



XFZ/T
XFZB/T

整体数字型多回转阀门电动装置
Electric Multi-Turu Valve Electric Actuator

使用说明书 Instructions



常州曦凡电站辅机有限公司

Changzhou XIFAN Power Station Auxiliary Equipment Co.,Ltd.

1. 概述 Summary

多回转阀门电动执行机构，通称为 Z 型。适用于启闭件做直线运动的阀门，如闸阀、截止阀、隔膜阀、闸门、水闸阀等。用于阀门的开启、关闭或调节。是对阀门实现远控、集控和自控的必不可少的驱动装置。他们具有功能全、性能可靠、控制系统先进、体积小、重量轻、使用维护方便等特点。

广泛用于电力、冶金、石油、化工、造纸、污水处理等行业。

多回转电动执行机构有：户外型、隔爆型、整体型、整体调节型、隔爆整体型、隔爆整体调节型等。

按连接型式，分为转矩型和推力型。

本产品的性能符合 JB/T8528-1997《普通型阀门电动装置技术条件》的规定。隔爆型的性能符合 GB3836.1-2000《爆炸性气体环境用电气设备第1部分：通用要求》，GB3836.2-2000《爆炸性气体环境用电气设备第2部分：隔爆型“d”》及 JB/T8529-1997《隔爆型阀门电动装置技术条件》的规定。并经国家防爆电气产品质量监督检验测试中心检定，取得了全系列的防爆合格证。经中华人民共和国国家质量监督检验检疫总局批准取得全国工业产品生产许可证。

Multi-turn valve electric actuator, known by the name of Z-type, which is used for opening, closing or adjusting the valves, is an essential actuating device which can be used for remote control, centralized control and self control to the valves, with the features of comprehensive function, reliable performance, advanced control system, small volume, light weight, convenient application and maintenance and so on. It can be applicable to the valves, whose open-close parts will move in a straight line, such as gate valve, stop valve, diaphragm valve, anchor gate, water gate valve and so on.

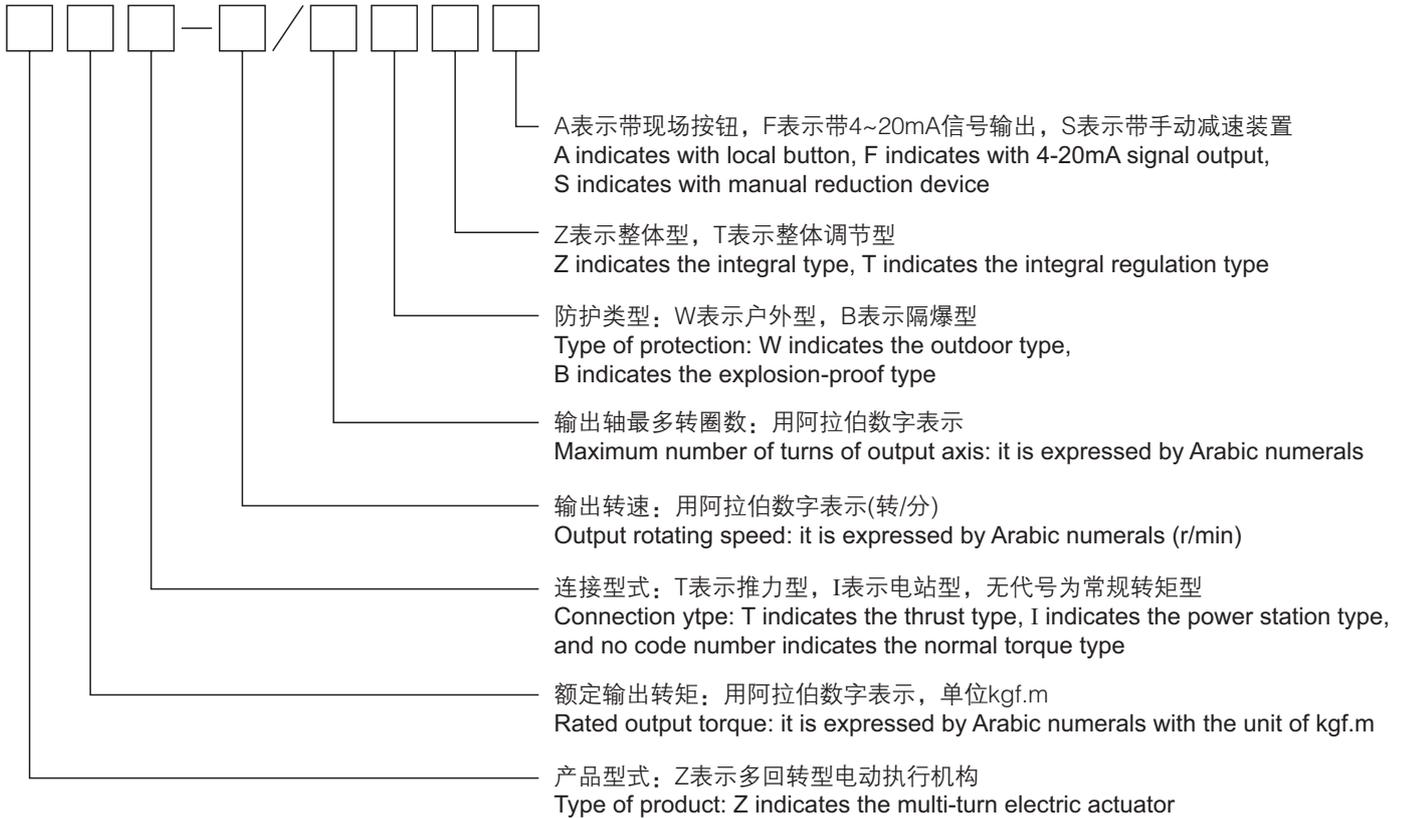
The actuator can be used in the industries like electric power, metallurgy, petroleum, chemical engineering, paper-making, sewage disposal and so on.

There are many types for multi-turn electric actuator: outdoor type, explosion-proof type, integral type, integral-regulation type, integral explosion-proof type, integral-regulation explosion-proof type and so on.

It can be divided into torque type and thrust type according to the connection type.

The performance of the product shall conform to the specification in JB/T8528-1997 Technical Condition for Common Valve's Electrical Devices. The performance of the explosion-proof product shall conform to the specifications in GB3836.1-2000 The Electrical Equipment used in Explosive Gas Atmosphere: the first part: General Requirements, GB3836.2-2000 The Electrical Equipment used in Explosive Gas Atmosphere: the second part: Explosion-proof type "d", and JB/T8529-1997 Technical Condition for Explosion-proof Valve's Electrical Devices. And it has passed the verification of National Quality Supervision & Testing Centre for Explosion-proof Electrical Products, and has got the Conformity Certificate of Protection of the whole series. And we have got the manufacturing license of industrial products approved by General Administration of Quality Supervision, Inspection and Quarantine.

2. 型号表示方法 Presentation of Model



型号示例:

1. Z30I-18/50W: 表示电动执行机构为多回转,输出转矩 $300\text{N}\cdot\text{m}$ ($30\text{kgf}\cdot\text{m}$), 电站型接口, 输出转速 $18\text{r}/\text{min}$, 最大转圈数50, 户外型。
2. Z45T-24/120BS: 表示电动执行机构为多回转, 带手动二级减速装置, 输出转矩 $450\text{N}\cdot\text{m}$ ($45\text{kgf}\cdot\text{m}$), 推力型接口, 输出转速 $24\text{r}/\text{min}$, 最大转圈数120, 隔爆型。
3. Z120-24/80T: 表示电动执行机构为多回转,输出转矩 $1200\text{N}\cdot\text{m}$ ($120\text{kgf}\cdot\text{m}$), 输出转速 $24\text{r}/\text{min}$, 最大转圈数80圈, 整体调节型。

Sample of Model:

1. Z30I-18/50W: Indicate that the electric actuator is multi-turn; the output torque is $300\text{N}\cdot\text{m}$ ($30\text{kgf}\cdot\text{m}$); Power station interface; the output rotating speed is $18\text{r}/\text{min}$, and the maximum number of turns is 50; outdoor type.
2. Z45T-24/120BS: Indicate that the electric actuator is multi-turn equipped with manual double reduction device; the output torque is $450\text{N}\cdot\text{m}$ ($45\text{kgf}\cdot\text{m}$); Thrust interface; the output rotating speed is $24\text{r}/\text{min}$, and the maximum number of turns is 120; explosion-proof type.
3. Z120-24/80T: Indicate that the electric actuator is multi-turn; the output torque is $1200\text{N}\cdot\text{m}$ ($120\text{kgf}\cdot\text{m}$); The output rotating speed is $24\text{r}/\text{min}$, and the maximum number of turns is 80; integral-regulation type.

3. 工作环境和主要技术参数 Operating Environment and Major Technical Parameters

3.1 电源 Power supply

常规：单相 220V、三相 380V，远程 DC24V (50Hz)

特殊：单相 110V、三相 415V、660V，(50Hz、60 Hz)

General: single-phase 220V, three-phase 380V (50Hz), long distance DC24V

Special: single-phase 110V, three-phase 415V, 660V, (50Hz, 60Hz)

3.2 工作环境 Operating environment

a) 环境温度：-20~+60℃(特殊订货-60~+80℃)

b) 相对湿度：95%(25℃时)

c) 户外型用于无易燃/易爆和无腐蚀性介质的场所；

d) 隔爆型产品有d I 和d II BT4两种，d I 适用于煤矿非采掘工作面；d II BT4用于工厂，适用于环境为 II

A、II B级T1~T4组的爆炸性气体混合物。(详见GB3836.1)

e) 防护等级：户外型和防爆型为 IP55、IP65、IP67

f) 工作制：为短时 10 分钟 (特殊订货 15-60 分钟)

a) Ambient temperature: -20~+60℃ (special order -60~+80℃)

b) Relative humidity: 95% (when 25℃)

c) The outdoor type can be used in the places without inflammable/explosive and corrosive medium;

d) There are two types of explosion-proof products: d I can be applicable to non-excavating working area for coal mine, and d II BT4, which is applicable to the environment with II A, II B grade T1~T4 explosive gas mixture, can be used in the factory. (For details refer to GB3836.1)

e) Defense grade: the outdoor type and explosion-proof type is IP55、IP65、IP67.

f) Working time: 10 minutes for short time (special order can reach to 15-60 minutes).

3.3 型号规格和主要性能参数(见表1) Refer to Table 1 for the model and major performance parameter

表1 / Table 1

型号规格 Model & spec.	转矩 Torque (N.m)	推力 Thrust (KN)	最大阀杆直径 Maximum diameter of calve stem (mm)	手动速比 Manual ratio	输出转速 Output rotation speed (r/min)	电机功率 Motor power (KW)	电流 Current (A)	参考重量 Referential weight (kg)
Z5	50	20	28	1:1	12/36	0.12/0.18	0.57/0.83	28
Z10	100	40	28	1:1	18/36	0.25/0.37	1.03/1.38	45
Z15	150	40	28	1:1	18/36	0.37/0.55	1.38/2.2	46
Z20	200	100	40	1:1	18/36	0.37/0.75	1.38/2.62	56
Z30	300	100	40	1:1	18/36	0.55/1.1	2.2/4	58
Z45	450	150	48	1:1 / 20:1	24/36	1.1/1.5	4/4.12	110
Z60	600	150	48	1:1 / 20:1	24/36	1.5/2.2	4.12/5.25	112
Z90	900	200	60	1:1 / 25:1	24/36	2.2/3	5.25/7.9	140
Z120	1200	200	60	1:1 / 25:1	24/36	3/4	7.9/8.87	142
Z180	1800	325	70	22.5:1	18/36	4/7.5	8.87/15.6	250
Z250	2500	325	70	22.5:1	18/36	5.5/10	12.05/20.5	255
Z350	3500	700	80	20:1	18/24	7.5/10	15.6/20.5	330
Z500	5000	700	80	20:1	18/24	10/15	20.5/26.6	350

注：如用户需要，本厂可提供其它的转速：12/18/24/30/36/42/48/60(r/min)，常规按三排计数器供货，如转圈数大定货时注明，可按四排计数器供货。

Note: If user requires, we could provide the products with other rotation speed: 12/18/24/30/36/42/48/60(r/min). Normally, we provide the products with treble counters. If the number of turns is large, give clear indication of it when placing an order, we can provide the products with quadruple counters.

4. 外形及连接尺寸 Outline and connection dimension

4.1 外形和外形尺寸(见图1和表2) Outline and outline dimension (refer to Figure 1 and Table 2)

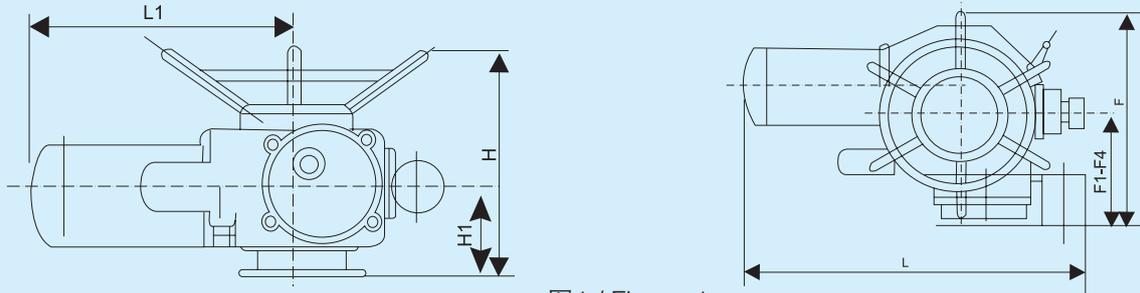


图1 / Figure 1

表2 / Table 2

型号 Model	H	H1	L1	L2	L3	F	F1	F2	F3	F4	ØD
Z5	271	96	158	226	249	158	259	-	310	-	316
Z10/Z15	282	113	150	238	287	150	236	313	332	354	300
Z20/Z30	316	130	200	238	295	200	255	317	349	374	400
Z45/Z60	415	195	277	277	394	230	275	391	369	394	460
Z90/Z120	453	195	281	281	412	278	310	426	404	429	556
Z180/Z250	585	250	320	320	474	295	360	476	455	476	320
Z350/Z500	717	280	399	399	1076	433	417	442	417	542	565

注: 1) L1为户外型/隔爆型; L2为整体型/隔爆整体型。

2) F1为户外型; F2为隔爆型; F3为整体型; F4为隔爆整体型/隔爆整体调节型。

Note: 1) L1 is outdoor type / explosion-proof type; L2 is integral type / integral explosion-proof type.

2) F1 is outdoor type; F2 is explosion-proof type; F3 is integral type; F4 is integral explosion-proof type / integral regulation explosion-proof type.

4.2 与阀门连接的结构示意图及尺寸

The structural schematic drawing and dimension of the connection with the valves

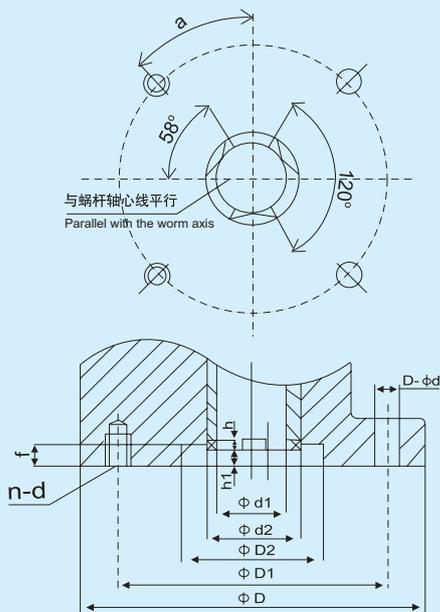


图2 / Figure 2

转矩型的连接尺寸见图2和表3

Refer to figure 2 and table 3 for connection dimension of the torque type

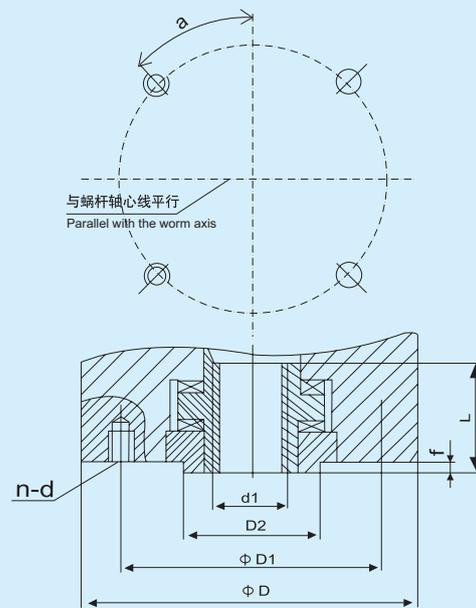


图3 / Figure 3

推力型的连接尺寸见图3和表3

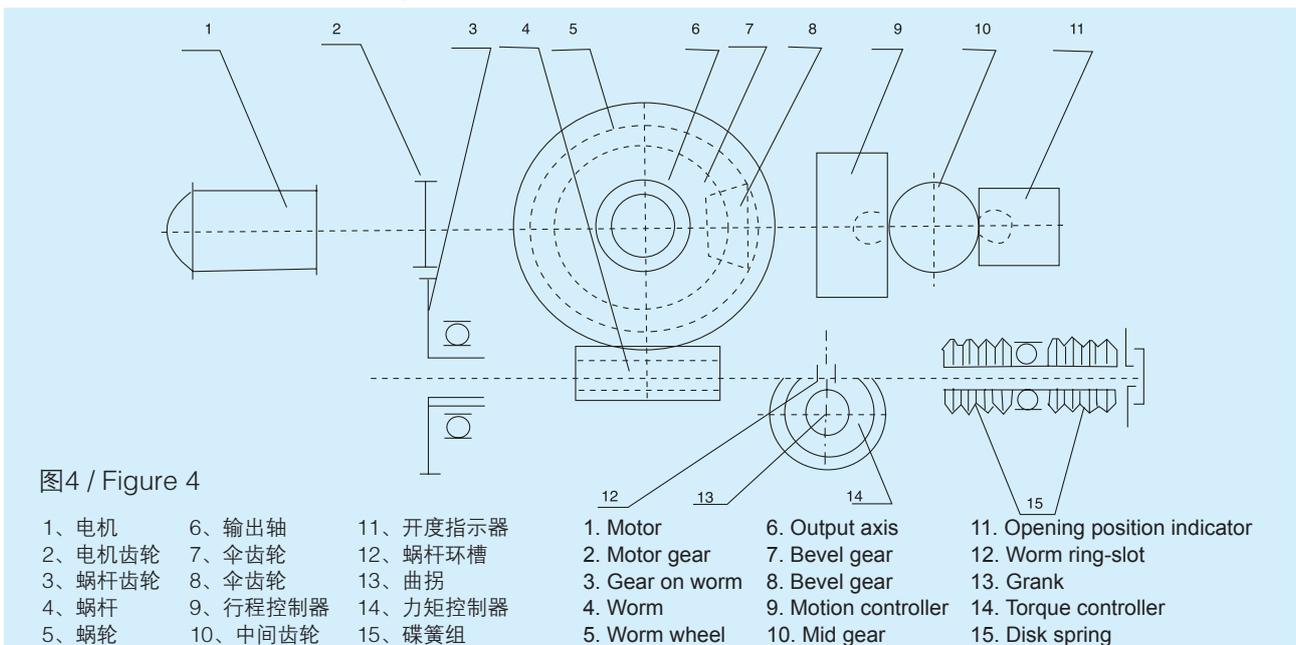
Refer to figure 3 and table 3 for connection dimension of the thrust type

转矩型 JB2920 Torque type JB2920													
型号 Model	法兰号 Flange No.	D	D1	D2 (H9)	h1	f	h	d1	d2	d	n	α	
Z5/10/15	2	145	120	90	2	4	8	30	45	M10	4	45°	
	2I	115	95	75			6	26	39	M8			
Z20/30	3	185	160	125			10	42	58	M12			
	3I	145	120	90			8	30	45	M10			
Z45/60	4	225	195	150			5	12	50	72			φ18
Z90/120	5	275	235	180				14	62	82			φ22
	5I	230	195	150	12	50		72	φ18				
Z180/250	7	330	285	220	3	6	16	72	98	φ26			
Z350/500	8	380	340	280	3	6	20	83	118	φ22	8	22.5°	
推力型 GB12222 Thrust type GB12222													
型号 Model	法兰号 Flange No.	D	D1	D2 (F8)	f	d1 max	d	L	n	α			
Z5/10/15	F10	125	102	70	3	T28	M10	40	4	45°			
Z20/30	F14	175	140	100	4	T36	M16	55					
Z45/60	F16	210	165	130	5	T44	M20	70					
Z90/120	F25	300	254	200		T60	M16	90	8	22.5°			
Z180/250	F30	350	298	230		T70	M20	110					
Z350/500	F35	415	356	260		T80	M30	150					

5. 结构 Structure

Z型电动执行机构由电动机、减速器、力矩控制器、行程控制器、开度指示器、手—电动切换机构、手轮及电气部分组成。户外型采用了圆止口和O型圈密封，隔爆型与户外型的密封结构相同，并增加了隔爆面结构，采用了隔爆型接线盒和YBDF系列户外、防腐、隔爆型电动机用三相电动机。其传动原理如图4所示。

Z type electric actuator is consisted of motor, speed reducer, torque controller, motion controller, opening position indicator, manual-electric shifter, hand wheel and electric parts. The conventional type is sealing with ground surfaces; the outdoor type applies the round rabbit and o-seal ring seal; The explosion-proof type has the same sealing structure as the outdoor type, is added by the explosion-proof surface, and applies explosion-proof type connecting box and three phase motor used for the outdoors, anti corrosion, explosion-proof type electric valve of the YBDF series. The transmission principal is shown on Figure 4.



5.1 电动机 Motor

户外型采用 YDF 型，隔爆型采用 YBDF 型阀门专用三相异步电动机。

The outdoor type applies the YDF type, the explosion-proof type applies the three phase asynchronous motor dedicated for the YBDF type valve.

5.2 减速器 Speed reducer

由一对直齿轮和蜗轮副组成。电动机的动力经减速器传递给输出轴。

It is consisted of one pair of spur gear and worm gear. The motive power of motor is transmitted to the output axis through the speed reducer.

5.3 力矩控制器 Torque controller

力矩控制器分户外型系列和隔爆型系列，其结构见图 5。

The torque controller is divided into the outdoor type and explosion-proof type. Refer to Figure 5 for the structure.

5.3.1 户外型系列 The outdoor type series

当输出轴上受到一定转矩后，蜗杆除旋转外还产生轴向位移，带动曲拐、曲拐动作时带动轴和凸轮压迫微动开关、切断电机电源、使电机停转，从而实现了对电动执行机构输出转矩的控制、达到保护电动阀门的目的。

When the output axis is subject to some torque, besides the rotation, the worm also generates the axial displacement and drives the crank. During the crank movement, it drives the axis and cam to compress the sensitive switch to cut off the motor power and stop the motor rotation. In this way, the output torque of the electric actuator is controlled to protect the electric valve.

5.3.2 隔爆型系列 The explosion-proof type

当输出轴上受到一定转矩后，蜗杆除旋转外还产生轴向位移，带动曲拐、使撞块产生角位移，从而压迫凸轮，使支架上抬。当输出轴上的转矩增大到整定转矩时，则至微动开关动作，切断电机电源，使电机停转，从而实现了对电动执行机构输出转矩的控制，达到保护电动阀门的目的。

When the output axis is subject to a certain torque, besides the rotation, the worm also generated the axial displacement and drives the crank to make the block generate the angular displacement, to compress the cam to uplift the bracket. When the torque on the output axis increases to the setting torque, the bracket is uplifted until the sensitive switch moves to cut off the motor power and stop the motor rotation. In this way, the output torque of the electric actuator is controlled to protect the electric valve.

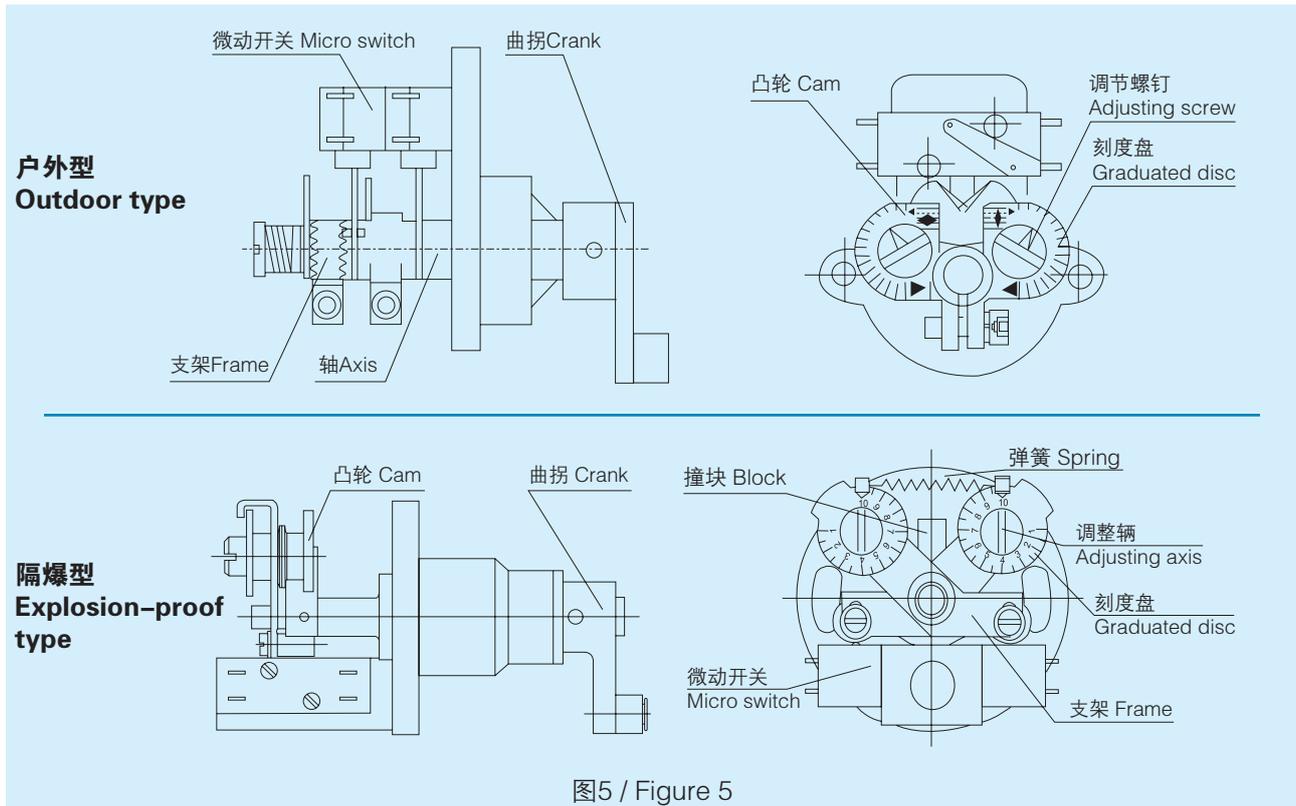


图5 / Figure 5

5.4 行程控制器 Motion controller

采用十进制计数器原理，控制精度高。为全系列通用部件，其结构见图 6。其工作原理为：由减速箱内的一对大小伞齿轮带动主动小齿轮(Z=8)，再带动行程控制器工作。如果行程控制器按阀门开、关的位置已调整好，当控制器随输出轴转动到预先调整好的位置(圈数)时，则凸轮将转动 90°，迫使微动开关动作，切断电机电源，使电机停转，从而实现对电动执行机构行程(转圈数)的控制。

It applies the principal of decimal counter with high control accuracy. It is the complete line of general purpose part, and we can refer to Figure 6 for its structure. The following is the operating principal of the motion controller: one pair of big and small bevel bears inside the reduction gearbox will drive the driving pinion (Z=8), and then drive the motion controller to work. If the motion controller has been regulated according to the open position and close position of valve, and when the controller turns to the preset position (number of turns) along with the output axis, the cam will turn 90° to drive the sensitive switch to actuate, which can cut the motor power supply, and stop the motor, and so achieve the control to the travel (number of turns) of electric actuator.

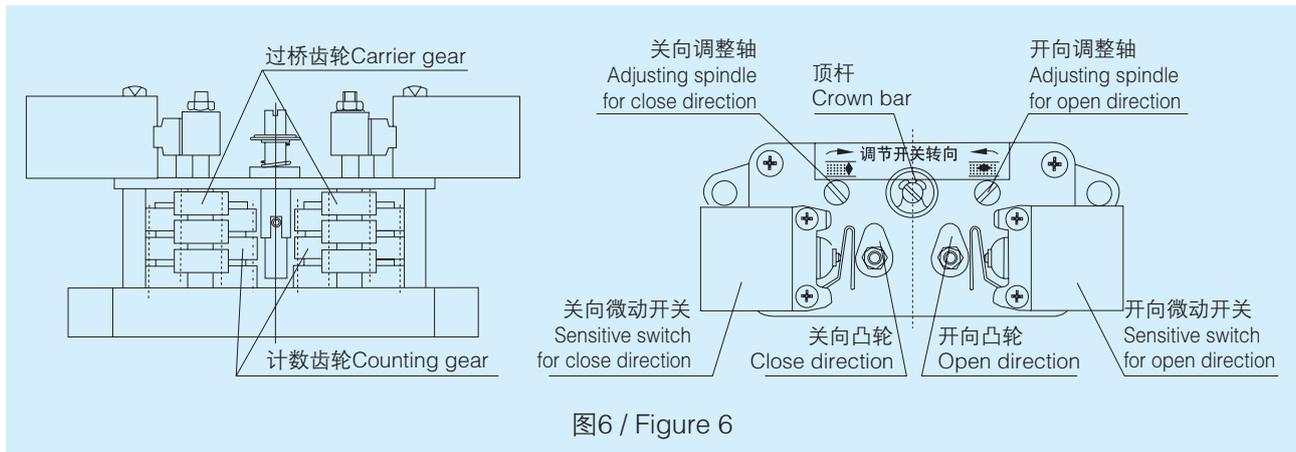


图6 / Figure 6

5.5 开度指示器 Opening position indicator

为全系列通用部件，其结构见图 7。输入齿轮由计数器个位齿轮带动，经减速后，指示盘随阀门的开关过程同时转动，以指示阀门的开启或关闭。电位器的轴和指示盘同步转动，供远传开度指示用，移动转圈数调整齿轮可以改变转圈数。开度指示器内设一微动开关和凸轮，当电动执行机构运转时，旋转凸轮周期性地使微动开关动作，其频率为输出轴转动一圈动作一次或二次，可供闪光信号等使用。

It is the complete line of general purpose part, and we can refer to Figure 7 for its structure. Input gear is driven by the units order gear of counter, and after speed reduction, the indicator disc will rotate together with the opening and closing process of the valve to indicate the opening or closing of the valve. The axis of the potentiometer and indicator disc turns synchronously for the remote transmitting opening indication, and move the aligning gear for number of turning can change the number of turning. Inside the opening indicator, there are a sensitive switch and cam, and when the electric actuator runs, the rotating cam will make the sensitive switch actuate periodically with the frequency of working once or twice when output axis rotates one circle, which can be used for flashing signal etc.

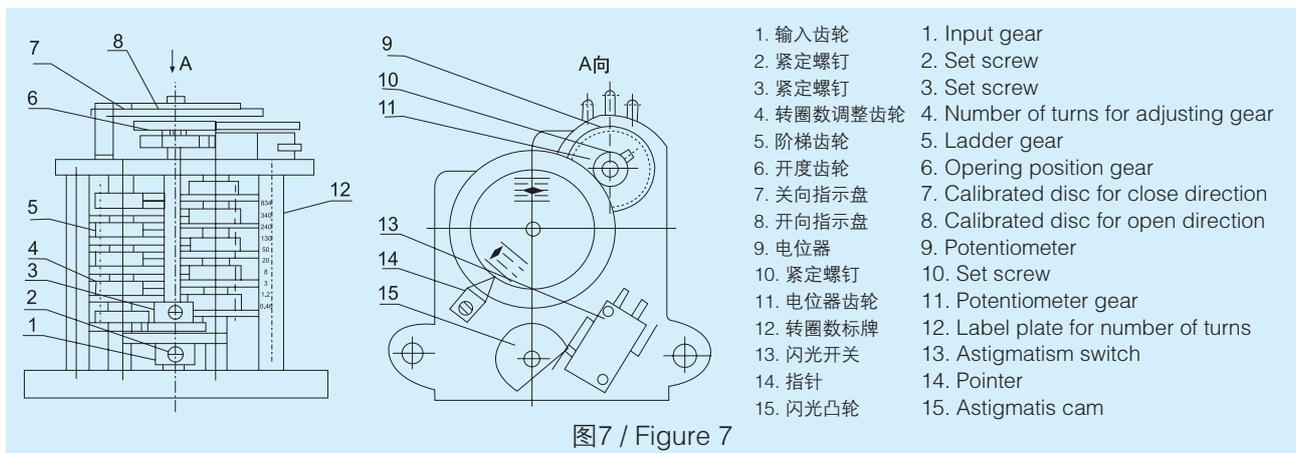


图7 / Figure 7

5.6 手/电动切换机构 Manual-Electric shifter

为半自动切换，其结构见图 8。它由手柄、凸轮、框架、直立杆、中间离合器、压簧等组成。用手轮操作时，先把切换手柄向手动方向推动，凸轮随手柄轴一起转动，使支撑在凸轮面上的框架抬起，同时使支撑在框架上可在输出轴上作轴向移动的中间离合器也抬高，并压迫压簧。当手柄推到一定位置时，中间离合器即脱离蜗轮而与手轮啮合，则可使手轮上的作用力通过中间离合器传到输出轴上即成为手动状态。当框架抬高到一定高度时，安装在框架上的直立杆在扭簧作用下直立于蜗轮端面，支撑住框架使中间离合器不致下落，手柄推到手动位置时即可放开，用手轮操作。当电机带动蜗轮转动时，直立杆即倒下，在压簧作用下中间离合器迅速向蜗轮方向移动，并与蜗轮啮合，同时与手轮脱开，则成为电动状态。(如手动切换、切不到手动位置时，请边切换手柄，边转动手轮)

It is the semi automatic switch with its structure referring to the Figure 8, which consists of handle, cam, frame, upright rod, middle clutch, compressed spring and so on. When operating with handle, first push the switch handle to the position of manual operation, the cam will turn together with the handle axis, which will make the frame supporting on the cam surface be uplifted, and at the same time, the middle clutch, which is on the frame, and can make axial movement on the output axis, will be uplifted too, and compress the compressed spring. When the handle is pushed to certain position, the middle clutch will disengage with worm wheel, whereas it will engage with hand wheel, and then the acting force on the hand wheel will be transmitted to the output axis through the middle clutch, which turns into the manual operation state. When the frame is uplifted to a certain height, under the action of torsion spring, the upright rod fixed to the frame will stand erect on the end face of the worm wheel to support the frame in order to make the middle clutch not fall down. After pushed to the manual operation position, the handle can be released, and then carry on the operation with hand wheel. When the motor drives the turning of the worm wheel, the upright rod will come to the ground, and the middle clutch will move towards the direction of worm wheel rapidly, and engage with worm wheel, at the same time disengage with the hand wheel, which turns into the electric state. (When using manual switching, if you can not switch to the manual position, please switch over the handle and at the same time turn the hand wheel.)

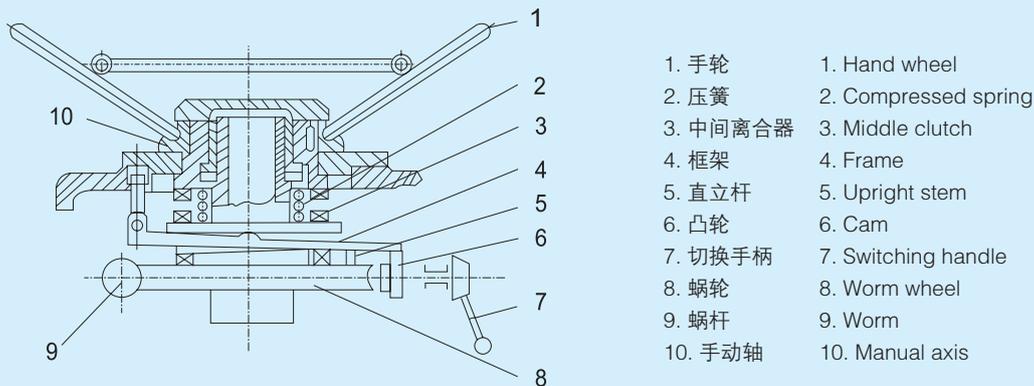


图8 / Figure 8

5.7 整体型和整体调节型 Integral type and integral adjusting type

整体型电动执行机构是在常规普通电动执行机构的基础上派生而成，电气元件安装在一块可翻转的板上，以便对力矩控制器、行程控制器、开度指示器进行调整。按钮盒上有三个按钮，中间为现场/远控转换按钮，其左边为现场关阀按钮，右边为现场开阀按钮，盖上按钮盒盖为远方控制，打开盖子为现场操作。

电气控制部分结构见图9。

Integral electric actuator is produced on the basis of normal and common electric actuator. Its electric components are mounted on a turnover plate, so as to adjust the torque controller, motion controller and opening position indicator. There are three buttons on the button box, the middle button is for local/remote control switching, the left button is for closing valve locally, and the right button is for opening valve locally. Closing the cover of button box can start the remote control, and opening the cover can start field operation.

Refer to Figure 9 for the structure of electric control section.

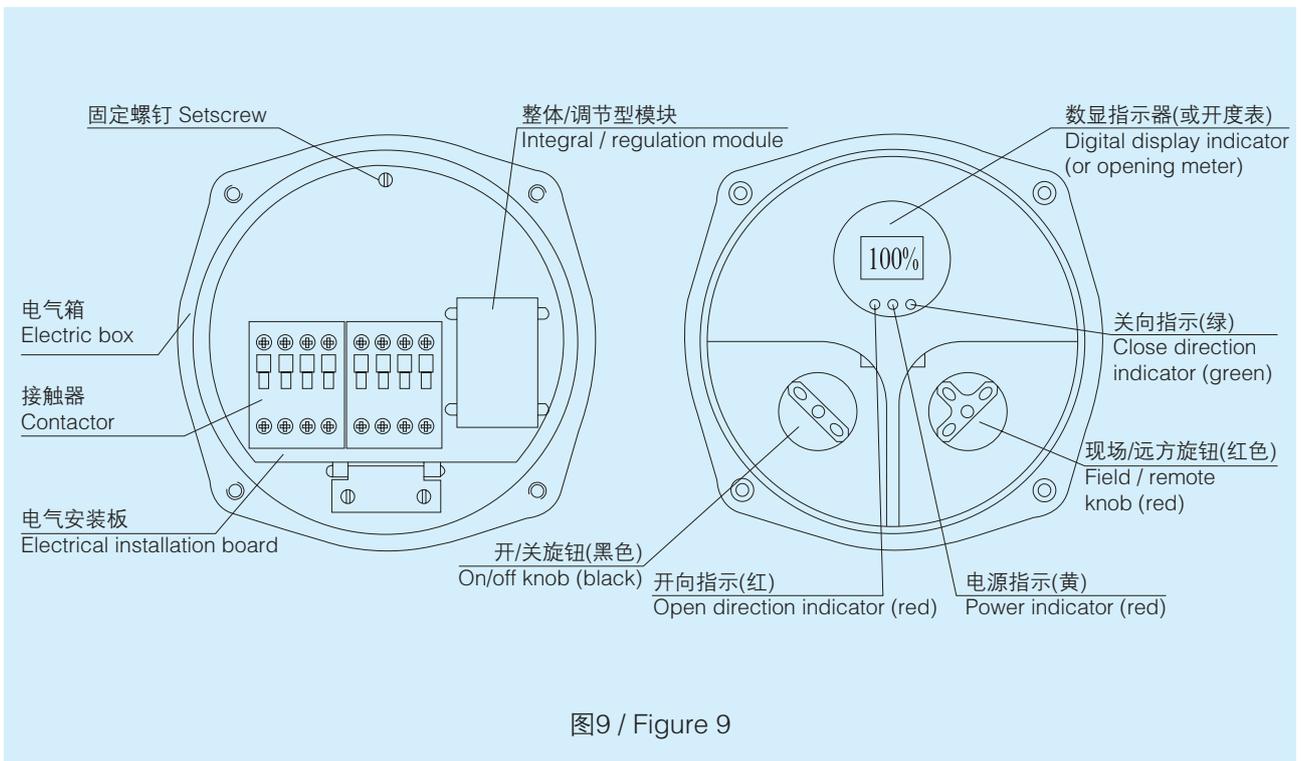


图9 / Figure 9

5.8 电气控制原理图 The schematic diagram of electric control

5.8.1 户外型、隔爆型电气控制原理见图10(注虚线框内的元件在电装上)

Refer to the Figure 10 for the schematic diagram of electric control of outdoor type and explosion-proof type.

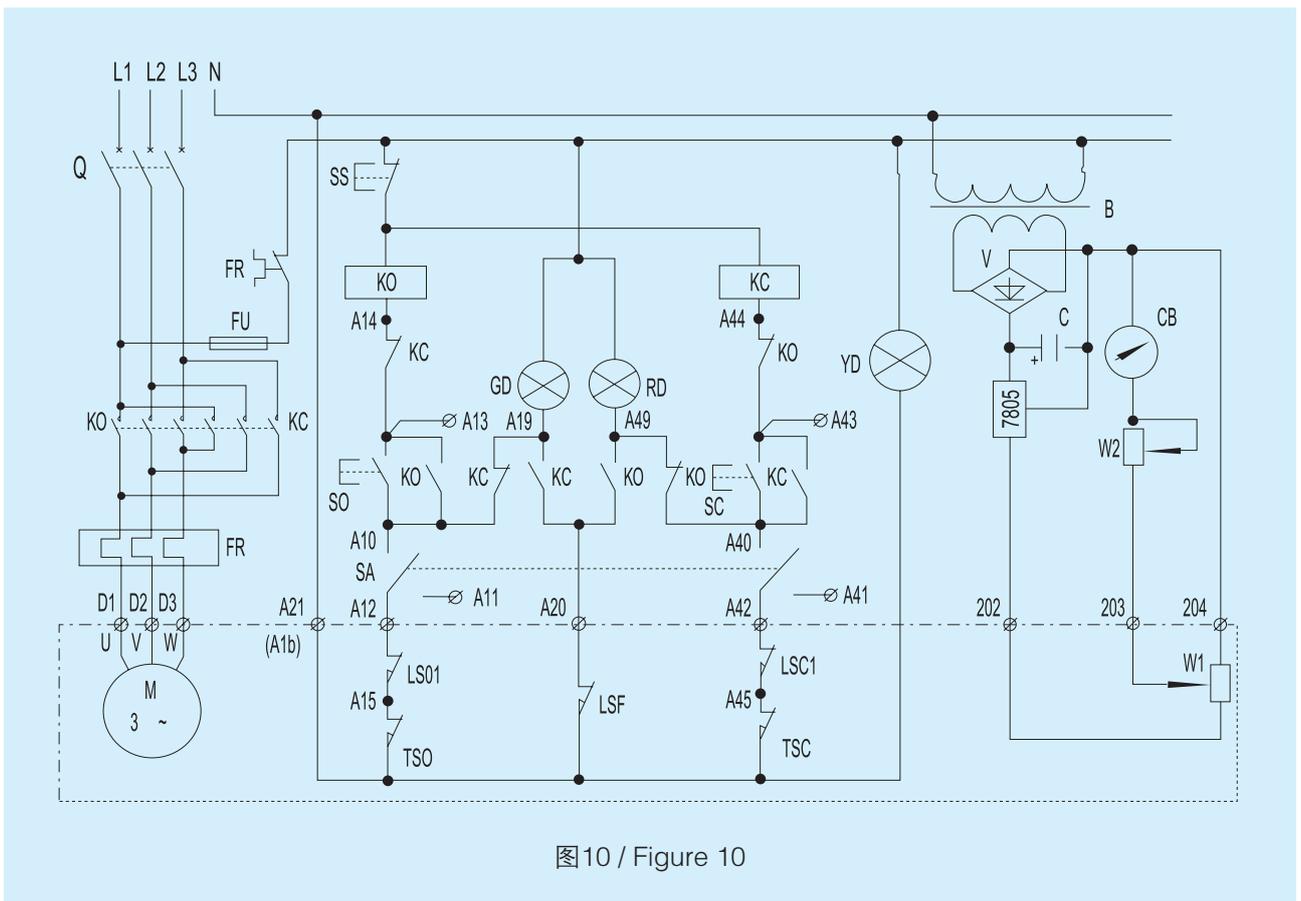
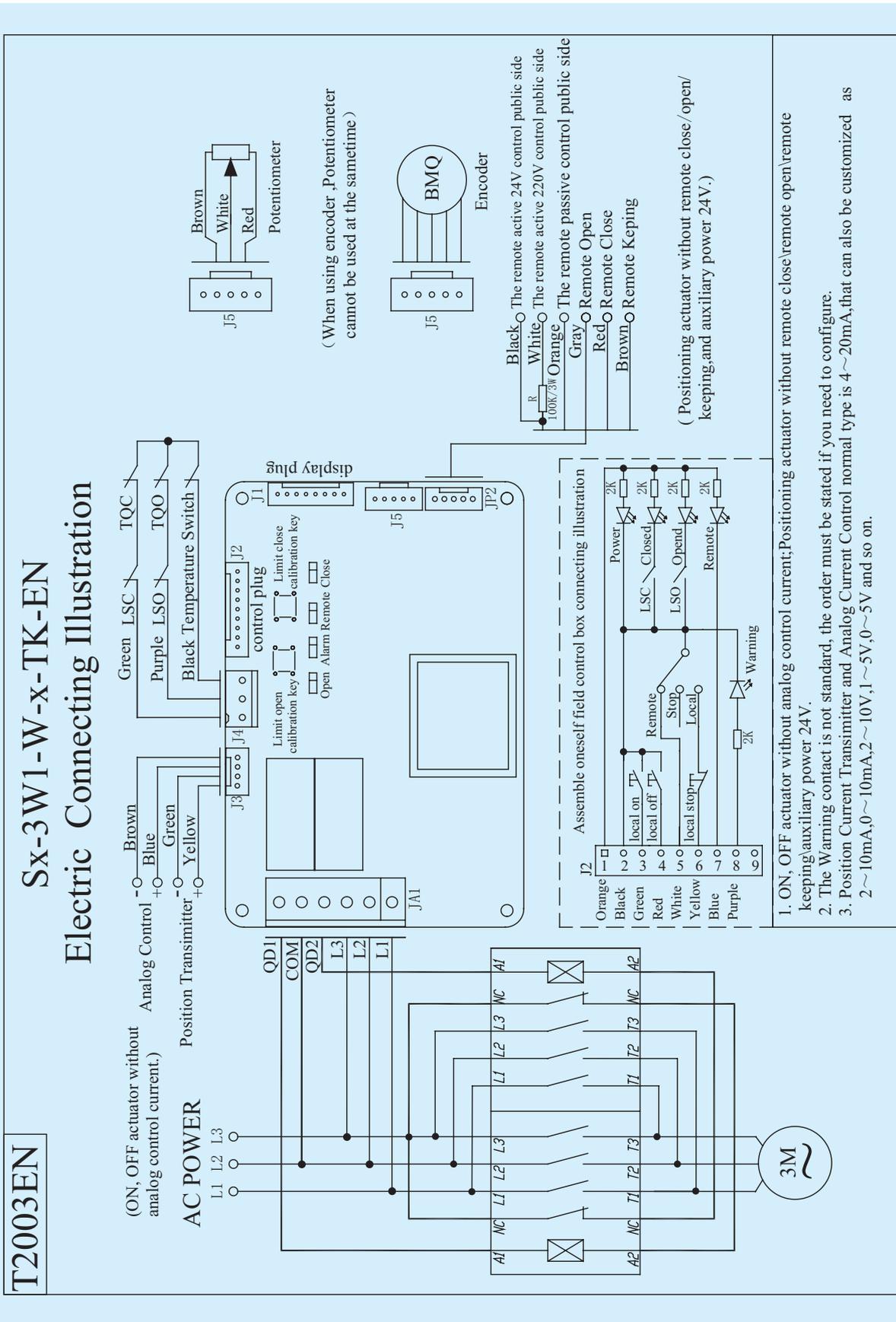


图10 / Figure 10

5.8.3 整体型调节型和隔爆整体调节型电气控制原理图见图11

Refer to the Figure 11 for the schematic diagram of electric control of integral adjusting type and explosion-proof integral adjusting type



5.9 接线 Wire connection

5.9.1 户外型电动执行机构的接线图见图12

Refer to the Figure 12 for the connection diagram of outdoor electric actuator

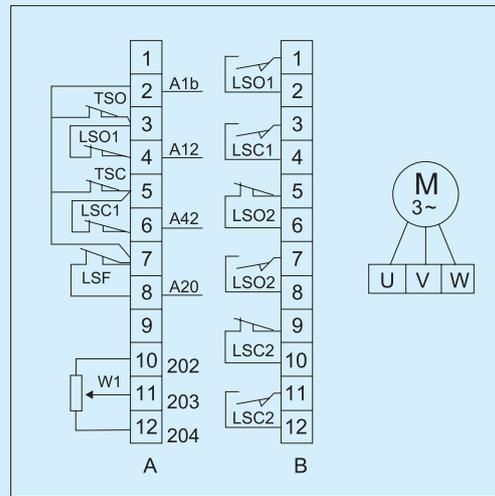


图12 / Figure 12

5.9.2 隔爆型电动执行机构的接线图见图14

Refer to the Figure 14 for the connection diagram of explosion-proof type electric actuator

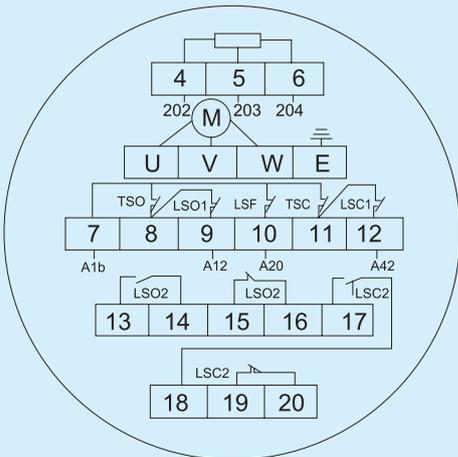


图13 / Figure 13

图14 / Figure 14

接线方法

Terminal connection way

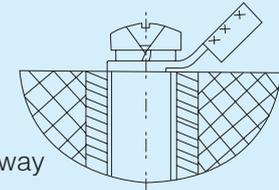
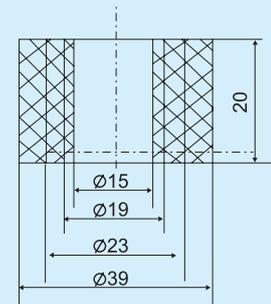


图15 / Figure 15

密封圈 Seal ring



电缆直径 Diameter of the cable

表4 / Table 4

密封圈同心槽内孔直径 (mm)	Ø15	Ø19	Ø23
允许引入电缆公称直径(mm)	Ø15±1	Ø±1	Ø±1

端子接线应牢靠，应按图14所示的方法，用弯头夹住电线。接线盒内的不同电位的导电零件之间的电气间隙应符合下列要求：

电压220伏时不小于6mm，电压380伏时不小于8mm。接线盒有两个引入装置，一个引入电机动力电缆，一个引入控制电缆，使用的动力线电缆必须有地线，并与接线盘上的接地端子相接。引入电缆直径规格见图15和表4。接好线后应装好压紧密封圈，密封圈的邵氏硬度应为45~55度，损伤及老化的应及时更换。

The wiring for terminal shall be reliable, and shall refer to the wiring way indicated in Figure 14, and shall use the elbow to clamp the wire. The electric clearance among the current carrying parts with different electric potential inside the connection box shall conform to the following requirements:

When the voltage is 220V, the electric clearance shall not be less than 6mm, and when the voltage is 380V, it shall not be less than 8mm. Inside the connection box, there are two cable entry device, one is for introducing the power cable of motor, and the other is for introducing the control cable. The used power cable must be equipped with ground wire which shall be connected to the earth terminal on the patch board. Refer to the Figure 15 and Table 4 for the diameter and specification of service cable. After finishing the wiring connection, we shall fix the pinch off seal ring with the Shore hardness of 45~ 55 degree and we shall replace the damaged and aged seal ring in time.

5.9.3 整体型、隔爆整体型、整体调节型、隔爆整体调节型端子接线图分别见图16、17、18和19

Refer to Figure 16,17,18,19 for the terminal connection diagram of Integral type, integral explosion-proof type, integral regulation type, integral regulation explosion-proof type separately

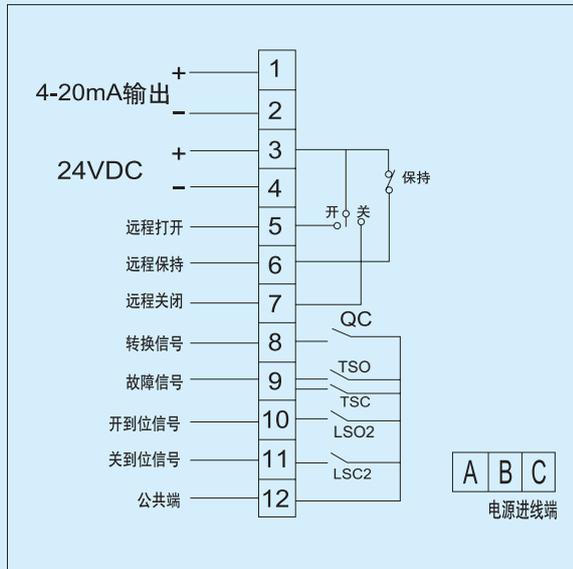


图16 / Figure 16
整体开关型电动执行机构端子接线图
Terminal drawing for integral switching type electric actuator

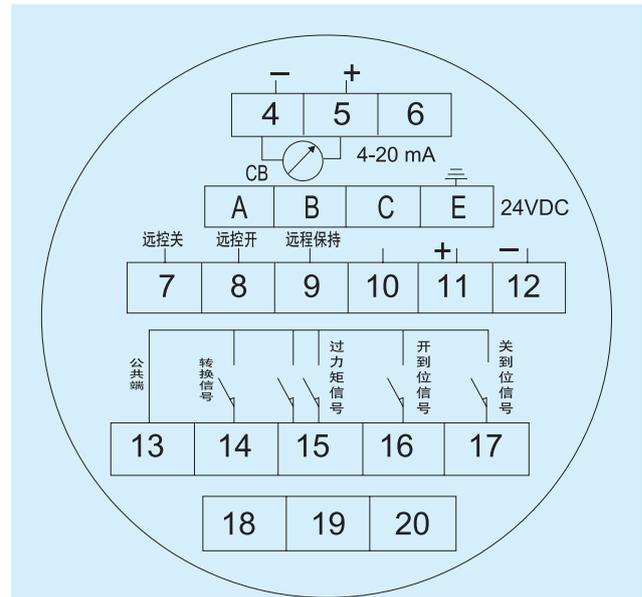


图17 / Figure 17
隔爆整体开关型电动执行机构端子接线图
Terminal drawing for integral explosion-proof switching type electric actuator

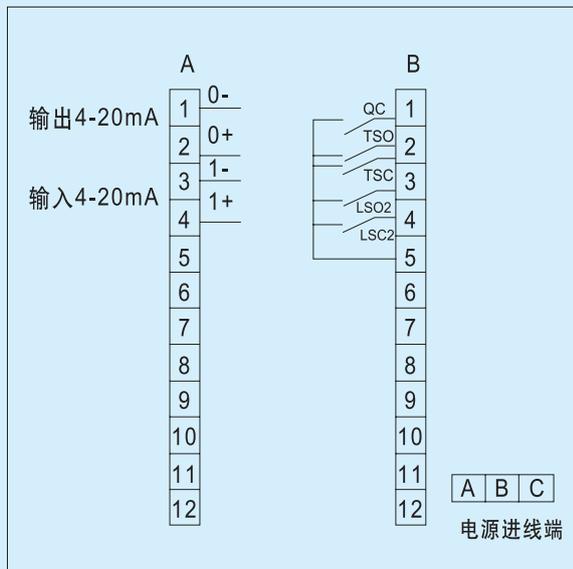


图18 / Figure 18
整体调节型电动执行机构端子接线图
Terminal drawing for integral regulation explosion-proof switching type electric actuator

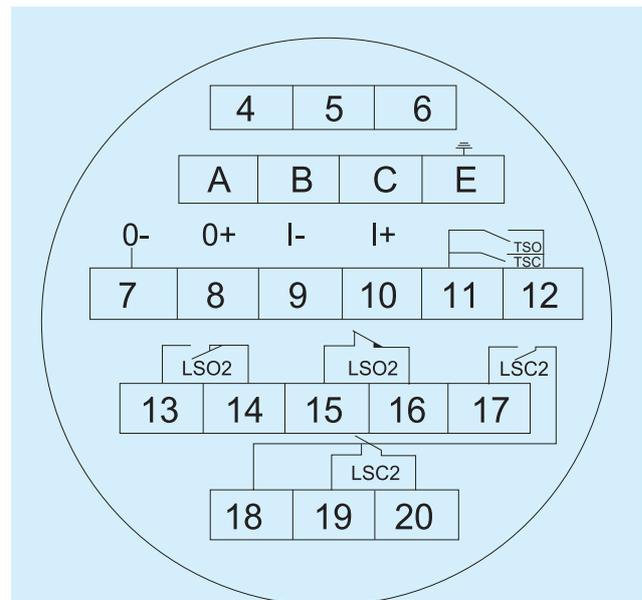


图19 / Figure 19
隔爆整体调节型电动执行机构端子接线图
Terminal drawing for integral regulation explosion-proof switching type electric actuator

6. 调整 Adjustment

电动执行机构与阀门组装后，必须对力矩控制器、行程控制器、开度指示器分别进行调整，方可使用；调整前，必须检查开度指示器上的电位器是否已脱开(把电位器轴上齿轮的紧定螺钉松开即可)，以防损坏；检查电机的旋向，控制线路是否正确，以防电机失控。

Z型电动执行机构的力矩控制器、行程控制器及开度指示器相同，故调整方法一样。

After assembling the electric actuator and valve, the torque controller, motion controller, and opening position indicator must be adjusted separately, and then it can be used.

Before adjusting, we must check that if the potentiometer in the opening position indicator has been disengaged (loose the set screw of gear on the potentiometer axis) in order to prevent the damage; we shall check the turning direction of motor and check if the control wiring is correct in order to make sure that the motor will not be out of control.

The torque controller, motion controller and opening position indicator of the Z-type electric actuator are the same, so the adjusting way is same.

6.1 力矩控制器的调整(参见图 5) The adjustment for torque controller (refer to Figure 5)

出厂时已按用户的要求调整好转矩，一般不需再调整。如需改变整定值，可旋转凸轮的调整轴至相应刻度，先调关向，后调开向。

Before delivery, the torque has been adjusted according to the requirements of users, so normally additional adjustment is not required. If the user wants to change the setting value, he can rotate the adjusting axis of the cam to the relative scale, first adjust the closing position, and then adjust the opening position.

6.2 行程控制器的调整(参见图 6) The adjustment for motion controller (Refer to Figure 6)

6.2.1 全关位置的调整 The adjustment for the complete closing position

- a) 用手动将阀门关严；
- b) 用螺丝刀压下顶杆并转 90° 卡住,使主动小齿轮(八齿轮)与计数器个位齿轮完全脱开；
- c) 按关向箭头旋转关向调整轴，直到关向凸轮动作为止；
- d) 旋回顶杆至原来的位置,使主动小齿轮(八齿轮)与计数器两边的个位齿轮正确啮合,此时一定要用螺丝刀旋转一下关向调整轴,以确保其正确啮合。

- a) close the valve manually;
- b) force down the crown bar with screwdriver, turn 90°, and seize up it, in order to make the driving pinion (eight-gear) disengage with the unit pinion of counter completely;
- c) Turn adjusting axis for closing position according to the arrow of closing until the closing position cam actuates;
- d) Turn the crown bar to the original position to make the driving pinion (eight-gear) engage with the unit pinion at the both sides of the counter accurately, and at this point, you must rotate the closing position adjusting axis with screwdriver to ensure its accurate engagement.

6.2.2 全开位置的调整 The adjustment for the fully opening position

- a) 用手动将阀门开到所需的位置；
- b) 压下顶杆并转 90° 卡住；使主动小齿轮(八齿轮)与计数器个位齿轮完全脱开；
- c) 按开向箭头旋转开向调整轴，直到开向凸轮动作为止；
- d) 旋回顶杆至原来的位置,使主动小齿轮(八齿轮)与计数器两边的个位齿轮正确啮合,此时一定要用螺丝刀旋转一下开向调整轴,以确保其正确啮合。

- a) Open the valve to the required position manually;
- b) Force down the crown bar with screwdriver, turn 90°, and seize up it, in order to make the driving pinion (eight-gear) disengage with the unit pinion of counter completely;
- c) Turn adjusting axis for opening position according to the arrow of opening until the opening position cam works;
- d) Turn the crown bar to the original position to make the driving pinion (eight-gear) engage with the unit pinion at the both sides of the counter accurately, and at this point, you must rotate the opening position adjusting axis with screwdriver to ensure its accurate engagement.

6.3 开度指示器的调整(参见图7) The adjustment of opening position indicator (refer to Figure 7)

在调整好力矩、行程的基础上调整现场开度指示器和远传电位器，调整方法如下：

- a) 移动转圈数调整齿轮至所需的转圈数位置；
- b) 挂上电位器齿轮,拧紧电位器固定螺母并确定电位器齿轮的紧定螺钉是松开的；
- c) 手动或电动关闭阀门并面对指示盘观察电位器齿轮的旋向；
- d) 转动关指示盘使关向标志对准指针；
- e) 按所观察电位器齿轮的旋向转动电位器轴接近终端位置，拧紧紧定螺钉；
- f) 电动或手动操作阀门至全开位置，保持关向刻度盘不动，转动开指示盘使开向标志对准指针；
- g) 电动操作阀门检查闪光灯，阀门开的过程中红灯闪光，全开时红灯长亮；阀门关闭过程中绿灯闪光，关到位时绿灯长亮。

After having adjusted the torque and travel, adjust the onsite opening position indicator and supervisory control potentiometer with the methods as follows:

- a) Move the number of turns to adjust the gear to the required position of number of turns;
- b) Hitch the potentiometer gear, screw down the fixing nut of potentiometer, and make sure that the set screw of potentiometer gear is loose;
- c) Close the valve manually or electrically, and observe the turning direction of the potentiometer gear in the face of the indicator disc;
- d) Turn closing indicator disc to make the sign for closing position aim at the pointer;
- e) According to the observed turning direction of the potentiometer gear, turn the potentiometer axis to make it approach the terminal position, and then screw down the set screw;
- f) Operate the valve to the fully opening position electrically or manually, keep the closing position calibrated disc stationary, and turn the opening indicator disc to make the sign for opening position aim at the pointer;
- g) Operate the valve electrically to check the flashing light, the red light will flash during the process of opening valve, and the red light will be on when the valve is completely opened; the green light will flash during the process of closing valve, and the green light will be on when the valve is completely closed.

6.4 整体型、隔爆整体型、整体调节型、隔爆整体调节型电动执行机构的调整

Adjustment for the integral type, integral explosion-proof type, integral regulation type and integral regulation explosion-proof type electric actuator.

6.4.1 力矩控制器、行程控制器、开度指示器的调整 The adjustment for torque controller, motion controller and opening position indicator

打开电气箱盖，松开电器安装板上的螺钉 A（见图 9），把电器安装板翻转 90°，即可对力矩控制器，行程控制器，开度指示器进行调整。调整方法见 6.1、6.2、6.3。整体型开度表支架上装有开度表调整电位器，用于调整开度表。

Open the cover of electrical box, loose the screw A (refer to the Figure 9) on the electrical installation plate, and turn the electrical installation plate with the angle of 90, and then adjust the torque controller, motion controller, and opening position indicator. Refer to 6.1、6.2、6.3 for the adjusting method. The support of the integral opening position meter is equipped with an adjusting potentiometer which is used for adjusting the opening meter.

6.4.2 现场/远控操作 Local / remote control operation

整体型和整体调节型电动执行机构上设有按钮盒，为用户提供现场控制和远程控制两种控制方式。

a) 现场控制：打开按钮盒盖即可用按钮盒内的开、关按钮现场操作。现场打开、关闭为自保持。阀门全关时绿灯亮，阀门全开时红灯亮。盖上盖子现场操作停止。

b) 远程控制：盖上按钮盒盖即转入远程控制。

Integral and integral regulation electric actuator is equipped with a button box, which can provide two control modes: local control and remote control for the users.

Local control: open the cover of button box, and then can carry out the on-site control with the opening and closing button inside the button box. The on-site opening and closing are self keeping. The green light will be on when the valve is fully closed, and the red light will be on when the valve is fully opened. The on-site operation will stop if the cover is closed.

b) Remote control: it starts the remote control if the cover of button box is closed.

7. 数字型电动执行器电控组件调试说明 Electric Actuator / Elecitionic Control Module Debugging Instructions

7.1 操作说明 Operating Instructions

7.1.1 旋钮操作说明 Knob Operating Instructions

红色旋钮为方式钮，可在现场/停止/远方之间切换。黑色旋钮为操作钮，可在现场模式进行打开或关闭操作。

现场旋钮操作时，短时间作用为点动模式，当操作钮有效作用时间超过3秒钟，显示屏右下角显示bc为自动进入现场保持模式，反向旋操作钮或将方式钮旋到停止即停止动作。

Red knob is the mode button, can be switched between Local/Stop/Remote. Black knob for the operating button can be opened or closed operation at the local. Or to plus or minus in the set state.

With button operation, short time effect for the inching mode. When the operation button is effective for more than 3 seconds, in the lower right corner of the LCD, the bc is displayed automatically entered into the hold mode. When actuator movement, click the action button reverse rotation or spin mode button to Stop, the actuator stops.

7.1.2 遥控器操作说明 Setting tool description

(遥控器为选配件，需要时请在订货时特殊说明)

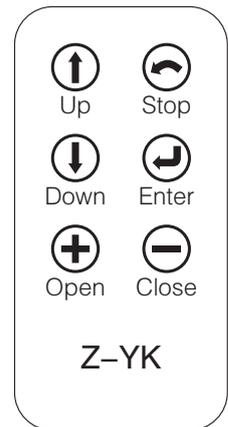
Open--现场打开键，Close--现场关闭键，Stop--现场停止键

现场方式下，按“Open”键执行保持方式开阀，按“Close”键执行保持方式关阀，按“Stop”键停动。

(setting tool are optional, need to please when ordering special instructions)

"Stop" button = stop key; "Open" button = open key; "Close" button = close key

When mode button at Local location, press "Open" button to perform open, press "Close" button to perform off. In the action, press the "Stop" button to stop the move, short press "Close" to stop the opening process, short press "Open" to stop the closing process.



7.2 阀位一键标定条件 Calibration Valve Conditions

- 1、确保电动执行器关闭方向为顺时针。
- 2、调整好限位开关和力矩开关的碰开位置。
- 3、调整好电位器或绝对值编码器的旋转区间。

Note 1: the following "Limit open calibration key", " Limit close calibration key", "green LED", and " red LED" are on the circuit board.

Note 2: the following "mode knob (red button)" and "operation knob (black button)" are on the electric box cover.

1: With open limit contact and closed limit contacts (the contacts are normally closed contacts), a potentiometer (or encoder), and adjust the good location, fixed screw.

2: Manual actuator moves to the middle position, the mode button in the "Local" position, then the way to the actuator power, rotating operation knob in the "Close" position, observe the closing direction is correct, if not correct, Please power off and then swap any two motor wire.

7.3 阀位一键标定 A Key Calibration Valve

现场位置，按住开位键或关位键约3秒钟对应灯点亮，此时释放按键进入一键标定状态。

执行器向关方向动作碰开限位开关，红灯闪两下输出4mA电流,然后执行器自动向开方向动作碰开限位开关，绿灯闪两下输出20mA电流,标定完成自动退出。

The read knob is in "Local", to press the "Limit open calibration key" or "Limit close calibration key" for 3 seconds, the "green LED" and the "red LED" alternate flashing, release the key and enter a key calibration valve status.

The actuator to the direction close action touched off close limit contact (if in close limit, closed limit contact has been disconnected, then the actuator does not move), red LED flashes twice the position feedback current is 4 mA. Then the actuator automatically to the opening direction of action against the open limit contact, the green LED flashes twice output current of 20mA and the A Key Calibration is complete and done automatically exit.

注1：对应灯点亮时不释放按键则无法进入一键标定状态。

注2：LCD液晶屏上两个指示灯和按键对应的指示灯亮灭状态相同，字母L闪烁两次为保存关位，字母H闪烁两次为保存开位。

Note1: Two LED brightness are same status on the LCD screen.

Note2: In addition, the LCD screen display L and flashing two times for the preservation of the closed limit position, H flashes two times for the preservation of the open limit position.

7.4 死区设置 Abaot Dead Zone

(此功能只适用于调节型，开关型不具备)

死区为自调整，无需设置，自动选择最佳死区，保证最优控制精度，减少振荡。

Dead to adapt automatically, without setting. It can ensure that the actuator can choose the best deadbound, guarantee the optimal control precision, can make actuator to reduce oscillation.

7.5 行程标定 Stroke Calibration

(行程标定需在限位开关碰开处，否则会报警EI)

7.5.1 关位旋钮标定 Calibration for close limit by knob

动作到关位将方式钮旋到停止，再旋操作钮到关闭约10秒钟显示字母L，松开操作钮字母L闪两下，输出4mA反馈电流显示0%表示关位标定完成。

The actuator action to the close limit, Mode button in the "Stop" position, operating button in the "Close" position for about 10 seconds, the LCD shows "L", and release the knob, the "L" flashes twice, indicating 0%, the position feedback current output is 4mA, and the closed limit position calibration is complete.

7.5.2 开位旋钮标定 Calibration for close limit by knob

动作到开位将方式钮旋到停止，再旋操作钮到打开约10秒钟显示字母H，松开操作钮字母H闪两下，输出20mA反馈电流显示100%表示开位标定完成。

The actuator action to the open limit, Mode button in the "Stop" position, operating button in the "Open" position for about 10 seconds, the LCD shows "H", and release the knob, the "H" flashes twice, indicating 100%, the position feedback current output is 20mA, and the open limit position calibration is complete.

7.5.3 关位按键标定 Calibration for close limit by key

现场将执行器动作到关位，按关位键约10秒钟红灯第二次亮，释放按键红灯闪两下关位标定完成。

Mode button in the " Local " position, the actuator action to the close limit, to press the "Limit close calibration key" for about 10 seconds, the red LED lights, and release the key, the red LED flashes twice (the LCD shows "L" and flashes twice, indicating 0%), the position feedback current output is 4mA, and the closed limit position calibration is complete.

7.5.4 开位按键标定 Calibration for open limit by key

现场将执行器动作到开位，按开位键约10秒钟绿灯第二次亮，释放按键绿灯闪两下开位标定完成。

Mode button in the " Local " position, the actuator action to the open limit, to press the "Limit open calibration key" for about 10 seconds, the green LED lights, and release the key, the green LED flashes twice (the LCD shows "H" and flashes twice, indicating 100%), the position feedback current output is 20mA, and the open limit position calibration is complete.

7.6 反馈电流微调 Feedback Current Trimming

7.6.1 4mA反馈电流微调 Feedback current 4mA trimming

动作执行器使反馈输出4mA，方式钮旋到停止，同时按开位键、关位键约3秒钟两灯同时亮释放按键，红灯闪烁表示进入4mA电流微调状态。短按开位键电流增加，短按关位键电流减小，同时按两按键约3秒钟，两灯亮释放按键，红灯闪三下微调保存完成。

Actuator runs near the closed limit (valve position percentage is less than 50%), then mode knob is in position "Stop". Press the "Limit open calibration key" and the "Limit close calibration key" for about 3 seconds, when the "green LED" and "red LED" light. Release the keys, the "red LED" scintillation, at this time to enter the 4mA current trimming. Short to press the "Limit open calibration key", the current value is increased, short to press the "Limit close calibration key", the value of the current decreases. When adjusting the feedback value reaches 4mA, to press the "Limit open calibration key" and the "Limit close calibration key" for about 3 seconds, the "red LED" and the "green LED" lit up at the same time. Release the keys, the "red LED" flash twice, the 4mA current trimming is finished.

7.6.2 20mA反馈电流微调 Feedback current 20mA trimming

动作执行器使反馈输出20mA，微调方法同上述4mA，只是微调状态下为绿灯闪烁，保存时绿灯闪三下微调保存完成。

Actuator runs near the open limit (valve position percentage is greater than 50%), then mode knob is in position "Stop". Press the "Limit open calibration key" and the "Limit close calibration key" for about 3 seconds, when the "green LED" and "red LED" light, release the keys, the "green LED" scintillation, at this time to enter the 20 mA current trimming. Short to press the "Limit open calibration key", the current value is increased, short to press the "Limit close calibration key", the value of the current decreases. To press the "Limit open calibration key" and the "Limit close calibration key" for about 3 seconds, the "red LED" and the "green LED" lit up at the same time. Release the keys, the "green LED" flash twice, the 20 mA current trimming is finished.

7.7 高级设置 Advanced Settings

注：高级设置时，需电源断电，方式钮在停止位置；红灯(关位灯)、绿灯(开位灯)、关位键、开位键在线路板上。

NOTE: All the Advanced Settings can be set after the mode button in the "Local" position. Advanced settings must open the electrical box cover and you can operate. The Close Key and Open Key mentioned below are in the electronic control board.

7.7.1 丢信动作 Action when the control current loss

(仅调节型有此设置，默认设置——丢信保位)

- 按下关位键上电约3秒钟，红灯第一次亮时释放按键，红灯闪烁三下，丢信关设置完成。
- 按下开位键上电约3秒钟，绿灯第一次亮时释放按键，绿灯闪烁三下，丢信开设置完成。
- 同时按两按键上电约3秒钟，两灯同亮时释放按键，两灯同闪三下，丢信保位设置完成。

(Only positioning type, default: Remain in Situ)

- To press the "Close Key" and power up for 3 seconds until the red LED on the board is lit. And you release the key, then the red LED flashes three times; the "Full Close" setup is completed.
- To press the "Open Key" and power up for 3 seconds until the green LED on the board is lit. And you release the key, then the green LED flashes three times; the "Full Open" setup is completed.
- Simultaneously press two keys and power up for 3 seconds until the green and red LEDs on the board are lit. And you release the two keys simultaneously, then the two LEDs flashes three times; the "Remain in Situ" setup is completed.

7.7.2 控制电流标定 Control current calibration

(仅调节型有此设置)

输入4mA电流，按下关位键上电约10秒钟，红灯第二次亮释放按键，红灯闪烁三下标定完成。

输入20mA电流，按下开位键上电约10秒钟，绿灯第二次亮释放按键，绿灯闪烁三下标定完成。

(Only positioning type)

To send 4mA control current to the module from the outside, press the "Close Key" and power up for 10 seconds until the red LED on the board is lighted second times. And you release the key, then the red LED flashes three times; and the 4mA calibration is completed.

To send 20mA control current to the module from the outside, press the "Open Key" and power up for 10 seconds until the green LED on the board is lighted second times. And you release the key, then the green LED flashes three times; and the 20mA calibration is completed.

7.7.3 正反作用 Polarity for the control current

(仅调节型有此设置，默认设置——正作用) 同时按下两按键上电约10秒钟，两灯第二次亮释放按键。红灯亮为正作用，绿灯亮为反作用。短按任意键进行切换，同时按下两按键约3秒钟两灯同亮释放按键，对应灯闪烁三下设置完成。

(Only positioning type default:20mA = Full Open) Simultaneously press "Open Key" and "Close Key" and then power up for 10 seconds. To release the key after the red LED and green LED second lights up. Short press "Open Key" or "Close Key" to alternately lit red LED or green LED. The red LED light represents "20mA = Full Open", the green LED light represents "4mA = Full Open". Simultaneously press "Open Key" and "Close Key" for 3 seconds. To release two keys after the two LEDs lights up. Then corresponding LED flashes three times, the polarity for the control current setup is complete.

7.7.4 两线控制设置 Two-Wire Control

(仅开关型有此设置，默认设置——常规控制)

a、按下关位键上电约10秒钟，红灯第二次亮时释放按键，红灯闪烁三下设置为“有信关无信开”。

b、按下开位键上电约10秒钟，绿灯第二次亮时释放按键，绿灯闪烁三下设置为“有信开无信关”。

c、同时按两按键上电约10秒钟，两灯第二次亮时释放按键，两灯同闪三下设置为“常规控制”。

(Only on-off type; default: Disable)

a. You press "Close Key" and then power up for 10 seconds. The key is released after the red LED second light up. And the red LED flashes three times, the Close First Mode setup is complete.

b. You press the "Open Key" and then power up for 10 seconds. The key is released after the green LED second light up. And the green LED flashes three times, the Open First Mode setup is complete.

c. You press the two keys simultaneously and then power up for 10 seconds. The key is released after the two LEDs second lights up. Then the two LEDs flashes three times, Disable Mode setup is complete.

7.7.5 关闭方向 Close direction

(默认设置——顺时针) 同时按下两按键上电约20秒钟，两灯第三次亮释放按键。红灯亮为顺时针，绿灯亮为逆时针。短按任意键进行切换，同时按下两按键约3秒钟两灯同亮释放按键，对应灯闪烁三下设置完成。

(default: Clockwise) You press the "Open Key" and "Close Key" simultaneously and then power up for 20 seconds. The keys are released after the red LED and green LED third lights up. Short press "Open Key" or "Close Key" to alternately lit red LED or green LED. Red LED light represents "Clockwise", green LED light represents "Anti-clockwise". You press the two keys simultaneously for 3 seconds. The keys is released after the two LEDs light up. Then corresponding LED flashes three times, the Close direction setup is complete.

8. 报警信息 Alarm Description

显示屏报警说明(仅适用于带液晶显示屏产品)

(error code displayed on the LCD in the lower right corner)

故障码 Fault code	故障信息 Fault information
Eb	输入DC4-20mA控制信号标定错误 Current control signal calibration error(only positioning)
EC	关过矩 Over closed torque
Ed	堵转或其它原因导致的阀位不变化 Valve position unchanged (stall or other causes not turn potentiometers)
EE	电机温度开关断开或力矩公共端开路 The motor is too hot
EF	阀位故障(电位器开路、接线错或编码器故障) Broken valve position potentiometer, rotary to blind or pick the wrong line, or encoder failure.
EH	远控开、关信号同在 Remote control signals to open and close signals exist (only on-off type)
EI	标定阀位时相应限位开关未断开 Limit calibration error (displayed when calibrated closed position or the open position, the corresponding limit contacts are not disconnected)
EL	限位开关、力矩开关接线反或开路 Limit contacts line reversed
EO	开过矩 Over open torque
EP	电源缺相 Power phase
ES	DC4-20mA远控信号丢失 Control current signal is lost (only positioning)

注：显示屏右下角为报警区

9. 常见问题处理方法 Common Problems to Deal With

<p>通电指示灯和显示屏不显示 Power LED is not lit or digital display does not show</p>	<p>A. 电源实际未接入 B. 电压过低 C. 接线错 D. 电路坏</p>	<p>1. Power is not actually access 2. Voltage is too low 3. Wiring fault 4. Module bad</p>
<p>工作中灯和显示屏显示异常 LEDs and digital display abnormal</p>	<p>A. 故障码 B. 查询信息 C. 指示灯或显示屏坏需更换电路</p>	<p>1. See fault code 2. Query information 3. Replace the module</p>
<p>通电现场和远控均不动作 After power on, actuator can't be control in the LOCAL and REMOTE mode</p>	<p>A. 接线错或开路 B. 故障保护 C. 电机坏或卡死 D. 启动电容坏 E. 电路坏</p>	<p>1. Wiring fault or loose wiring 2. Fault Protection 3. Motor bad or stuck 4. Bad start capacitor 5. Module bad</p>
<p>现场工作正常但远控不动作 LOCAL mode work is normal but the REMOTE mode can't control</p>	<p>A. 无信号或接线反 B. 旋钮板坏或没在远方 C. 正/反作用设错 D. 电路坏</p>	<p>1. No signal or junction anti- 2. Bad or no knob plate in Remote 3. Positive / reaction set wrong 4. Module bad</p>
<p>现场不动作但远控工作正常 REMOTE mode work is normal but the LOCAL mode can't control</p>	<p>A. 旋钮板坏或没在现场模式 B. 操作钮未旋到位 C. 电路坏</p>	<p>1. Not in LOCAL mode. 2. Knobs board bad or not at the scene mode 3. Operation button is not properly screwed in place</p>
<p>能开不能关或能关不能开 Actuator can open but not close or can close but not open</p>	<p>A. 力矩接线错或开路 B. 到限位或过矩 C. 电机坏或堵转或接线错 D. 电路坏</p>	<p>1. Torque wiring fault or loose wiring 2. To limit position or over torque 3. Motor bad or stall or wiring fault 4. Module bad</p>
<p>无控制信号通电立即动作 The action immediately after power on</p>	<p>A. 接线错 B. 控制信号实际有效存在 C. 丢信动作 D. 设为两线控制 E. 电路坏</p>	<p>1. Wiring fault 2. Control signal is present 3. Implementation the action when the control current loss 4. Set the wrong 5. module bad</p>
<p>中间位置能动作到限位不动 The middle position can move but to the limit position does not move</p>	<p>A. 力矩开关接线反 B. 恰巧到位电机坏或接线开路 C. 电路坏</p>	<p>1. Reverse limit switch line 2. Motor bad or loose wiring 3. Module bad</p>
<p>动作方向反 The direction of movement is the anti</p>	<p>A. 电机接线反 B. 阀位标定反 C. 正/反作用或关闭方向设反 D. 信号反</p>	<p>1. Motor lines reversed 2. Anti valve calibration 3. Signal Reverse 4. Polarity for the control current or closing direction set wrong</p>
<p>无输出电流或时有时无 No output current or sometimes no</p>	<p>A. 输出接线错或接触不良 B. 电位器或编码器故障或接触不良 C. 电路坏</p>	<p>1. The output wiring fault or bad 2. Module bad 3. Potentiometer wiring fault or loose wiring</p>
<p>反馈电流偏大或偏小或不变 Feedback current is larger or smaller or unchanged</p>	<p>A. 电位器或编码器故障 B. 标定错 C. 电位器与传动齿轮啮合不好 D. 电路坏</p>	<p>1. Potentiometer failure 2. Calibration error 3. Module bad 4. Potentiometer meshing with drive gear not well</p>

Note: Please strictly in accordance with the wiring diagram electrical wiring connection.

10. 安装与拆卸 Installation and dismantling

1. 本电动执行机构的安装形式无原则要求，但电机处于水平状态，电气箱盖处于水平或垂直向上状态为推荐安装形式，这样有利于润滑、调试、维护和手动操作；
2. 安装时应保证维修检查人员拆卸各部件所需的空间；
3. 安装与阀门连接的牙嵌轴向间隙不少于 1~2mm；
4. 当用于明杆阀门时，应检查阀杆伸出量与阀杆护套的长度是否相符；
5. 安装、拆卸、调试时不可损伤密封面、密封件和防爆型电动执行机构的防爆面，并应在隔爆面上涂防锈油；
6. 当需要拆卸时，应先将手动手轮旋转数圈，在阀门稍开状态下进行。

1. Principle requirements for the mounted form of this electric actuator, but it is suggested that the electric machine shall be in level position, and the cover of electrical box shall be in level position or in upright position, which will be of great advantage to the lubricating, debugging, maintenance and manual operation;

2. When installing, ensure the space that the maintenance people required for dismantling each parts.

3. The axial clearance for installing the jaw connected with the valve shall not be less than 1~2mm;

4. When it is used for rising stem valve, you shall check if the extending length of the valve stem can conform to the length of the sheath of the valve stem;

5. During installation, dismantling, and debugging, do not damage the sealing surface, sealing member and the explosion-proof surface of explosion-proof electric actuator, and spread the rust preventive oil on the explosion-proof surface.

6. When requiring dismantling it, first turn the hand wheel for several turns manually, and this shall be carried out at when the valve is opened a little.

11. 订货须知 Notice for order

1. 请按型号表示方法写明型号，开、关向所需转矩必须分别说明，若不说明则按本公司规定提供。
2. 环境具有爆炸性气体必须说明，并必须符合本说明书中防爆标志的规定。
3. 请写明连接尺寸标准，阀杆直径及伸出长度，若连接尺寸与本说明书不符，可与本公司协商解决。
4. 手轮顺时针旋转为关阀，如与此相反必须说明。
5. 推力型的阀杆螺母螺纹一般由用户加工，本公司只留一预制孔。若需本公司加工，请提供螺纹的尺寸。
6. 本公司还可按用户要求，提供其他转速的电动执行机构。

1. Give clear indication of model number according to the expression measure of model number; the torque required by opening and closing must be provided, if not, we will follow the specification of our company.

2. If there is explosion gas in the environment, please give an indication in advance, and shall conform to the regulations for the explosion-proof sign in this manual.

3. Please indicate the connection size standard, valve handle diameter and extension length. If the connection can not conform to this manual, please negotiate with our company for settlement.

4. Turning the hand wheel clockwise means closing the valve, please give indication if the uses wants converse.

5. Normally, the thread of thrust-type valve stem nut is processed by users, and our company only leaves one ready-made hole. If the users want our company for processing, please provide us the size of thread.

6. Our company can provide the electric actuator with other rotating speed according to the requirements of users.

地址：江苏常州天宁区郑陆镇

Add: Zhenglu Twon, Tianning District, Changzhou, Jiangsu

电话/Tel: 0519-88738176

传真/Fax: 0519-88739691

E-mail: czxifanfuji@126.com