

# 使用说明书

Operating instruction



一：产品概述 / Product overview

BR精巧系列电动执行器用于控制0° ~90° 旋转的阀门及其他同类产品，如蝶阀、球阀、风门、旋塞阀、百叶阀等，它以AC24V、110V、220V、380V交流电源和DC24V直流电源为驱动电源，4~20mA电流信号或0~10VDC电压信号为控制信号，可使阀门运动到所需位置，实现其自动化控制。可以广泛应用于石油、化工、电力、冶金、制药、造纸、能源、水处理、船舶、纺织、食品加工、楼宇自动化等领域。同时更具有体积小、重量轻、外形精美、结构独特、紧凑、启闭迅速、易于安装、操作扭矩小，操作方便、数显阀位、无须维护及使用安全方便等诸多优点。

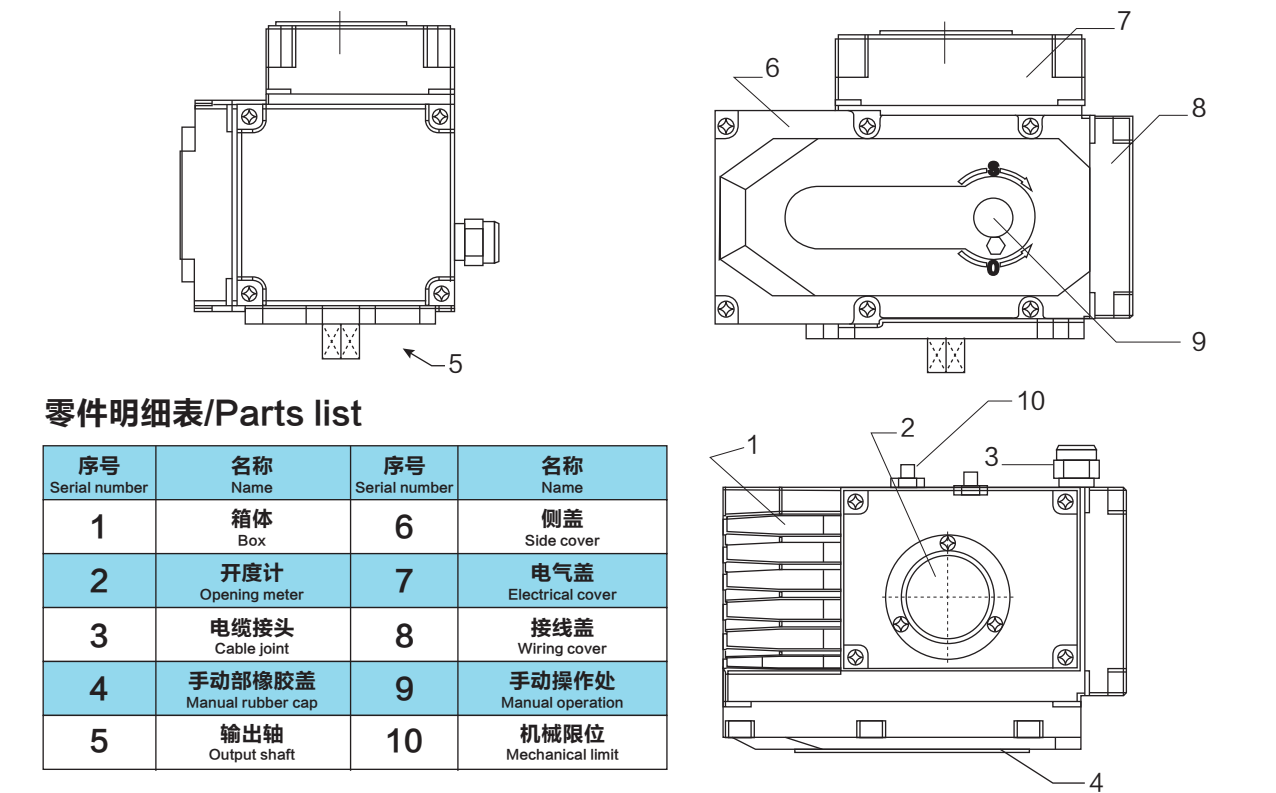
BRJingqiao series electric actuators are used to control 0 ° ~ 90 ° rotating valves and other similar products, such as butterfly valve, ball valve, damper, plug valve, shutter valve, etc. it takes AC24V, 110V,220V, 380V AC power supply and DC24V DC power supply as the driving power supply, and4~20mA current signal or 0~10vdc voltage signal as the control signal, which can make the valve move to the required position and realize its automatic control. It can be widely used in petroleum, chemical industry, electric power, metallurgy, pharmacy, papermaking, energy, water treatment, shipbuilding, textile, food processing, building automation and other fields. At the same time, it has many advantages, such as small volume, light weight, exquisite appearance, unique structure, compactness, rapid opening and closing, easy installation, small operating torque, convenient operation, digital display valve position, no maintenance and safe and convenient use.

在安装或使用BR精巧系列产品之前,请您务必详细阅读本说明书!  
Please read this manual carefully before installing or using br Jingqiao series products!

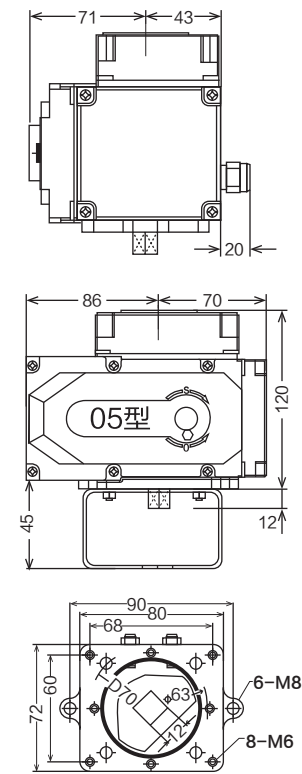
二：使用注意事项 / Precautions for use

- 通电时禁止手动操作。
- 通电前请确认输入电压及接线位置是否正确。
- 产品铭牌和警示标贴不得撕毁或丢失，其上的文字应保持清晰。
- 调试或维修时。各个腔盖与箱体的紧固螺丝不可漏装。
- 电动执行器禁止超载使用。
- 产品必须内外接地，各紧固件不得松动并应定期检查。
- 配线进口必须按照使用说明书要求做好防水电缆接头的密封处理，否则水或污水会从进线口进入，进而损坏电动执行器。
- 安装调试人员必须具有相关的操作资质。
- manual operation is prohibited when power is on.
- please confirm whether the input voltage and wiring position are correct before power on.
- product nameplates and warning labels shall not be torn or lost, and the words on them shall be clear.
- during.commissioning or maintenance. The fastening screws of each cavity cover and box shall not be omitted.
- the electric actuator shall not be overloaded.
- the product must be grounded inside and outside, and all fasteners shall not be loose and shall be checked regularly.
- the wiring inlet must be sealed according to the requirements of the operation manual, otherwise water or sewage will enter from the inlet and damage the electric actuator.
- installation and commissioning personnel must have relevant operation qualifications.

三：产品结构图 / Product structure diagram



四：BR-05产品外形图 / BY-05 product outline drawing

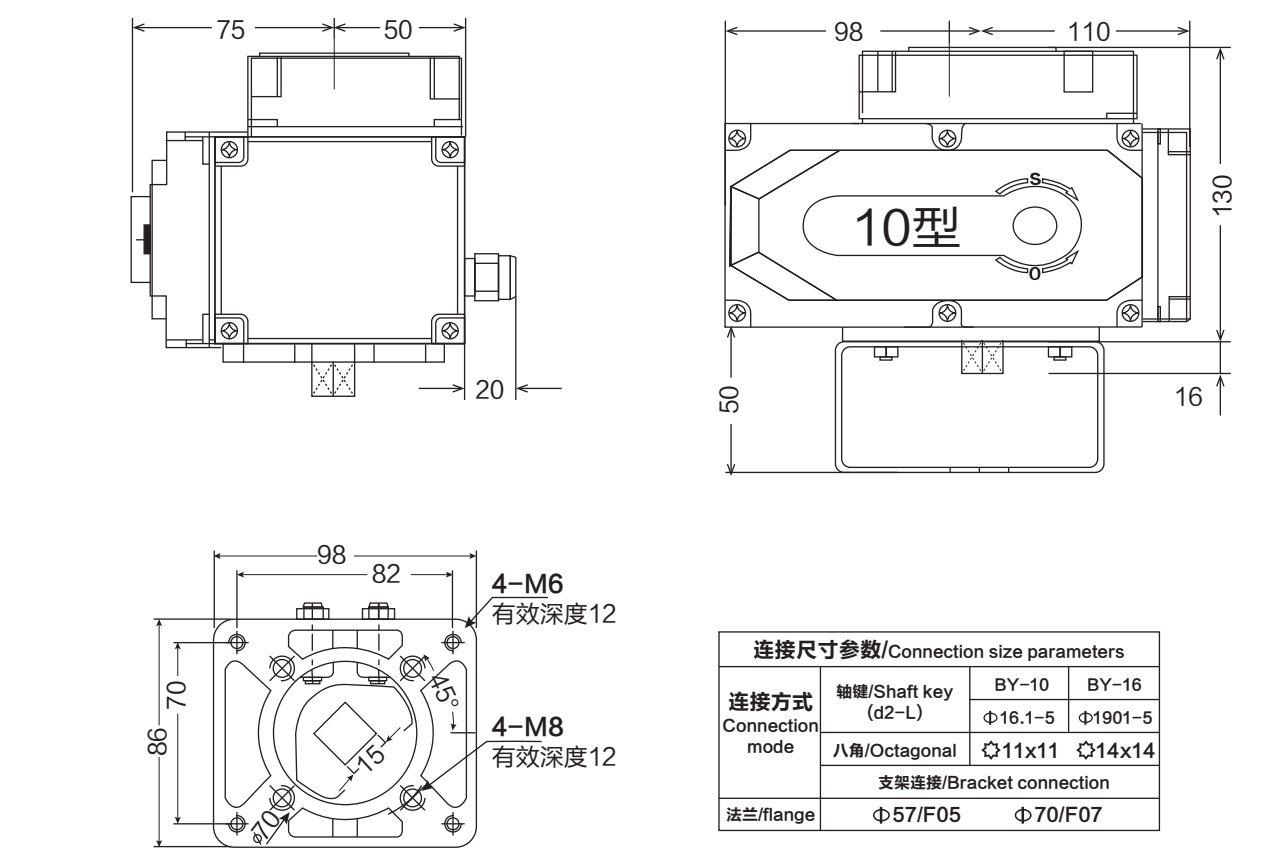


连接尺寸参数/Connection size parameters		
连接方式 Connection mode	轴键/Shaft key	Φ12.9—3
	八角/Octagonal	9x9
	支架连接/Bracket connection	
法兰 flange	Φ57/F05	

型号 Model	BR-05				
电源 Power Supply	DC24V	AC24V	AC110V	AC380V	AC220V
电机功率 Motor power	15W				
额定电流 Rated current	1.28A	1.50A	0.24A	0.15A	0.25A
标准时间/扭矩 Standard time / torque	10S/50Nm	30S/50Nm			
手动操作 Manual operation	附带内六角手柄 With hexagonal handle				
回转角度范围 Rotation angle range	0-360° 可调 0-360° adjustable				
可选控制电路 Optional control circuit	A/B/C/D/E/F/T型 A/B/C/D/E/F/T Type				
整机重量 Machine weight	3.5KG				
绝缘电阻 insulation resistance	AC24V: 100MΩ/250V DC AC110V/AC220V/AC380V:100MΩ/500V DC				
耐压等级 Withstand voltage level	AC110V/AC220V:1500V AC 1min AC380V: 1800V 1min DC/AC 24V: 500V AC 1min				
防护等级 Protection level	IP65(特殊定制IP67/IP68) IP65(special custom IP67/ IP68)				
安装方法 Installation method	360° 任意角度安装 360° arbitrary angle installation				
电气接口 Electrical interface	M20防水接头。使用时用户应根据所选电缆，加装相应的电缆接头。 M20 waterproof connector. When in use, the user should, add corresponding cable connector according to the selected cable.				
环境温度 Ambient temperature	-20C--+60℃				
选装功能 Optional functions	除湿加热器 Dehumidification heater				

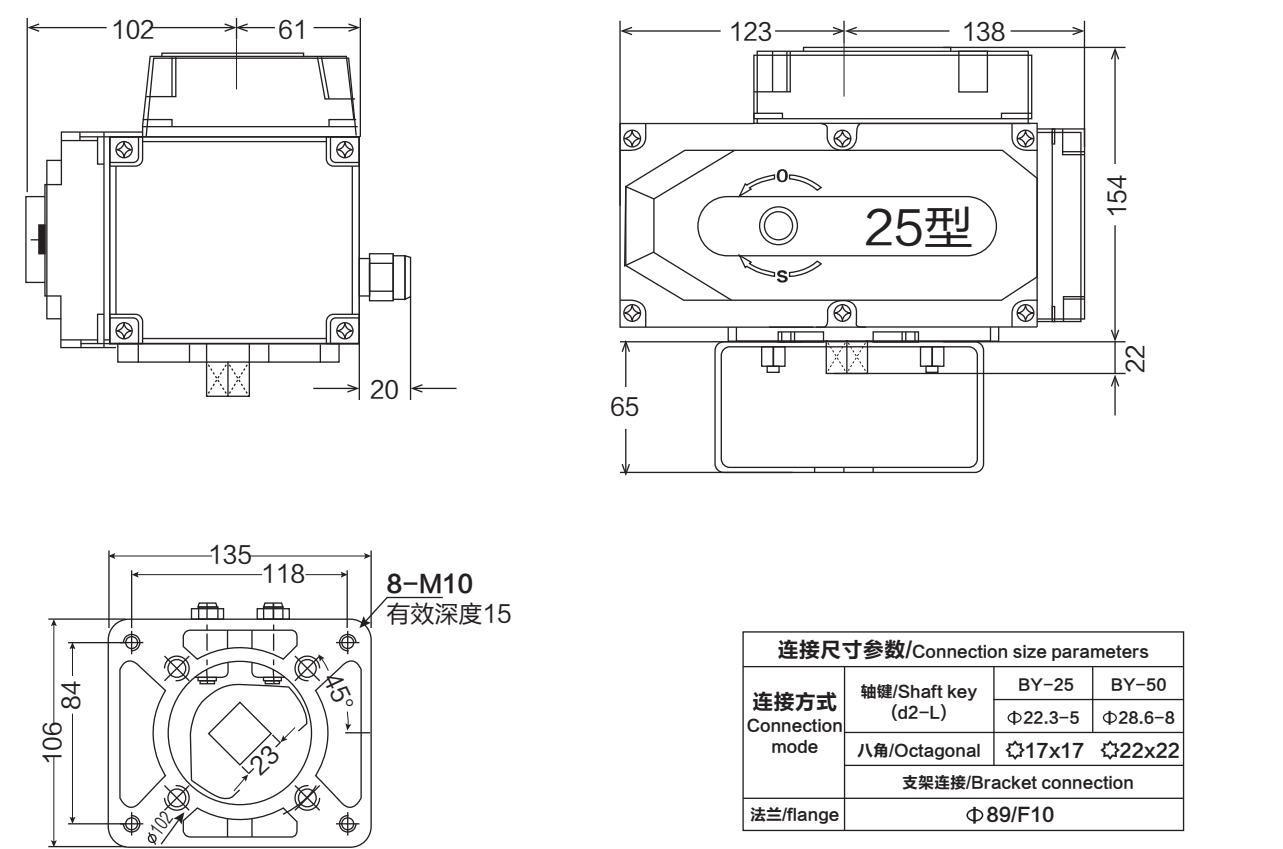


五：BR-10/16产品外形尺寸与性能参数 / Overall dimensions and performance parameters



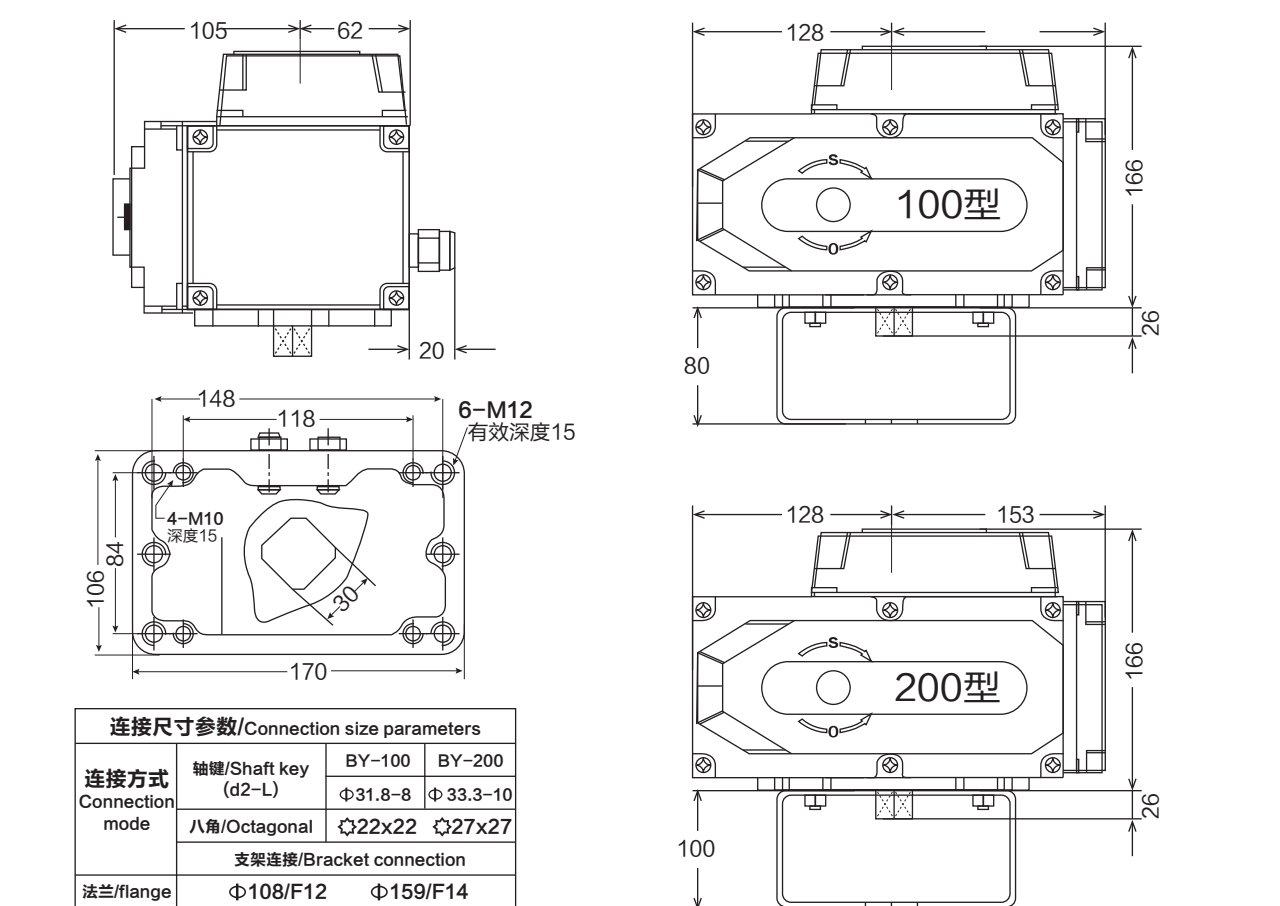
型号 Model	BR-10					BR-16			
电源 Power Supply	DC24V	AC24V	AC110V	AC380V	AC220V	DC24V	AC24V	AC380V	AC220V
电机功率 Motor power	20W					25W			
额定电流 Rated current	0.86A	2.21A	0.57A	0.3A	0.6A	0.63A	0.63A	0.35A	0.7A
标准时间/力矩 Standard time / torque	10S /100Nm		30S/100Nm			12S /160Nm		30S/100Nm	
手动操作 Manual operation	附带内六角手柄 With hexagonal handle								
回转角度范围 Rotation angle range	0-90C可调 0-90° adjustable								
可选控制电路 Optional control circuit	A/B/C/D/E/F/G/T/FN/FNT型 A/B/C/D/E/F/G/T/FN/FNT Type								
整机重量 Machine weight	4.8KG					5.0KG			
绝缘电阻 insulation resistance	AC24V: 100MΩ/250V DC AC110V/AC220V/AC380V:100MΩ/500V DC								
耐压等级 Withstand voltage level	AC110V/AC220V:1500V AC 1min AC380V: 1800V 1min DC/AC 24V: 500V AC 1min								
防护等级 Protection level	IP65(特殊定制IP67/IP68) IP65 (special custom IP67 / IP68)								
安装方法 Installation method	360° 任意角度安装 360° arbitrary angle installation								
电气接口 Electrical interface	M20防水接头，使用时用户应根据所选电缆，加装相应的电缆接头。 M20 waterproof connector. When in use, the user should add corresponding cable connector according to the selected cable.								
环境温度 Ambient temperature	-20℃--+60℃								
选装功能 Optional functions	除湿加热器 Dehumidification heater								

六：BR-25/50产品外形尺寸与性能参数 / Overall dimensions and performance parameters



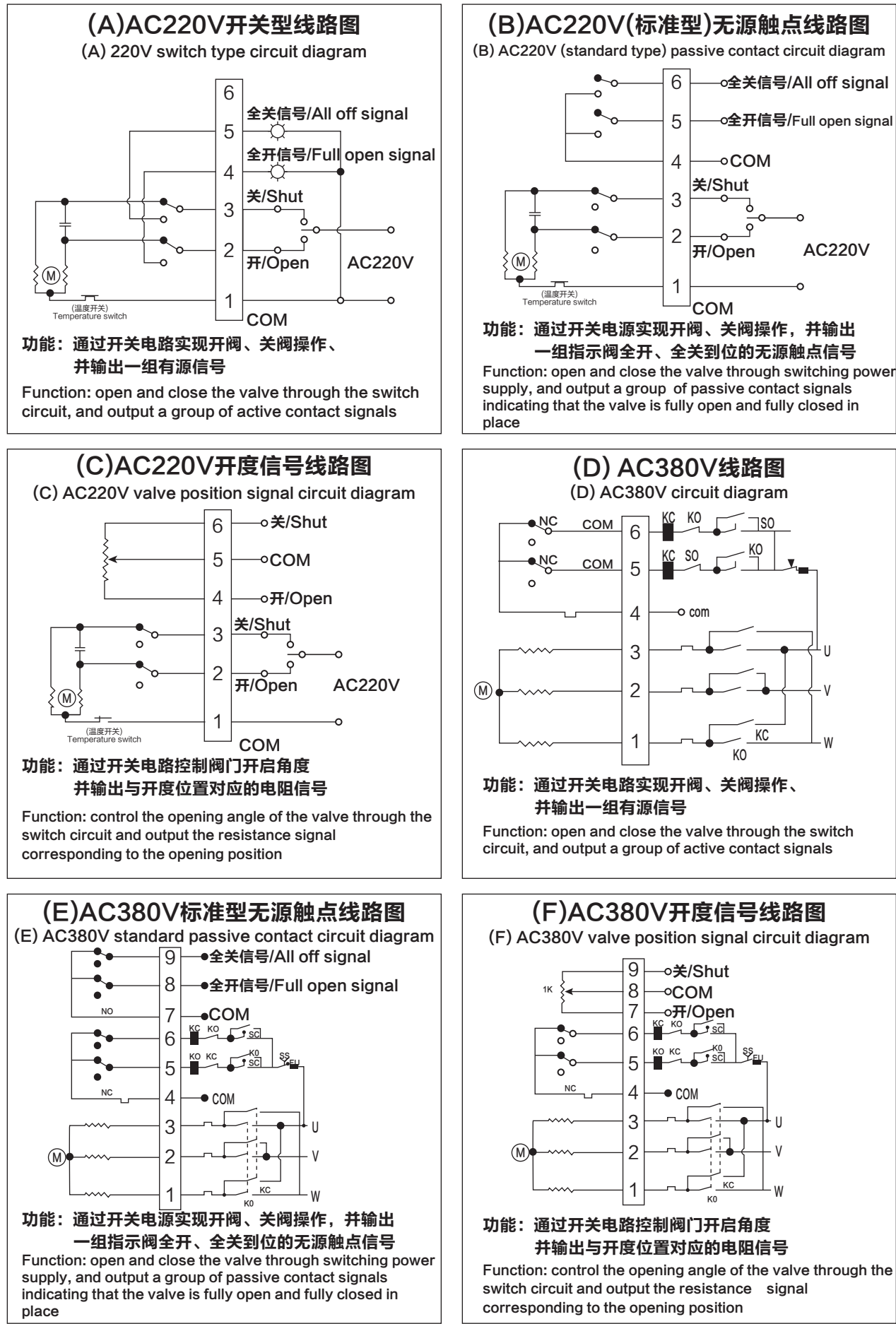
型号 Model	BR-25					BR-50				
电源 Power Supply	DC24V	AC24V	AC110V	AC380V	AC220V	DC24V	AC24V	AC110V	AC380V	AC220V
电机功率 Motor power	70W	50W				70W	90W			
额定电流 Rated current	5.13A	3.03A	1.12A	0.65A	0.8A	6.04A	6.8A	1.18A	0.8A	1.2A
标准时间/力矩 Standard time / torque	12S /200Nm		30S/250Nm			12S /500Nm		30S/500Nm		
手动操作 Manual operation	附带内六角手柄 With hexagonal handle									
回转角度范围 Rotation angle range	0-90C可调 0-90° adjustable									
可选控制电路 Optional control circuit	A/B/C/D/E/F/G/T/FN/FNT型 A/B/C/D/E/F/G/T/FN/FNT Type									
整机重量 Machine weight	9.5KG					10KG				
绝缘电阻 insulation resistance	AC24V: 100MΩ/250V DC AC110V/AC220V/AC380V:100MΩ/500V DC									
耐压等级 Withstand voltage level	AC110V/AC220V:1500V AC 1min AC380V: 1800V 1min DC/AC 24V: 500V AC 1min									
防护等级 Protection level	IP65(特殊定制IP67/IP68) IP65 (special custom IP67 / IP68)									
安装方法 Installation method	360° 任意角度安装 360° arbitrary angle installation									
电气接口 Electrical interface	M20防水接头，使用时用户应根据所选电缆，加装相应的电缆接头。 M20 waterproof connector. When in use, the user should add corresponding cable connector according to the selected cable.									
环境温度 Ambient temperature	-20℃--+60℃									
选装功能 Optional functions	除湿加热器 Dehumidification heater									

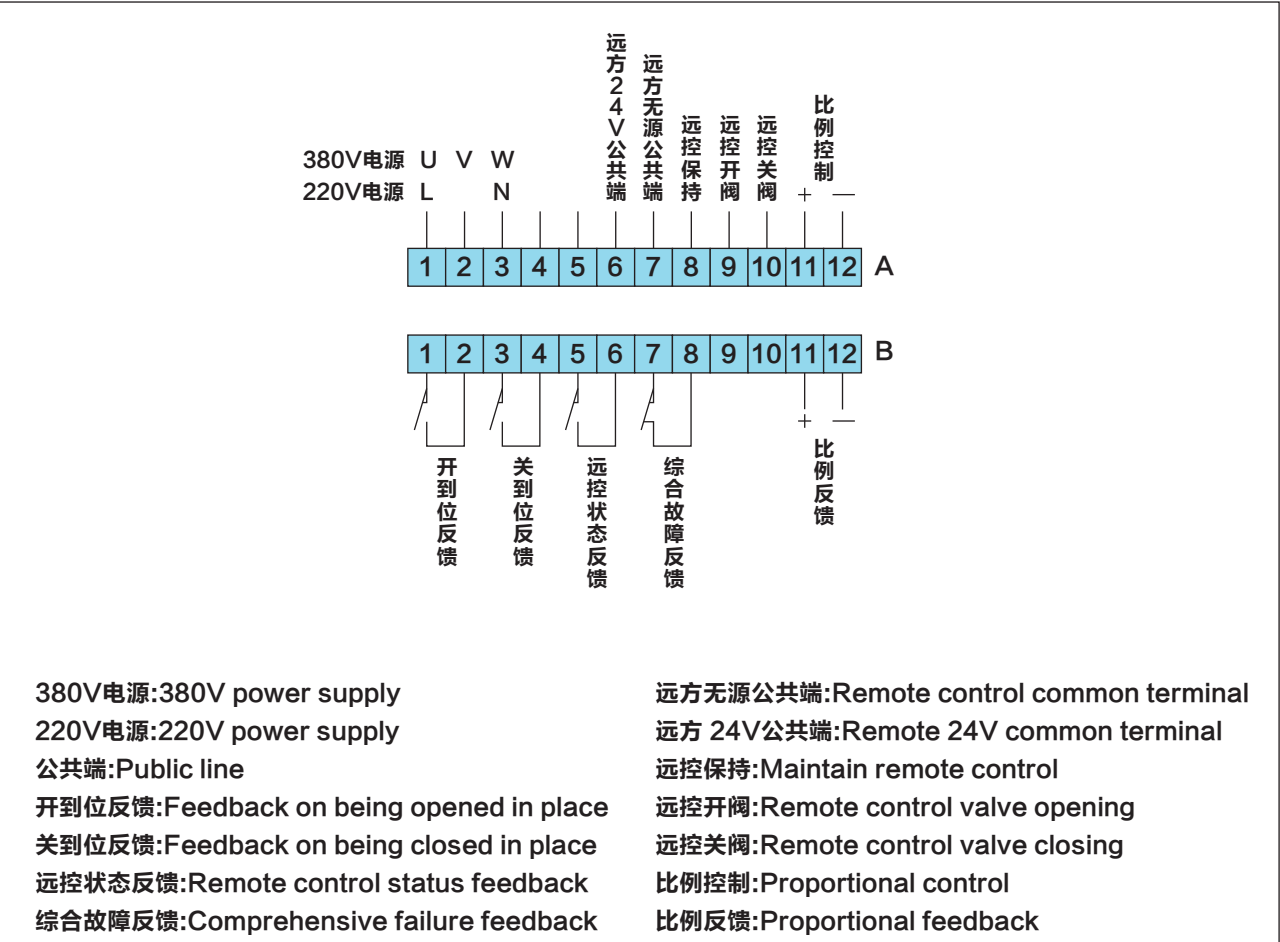
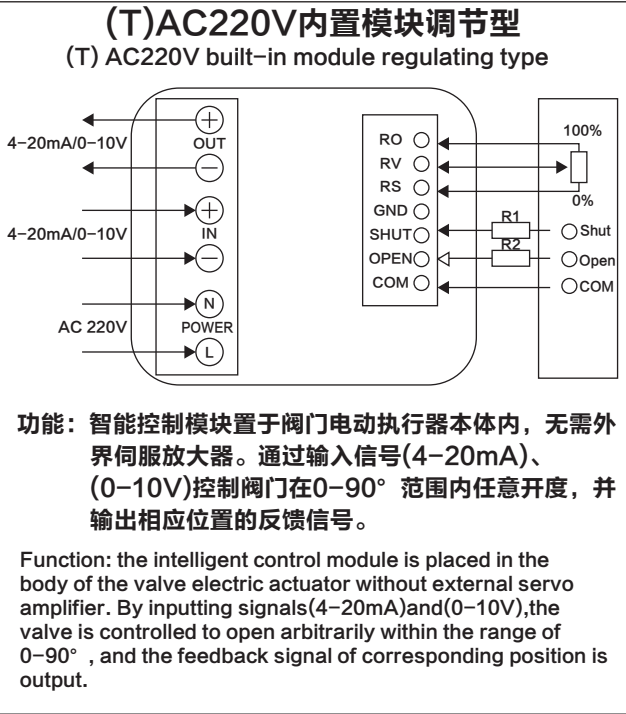
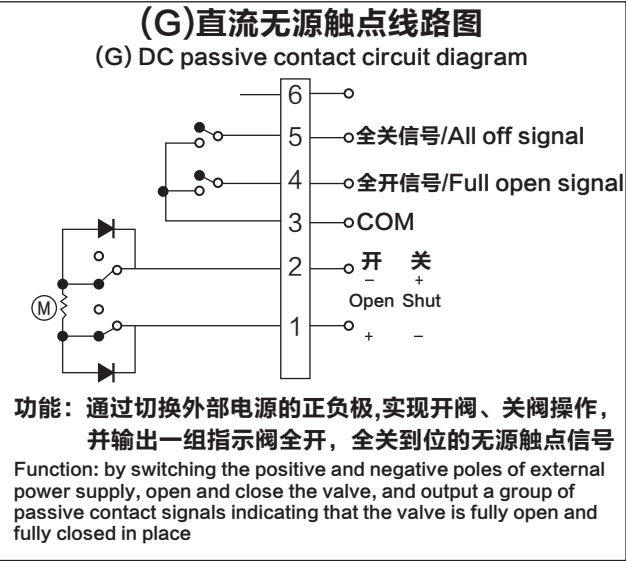
七：BR-100/200产品外形尺寸与性能参数 / Overall dimensions and performance parameters



型号 Model	BR-100					BR-200		
电源 Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V	AC110V	AC220V	AC380V
电机功率 Motor power	100W	100W				100W		
额定电流 Rated current	8.5A	9.0A	1.93A	1.3A	0.9A	2.2A	1.3A	1.0A
标准时间/力矩 Standard time / torque	250S /1000Nm	45S/1000Nm	30S/1000Nm			60S/2000Nm		
手动操作 Manual operation	附带内六角手柄 With hexagonal handle							
回转角度范围 Rotation angle range	0-90C可调 0-90° adjustable							
可选控制电路 Optional control circuit	A/B/C/D/E/F/G/T/FN/FNT型 A/B/C/D/E/F/G/T/FN/FNT Type							
整机重量 Machine weight	14.5KG					16KG		
绝缘电阻 insulation resistance	AC24V: 100MΩ/300VDC AC110V/AC220V/AC380V:100MΩ/500V DC							
耐压等级 Withstand voltage level	AC110V/AC220V:1500V AC 1min AC380V: 1800V 1min DC/AC 24V: 500V AC 1min							
防护等级 Protection level	IP65(特殊定制IP67/IP68) IP65 (special custom IP67 / IP68)							
安装方法 Installation method	360° 任意角度安装 360° arbitrary angle installation							
电气接口 Electrical interface	M20防水接头，使用时用户应根据所选电缆，加装相应的电缆接头。 M20 waterproof connector. When in use, the user should add corresponding cable connector according to the selected cable.							
环境温度 Ambient temperature	-20℃-+60℃							
选装功能 Optional functions	除湿加热器 Dehumidification heater							

八：控制电路图 / Control circuit diagram





一体化端子接线图  
Intelligent circuit diagram

## 九：使用要求 / Use requirements

### 1、安装环境要求/Installation environment requirements

- 本产品即可在室内安装、也可在室外安装。
- 在长期有雨水、原料等飞溅和阳光直射的环境, 需要安装保护整台电动执行机构的防护装置。
- 请预留接线、手动操作等安装维修空间。
- 周边环境温度-20~60℃范围内。
- This product can be installed indoors or outdoors.
- In the environment with long-term splashing of rain, raw materials and direct sunlight, it is necessary to install protective devices to protect the whole electric actuator.
- Please reserve space for wiring, manual operation and other installation and maintenance.
- Ambient temperature is within -20~60℃.

### 2、进线要求/Incoming cable requirements

- 进线电缆直径<14mm
- 电源线电缆、信号线电缆应从防水接头引入电动执行机构, 并要求接地, 信号线原则上要使用屏蔽线。
- Incoming cable diameter < 14mm.
- the power line cable and signal line cable shall be led into the electric actuator from the waterproof joint and shall be grounded. In principle, shielded wire shall be used for the signal line.

### 3、接线方法/wiring method

如图1所示, 旋下防水接头的压紧螺母, 将进线电缆从密封胶塞, 压紧螺母, 防爆接头体内穿入电动执行结构内部。根据控制电路图进行接线。

旋紧压紧螺母, 使密封胶塞与电缆接合处不得有间隙。

- 进线电缆外径应与防水接头体内孔径相等, 禁止使用不合要求的单根电线。
- 必须做好执行机构内部和外壳的接触。
- 本说明书所述的只是防水电缆接头的一种形式, 用户亦可根据需要选用其他符合防水要求的电缆、接头及接线方法。
- as shown in Figure 1, unscrew the compression nut of the waterproof joint and thread the incoming cable into the electric actuator from the sealant plug, compression nut and explosion-proof joint
- wiring according to the control circuit diagram.
- tighten the compression nut so that there is no gap between the sealant plug and the cable joint.
- the outer diameter of the incoming cable shall be equal to the inner aperture of the waterproof joint.
- It is forbidden to use a single wire that does not meet the requirements.
- be sure to make contact between the inside of the actuator and the shell.
- what is described in this manual is only one form of waterproof cable joint. Users can also choose other cables, joints and wiring methods that meet waterproof requirements as required.

### 4、电源的要求/Requirements for power supply

- 根据所订购机型使用电源的类型提供相应的现场供电。
- 对于现场的供电电源、电压应符合以下要求:
- provide corresponding on-site power supply according to the type of power supply used by the ordered model.
- the power supply and voltage of the site shall meet the following requirements:  
AC380V±10% 50/60Hz AC220V±10% 50/60Hz AC110V±10% 50/60Hz AC24V±10% 50/60Hz

### 5、短路开关保险丝的选用/Selection of short circuit switch fuse

电压/Voltage 机型/Model 安培/Ampere	AC24V	AC110V	AC220V	AC380V
BR-05	5A	3A	1A	1A
BR-10/16	7A	5A	3A	2A
BR-25/50		7A	5A	3A
BR-100/200		10A	10A	5A

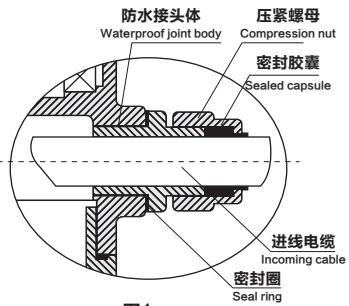


图1



十：执行机构与阀体的安装 / Installation of actuator and valve body

1、执行机构与阀门的安装(图2)/Installation of actuator and valve (Fig.2)

- 1、手动转动阀门，检查无异常情况，并使阀门处于全关位置。
- 2、将支架固定在阀门上。
- 3、将联轴器的一端套在阀门芯轴上。
- 4、用手柄驱动电动执行机构至全关位置(指针正指SHUT、0刻度)，将输出轴插入联轴器四方孔内。
- 5、紧固支架与电动执行机构和阀体间的连接螺栓。
- 6、用手柄驱动执行机构全程，确认运行平稳、无偏心、无歪斜，检查阀门在执行机构开度指示范围能否实现全关和全开。

注意：用力不可过猛，否则会导致执行机构超程运行而造成损坏。指针正北SIIT外0刻度线。

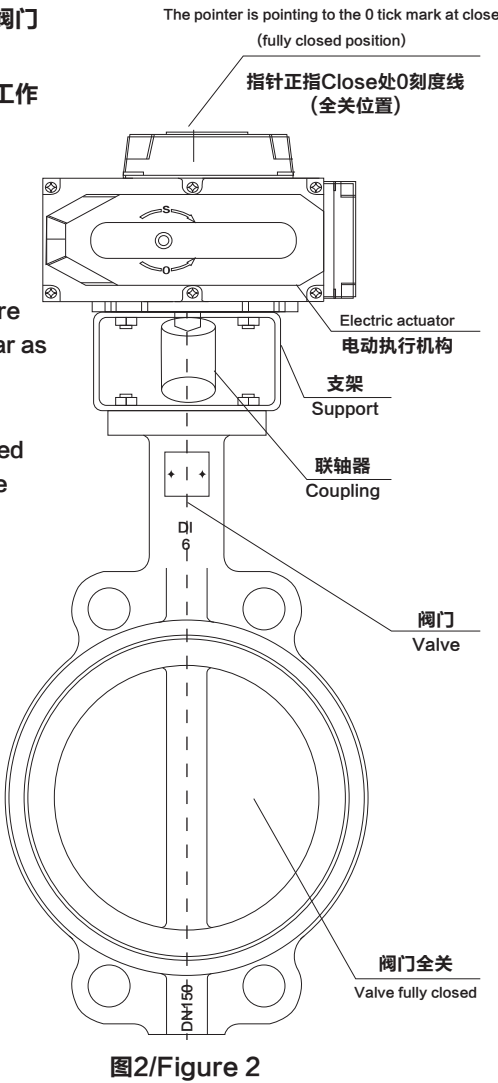
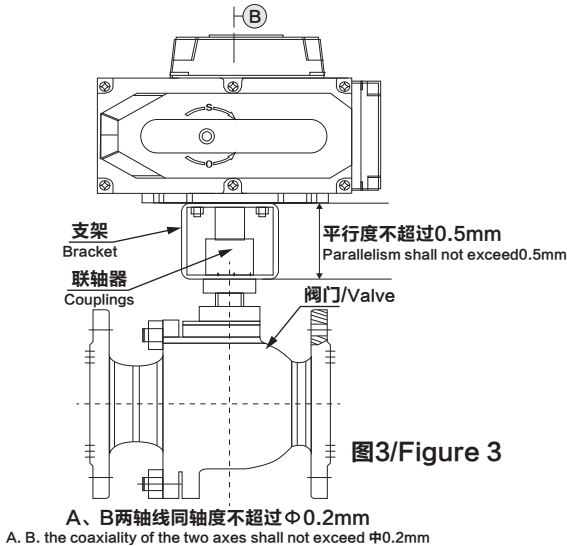
- 1. Turn the valve manually, check whether there is any abnormality, and keep the valve in the fully closed position.
- 2. Fix the bracket on the valve.
- 3. Put one end of the coupling on the valve spindle.
- 4. Use the handle to drive the electric actuator to the fully closed position (the pointer is pointing to the shut and 0 scale), and insert the output shaft into the square hole of the coupling.
- 5. Tighten the connecting bolts between the bracket and the electric actuator and the valve body.
- 6. Use the handle to drive the actuator in the whole process, confirm that the operation is stable without eccentricity and skew, and check whether the valve can be fully closed and fully opened within the opening indication range of the actuator.

Note: do not use too much force, otherwise the actuator will run over the range and cause damage. 0 scale mark outside siit due north of pointer.

2、特别提示/Hot tip

对于自备支架、联轴器的用户，请注意：

- 支架、联轴器应由专业机构技术人员设计加工并应符合(图3)的标注要求。
- 联轴器两端轴孔的加工应保证必要的精度，尽可能消除传动间隙，以免阀门工作中出现回差。
- 应严格保证联轴器两端轴孔的位置度，否则有可能超出执行机构设计的工作范围，导致因执行机构行程无法调整而使阀门不能正常工作。
- For users with their own supports and couplings, please note:
- The support and coupling shall be designed and processed by technicians of professional institutions and shall meet the marking requirements (Fig.3).
- The processing of shaft holes at both ends of the coupling shall ensure the necessary accuracy and eliminate the transmission clearance as far as possible to avoid return error in the operation of the valve.
- The position of the shaft holes at both ends of the coupling shall be strictly guaranteed, otherwise it may exceed the working range designed by the actuator, resulting in the failure of the valve to work normally due to the unadjustable stroke of the actuator.



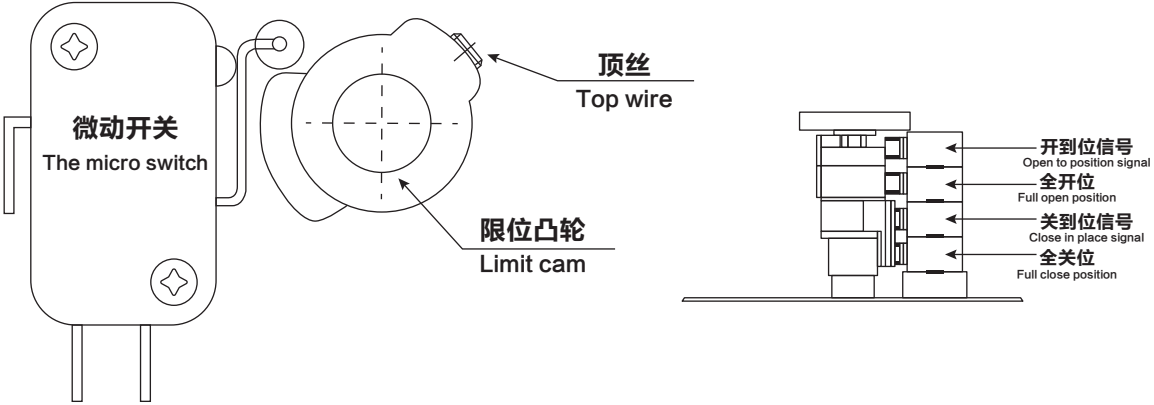
十一：基本型电动阀门的整机调试 / Commissioning of basic electric valve

1、电气限位的调整

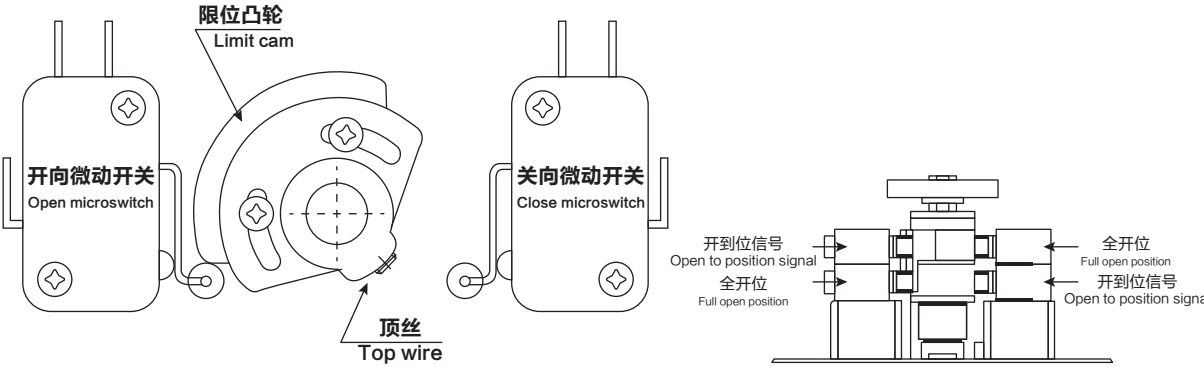
用2mm内六角扳手对准限位凸轮内六角螺钉，松开限位凸轮的顶丝，使其轻轻转动，从而调整凸轮角度来改变微动开关的制动位置。确定位置后，紧固凸轮的顶丝，调整完毕。

Use a 2mm Allen wrench to align the Allen screw of the limit cam, loosen the jacking screw of the limit cam and turn it slightly, so as to adjust the cam angle to change the braking position of the microswitch. After determining the position, fasten the jacking screw of the cam and complete the commissioning.

05型限位凸轮与微动开关布局图/Layout of limit cam and microswitch type05/10/16

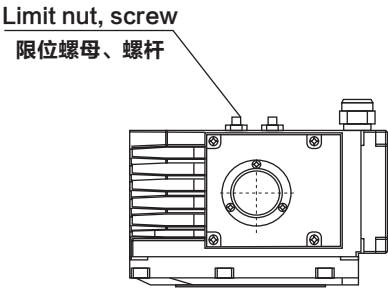


10---200型限位凸轮与微动开关布局图/Layout of limit cam and microswitch type10---200



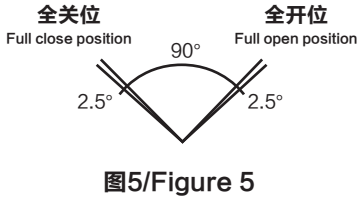
2、机械限位的调整(图4) /Adjustment of mechanical limit (Fig.4)

- a. 用手柄转动到全开位置。
- b. 松开锁紧螺母，旋转调整螺钉，使之与机械挡块接触，然后，反方向旋转螺钉半圈，锁紧螺母。
- c. 同样方法，可进行全闭位置的机械挡块的调整。
- a. Turn the handle to the fully open position.
- b. Loosen the lock nut and rotate the adjusting screw to make it contact with the mechanical stop, Then, turn the screw half a turn in the opposite direction and lock the nut.
- c. In the same way, the mechanical stop in the fully closed position can be adjusted.



特别提示:调试完成后，执行器电气限位位置与机械限位位置必须满足(图5)要求如果机械限位超前或重合于电气限位,将会造成执行机构电机堵转,发热甚至导致电机烧毁。

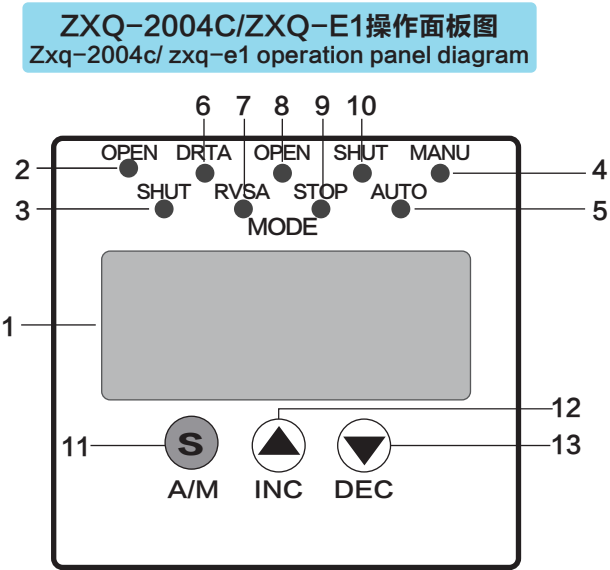
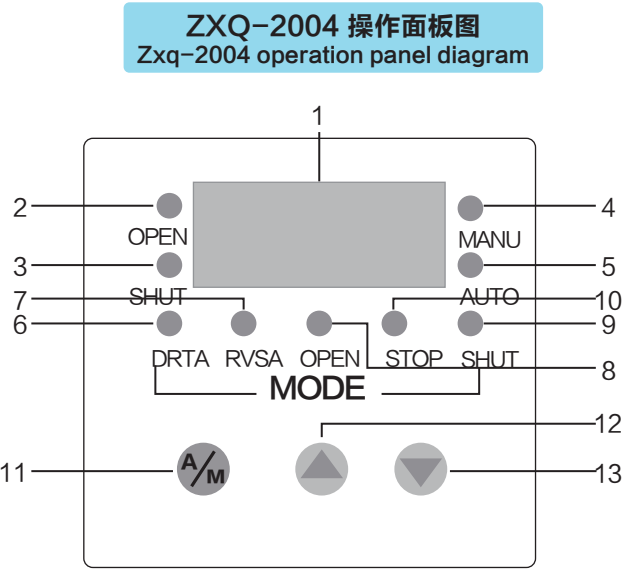
Special note: after commissioning, the electrical limit position and mechanical limit position of the actuator must meet the requirements (Fig.5). If the mechanical limit is ahead of or coincides with the electrical limit, the motor of the actuator will be locked, heated and even burned.



十二：内置模块调节型面板 / Built in module locator panel

1、定位器面板/Positioner panel

参数显示 Parameter display	1	LED视窗 Led window	通过按键切换显示阀门实际开度值、阀门设定开度值、定位器壳内温度和设定参数 The actual opening value of the valve, the set opening value of the valve, the temperature in the positioner shell and the set parameters are displayed through key switching
状态指示 Status indication	2	OPEN	执行器开运行指示亮:开运行中 Indication of opening operation of the actuator Lamp on: opening operation on-going
	3	SHUT	执行器关运行指示亮:关运行中 Indication of closing operation of the actuator Lamp on: closing operation on-going
	4	MANU	手动状态亮:手动状态, 可以按键操作执行器开闭 Manual state Lamp on: under manual state, can operate the opening and closing action of the actuator via keys
	5	AUTO	自动状态 亮:自动状态, 接收外部给定信号控制 Automatic state Lamp on: under automatic state, can receive the external setting signal for control
模式指示 Mode indication	6	DRTA	正动作模式, 对应关系如下: 给定信号4mA → 对应执行器实际位置100%, 反馈输出为4mA, 阀门全开 给定信号20mA → 对应执行器实际位置0%, 反馈输出为20mA, 阀门全关 Direct action mode, corresponding relations as follows: Setting signal 4mA (Corresponding to 100% actual position of the actuator, feedback output is 4mA), valve fully open) Setting signal 20mA (Corresponding to 0% actual position of the actuator, feedback output is 20mA), valve fully close)
	7	RVSA	逆动作模式, 对应关系如下: 给定信号4mA → 对应执行器实际位置0%, 反馈输出为4mA, 阀门全关 给定信号20mA → 对应执行器实际位置100%, 反馈输出为20mA, 阀门全开 Reverse action mode, corresponding relations as follows: Setting signal 4mA (Corresponding to 0% actual position of the actuator, feedback output is 4mA) valve fully close) Setting signal 20mA (Corresponding to 100% actual position of the actuator, feedback output is 20mA), valve fully open)
	8	OPEN	输入信号中断模式为“开”, 执行器开至最大开度限位处 Under input signal interrupt mode, it is for "open", and the actuator is open to the maximum limit of open position
	9	STOP	输入信号中断模式为“停”, 执行器停在当前位置 Under input signal interrupt mode, it is for "stop", the actuator is stopped at the current position
	10	SHUT	输入信号中断模式为“闭”, 执行器开至最小开度限位处 In the input signal interruption mode, it is "off", and the actuator opens to the limit position of the minimum opening degree.
按键 Key	11	A/M	点动:手动/自动切换键或参数修改后确认 长按4秒:进入菜单参数修改 Jog; key for switching manual / automatic or confirmation after parameter modified Long pressing for 4 seconds: entering into the modification for parameters
	12	▲	数值增加键, 自动状态下还用于切换显示阀门设定开度值, 手动状态下为“开” Value increasing key, under automatic state, it also can be used for switching to display the value of the set open degree of valve, under manual state, it is for "open".
	13	▼	数值减少键, 自动状态下还用于切换显示定位器壳内温度, 手动状态下为“闭” Value reducing key, under automatic state, it also can be used for switching to display the internal temperature of the positioner housing, under manual state, it is for "shut"



十三：内置模块调节型调试 / Commissioning of built-in module locator

1、设置执行器的零位与满位/Set the zero and full positions of the actuator

★注意:定位器首次与执行器配合使用, 必须进行执行器转角的标定, 此后定位器才能正常工作, 此标定对定位器的输入、输出信号无影响。

自动状态下按A/M键4秒进入U5, 修改U5=003.1后按 A/M 键,

(1)进入到U6参数, 按▲或▼, 执行器相应朝“开”或“闭”方向运作, 同时显示的阀位实际开度值也相应逐渐变大或变小,

当到达期望零位后(如已配阀可以目测阀门开度, 一般设在全闭位置), 按A/M键, 零位确认, 进入U7参数;

(2)在显示U7参数下同理按▲或▼到期望满位(如已配阀可以目测阀门开度, 一般设在全开位置), 按A/M键满位确认,

返回 U5。

(3)修改U5=000.5, 返回测控状态。

★此标定方法确保标定过程中按键空闲时间小于8秒

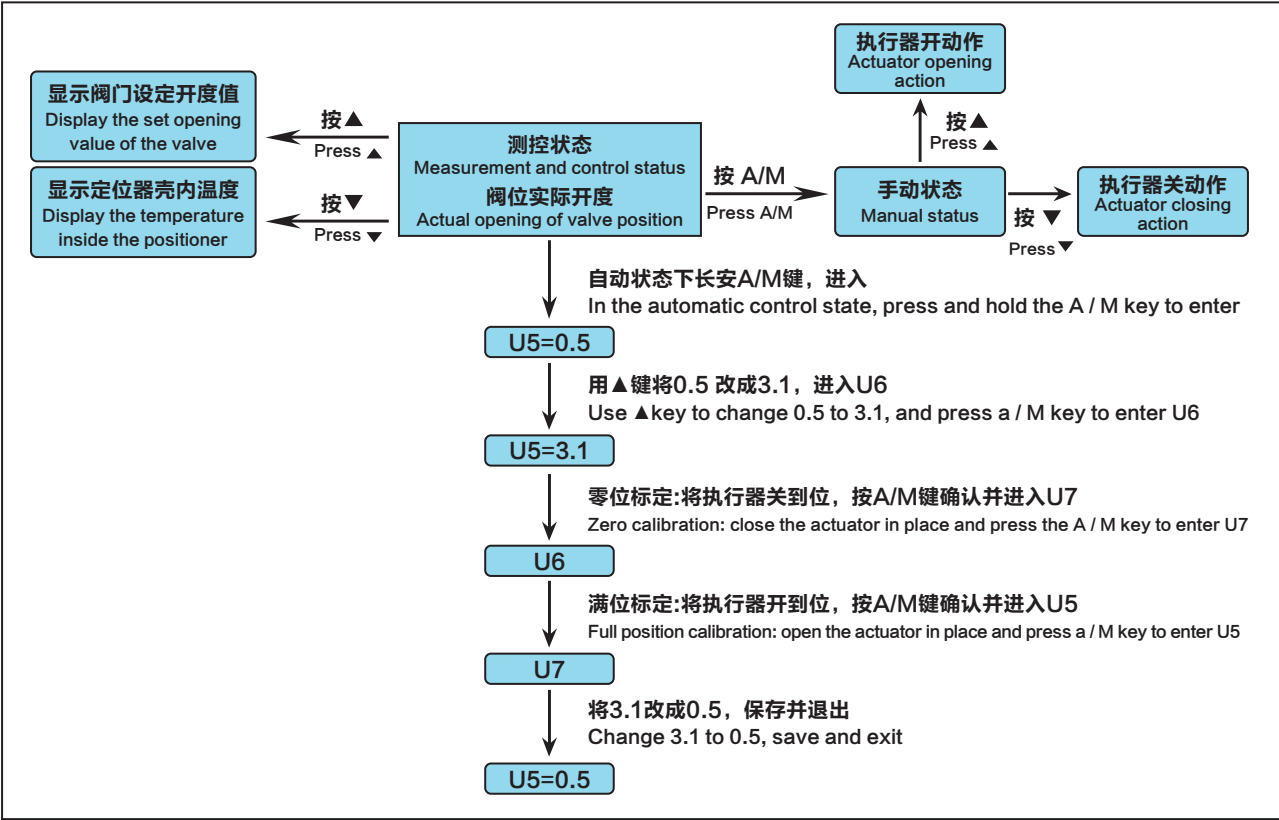
★Hot tip:for the first time the positioner using with the actuator, shall conduct calibration for the turn-angle of the actuator, only after then can the positioner work normally, this calibration does not influence the input and output signal of positioner.

Under automatic state press A/M key 4 seconds to enter into U5, and after modifying to U5=003.1 then press A/M key,

(1) After entered into U6 parameter, press ▲ or ▼key, the actuator correspondingly moves toward “open” or “shut” direction, meanwhile the displayed actual open degree of valve position is correspondingly and gradually becoming large or smaller, upon reaching the expected zero point (if valve already equipped, may visually inspect the open degree of the valve, generally set at the fully close position), press A/M key to confirm the zero point, and enter into the U7 parameter;

(2) Under display of U7 parameters, in the same way press ▲ or ▼key to reach the expected full point (if valve already equipped, may visually inspect the open degree of the valve, generally set at the fully open position), press A/M key to confirm the full point, and return to U5.(3) Modify to U5=000.5, return to the measuring and control state

★this calibration method ensures that the idle time of keys in the calibration process is less than 8 seconds





十四：非侵型电控组件调试说明 / Commissioning instructions for non intrusive electronic control components

非侵型是我公司在数字型产品基础上开发的。其可接收DCS系统中PLC等控制器发出的开关量信号(无源干触点、有源24V、有源220V，点动保持可切换)或模拟量信号(DC4~20mA、0~10V等)，可直接驱动，也可通过接触器或固态继电器驱动电动执行器动作。输出DC4~20mA反馈电流和四个继电器触点(开位、关位、远控、故障报警)。该组件集成了伺服控制单元、液晶显示单元、旋钮操作等单元。本产品操作简单，保护功能完善，是您重新定义高品质和简易智能型的最佳选择。

Non intrusive products are developed by our company on the basis of digital products. It can receive the on-off signal (passive dry contact, active 24V, active 220V, inching and holding can be switched) or analog signal (dc4-20ma, 0-10V, etc.) sent by PLC and other controllers in DCS system, and it can be directly driven, or it can also drive the electric actuator through contactor or solid-state relay. Output DC4~ 20mA feedback current and four relay contacts (open position, close position, remote control, fault alarm). The module integrates servo control unit, liquid crystal display unit, knob operation unit, etc. With simple operation and perfect protection function, this product is the best choice for you to redefine high quality and simple intelligent type.

1.旋钮操作说明

红色旋钮为方式钮，可在现场/停止/远方之间切换;或在设定状态实现菜单的保存(从停位旋到现场)和退出(从停位旋到远方)。黑色旋钮为操作钮，可在现场模式进行打开或关闭操作，或在设定状态进行加减设置。现场旋钮操作时，短时间作用为现场点动模式，当操作钮有效作用时间超过3秒钟后报警区显示“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。

The red knob is the mode button, which can be switched between site / stop / remote; or the menu can be saved (from stop to site) and exited (from stop to remote) in the set state. The black knob is the operation knob, which can be opened or closed in the field mode, or set up plus and minus in the set state. When the field knob is operated, the short-term action is the field inching mode. When the effective action time of the operation knob exceeds 3 seconds, the alarm area displays "BC" as the automatic entry into the field holding mode. Turn the operation knob reversely or turn the mode knob to the stop, that is to say, stop the operation.

2.遥控器操作说明(遥控器为选配件，需要时请在订货时特殊说明)

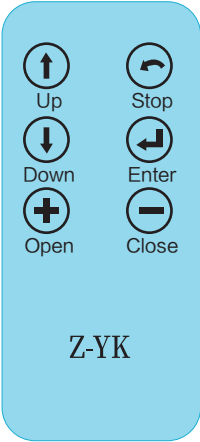
Up--上移/开标定	Down --下移/关标定
Enter--确认/保存	Stop--停止/退出
Open--值加/现场开	Close--值减/现场关

在现场方式时，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。

现场方式，连接三次“Up”键进入开位标定状态，“Open”、“Close”、“Stop”键可控制电动执行器开、关、停，“Enter”键用于保存行程，“Stop”键用于返回。

现场方式，连接三次“Down”键进入关位标定状态，其它操作同上。

现场方式，连接三次“Enter”键进入高级设置菜单，菜单内“Up”、“Down”键用于菜单上移、下移，“Open”、“Close”用于参数值改变，“Enter”键用于进入菜单和保存参数，“Stop”键用于返回上级和退出菜单。



In the field mode, press the "open" key to open the valve in the holding mode, Press "close" to close the valve in holding mode, and press "stop" to stop.

In the field mode, press the "up" key three times to enter the open position calibration state, the "open", "close" and "stop" keys can control the opening, closing and stopping of the electric actuator, the "enter" key is used to save the stroke, and the "stop" key is used to return.

In the field mode, press the "down" key three times to enter the off position calibration state, and other operations are the same as above.

In the field mode, press the "enter" key three times to enter the advanced setting menu. The "up" and "down" keys in the menu are used to move up and down the menu. The "open" and "close" keys are used to change the parameter value. The "enter" key is used to enter the menu and save the parameter. The "stop" key is used to return to the superior and exit the menu.

3.信号查询(显示屏左下角为信号查询区)

1.远控信号查询  
方式钮旋到远方，在显示屏的左下角显示接收到的远控信号。开关型:OP代表有远方打开;CL代表有远方关闭;bc代表有远方保持(多状态并存时交替显示)。调节型:显示收到控制电流值或电压值。

2.阀位信号查询  
方式钮旋到现场，显示屏左下角显示阀位信号。阀位采集为电位器时显示阻值的百分比(d01~d99);阀位采集为12位编码器时显示编码器的百分比(b00~b99);阀位采集为18位编码器时显示编码器的千分比(000~999)。

4.行程标定

4.1关位标定  
停止位置旋操作钮至关闭约3秒钟，等到闪烁显示字母L时松开操作钮并将方式钮旋到现场,此时L不再闪烁表示进入关位标定状态。可通过操作钮执行电动开或电动关动作，调整到关位后将方式钮旋到停止再旋回现场,此时字母L闪两次，输出反馈电流为4mA同时驱动关位继电器闭合并显示0%表示关位标定完成。若方式钮由停止旋至远方则直接退出行程标定。

4.2开位标定  
停止位置旋操作钮至打开约3秒钟，等到闪烁显示字母H时松开操作钮并将方式钮旋到现场,此时H不再闪烁表示进入开位标定状态。可通过操作钮执行电动开或电动关动作，调整到开位后将方式钮旋到停止再旋回现场,此时字母H闪两次，输出反馈电流为20mA同时驱动开位继电器闭合并显示100%表示开位标定完成。若方式钮由停止旋至远方则直接退出行程标定。

注:保存行程时，出现Fu或Fn报警时，请重新调整编码器的旋转区间，并重标行程;

3. Signal query (the lower left corner of the display is the signal query area)

1.Remote control signal query  
Turn the mode button to the remote position, and the received remote control signal will be displayed in the lower left corner of the display screen. Switch type: OP stands for remote opening; CL stands for remote closing; BC stands for remote holding (alternate display when multiple states coexist). Regulating type: display the received control current value or voltage value.

2.Valve position signal query  
Turn the mode button to the site, and the lower left corner of the display shows the valve position signal. When the valve position acquisition is potentiometer, it shows the percentage of resistance value (d01-d99); when the valve position acquisition is 12 bit encoder, it shows the percentage of encoder (b00-b99); when the valve position acquisition is 18 bit encoder, it shows the thousandth ratio of encoder (000-999).

4. Stroke calibration

4.1 off position calibration  
When the stop position is turned to the off position for about 3 seconds, release the operation button and turn the mode button to the site when the display letter L flashes. At this time, when l no longer flashes, it means entering the off position calibration state. The electric opening or closing action can be performed through the operation button. After adjusting to the closing position, turn the mode button to the stop and then turn it back to the site. At this time, the letter L flashes twice, and the output feedback current is 4mA. At the same time, drive the closing relay to close and display 0% to indicate that the closing calibration is completed. If the mode button is turned from stop to remote position, it will exit the stroke calibration directly.

4.2 open position calibration  
When the stop position is turned to the open position for about 3 seconds, release the operation button and turn the mode button to the site when the flashing letter H is displayed. At this time, h will no longer flash to indicate entering the open position calibration state. The electric opening or closing action can be performed through the operation button. After adjusting to the opening position, turn the mode button to the stop and then turn it back to the site. At this time, the letter H flashes twice, and the output feedback current is 20mA. At the same time, drive the opening relay to close and display 100% to indicate that the opening calibration is completed. If the mode button is turned from stop to remote position, it will exit the stroke calibration directly.

Note: when saving the stroke, in case of Fu or FN alarm, please readjust the rotation range of encoder and re mark the stroke;



5.输出电流微调

5.1 4mA输出电流微调  
停止位置旋操作钮至关闭约10秒钟，等到闪烁显示字母LF时松开操作钮并将方式钮旋到现场再旋回停止,即进入4mA输出电流微调状态。此时可通过操作钮调整输出电流的大小，调整输出电流达到4mA后将方式钮旋到现场，此时LF闪烁两次表示4mA输出电流微调完成。若方式钮由停止旋至远方则直接退出输出电流微调状态。

5.2 20mA输出电流微调  
停止位置旋操作钮至打开约10秒钟，等到闪烁显示字母HF时松开操作钮并将方式钮旋到现场再旋回停止,即进入20mA输出电流微调状态。此时可通过操作钮调整输出电流的大小，调整输出电流达到20mA后将方式钮旋到现场，此时HF闪烁两次表示20mA输出电流微调完成。若方式钮由停止旋至远方则直接退出输出电流微调状态。

5. Output current fine adjustment

5.1 4mA output current fine adjustment  
Turn the operation button to the stop position for about 10 seconds, release the operation button when the flashing display letter L.F is displayed, turn the mode button to the site, and then turn it back to stop, that is, enter the 4mA output current fine-tuning state. At this time, the output current can be adjusted through the operation button. When the output current reaches 4mA, turn the mode button to the site. At this time, lf flashes twice to indicate that the output current of 4mA is fine-tuning. If the mode button is turned from stop to remote, it will directly exit from the output current fine-tuning state.

5.2 20 mA output current fine adjustment  
Turn the operation button to the stop position for about 10 seconds, release the operation button when the flashing display letter HF is displayed, turn the mode button to the site, and then turn it back to stop, that is, enter the 20mA output current fine-tuning state. At this time, the output current can be adjusted through the operation button. After the output current reaches 20mA, turn the mode button to the site. At this time, HF flickers twice to indicate that the output current of 20mA is fine adjusted. If the mode button is turned from stop to remote, it will directly exit from the output current fine-tuning state.

6.死区设置(此功能只适用于调节型)

死区为自调节，无需设置，且精度更高无震荡。  
6. Deadband setting (this function is only applicable to the adjustable type)  
The deadband is self-adjusting, no need to set, and the accuracy is higher without vibration.

7.高级设置

停止位置，旋操作钮至打开约18秒钟，等到闪烁显示字母CF时松开操作钮并将方式钮旋到现场再旋回停止，即进入高级设置菜单。

遥控操作时，现场方式连按三次“Enter”键即可进入高级设置菜单。  
注:各级菜单内，若方式钮由停止旋至远方(或按遥控器“Stop”键)则返回上级或退出菜单  
7.1 CF---关闭方向(默认值---C，顺时针)  
菜单项移至“CF”然后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，即进入关闭方向设置，此时显示屏左下角显示参数值C---顺时针，A---逆时针，可通过操作钮调整参数值(或按遥控器“Open”、“Close”键)，调整好后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，此时CF闪烁两次表示关闭方向设置完成并返回上级菜单。

7. Advanced settings  
In the stop position, turn the operation button to the open position for about 18 seconds. When the letter CF is flashing, release the operation button, turn the mode button to the site, and then turn the button back to the stop position to enter the advanced setting menu.  
During remote control operation, press "enter" three times in field mode to enter advanced setting menu.  
Note: in all levels of menus, if the mode button is turned from stop to remote (or press the "stop" key of the remote control),returnto the upper level or exit the menu  
7.1 CF --- closing direction (default value --- C, clockwise)

Move the menu item to "CF" and turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control), that is, enter the setting of the closing direction. At this time, the parameter value C --- clockwise, a --- counter-clockwise is displayed in the lower left corner of the display screen. Adjust the parameter value (or press the "open" and "close"keys of the remote control). After adjustment, turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control) Press the "enter" key of the remote control), when CF flashes twice, it means that the closing direction setting is completed and the upper menu is returned.

7.2 LS---控制低信  
菜单项移至“LS”然后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，即进入控制低信设置，此时显示屏左下角显示收到控制电流值或电压值，当控制信号改变时参数值同步改变，调整好后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，此时LS闪烁两次表示控制低信设置完成并返回上级菜单。

7.3 HS---控制高信  
菜单项移至“HS”然后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，即进入控制高信设置，此时显示屏左下角显示收到控制电流值或电压值，当控制信号改变时参数值同步改变，调整好后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，此时HS闪烁两次表示控制低信设置完成并返回上级菜单。

7.4 CA---死区设置(默认值-A，死区自适应)  
菜单项移至“CA”然后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，即进入死区设置，此时显示屏左下角显示参数值A---死区自适应、03~99---死区设定0.3%~9.9%，可通过操作钮调整参数值(或按遥控器“Open”、“Close”键)，调整好后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，此时CA闪烁两次表示死区设置完成并返回上级菜单。

7.5 CS---丢信动作(默认值-丢信保位，调节型时此设置有效)  
菜单项移至“CS”然后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，即进入丢信动作设置，此时显示屏左下角显示参数值OP---丢信开、CL---丢信关、SP---丢信保位，可通过操作钮调整参数值(或按遥控器“Open”、“Close”键)，调整好后将方式钮旋到现场再旋回停止(或按遥控器“Enter”键)，此时CS闪烁两次表示丢信动作设置完成并返回上级菜单。

7.2 LS --- control low signal  
Move the menu item to "LS" and turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control), that is, enter the control low signal setting. At this time, the lower left corner of the display shows the received control current value or voltage value. When the control signal changes, the parameter value changes synchronously. After adjustment, turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control).At this time, LS Flashing twice indicates that the control low signal setting is completed and returned to the upper menu.

7.3HS- control high signal  
Move the menu item to "HS" and turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control), that is, enter the control low signal setting. At this time, the lower left corner of the display shows the received control current value or voltage value. When the control signal changes, the parameter value changes synchronously. After adjustment, turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control).At this time, HS Flashing twice indicates that the control low signal setting is completed and returned to the upper menu.

7.4 CA --- deadband setting (default value - A, deadband adaptive)  
Move the menu item to "CA" and turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control), that is, enter the dead zone setting. At this time, the lower left corner of the display shows the parameter value a --- dead Zone adaptive, 03 ~ 99 --- dead zone setting 0.3%~ 9.9%. You can adjust the parameter value through the operation button (or press the "open" and "close" keys of the remote control). After adjustment, turn the mode button to thesite Then turn the cycle to stop (or press the "enter" key of the remote control), when the CA flashes twice, it indicates that the dead zone setting is completed and returns to the upper menu.

7.5 CS --- loss of signal action (default value - loss of signal protection position, this setting is effective when it is adjustable)  
Move the menu item to "CS" and then turn the mode button to the site and then turn it back to stop (or press the "enter" key of the remote control), that is, enter the setting of the loss of information action. At this time, the lower left corner of the display shows the parameter values OP --- loss of information on, CL--- loss of information off, SP --- loss of information protection. You can adjust the parameter values (or press the "open" and "close" keys of the remote control) through the operation button. After the adjustment, turn the mode button to the site Turn it back to stop (or press the "enter" key of the remote control), at this time, CS flashes twice to indicate that the setting of the lost signal action is completed and returns to the upper menu.

8.报警信息说明(显示屏右下角为报警区)  
8. Alarm information description (the lower right corner of the display is the alarm area)

故障码 Trouble code	故障信息 Fault information	故障码 Trouble code	故障信息 Fault information
FA	转向出错 Steering error	Fb	比例标定错误Fb闪烁3次 Proportion calibration error FB flashes 3 times
FC	关过矩 closing moment	FO	关过矩 closing moment
Fd	堵转或其它原因导致的 阀位不变化 No change of valve position due to locked rotor or other reasons	FP	电源缺相 Power missing phase
FS	DC4-20mA远控信号丢失 Dc4-20ma remotecontrol signal lost	FH	远控开、关信号同在 Remote control on / off signal
FE	电机温度开关断开 或力矩公共端开路 Motor temperature switch open or torque common open	FF	阀位故障(电位器开路、 接线错或编码器故障) Valve position fault (potentiometer open circuit, wrong wiring or encoder fault

9.常见问题处理方法  
9. Solutions to common problems

通电指示灯和显示屏不显示 Power on indicator and display do not show	A.电源实际未接入 B.电压过低 C.接线错 D.电路坏 A. The power supply is not connected actually B. the voltage is too low C. the wiring is wrong D.the circuit is broken
工作中灯和显示屏显示异常 Abnormal display of working light and display	A.故障码 B.查询信息 C.指示灯或显示屏坏需更换电路 A. Fault code B. query information C. the circuit needs to be replaced if the indicator light or display screen is broken
通电现场和远控均不动作 Neither the power-on site nor the remote control will operate	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 A. Wrong wiring or open circuit B.fault protection C. motor broken or stuck D. starting capacitance broken E.circuit broken
现场工作正常,但远控不动作 The scene works normally, but the remote control does not work	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 A. No signal or wiring is reversed B. knob board is broken or not in remote C. positive / negative reaction is set wrong D. circuit is broken
现场不动作,但远控工作正常 No action on site, but remote control works normally	A.旋钮板坏或没在现场模式 B.操作钮未旋到位 C.电路坏 A.The knob board is broken or not in the field mode B.the operating knob is not screwed in place C. the circuit is broken
能开不能关或能关不能开 Can open or close or can not close	A.力矩或行程开关开路 B.到限位或过矩 C.电机坏或堵转或接线错 D.电路坏 A. Torque or travel switch open circuit B. to limit or over torque C. motor broken or locked rotor or wrong wiring D. circuit broken
无控制信号,通电立即动作 No control signal,action immediately after power on	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 A. Wiring error B. control signal is actually valid C. signal loss action D. set as two-wire controlE.circuit failure
中间位置能动作到限位不动 The middle position can move to the limit	A.力矩开关接线错误B.恰巧到位电机坏或接线开路C.电路坏 A. Torque switch wiring error B. motor in place is broken or wiring is open C. circuit is broken
动作方向反 Reverse direction	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 A. Motor wiring is reversed B. valve position calibration is reversed C. positive / negative action or closing direction is reversed D. signal is reversed
无比例反馈输出或时有时无 No proportional feedback output or sometimes none	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 A. Wrong output wiring or poor contact B. potentiometer or encoder failure or poor contact C. circuit failure
比例反馈偏大或偏小或不变 Proportional feedback is too large or too small or constant	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 A. Potentiometer or encoder fault B.wrong calibration C. poor engagement of potentiometer and transmission gear D.circuit failure

注:接线请严格按照电气接线图连接。  
Note: please connect the wiring in strict accordance with the electrical wiring diagram.

注:本说明书如有更改恕不另行通知，如有疑问请联系供应商。  
Note: This manual is subject to change without notice. If in doubt, please contact the supplier.