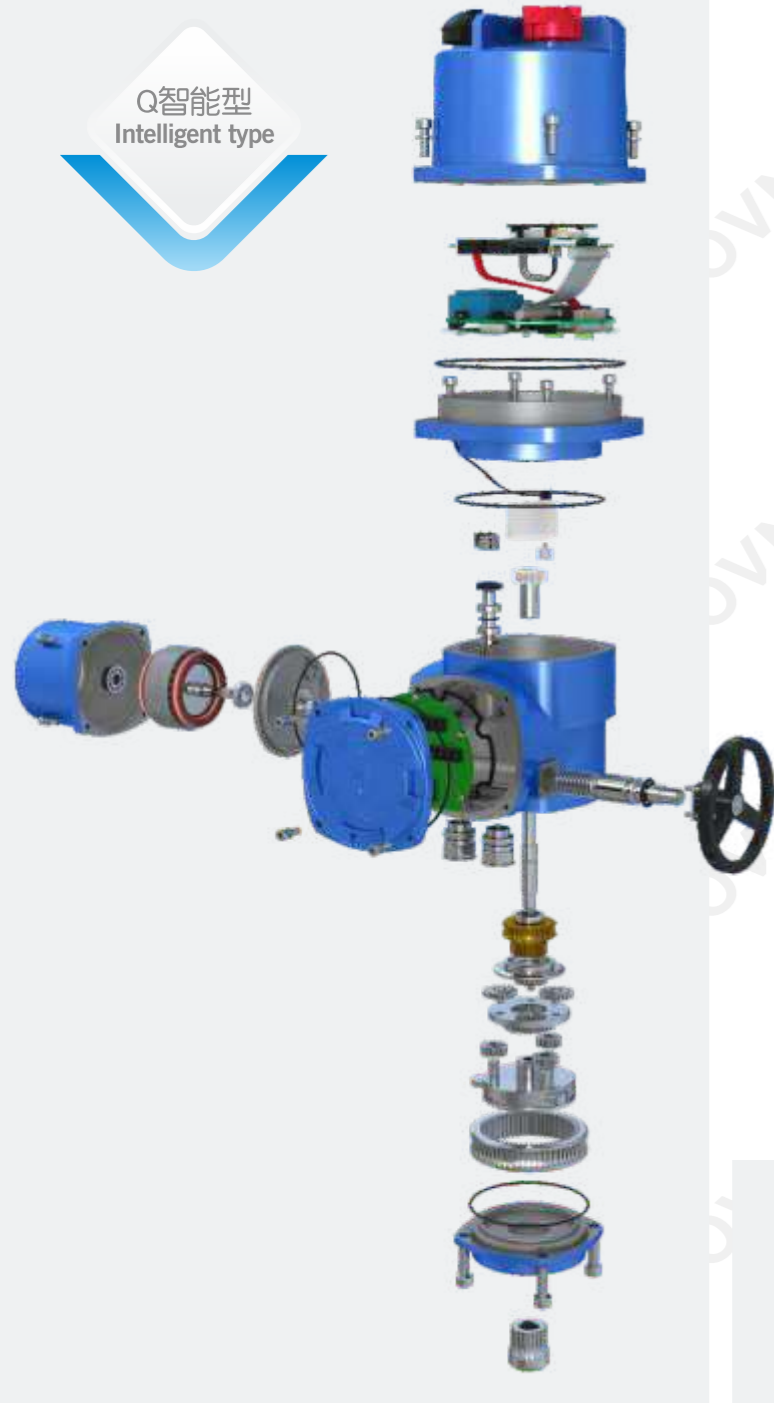
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**Valve Electric Actuators**  
**阀门电动执行器**

## 产品组成结构

### Product Composition Structure

Q智能型  
Intelligent type



CL系列电动执行器，是我公司在原有成熟产品的基础上，消化、吸收国外各种先进电动执行器的设计和制造技术，集现场总线技术、绝对编码技术、遥控技术、磁控开关控制等多种最新自控技术为一体，自主研发的全新一代产品，该产品由CLZ型多回转电动装置和CLQ型部分回转电动装置两大系列组成。

CL Electric Actuator is a brand-new self-developed product. By referring to the previous mature products, the technical research staff digest and absorb the design and manufacturing technologies of the foreign advanced electric actuators. They succeed in integrating such latest automation technologies as fieldbus technology absolute coding technology, remote control and magnetic switch control technologies into this new product. The product is composed of CLZ model multi-turn electric actuator and CLQ model part-turn electric actuator.



Q基本型  
Basic type

底座曲柄式  
Base crank type



Z智能型  
Intelligent type



产品类型:

- ▶ 按执行器控制性能分：普通型和智能型；
- ▶ 智能型按操作方式又分为：智能开关型和智能调节型；智能开关型，用于被驱动装置全开或全关操作。智能调节型，用于被驱动装置需在中间任意位置停止、启动，进行精确控制的操作。多回转执行器系列输出行程大于一圈，理论最大圈数3600圈，并具备自锁功能。
- ▶ 按执行器控制模式分：户外型和隔爆型。

The product type:

- ▶ Classified according to actuator control performance: ordinary type and intelligent type;
- ▶ Classified according to operation modes, the intelligent type includes: intelligent on-off type and intelligent control type. The intelligent on-off type is used for full-opening or full-closing operation of the driven device. The intelligent control type is used for the operation in which the driven device needs to stop and start at any middle position and carry out precise control. The output travel of the multi-turn actuator series is more than one turn. The theoretical maximum number of turns is 3600 turns, and it is provided with self-locking function.
- ▶ Classified according to actuator control modes: outdoor type and explosion-proof type



## 产品结构特性

### Product Structural Features

#### 动力传动

##### Power transmission

执行器的动力传动选用青铜合金蜗轮和合金钢蜗杆构成的精密减速机构，蜗轮、蜗杆单独在润滑脂中运行，适应了最大的环境温度差，也最大限度地提高使用寿命。

The power transmission of the actuator adopts the precise speed reducing mechanism composed of bronze alloy worm gear and alloy steel worm. The worm gear and worm run in the lubricating grease separately to be adapted to the maximum environmental temperature difference and prolong the service life to the utmost extent.

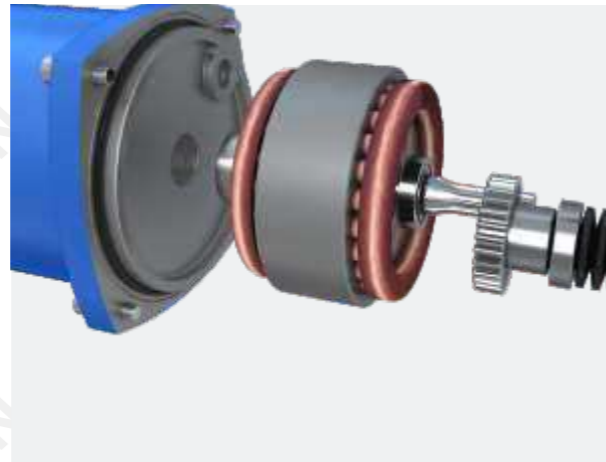


#### 驱动电动机

##### Driving motor

电动机采用低惯性、高扭矩电动机，使得电动机启动后可迅速达到峰值扭矩，非励磁时几乎没有超限运动；电动机内有精密的温度传感器，通过控制系统设定超温限值，避免电动机过热引起的损毁。

The motor is a low-inertia and high-torque motor, so that the peak torque can be rapidly reached when the motor is started. There is almost no over-limit movement when there is no excitation. The motor is provided with accurate temperature sensors. Over-temperature limit values can be set through the control system to avoid burning caused by motor overheating.



#### 外壳防腐

##### Housing anti-corrosion

执行器外表面采用漆膜坚韧、附着力强的合金铝专用金属漆，具有极强的抗紫外线、耐腐蚀性和高丰满度，能全面提高涂层的使用寿命和自洁性，适应于各种恶劣的生产环境。

The exterior surface of the actuator adopts special metal painting for aluminum alloy with tough painting film and strong adhesion. With very strong resistance to ultraviolet and corrosion and high fullness, it can completely enhance the service life and self-cleaning performance of the coating, and is suitable for various severe production environments.



#### 接线端子盒

##### Terminal box

独立的密封接线端子腔，进行现场接线时，可保证电动执行器内电器部分的密封完整性，同时符合产品防爆要求。

The independent sealed terminal cavity can ensure closure integrity of the electrical part in the electric actuator during field wiring and also guarantee that the explosion-proof requirements are met.



#### 输出接口

##### Output connection

执行器法兰符合ISO5210/5211(GB12222/12223)标准，也提供符合JB2920标准法兰接口，并可以根据客户要求特殊定制。

The actuator flange meets the ISO5210/5211 (GB12222/12223) standard, and flange connections that meet the JB2920 standard can also be supplied. We can also provide customized products according to customer requirements.

#### 密封结构

##### Sealing structure

执行器采用双密封设计结构，确保执行器能够完全防水、防尘；标准产品防护等级为IP67，最高可达到IP68。

The actuator adopts a double sealing design structure to ensure that the actuator is totally resistant to water and dust. The standard product protection grade is IP67, with the maximum reaching IP68.

# 产品电气与控制

## Electrical Part And Control

### 人机界面液晶显示器

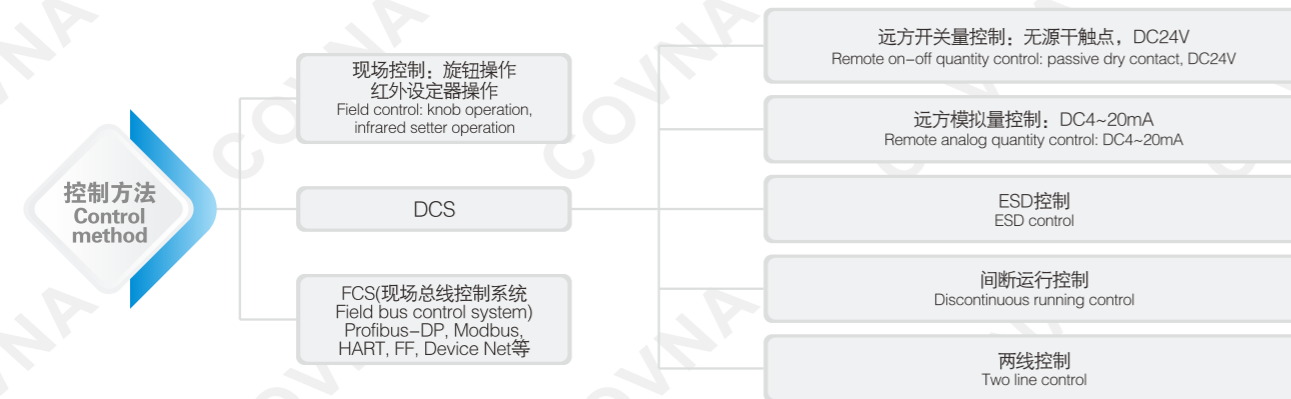
#### Human-machine interface color LCD

采用带背景照明的图形点阵式与段码式液晶显示器，以中文、数字、图形显示转矩、阀位、限位设定等工作状态和报警，即使在夜晚也可清晰地观测和设定。同时装备红、绿两个LED阀位指示灯，即使是在恶劣的环境中仍有很强的穿透性，使用户对执行器的工作状态一目了然。

The graphic dot matrix LCD with background lighting is adopted to display torque, valve position, limit setting and other working status and alarms through Chinese, numerals and graphics. Observation and setting can be carried out clearly even at night. In addition, it is also provided with three LEDs (green, yellow and red) to indicate valve positions, the powerful penetration even under severe service conditions making users clear about the actuator status.

### 多种控制方式

#### Various operation modes



### 信号输出

#### Signal output



### 总线控制功能

#### Bus control function

通信模块采用在主板上叠加独立结构，满足不同通信介质、不同通信协议系统的需要。目前支持的通讯协议有Modbus RTU、PROFIBUS-DPV0/DPV1、HART、FF、DeviceNet。(选配)

The communication module adopts an independent structure superposed on the motherboard to meet the needs of different communication media and different communication protocol systems. Currently the supported communication protocols include Modbus RTU, PROFIBUS-DPV0/DPV1, HART, FF and DeviceNet. (Optional)

### 红外线遥控功能

#### Infrared remote control function

执行器采用先进的红外线遥控技术，在无需打开执行器箱盖的情况下，通过密封的对话窗口就可进行人机对话。即使在危险场合，本安型遥控器也可安全地对执行器进行参数设置和遥控操作。

The actuator adopts advanced infrared remote control technology, so that human-machine dialogue can be realized through the sealed dialogue window without opening the actuator case cover. Even in dangerous applications, parameter setting and remote operation of the actuator can be carried out safely through the intrinsically-safe remote controller.





## 产品测量与保护

### Measurement And Protection

#### 精确的扭矩测量和保护

##### Precise torque measurement

专业设计的力矩测量系统以确保执行器过载保护，并实时监测阀门的扭矩变化：

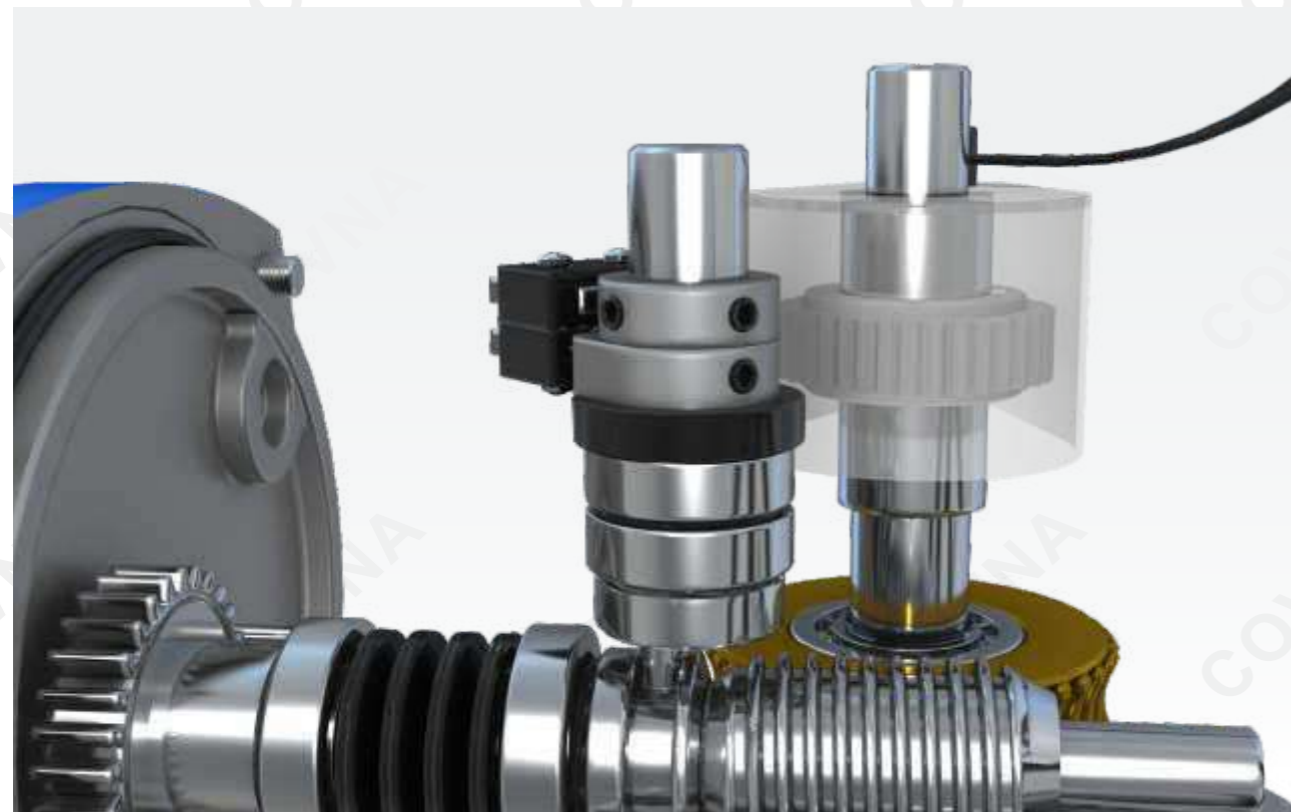
**(标配)机械力矩测量：**传统的机械式力矩触发机构具有成熟稳定可靠的优点，我们在原有力矩基础上进行优化升级，使得力矩装置更加灵敏，使用寿命做了很大的提高。

**(选配)电子力矩测量：**通过检测电机的实时电流、电压和磁通，配合单片机进行综合计算，得到精确的输出力矩，实现连续测量；该系统无需考虑机械磨损，提高了系统的可靠性。

The professionally designed torque measuring system ensures overload protection of the actuator and monitors torque changes of valves in a real-time manner.

**(Standard configuration) mechanical torque measurement:** The traditional mechanical torque triggering mechanism has such advantages as maturity, stability and reliability. We make optimization and upgrading on the basis of previous torque, so as to make the torque device more sensitive and greatly improve the service life.

**(Optional) electronic torque measuring:** Comprehensive calculation is carried out through the real-time current, voltage and magnetic flow of the detection motor in combination with MCU, so as to achieve precise output torque and realize continuous measuring. There is no need to give consideration to the mechanical wear in the system, so that the system reliability is enhanced.



#### 精准的阀位行程测量和保护

##### Precise valve position travel measurement

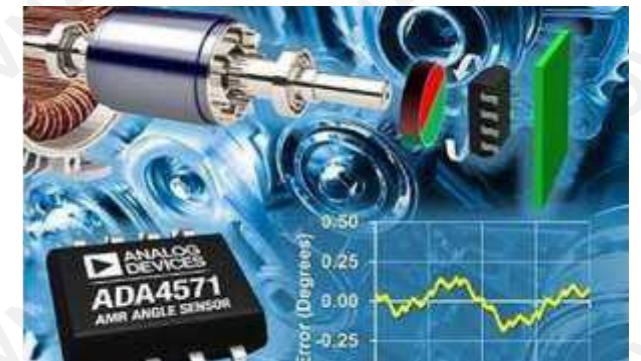
CLQ执行器采用12位单圈绝对编码器测量阀位行程，角度分辨率达0.088°。

CLZ执行器采用18位绝对编码器测量阀位行程，行程达4096圈，单圈角度分辨率达0.088°。

编码器为磁电机一体，在丢失动力电源情况下，手动操作执行器也无需担心阀位的丢失。采用先进的边界防抖动技术，保证输出数据高速、稳定、可靠，有效提高系统的稳定性和可靠性。

The CLQ actuator adopts 12-bit single-coil absolute coder for measuring the valve position travel with angle resolution of 0.088° . The CLZ actuator adopts 18-bit absolute coder for measuring the valve position travel, with the travel of 4,096 circles and angle resolution of 0.088° .

The coder is integrated with the magneto. When driving power is lost, there is no need to worry about the loss of valve position even if you operate the actuator manually. The advanced border anti-shaking technology is adopted to ensure that the data is output stably and reliably at a high speed and effectively improve system stability and reliability.



#### 电动机监测和保护

##### Motor monitoring and protection

**过热：**电动机温度超过设定的过热保护值，禁止电动机运行，并显示电动机过热报警信息。

**过载和短路：**采用ADI公司精密电压变换芯片设计的电路，满足大范围电流变化的精密测量；过载反时延特性和短路保护满足相关标准。

**瞬时反转保护：**采用瞬时反转延时控制技术，在执行器运行过程中接到反向运转信号时，控制系统将先停机，延时后再执行反向动作，防止机械传动部件的损伤。

**电子刹车：**调节型电动执行器通过死区设置和电子刹车，来保证阀门停止在设定的阀位。

**Overheating:** When the motor temperature exceeds the set overheating protection value, it is forbidden to run the motor, and the motor overheating alarm information will be displayed.

**Overload and short circuit:** The circuit designed with precision voltage converting chips of ADI Company is adopted to meet the need for precise measurement with large-range current changes. The overload inverse time-element feature and short circuit protection meet relevant standards.

**Instantaneous reversal protection:** It adopts instantaneous reversal time delay control technology. When the actuator receives the reversal running signal during its running, the control system will first stop the machine, and then carry out reversal action after time delay, so as to avoid damage to the mechanical driving parts.

**Electronic brake:** The control type electric actuator ensures that the valve can stop at the set valve position through the dead band setting and electronic brake.

## 产品测量与保护

### Measurement And Protection

#### 电源检测与保护

##### Power detection and protection

**相序自动识别:** 采用光电隔离相序自动识别电路, 用户可以按任意相序接入电源线, 阀门始终按正确的方向运行。

**缺相保护:** 三相电源缺少任意一相, 禁止电动机运行, 并显示缺相报警信息。

**过压和欠压保护:** 三相电源电压超过设定的过压值, 或低于设定的欠压值, 禁止电动机运行, 并显示过压或欠压报警信息。

**Phase sequence automatic recognition:** The circuit with photoelectric isolation and automatic recognition of phase sequence is adopted. Users can connect with the power cord in any phase sequence, and the valve will always run according to the correct direction.

**Phase loss protection:** In case any phase in the three-phase power supply is lost, it is forbidden to run the motor, and the phase loss alarm information will be displayed.

**Over-voltage and under-voltage protection:** When the three-phase power voltage exceeds the set over-voltage value or is lower than the set under-voltage value, it is forbidden to run the motor, and the over-voltage or under-voltage alarm information will be displayed.



#### 智能控制安全保护

##### Intelligent control safety protection

**ESD保护:** 提供了灵活的紧急保护功能, 紧急动作控制方式通过参数设定; 可单独设定紧急保护时的动作方式, 如全开、全关或保位。

**控制状态保护:** 可通过电气箱盖上机械锁锁定远程、现场或停止状态, 以免误操作; 对于更改参数设置, 需输入密码进入设置界面。

**无源监视功能:** 在断电情况下能准确显示阀位信息, 并且能实现无外供电查询执行器已运行数据的功能。

**智能网络安全保护 (可选):** 支持双冗余现场总线通信。在双冗余通信方式下, 当一个通道发生故障时, 通信将自动切换到另一通道, 确保执行器通信和运行正常。

**ESD protection:** It offers flexible emergency protection function. The emergency action control modes can be set through parameters. The action modes during emergency protection such as full opening, full closing or position holding can be set separately.

**Control status protection:** The mechanical lock on the electric box can be used to lock remote, field or stop status to avoid misoperation. As for the setting of parameter modification, it is necessary to input password before entering the setting interface.

**Powerless monitoring function:** In case of power cut, the valve position information can be accurately displayed, and the function of checking without external power supply the running data of the actuator can be realized.

**Intelligent network safety protection (optional):** Dual redundancy field bus communication is supported. With the dual redundancy communication mode, in case of any faults at one channel, the communication will automatically switch to the other channel to ensure normal communication and running of the actuator.



## 产品型号说明

### Product Model Description



1. 产品设计序列号 CL  
Product design serial No. CL

2. 驱动型式	Driving mode:
Z — 多回转	Z — multi-turn (linear motion)
Q — 部分回转	Q — part-turn (rotary motion)
DQ — 叠加式部分回转	DQ — superposed part-turn
ZXC — 直行程	ZXC — linear motion

3. 适用环境:	Applicable environment:
W — 室外环境(一般不表示)	W — outdoor environment (generally no indication)
B — 隔爆型	B — explosion-proof type

4. 额定转矩: 阿拉伯数字表示(单位: kgf.m)  
或推力: 阿拉伯数字表示(单位: N)  
Rated torque: indicated by Arabic numbers (unit: kgf.m)  
Said or thrust: Arabic numerals (unit: N)

5. 额定转速: 阿拉伯数字表示(单位: r/min)  
Rated rotation speed: indicated by Arabic numbers (unit: r/min)

6. 控制型式:	Control type:
基本型 无字母表示	Basic type no letter indication
Z — 整体开关型	Z — Integrated integral on-off type
T — 整体调节型	T — Integrated integral control type
NZ — 智能开关型(非侵入式)	NZ — Integrated intelligent on-off type (non-invasive type)
NT — 智能调节型(非侵入式)	NT — Integrated intelligent control type (non-invasive type)

7. 工作电压: 110V/220V/440V/660V(380V不表示)  
Working voltage: 110 V / 220 V / 440 V / 660 V (380 v no indication)



## 性能参数

### Technical Parameters

工作环境和主要性能参数  
Working environment and main performance parameters



<ul style="list-style-type: none"> <li>● 供电电源: 380V AC ± 10% / 50Hz ± 5%, 或定制 220V AC ± 10% / 50Hz ± 5%, 或定制</li> </ul>	<ul style="list-style-type: none"> <li>● Power supply: 380 V AC + 10% / 50 Hz plus or minus 5%, or custom 220 V AC + 10% / 50 Hz plus or minus 5%, or custom</li> </ul>
<ul style="list-style-type: none"> <li>● 输入信号: A) 模拟量4mA~20mA DC, 输入阻抗250Ω B) 开关量有源24V DC C) profibus-DP或MODBUS (选配)</li> </ul>	<ul style="list-style-type: none"> <li>● Input signals: A) Analog quantity 4mA~20mA DC, input impedance 250Ω B) On-off quantity active 24V DC C) The profibus-dp or MODBUS (optional)</li> </ul>
<ul style="list-style-type: none"> <li>● 输出信号: A) 4mA~20mA DC, 负载抗≤750Ω B) 6组无源触点 C) PROFIBUS或MODBUS (选配)</li> </ul>	<ul style="list-style-type: none"> <li>● Output signal: A) 4 mA ~ 20 mA DC, load resistance Ω 750 or less B) 6 groups of passive contacts C) PROFIBUS or MODBUS (optional)</li> </ul>
<ul style="list-style-type: none"> <li>● 基本误差限: ≤1%</li> <li>● 重复性误差: ≤±1%</li> <li>● 死区设定: 0.1%~9.9%可调</li> <li>● 防护等级: 标配IP67 (水下1米30分钟) 选配IP68</li> </ul>	<ul style="list-style-type: none"> <li>● Fundamental error bound ≤1%;</li> <li>● Repeatability error: ≤±1%;</li> <li>● Dead band setting: 0.1%~9.9% adjustable;</li> <li>● Protection grade: Standard IP67 (1m underwater 30 minutes) Optional IP68</li> </ul>
<ul style="list-style-type: none"> <li>● 环境温度: -20°C~+60°C 特殊-40°C~+70°C</li> <li>● 环境湿度: ≤95% (+25°C)</li> <li>● 工作制式: NZ开关型为S2-15min短时工作制 NT调节型为S4-25%间歇工作制</li> <li>● 防爆标志: Exdl, Exdib II BT4和Exdib II CT4</li> </ul>	<ul style="list-style-type: none"> <li>● Low temperature: -20°C ~+60°C special -40°C ~ + 70 °C</li> <li>● Ambient humidity: ≤95% (+25°C)</li> <li>● Working system: S2-15min short-time working system for NZ on-off type S4-25% intermittent working system for NT control Type</li> <li>● Explosion-proof marks: Exdl, Exdib II BT4 and Exdib II CT4</li> </ul>

## 电动执行器的技术参数

### Technical Parameters

Z型多回转  
Z Type multi-turn

型号 Model	输出转速 Output Rotation Speed	公称转矩 Nominal Torque	电机功率 Motor Power	额定电流 Rated Current	手动速比 Manual Speed Ratio	最大阀杆直径 Max.Stem Diameter	参考重量 Reference Weight	备注 Remarks
	R/MIN	N.m	kW	A	I	mm	Kg	
Z5	18	50	0.12	0.6	1:1	28	20	
Z10	18	100	0.18	1	1:1	28	20	
Z15	18	150	0.25	1.2	1:1	28	20	
Z20	18	200	0.37	1.38	1:1	40	26	
Z30	18	300	0.55	2.7	1:1	40	26	
Z45	24	450	1.1	4	1:1	48	110	
Z60	24	600	1.5	4.12	1:1	48	120	
Z90	24	900	2.2	5.25	1:1	60	139	
Z120	24	1200	3	7.9	1:1	60	142	
Z180	18	1800	4	8.87	22.5:1	70	250	
Z250	18	2500	5.5	12.05	22.5:1	70	255	
Z350	18	3500	7.5	15.6	20:1	80	330	
Z500	18	5000	10	20.5	20:1	80	350	

注: 以上为我公司常规供货, 如有特殊要求, 可联系我公司进行定做。  
Note: The above are conventional goods of our company. If you have special requirements, please contact us for customized orders.

Q型部分回转  
Q Type part-turn

型号 Model	输出转速 Output Rotation Speed	公称转矩 Nominal Torque	电机功率 Motor Power	额定电流 Rated Current	手动速比 Manual Speed Ratio	最大阀杆直径 Max.Stem Diameter	参考重量 Reference Weight	备注 Remarks
	R/MIN	N.m	kW	A	I	mm	Kg	
Q5	1	50	0.045	0.16	60:1	19	7	
Q10	1	100	0.06	0.18	60:1	19	7	
Q15	1	150	0.075	0.22	60:1	19	7	
Q20	1	200	0.09	0.26	90:1	28	13	
Q30	1	300	0.12	0.32	90:1	28	13	
Q40	1	400	0.15	0.37	90:1	28	13	
Q60	1	600	0.18	0.72	87:1	38	23	
Q120	1	1200	0.25	1.00	87:1	38	23	
Q180	1	1800	0.37	1.65	87:1	38	23	
Q300	0.5	3000	0.37	1.65	348:1	55	35	
Q500	0.5	5000	0.55	2.7	348:1	55	35	

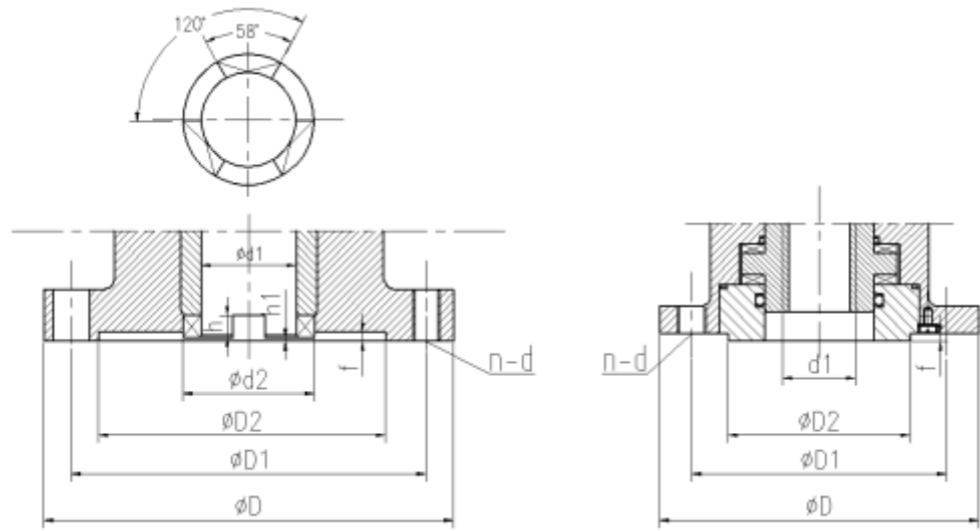
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# 电动执行器的结构尺寸

## Structure Size

### Z型多回转电动执行机构连接尺寸

Z Series multi-turn electric actuator connection flange dimensions



转矩型连接尺寸 (JB2920)  
Torque type connection size (JB2920)

推力型连接尺寸 (GB/T12222) ISO5210  
Thrust type connection size (GB/T12222) ISO5210

参数 型号 Model	转矩型(JB2920) Torque type(JB2920)										推力型(GB/T12222-2005) Thrust type(GB/T12222-2005)						
	机座号 Frame No.	D	D1	D2 H9	d2	d1	h	h1	f	n-d	法兰号 Flange No.	D	D1	D2 f8	D1 (Max)	n-d	f
Z10-15	2	145	120	90	45	30	8	2	5	4-M10	F10	125	102	70	Tr28	4-M10	3
	2l	115	95	75	39	26	6	2	4	4-M8							
Z20-30	3	185	160	125	58	42	10	2	5	4-M12	F14	175	140	100	Tr36	4-M16	4
	3l	145	120	90	45	30	8	2	5	4-M10							
Z45-60	4	225	195	150	72	50	12	2	5	4-M16	F16	210	165	130	Tr44	4-M20	5
Z90-120	5	275	235	180	82	62	14	2	5	4-M20	F25	300	254	200	Tr60	8-M16	5
	5l	230	195	150	72	50	12	2	5	4-M16							
Z180-250	7	330	285	220	98	72	16	3	6	4-φ27	F30	350	298	230	Tr70	8-M20	5
Z350	8	380	340	280	118	82	20	3	6	8-φ22	F35	415	356	260	Tr80	8-M30	5

**说明:**

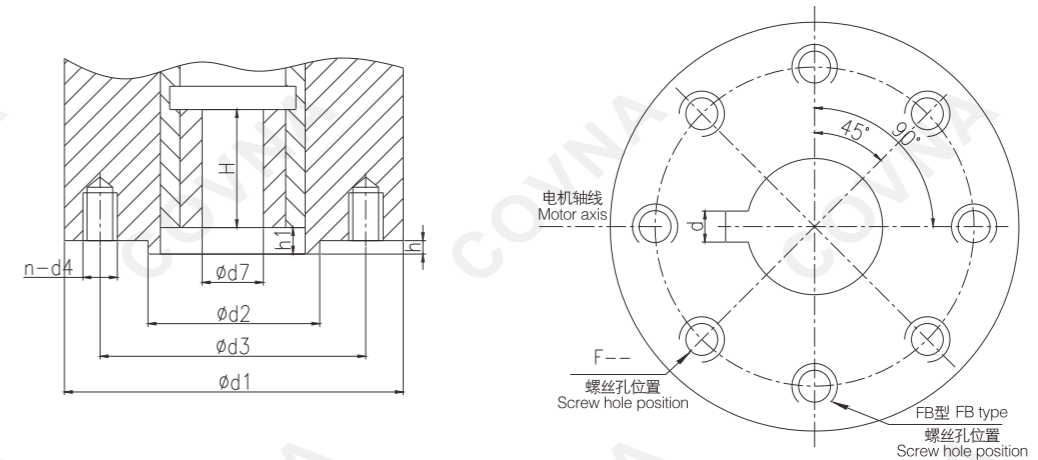
1. 机座号中的l表示电站型;
2. 推力型中梯形螺纹直径为最大选用直径;
3. 连接盘安装孔的位置与电机轴线错开对称分布。

**Note:**

1. l in the frame No. indicates power station type.
2. The trapezoidal thread diameter in the thrust type is the maximum diameter selected.
3. The connection plate installation holes and motor axis are symmetrically distributed in a staggered way.

### Q型部分回转电动执行机构连接尺寸

Q Series part-turn electric actuator connection flange dimensions



GB/T12223-2005

参数 型号 Model	法兰号 Flange No.	d1	d2(f8)	d3	n-d4	d7(max)	H	h	h1	d
Q05	FB1	77		57	4-M6	15.9	33			3/5
Q10	FB2	92		70	4-M8	19	33			5
Q15	F05	65	35	50	4-M6	19	33		2	
	F07	90	55	70	4-M8	19	33		2	
Q20	FB3	115		89	4-M12	22.2	42			5
Q30	F07	90	55	70	4-M8	28	42		2	
Q40	F10	125	70	102	4-M10	28	42		2	
Q60	FB3	115		89	4-M12	28.6	50			5/8
	FB4	140		108	4-M12	31.7	50			8
Q90	F10	125	70	102	4-M10	38	50		2	
	F12	150	85	125	4-M12	38	50		2	
Q120	FB5	197		159	4-M16	38.2	60			10
	F14	175	100	140	4-M16	38	60		3	
Q300	FB5	197		159	4-M16	41.3	80			10
Q500	F16	210	130	165	4-M20	55	80		3	

**说明:**

以上为常规订货, 如有特殊需要在订货时说明!

**Note:**

The above are for conventional orders. Please specify it when placing orders if you have special requirements.

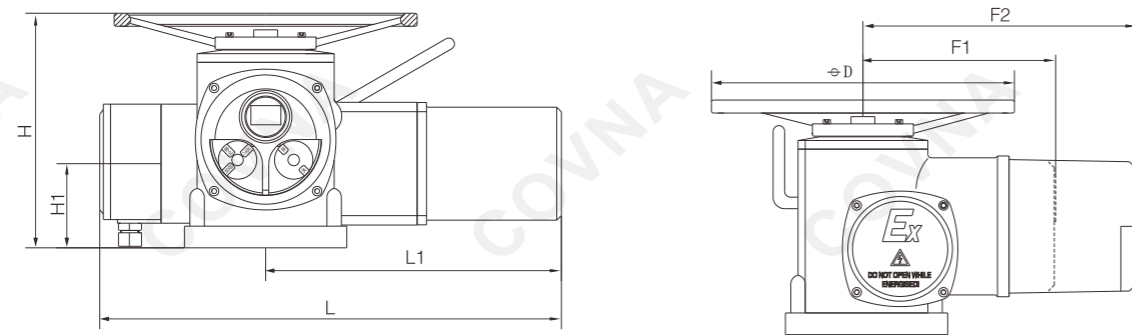


# 电动执行机构外形尺寸

## Multi-turn Electric Actuator Outline

### Z型多回转电动执行机构外形尺寸

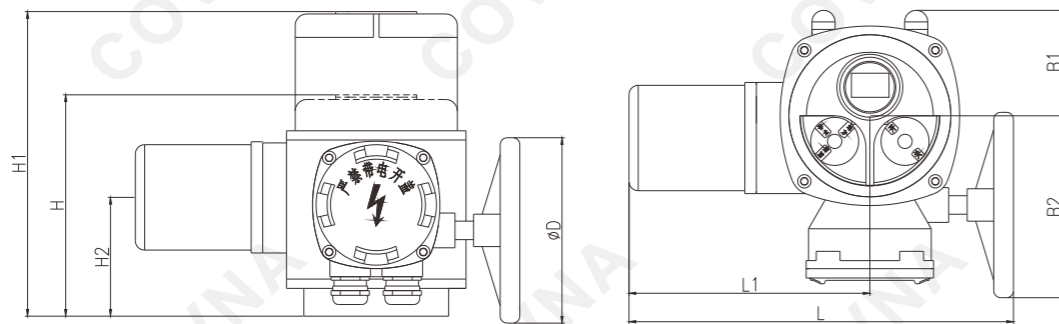
Z Series multi-turn electric actuator outline



型号 Model	参数 Parameters	L	L1	H	H1	F1普通型 F1 ordinary type	F2智能型 F2 smart type	φD
Z5-15		382	228	233	87	150	203	300
Z20-30		435	278	248	90	157	210	350
Z45-60		640	410	325	116	268	380	420
Z90-120		830	540	450	200	685	510	550
Z180-250		870	565	600	250	740	535	320
Z350-500		1170	770	710	280	840	450	570

### Q型部分转电动执行机构外形尺寸

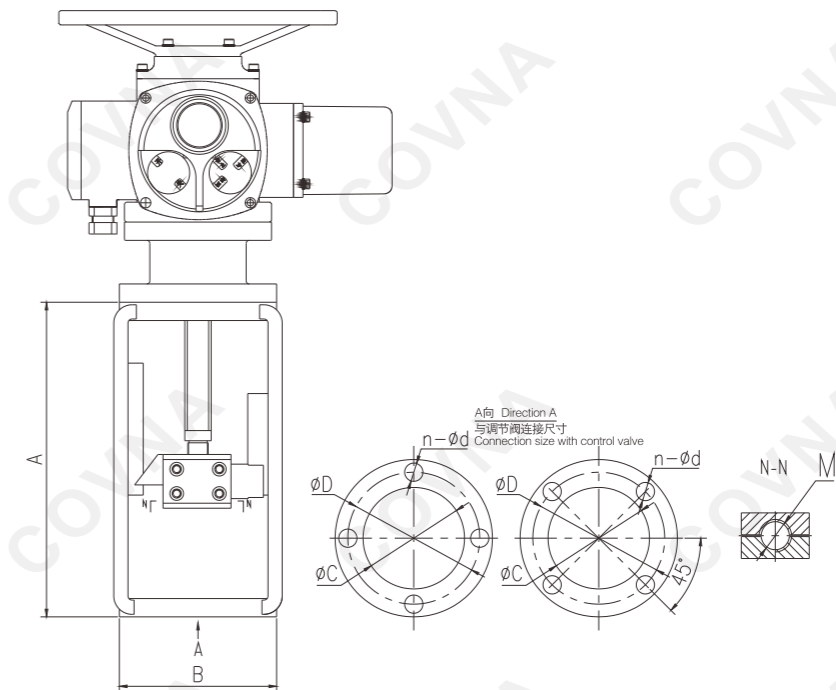
Q series part-turn electric actuator outline



型号 Model	参数 Parameters	B1	B2	H普通型 H ordinary type	H1智能型 F2 smart type	H2	L	L1	φD
Q05-15		68	114	156	270	73	250	157	140
Q20-40		91	157	191	273	103	332	208	160
Q60-180		143	203	227	309	126	424	232	250
Q300-500		143	203	291	373	190	424	232	250

### ZXC直行程电动执行机构外形尺寸

ZXC Series linear motion electric actuator outline and connection flange dimensions



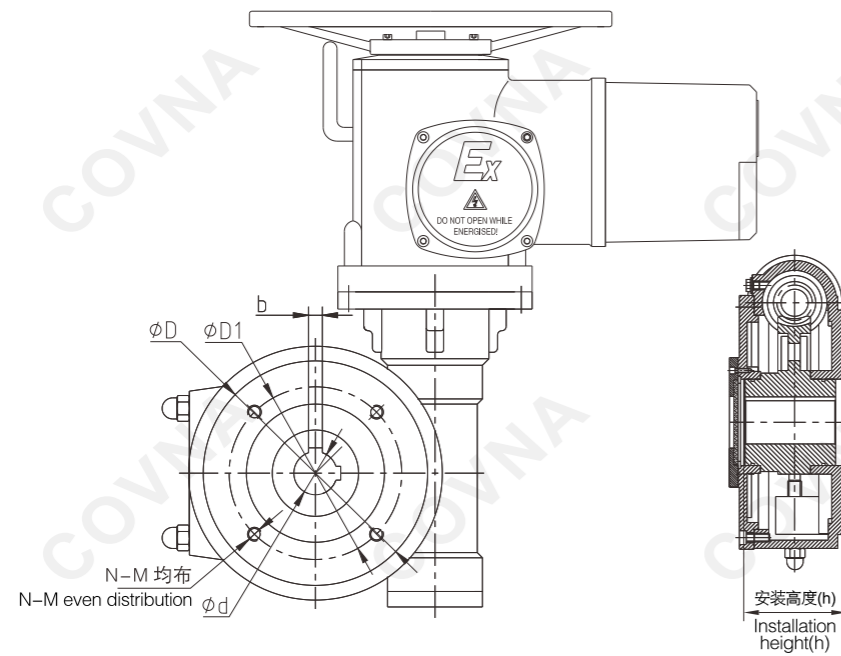
型号 Model	参数 Parameters	A	B	C	D	n-φd	M
CLZXC4000		175	155	60	80	4-φ10	M10
CLZXC6300		310	155	80	105	4-φ12	M12 × 1.25
CLZXC10000		310	155	95	118	4-φ14	M16 × 1.5
CLZXC16000		310	155	95	118	4-φ14	M16 × 1.5
CLZXC25000		310	155	100	130	4-φ18	M20 × 1.5
CLZXC40000		310	155	100	130	4-φ18	M20 × 1.5
CLZXC50000		310	155	100	130	4-φ18	M24 × 1.5

# 电动执行机构外形尺寸

## Multi-turn Electric Actuator Outline

DQ叠加式电动执行机构外形尺寸

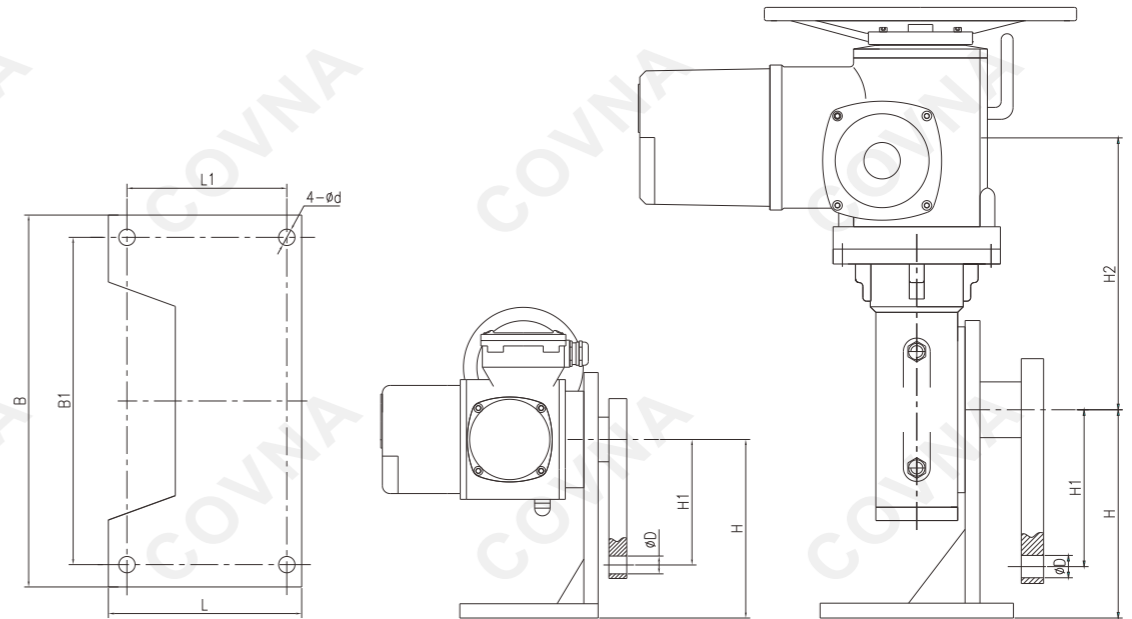
DQ Series (stacked) part of the rotary electric actuator connection size



型号 Model	参数 Parameters	D	D1	N-M	d	n-b	h	一级传动机构 Primary transmission mechanism	蜗轮箱速比 Worm gear box speed ratio	0-90° 时间 Time
DQ200		175	140	4-M16	40	1-10	75	Z15-18	56:1/4#	46
DQ300		210	165	4-M20	45	2-12	85	Z20-18	49:1/5#	40
DQ400		210	165	4-M20	45	2-12	85	Z30-18	49:1/5#	40
DQ600		235	185	4-M20	55	2-14	90	Z45-24	55:1/6#	34
DQ800		235	185	4-M20	55	2-14	90	Z60-24	55:1/6#	34
DQ1000		300	254	8-M16	70	2-18	105	Z60-24	67:1/8#	42
DQ1600		300	254	8-M16	70	2-18	105	Z90-24	67:1/8#	42
DQ2400		350	298	8-M20	90	2-20	110	Z120-24	81:1/9#	51
DQ3200		415	356	12-M20	105	2-22	130	Z180-24	78:1/10#	49
DQ4000		475	406	12-M20	130	2-28	165	Z180-24	82:1/11#	51
DQ6300		560	483	12-M22	160	2-28	185	Z250-24	95:1/12#	59
DQ8000		650	590	12-M27	170	2-32	195	Z350-18	100:1/13#	83

带底座曲柄的电动执行机构外形尺寸

Actuator with foundation outline and connection dimensions



型号 Model	参数 Parameters	B	B1	L	L1	d	H	H1	H2	D
Q10-40		250	214	160	100	18	150	150	/	18
Q60-180		300	264	180	120	18	200	200	/	18
DQ200		400	360	250	210	20	200	200	219	20
DQ300		500	440	260	215	22	280	250	237	30
DQ400		500	440	260	215	22	280	250	237	30
DQ600		500	440	260	215	22	280	250	296	30
DQ800		500	440	260	215	22	280	250	296	30
DQ1000		600	540	315	265	26	315	300	346	34
DQ1600		600	540	315	265	26	315	300	430	34
DQ2400		600	540	315	265	26	315	350	455	34
DQ3200		600	540	315	265	26	315	350	520	34



# 电动执行器分体式安装

## Electric Actuator Split Installation

### 主要技术参数

#### Main technical parameters:

1. 使用环境温度: 机械单元-20~100°C, 分体控制单元-20~60°C;
2. 机械单元和分体控制单元可分离长度(高温屏蔽线): 标准配置20米, 最长传输距离可达50米(更长距离需特殊定制);
3. 防护等级: 机械单元及分体控制单元均可达IP67, 选配IP68.

1. Working temperature: mechanical unit -20~100°C, split control unit -20~60°C;
2. Separable length of mechanical unit and split control unit (high temperature shielding line): standard configuration 20m, longest transmission distance reaching 50m (products with longer distance should be customized);
3. Protection grade: Mechanical unit and split control unit can reach IP67, with IP68 optional.

### 特点

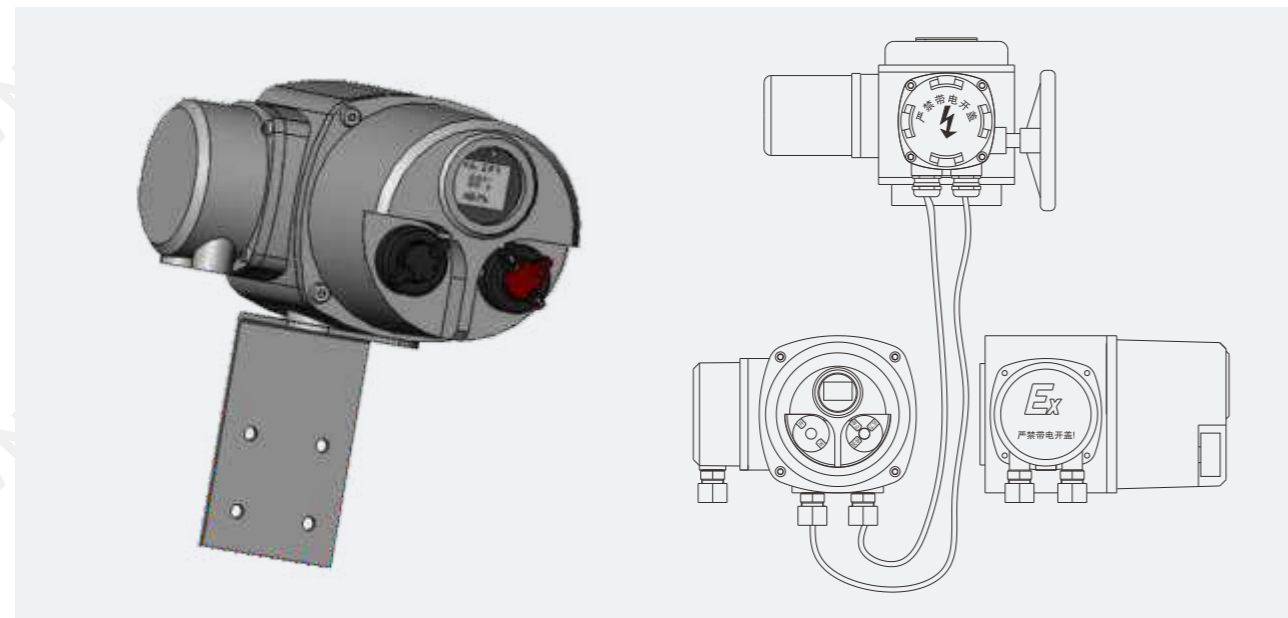
#### Characteristic

分体式电动执行器, 主要针对70°C以上的高温环境或者振动强烈及强磁的环境, 智能型电动执行器在上述环境中无法长期工作而开发研制。分体式电动执行器是在诚磊智能化电动执行器的基础上对关键零部件: 电机、绝对编码器、信号远传板、控制模块等进行了耐高温磁屏蔽及减震设计, 可以在高温环境、潮湿及高振动、强磁环境中长期使用。

The split electric actuator is mainly researched and developed for high temperature environments above 70°C or environments with strong vibration and strong magnetism, as the intelligent electric actuator cannot work under the above environments for a long time. Based on Chenglei intelligent electric actuators, the split electric actuator has carried out high temperature resistant, magnetic shielding and shock absorbing design on the key parts such as motor, absolute encoder, signal remote transmission board and control module, so that it can be used under high temperature environments, and environments with humidity, high vibration and strong magnetism for a long time.

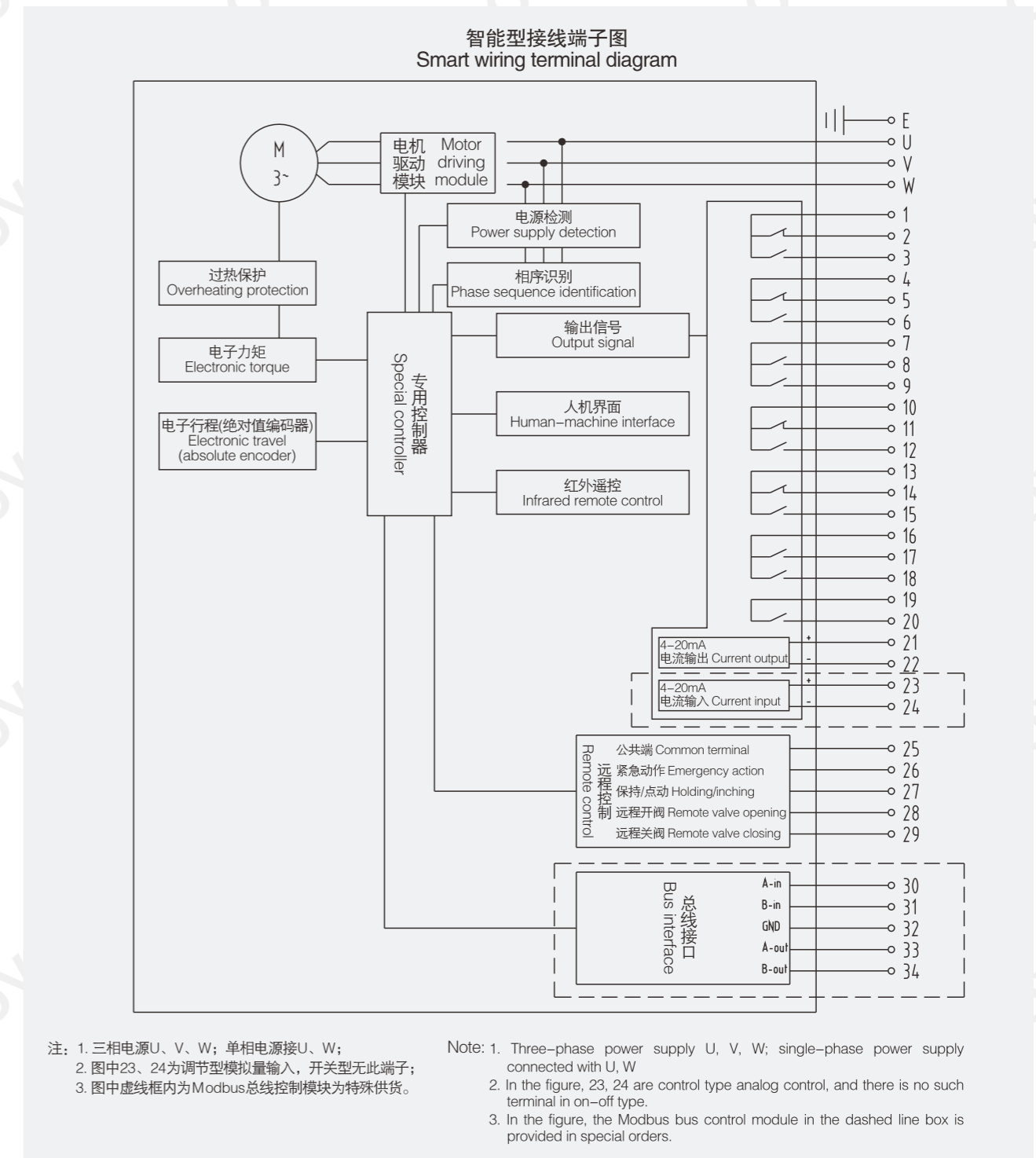
### FT分体式电动执行器安装示意图

#### Installation schematic diagram of FT split electric actuator



# 接线端子图

## Terminal Diagram



## 被驱动装置的运动方式

### According To Movement Modes of Driven Devices

被驱动装置的动作方式直接决定着执行器的传动形式

The movement modes of driven devices directly determine the driving modes of actuators.

部分回转 (角行程) Part-turn (Rotary motion)	多回转 (直行程) Multi-turn (Linear motion)
<p>角行程电动执行器通常也叫部分回转执行器，机体结构紧凑，可以实现自锁，即使断电情况下也可保持阀位不变。</p> <p>齿轮传动组通过精心的设计来提高抗震性和耐用性。尽管执行器配置的行程限位装置，但为了确保在手动操作时防止被驱动装置损坏，仍然设计了机械限位。</p> <p>针对较大扭矩的阀门装置，采用叠加行星减速器，并且与输出轴同轴连接安装，同向转动。</p> <p>The rotary motion electric actuator is also called part-turn actuator. With compact structure, the actuator can realize self-locking and maintain the valve position unchanged even in case of power failure.</p> <p>Through elaborate design, the gear driving group can improve seismic resistance and durability. Although the actuator is provided with the travel limit device, mechanical limit is still designed in order to ensure that the driven device will not be damaged during manual operation.</p> <p>For valve units of larger torque, the planetary reducer is superposed and coaxially connected and mounted with the output shaft with rotation at the same direction.</p>	<p>多回转电动执行器既可以直接安装在被驱动装置上，也可与齿轮箱配套安装。</p> <p>为了适应多种功能的需要，应满足大范围的扭矩和转速，且具备自锁功能，以使阀门保持原位。</p> <p>为了用户的安全，执行器在电动时，手轮不能随之转动，且电机驱动优先于手轮驱动。</p> <p>针对较大扭矩的阀门装置，采用叠加行星减速器，并且与输出轴同轴连接安装，同向转动。</p> <p>The multi-turn electric actuator can either be mounted directly on the driven device or mounted together with the gearbox.</p> <p>In order to meet the needs for various functions, a wide range of torque and rotation speed should be met. It is also provided with the self-locking function, so as to maintain the valve at its original position.</p> <p>For the sake of user safety, when the electric actuator is operated electrically, the handwheel cannot turn along with it, and the motor driving should take precedence over handwheel driving.</p> <p>For valve units of larger torque, the planetary reducer is superposed and coaxially connected and mounted with the output shaft with rotation at the same direction.</p>



## 阀门与电动执行器选配表

### Valve and Electric Actuator Selection Table

闸阀 Gate valve

PN \ DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
1	2.5	2.5	2.5	5	5	10	10	15	15	20	30	30	45	45	60	60
2.5	2.5	2.5	5	10	10	15	15	20	20	30	30	45	45	60	60	90
6	2.5	5	10	10	15	15	20	20	30	30	45	45	60	90	90	90
10	10	10	10	15	15	20	20	30	45	45	60	90	90	90	120	120
16	10	10	15	20	20	30	30	45	60	90	120	120	180	180	180	250
25	10	10	15	20	30	30	45	60	90	90	120	120	180	250	350	500
40	10	10	15	20	30	45	60	90	90	120	180	180	250	350	500	650
64	10	10	20	30	45	60	60	90	120	180	250	250	350	500	800	1000
100	15	20	30	45	60	60	90	120	180	250	350	500	600	800	1000	1500
160	20	30	45	60	90	90	120	180	250	350	500	800	1000	1200	1500	2000
200	20	45	60	90	90	120	180	250	350	500	700	1000	1200	1600	2000	3000
320	30	60	90	120	180	180	250	350	500	700	1000	1500	2000	2400	3000	4000

截止阀 Globe valve

PN \ DN	15	20	25	32	40	50	65	80	100	125	150	200	225	250	300	350
6	5	5	5	5	5	5	5	10	10	15	20	30	45	60	60	90
10	5	5	5	5	5	5	8	10	15	20	30	45	60	60	90	120
16	5	5	5	5	10	10	10	20	30	30	45	60	90	120	180	180
25	5	5	5	10	10	15	20	30	30	45	50	90	120	180	250	350
40	5	5	10	10	20	30	30	45	45	60	90	120	180	250	350	500
64	5	10	10	20	30	30	45	45	60	120	120	180	250	350	500	700
100	10	10	20	25	30	30	45	60	90	120	180	350	400	550	800	1000
160	10	10	30	30	45	45	60	100	120	180	350	550	650	800	1200	1600
320	10	20	30	45	60	90	100	180	250	350	600	1000	1300	1600	2400	3200

球阀 Ball valve

PN \ DN	50	65	80	100	150	200	225	250	300	350	400	450	500	600	700	800
16	5	10	10	20	60	60	90	120	200	250 Z15	400 Z20	500 Z30	600 Z30	800 Z45	1200 Z60	2500 Z120
25	5	10	20	20	60	90	120	200	250 Z15	400 Z20	500 Z30	600 Z30	800 Z45	1200 Z60	2000 Z90	3000 Z120
40	10	20	20	40	90	200	200	250 Z15	400 Z20	500 Z30	600 Z30	800 Z45	1200 Z60	2000 Z90	3000 Z120	6000 Z250
64	20	20	30	60	200	200	300 Z20	400 Z20	600 Z30	800 Z45	1000 Z60	1200 Z60	1500 Z90	3000 Z120	4500 Z180	8500 Z350
100	20	40	60	90	200		500 Z30	700 Z45	1000 Z60	1200 Z60	1500 Z90	2000 Z90	3000 Z120			

蝶阀 Butterfly valve

PN \ DN	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1600
2.5	10	20	40	60	90	120	120	200	250 Z15	400 Z20	500 Z30	700 Z45	800 Z45	1000 Z60	1500 Z90	2500 Z120
6	10	20	40	60	90	120	200	250 Z15	300 Z20	500 Z30	700 Z45	1000 Z60	1500 Z90	2000 Z90	2500 Z120	3800 Z180
10	10	30	60	90	120	200	300 Z20	400 Z20	500 Z30	600 Z30	800 Z45	1200 Z60	1500 Z90	2000 Z90	3000 Z120	4500 Z180
16	20	40	90	120	200	250 Z15	300 Z20	400 Z20	500 Z30	800 Z45	1200 Z60	2000 Z90	2500 Z120	3500 Z120	4500 Z180	6000 Z250
25	30	60	120	200	300 Z20	400 Z20	450 Z30	500 Z30	700 Z45	1000 Z60	1500 Z90	2500 Z120	3500 Z120	4500 Z180	6000 Z250	7500 Z350
40	40	90	200	250 Z15	400 Z20	600 Z30	700 Z45	800 Z45	1000 Z60	2000 Z90						
64	90	200	250 Z15	300 Z20	500 Z30	700 Z45	1000 Z60	1500 Z90	2500 Z120	3800 Z180						

注：本选型表仅供参考 Note: The model selection table is only for reference.