新一代

高性能　多功能　高可靠性

红外线遥控　全中文显示　菜单式操作

New generation

High performance　Multi-function　High reliability

Infra-red remote control　Chinese display　Menu operation

JDF

Z系列　Q系列　DQ系列

本厂已通过GB/T19001–2008质量管理体系认证

The Factory has been GB/T19001-2008 approved.

智能型非侵入式电动执行机构

Intelligent Non-invasive Electric Actuator

使用说明书

INSTRUCTION

精迪®

JING DI

常州市精迪阀门控制有限公司

Changzhou Jingdi Valve Control Co.,Ltd.

精迪®
JING DI

常州市精迪阀门控制有限公司
Changzhou Jingdi Valve Control Co.,Ltd.


HBQC

QUALITY MANAGEMENT SYSTEM
CERTIFICATE OF CONFORMITY

This is to certify that the Quality Management System of:
Changzhou Jingdi Valve Control Factory
has been found to conform to Quality Management System Standard:
GB/T19001-2006 idt ISO9001:2000
This certificate is valid only to quality Management system certification
related to the following product(s)/service(s):
Production and Servicing of Electric Valve Actuators

BEIJING HENGBIAO QUALITY CERTIFICATION CO.,LTD
General Manager:


HBQC

质量管理体系认证证书

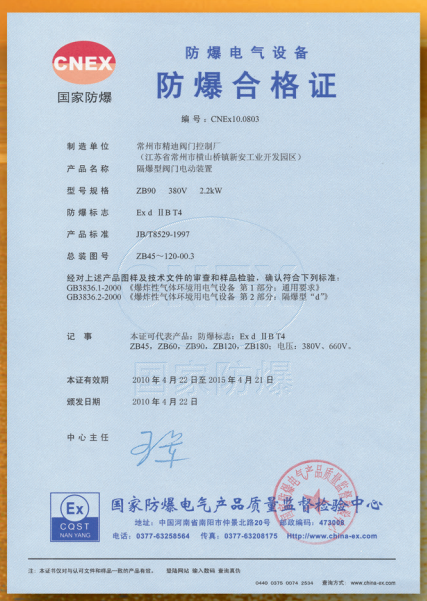
常州市精迪阀门控制厂

质量管理体系符合标准：
GB/T19001-2006 idt ISO9001:2000

阀门电动装置的生产和服务

北京恒标质量认证有限公司

总经理（签名）：


CNEX
国家防爆

防爆电气设备
防爆合格证

编号：CNEx10.0803

制造单位	常州市精迪阀门控制厂（江苏省常州市横山桥镇新安工业开发园区）
产品名称	隔爆型阀门电动装置
型号规格	ZB90 380V 2.2kW
防爆标志	Ex d ⅡB T4
产品标准	JB/T8529-1997
总装图号	ZB45～120-00.3

经对上述产品图样及技术文件的审查和样品检验，确认符合下列标准：
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”》

记事：本证可代表产品：防爆标志：Ex d ⅡB T4
ZB45，ZB60，ZB90，ZB120，ZB180；电压：380V、660V。

本证有效期：2010年4月22日至2015年4月21日
颁发日期：2010年4月22日
中心主任：

国家防爆电气产品质量监督检验中心
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CNEX
国家防爆

防爆电气设备
防爆合格证

编号：CNEx07.1068

制造单位	常州市精迪阀门控制厂（江苏省常州市横山桥镇新安工业开发园区）
产品名称	隔爆型阀门电动装置
型号规格	ZB30 380V 0.75kW
防爆标志	Ex d ⅡB T4
产品标准	JB/T8529-1997
总装图号	ZB10～30-00.4

经对上述产品图样及技术文件的审查和样品检验，确认符合下列标准：
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”》

记事：1、本证可代表产品：防爆标志：Ex d ⅡB T4
ZB10、ZB15、ZB20、ZB30；电压：380V、660V。
2、本证书为增加660V电压等级后，换发防爆合格证。

本证有效期：2010年4月29日至2012年7月9日
颁发日期：2010年4月29日
中心主任：

国家防爆电气产品质量监督检验中心
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请在使用本公司产品前仔细阅读本说明书

正确的使用本公司产品，不必要的损失和事故将得到避免！您应遵守本说明书的规定，因为意外的损失和事故的发生，往往是一些人的粗心，疏忽和大意引起的！

安　全

该机电设备是在工业强电流的条件下使用的。在操作中，该设备上有些裸露零件带电，同时有些零件能够运动或转动，都是很危险的。因此，未经许可拆下所需的罩盖，不合理的使用，不正确的操作或不合适的维护，均会造成严重的人身伤害或损坏设备性能。为了设备的安全，必须保证：

— 仅允许有资格的人员对这些机械和设备进行作业。

— 无论何时，在上述有资格的人员对该机械和设备进行作业时，他们都应备有这些机械和设备的操作说明书或其它产品文件，以便按说明书的要求执行。

— 严禁没有资格的人员对该机械和设备进行作业。

Please read the Manual carefully before using the product.

In order to avoid loss and accident, please operate the product! Your careless and neglect may result in loss and accident, so please operate according to the Manual!

Safety

This electromechanical equipment is used at industrial heavy current. During operation, some exposed parts of the equipment are live, and some may move or rotate, so they are very dangerous. Hence, operation and maintenance after removing necessary covers without permission will result in serious personal injury or equipment damage. In order to ensure safety of the equipment:

—— Those machines and equipment can only be operated by qualified personnel.

—— For the convenience of operating according to requirements, operation instructions or other product documents of those machines and equipment should be available when qualified personnel are operating them.

—— Unqualified personnel are strictly prohibited from operating those machines and equipment.

目　录
CONTENT

一、产品概况

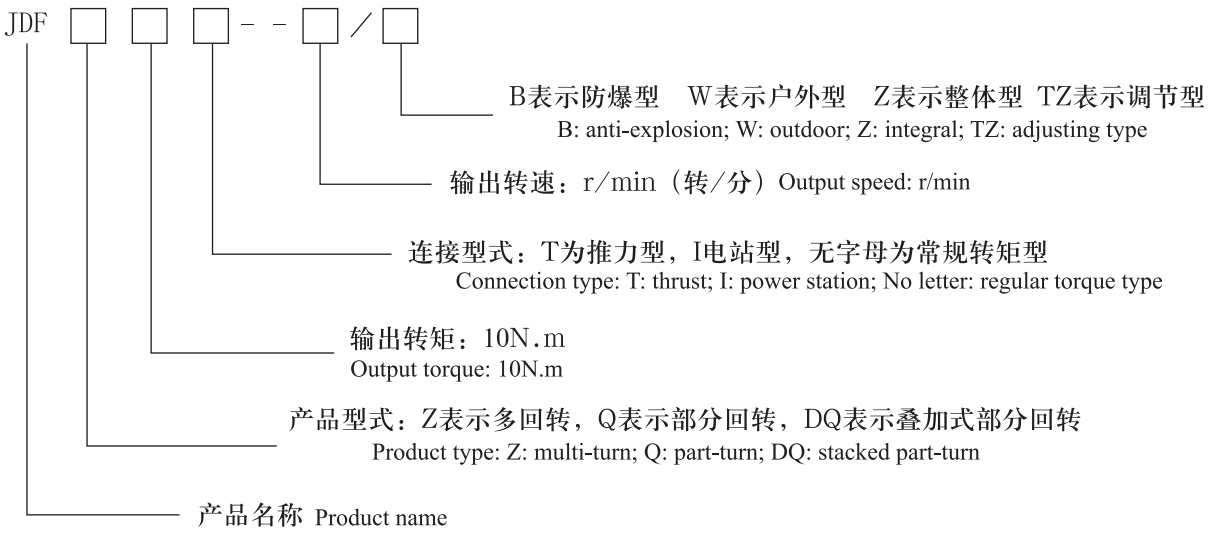
JDFZ-□-□智能型非侵入式电动执行机构，是在选用最先进、最新控制技术基础上，开发的新一代产品，该产品集绝对编码器技术、传感器技术、总线控制技术、红外遥控技术、液晶显示、磁控开关等多种最新自动控制技术及先进的制造技术为一体的智能化产品。

JDFZ-□-□系列产品是对开环控制系统中最终控制元件（如阀门）的运行进行控制的一种装置，其系列适用于对截止阀、闸阀、节流阀、水闸、球阀、蝶阀、风门等的控制。

1.1 执行机构的特点

- 非侵入式设计，调试简单、直观
- 操作界面的中英文语言选择
- 具有关阀慢速功能
- 自诊断自适应功能
- 运行中故障诊断功能
- 防护等级IP67
- 行程、力矩测量精确，可靠
- 控制状态的密码锁定功能
- 全面的数据记录
- 自动相序纠正功能
- 电机过热保护

二．型号表示方法及技术参数



一、Product Profile

JDFZ-□-□ intelligent non-invasive electric actuator is a new generation product developed by adopting the most advanced and the latest control technology and an intelligent product combined with many latest automatic control techn -ology and advanced manufacturing technology, such as absolute encoder technology, sensor technology, bus control technology, infra-red remote control technology, LCD, mag -netic switch etc.

JDFZ-□-□ series product is a kind of device used to control operation of the final control elements (i.e. valve) in the open loop control system and is applicable for controlling shutoff valve, sluice valve, throttle valve, water gate, ball valve, butterfly valve and air door etc.

1.1 Features of the actuator

- Non-invasive design, simple and direct commissioning
- Chinese and English are available for operation interface
- Slow valve closing function
- Self-diagnosis and self-adaptation function
- Failure diagnosis during operation
- Level of protection: IP67
- Accurate and reliable stroke and torque measurement
- Password lock at control state
- Overall data record
- Automatic phase correction function
- Motor overheat protection

2. Model and Technical Parameters

1． 供电电源：380±10%V　50±10%Hz
单相220V±10%
可选电源：415～660V　50、60HZ（订货时需说明）

2． 工作环境

2.1 环境温度：−20～60℃ 可选环境温度：−40～70℃

2.2 相对湿度：≦90%（25℃）

2.3 防护等级：IP67

2.4 防爆标志：Exd1、ExdⅡBT4和ExdⅡCT4存在具有ⅡB～ⅡC级爆炸性可燃气体1区或2区危险场所，温度组别T1～T4组。

3． 电机为短时工作制，额定运行时间为15分钟。F级绝缘。

1 Power supply: 380±10%V 50±10%Hz
single phase: 220V±10%
Optional power: 415～660V 50, 60HZ (to be specified while ordering)

2 Working environment

2.1 Environmental temperature: -20~60℃; Optional environmental temperature: -40~70℃

2.2 Relative humidity: ≦90% (25℃)

2.3 Level of protection: IP67

2.4 Ex-mark: Exd1, ExdⅡBT4 and ExdⅡCT4 Area 1 or area 2 dangerous place with ⅡB～ⅡC explosive combustible gas, temperature group: T1~T4;

3 The motor is for short time duty; its rated operation time is 15min. Insulation: grade F:

三．用户调试指南

3.1使用须知

● JDFZ−□−□系列电动执行机构在运输，保管，安装，调试，运行，维修时应该严格按照本说明书的各项要求进行，以避免发生故障及损伤。

● 非专业人员请勿随意安装，调试，运行，维修电动执行机构。

● 吊装时，应该使用其吊钩或将缆绳套在电机及接线罩盖上起吊电动执行机构，不允许将缆绳系在手轮，切换手柄以及外露电缆上起吊、移动电动执行机构。

● 电动执行机构未安装使用时，应贮存在室内干燥处。安装在管道上，若管路振幅过大建议设法消除振动。

3.2操作面板及界面

3.2.1操作界面的组成

（1）红外接收孔
（2）控制状态指示
（3）故障号显示
（4）密码锁定指示
（5）电机过热指示

3. User Commissioning Guide

3.1 Notice for use

● JDFZ-□-□ series electric actuator should be transported, stored, installed, adjusted, operated and maintained strictly according to requirements of the Manual, so as to avoid failure and injury.

● The electric actuator can only be installed, adjusted, operated and maintained by professional personnel.

● Hooks are required or rope is used to tie motor and wiring cover, so as to lift the electric actuator. Rope can't be tied on hand wheel, switch handle or exposed cable to lift or move the electric actuator.

● When the electric actuator is not installed or used, it should be stored at a dry place indoors. If the pipeline vibrates largely when the electric actuator is installed on pipeline, it's recommended to eliminate vibration.

3.2 Operation panel and interface

3.2.1 Composition of the operation panel

(1) Infra-red receiving hole
(2) Control state indicator
(3) Failure signal display
(4) Password locking indicator
(5) Motor overheat indicator

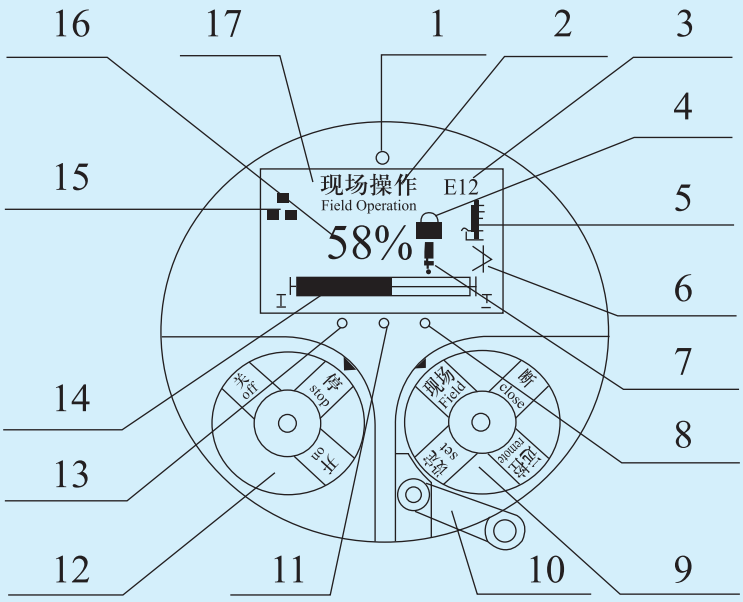


图1 （Fig.1）

（6）过力矩指示（开向≫关向≪）
（7）紧急自保指示
（8）红色：阀位开指示灯
（9）红色（状态选择）旋钮
（10）锁片、挂锁
（11）黄色：电源指示灯（故障时闪烁）
（12）黑色（开关控制）旋钮
（13）绿色：阀位关指示灯
（14）阀门开度显示进度条
（15）电源相序指示
（16）机阀门开度百分比指示
（17）液晶显示屏（LCD）

(6) Carry-over moment indicator (opening direction≫ closing direction ≪)
(7) Emergency self-protection indicator
(8) Red: valve opening indicator lamp
(9) Red (state selection) knob
(10) Locking plate, padlock
(11) Yellow: power indicator lamp (flash in case of failure)
(12) Black (switch control) knob
(13) Green: valve closing indicator lamp
(14) Valve opening indictor progress bar
(15) Power phase indicator
(16) Valve opening percentage indicator
(17) LCD

3.2.2旋钮操作功能

位于电气箱盖下方的红色旋钮可选择现场或远控两种操作。每种状态都可用挂锁锁定。

现场操作：顺时针旋转红色旋钮到现场位置，执行机构控制处于现场操作模式。此时可通过相邻黑色旋钮进行执行机构的现场开、关操作，将黑色旋钮转到停止位置即可停止阀门的电动操作。

远控操作：逆时针旋转红色旋钮到远控位置，执行机构控制处于远程控制模式，只能接受远程操作指令，此时黑色旋钮上开阀、关阀操作失效。

3.2.2 Operation function of knob

The red knob under the electric box cover can be used to select Field or Remote operation, and every state can be locked by padlock.

Field operation: rotate the red knob clockwise to Field position; the actuator will be at field operation mode. Then, the actuator can be turned on or off by the near black knob; rotate the black knob to Stop position, electric operation of the valve can be stopped.

Remote operation: rotate the red knob anticlockwise to Remote control position; the actuator will be at remote control mode and can receive only operation order of remote control. Then, ON and OFF operation on the black knob are invalid.

3.3指示灯逻辑状态

- 阀门打开时，红色指示灯闪烁，阀门开到位红色指示灯常亮。
- 阀门关闭时，绿色指示灯闪烁，阀门关到位绿色指示灯常亮。
- 阀门在开、关过程中，液晶显示屏用百分比数字和图示显示阀位开、关状况。
- 电源接通后，液晶显示屏的背景指示灯将点亮，显示屏上可见到阀门打开的百分比以及故障状态报警图示。
- 电源断开后，液晶显示屏不亮和各种输出接点信号消失。

3.3 Logic state of indicator lamp

- When the valve is ON, the red indicator lamp flashes; when the valve is opened in place, the red indicator lamp l ights up.
- When the valve is OFF, the green indicator lamp flashes; when the valve is closed in place, the green indicator lamp lights up.
- When opening or closing the valve, LCD displays opening or closing state of the valve with percentage and figure.
- When power on, background indicator lamp of LCD lights up and displays opening percentage of the valve and alarm figure of failure state.
- When power off, LCD goes out and signals of output junctions disappear.

3.4红外线调试器

红外线调试器电源为3V，出厂前已提供并安装好，如图2所示。使用距离，距执行机构显示窗口0.75m。

3.4 Infra-red debugger

Power of infra-red debugger is 3V. It has been provided and installed before delivery, as shown in Fig. 2. Its operation distance is 0.75m away from display window of the actuator.

3.4.1功能键介绍：

（1）关向功能键　　（2）开向功能键
（3）确认1功能键　　（4）确认2功能键
（5）设定功能键　　（6）断开功能键
（7）红外线传送窗口

3.4.1 Function keys:

(1) Closing direction function key　　(2) Opening direction function key
(3) OK (1) function key　　(4) OK (2) function key
(5) Setting function key　　(6) Break function key
(7) Infra-red transmission window

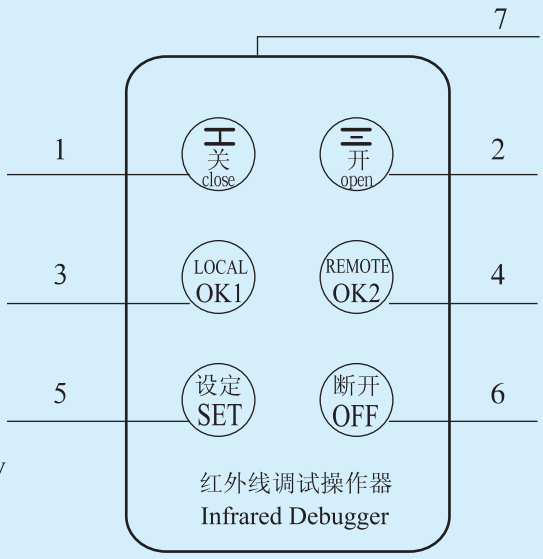


图2　(Fig.2)

红外线调试器上的关向、开向、确认1、确认2、设定功能键，触摸第一次为发出该功能键命令，触摸　第二次为取消该功能键命令。

Touch Close, Open, OK (1), OK (2), and Setting function keys on the infra-red debugger once, order of the related key will be given, and touch twice, the related order is cancelled.

3.4.2 使用方法

将黑色旋钮处于停止状态，红色旋钮处于断开状态，如图3所示，即可用红外线调试器进行参数的设置和调试。红外线调试器的关向、开向功能键的作用与执行机构上的黑色旋钮关向、开向键相同，OK1、OK2、设定、断开功能键的作用与执行机构上的现场、远控、设定、断开键相同。因此用红外线调试器进行参数设置和调试的方法与第五章节的参数设置和调试方法相同。

如需更换电池，卸下红外线调试器下面的盖板，即可更换电池。

注意：安装调试设定所需参数后，根据需要将红色旋钮用锁固定在现场操作或远程控制状态。防止意外进入设定参数的状态，破坏设定的各类参数。

四、产品安装

4.1机械连接

带螺纹套的空心轴，可承受推力及转矩，使用标准GB12222；

到键槽的空心轴，可承受转矩，使用标准GB12222；

带键槽阶梯空心轴，可承受转矩，使用标准GB12222；

带爪连接空心轴，可承受转矩，使用标准JB2920；

电动执行机构的最佳安装形式是其输出轴轴线处于垂直位置，且连接法兰向下。

检查连接部分的正确性与标准性；

使用带螺纹套空心轴时，应在螺纹部分加油润滑；

将带有连接法兰的电动执行机构安装在最终控制元件上（如阀门）；

避免连接件受冲击合外力作用；

应使用机械强度8.8级及以上的螺栓以及弹性垫圈，旋入深度应大于螺栓直径的1.5倍；检查电动执行机构及阀门是否正常，使用手动操作检查电动执行机构与阀门连接是否正确；

3.4.2 Usage

Through rotating the black knob to Stop state and the red knob to Break state, as shown in Fig. 3, the infra-red debugger can be used for parameter setting and debugging. Functions of Close and Open function keys on the infra-red debugger are the same as those of the black knob. Functions of OK1, OK2, Setting, and Break function keys are the same as those of Field, Remote, Setting and Break keys. Therefore, methods of parameters setting and debugging by the infra-red debugger are the same as those specified in chapter 5.

In order to replace battery, remove the cover plate under the infra-red debugger.

Note: after installing, debugging, and setting necessary parameters, the red knob is fixed at field operation or remote control state by lock according to demand, so as to prevent entering the parameter setting state accidentally and damaging the set parameters.

四、Product Installation

4.1 Mechanical connection

Hollow shaft with thread bushing, bear thrust and torque, applicable standard GB12222;

Hollow shaft with key slot, bearing torque, applicable standard GB12222;

Hollow shaft with key slot step, bearing torque, applicable standard GB12222;

Hollow shaft with claw connection, bearing torque, applicable standard JB2920;

Optimal installation mode of the electric actuator is to keep its output shaft vertical and its connecting flange downwards.

Check if the connection part is correct and standard;

When using the hollow shaft with thread bushing, the thread part should be lubricated;

Install the electric actuator with connecting flange on the final control element (i.e. valve);

Prevent connecting parts from impact and external force;

Use bolts and elastic washers with at least grade 8.8 mechanical strength, rotating depth should be 1.5 times higher than diameter of bolt; check if electric actuator and valve are proper, check if electric actuator and valve are connected properly through manual operation;

4.2 电气连接

检查电源电压是否满足铭牌的要求；

用户必须提供合适的电气保护设备（如断路器、空气开关或保险丝），以保护电动执行机构；

在电动执行机构外部箱体上有一M8的接地螺栓，用来连接内外部接地；

在卸下接线罩盖前应确保切断电源。

4.2.1电缆接口

电缆的密封和接口应符合国际标准或活的具有认证资格的权威机构认可。电缆密封收缩管，插头和适配器应使用经过鉴定的合格产品；

JDF系列电动执行机构的电缆接口连接螺纹规格为pg21×1，pg16×2，接线使用的电缆型号和尺寸应与电缆接口相适合，为保证防水，将电缆密封管旋紧（至少5圈）并用螺纹密封剂堵住；

若电缆密封管已经去除，将电缆口处拆除的零件放回到原来的位置以免丢失；

未使用的电缆接口，应用带有螺纹的钢制或铜质的密封旋塞堵住。

4.3手动操作

手动操作时，只要按指定方向扳动切换手柄，则电机脱离啮合状态；

手轮与输出轴相连接，当电机启动时，手轮自动与输出轴脱开，当电机再次进入啮合状态时，进行电动操作：

只有通电才能使电动执行机构恢复到电动状态；

在扳动手柄切换时若不能进入手动状态，将手轮转动一下即可；

使用条帮，手轮扳手，管钳或者其它工具操作手轮或切换手柄，可能会对电动执行机构及阀门或操作者造成伤害。

如需手动操作电动执行机构，建议首轮保持平稳转动；

电动执行机构手轮转动时阻尼较小时，手动时请注意阀门终端限位。

4.2 Electric connection

Check if voltage meets requirements of the nameplate;

Users should provide proper electric protection equipment (i.e. breaker, air switch, fuse), so as to protect the electric actuator;

There is a M8 earth stud on external box of the electric actuator which is used for internal and external earthing.

Be sure the power is off before removing the earthing cover.

4.2.1 Cable interface

Sealing and interface of cable should conform to interna-tional standards or be approved by competent certification authority. Collapsible tube for sealing cable, plug and adapter should be certified quality products.

Cable interface connecting thread of JDF series electric actuator is pg21×1, pg16×2. Cable model and dimension for wiring should match with cable interface. In order to proof water, cable gland should be tightened (at least 5 circles) and sealed by thread sealant.

If cable gland has been removed, put the parts dismantled from cable ends to their original position and prevent them from being lost.

The unused cable interface should be blocked by thread steel or copper sealing plug.

4.3 Manual operation

During manual operation, pull the switch handle according to the specified direction, then the motor can be separated from engagement state;

Hand wheel connects with output shaft. When the motor is started, hand wheel separates from output shaft automati-cally. When the motor enters engagement state again, electric operation starts;

The electric actuator can return to electric state only when power on;

If it's unable to enter manual state through pulling the handle, rotate hand wheel;

Electric actuator and valve may be damaged or operators may be injured if operating hand wheel or switching hand by hand wheel wrench, pipe wrench or other tools.

If it's necessary to operate the electric actuator manually, it's recommended to rotate hand wheel stably;

When hand wheel of the electric actuator rotates and damp is low, please take care terminal limit of the valve during manual operation.

4.4 电动操作

将红色旋钮处于断开状态，黑色旋钮处于停止状态，如图3所示，然后通电。此时，电气箱盖上的电源指示灯变亮，液晶显示屏点亮，进入断开页面。

执行机构带有自动相序纠正功能，所以不用检查电源相位。

电源接通时，执行机构将自动检测电路以确保正确操作。如发生异常设备问题，将故障状态通过现场液晶显示屏和远程接点信号发出报警，同时黄色电源指示灯将发生闪烁。

注意：通电前，应检查电源电压是否与电动执行机构铭牌上的标称相符，错误电源输入可能造成电子元件永久性破坏。

4.4 Electric operation

Rotate the red knob to Break state and the black knob to Stop state, as shown in Fig, 3, and power on. Then, the power indicator lamp on the electric box cover lights up; LCD lights up; and break screen appears.

The actuator has automatic phase correction function, so it's no need to check power phase.

When power on, the actuator will check circuit automati -cally to ensure proper operation. In case of any failure to the equipment, the failure state will give an alarm through the field LCD and remote junction signal, and yellow power indicator lamp flashes.

Note: before power on, check if power voltage conforms to nameplate of the electric actuator; incorrect power output may result in permanent damage of electric elements.

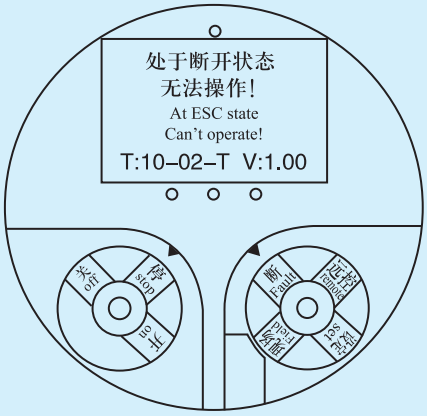


图3（Fig.3）

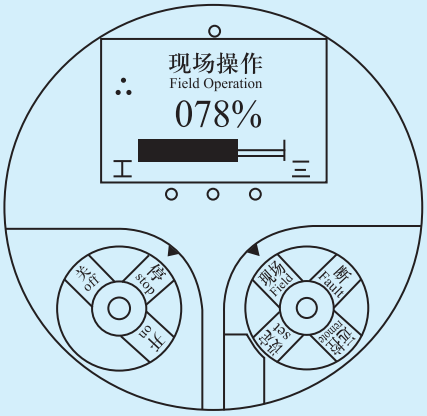


图4（Fig.4）

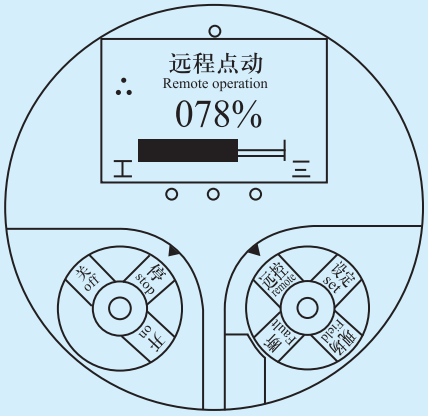


图5（Fig.5）

4.5 现场/远控操作

现场操作如图4所示，远控操作如图5所示。

位于电气箱盖下方的红色旋钮可选择现场或远控两种操作，每种状态都可用挂锁锁定。

现场操作：顺时针旋转红色旋钮到现场位置，执行机构控制处于现场操作模式。此时可通过相邻黑色旋钮进行执行机构的现场开、关操作，将黑色旋钮旋转到停止位置即可停止阀门的电动操作。

远控操作：逆时针旋转红色旋钮到远控位置，执行机构控制处于远程控制模式，只能接受远程操作指令，此时黑色旋钮上开阀、关阀操作失效。

4.5 Field/ remote operation

Field operation is shown in Fig. 4, and remote operation is shown in Fig. 5.

The red knob under the electric box cover can be used to select field or remote operation, and every state can be locked by padlock.

Field operation: rotate the red knob clockwise to Field position; the actuator will be at field operation mode. Then, the actuator can be turned on or off by the near black knob; rotate the black knob to Stop position, electric operation of the valve can be stopped.

Remote operation: rotate the red knob anticlockwise to Remote control position; the actuator will be at remote control mode and can receive only operation order of remote control. Then, ON and OFF operation on the black knob are invalid.

五、参数设置与调试

5.1参数设置和调试方法

执行机构在不打开箱盖的前提下，有两种参数设置和调试方式。

你可用本安型红外线调试器或电气箱盖上的两只旋钮，对执行机构进行程限位、控制方式及其它各类参数进行简单、安全和快速的参数设置和调试。

所有调试数据均存入执行机构的数据记录器内，用户可以用电气箱盖上的两只旋钮或红外线调试器在执行机构的液晶显示窗口查看所有的功能。

参数设置为二级，首先进入参数画面1或参数画面2，而后进入具体的某项参数设定画面。

5.2 参数设定画面的进入

重要：电气箱盖上的两只旋钮在参数设置和调试过程中，在不同的显示页面下，其作用也不同。

旋钮功能说明：

进入参数设定画面，黑色旋钮上开、关的作用分别使页面上的菜单框上移和下移。

5. Parameter Setting and Adjustment

5.1 Parameter setting and adjustment method

Under the premise that the actuator keeps the box cover close, there are two methods for parameter setting and adjustment.

You may use the two knobs on the intrinsic safe infra-red debugger or the electric box cover to set and adjust stroke limit, control mode and other parameters in a simple, safe and quick manner.

All adjusted data are saved in data recorder of the actuator. Users may check all functions from LCD window of the actuator by the two knobs or infra-red debugger.

Parameters are set in two stages. Firstly, enter parameter screen 1 or parameter screen 2, then, enter certain parameter setting screen.

5.2 Enter parameter setting screen

Important: when the two knobs on the electric box cover set and adjust parameters, their functions are not the same on different display screen.

Functions of knobs:

Enter parameter setting screen; ON and OFF functions of the black knob are used to move up and down screen menu.

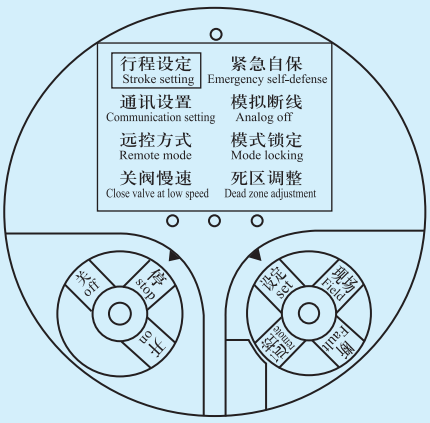


图6（Fig.6）

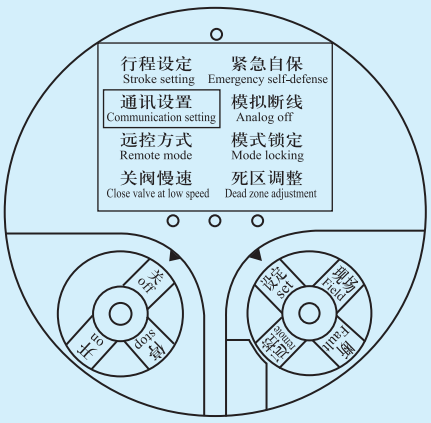


图7（Fig.7）

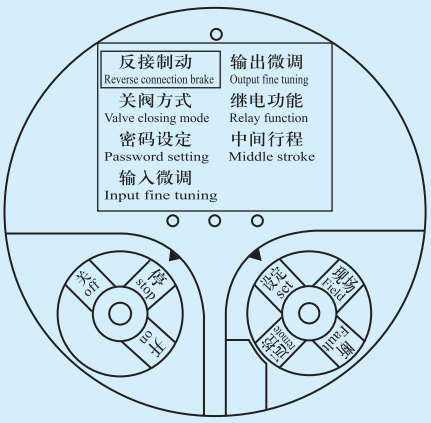


图8（Fig.8）

当执行机构处于断开或正常操作页面时，使电气箱盖上的黑色旋钮处于停状态，红色旋钮处于设定状态，如图6所示，即可进入项目页面。

When the actuator is in break or normal operation menu, keep black knob of the electric box cover at stop State and red knob at Setting state, as shown in Fig. 6, then, enter item screen.

你可根据页面显示的项目，通过旋转黑色旋钮到开状态、关状态，使页面上的菜单框上移或下移，选择相应的设置项目，如图7、图8所示。

项目选定，将黑色旋钮旋转到停状态，3秒钟以后，即可进入相应项目参数的设定页面，进行参数设定。

提示：使用红外调试器调试完毕后，必须按下红外调试器上断开功能键，进入断开页面后，方可使用旋钮操作。

提示：如果红色旋钮被锁定，须拆除固定锁片才能转动。

5.3行程设定

执行机构安装完毕后，必须根据阀门行程需要进行调试设定后，方能使用电动执行机构。行程参数设定的数字为绝对编码电子行程控制器提供的数字，在阀门全行程中为唯一值。（多回转在0—65536之间，部分回转在100—3800之间）

旋钮功能说明：

进入行程参数设定页面，红色旋钮上的现场、远控的作用分别为行程关向设定、开向设定的确定键。

5.3.1行程关向参数设定

You may move up or down the screen menu through rotating the black knob to ON or OFF state according to the items displayed on the screen.

Select item, rotate the black knob to Stop state; 3 seconds later, you may enter setting screen of relevant item parameter to set parameter.

Notice: after adjusting by infra-red debugger, you can't operate by knobs until press the break function key of the infra-red debugger and enter break screen.

Notice: if the red knob is locked, it can't rotate until the fixing locking plate is dismantled.

5.3 Stroke setting

In order to use the electric actuator, you have to adjust its setting according to demands of valve stroke after the actuator is installed. Numbers of stroke parameter setting are provided by absolute encoding electric stroke controller; it is the unique valve in full stroke of the valve. (Multi-turn: 0-65536; part-turn: 100-3800)

Functions of knobs:

Enter stroke parameter setting screen; field and remote functions of the red knob are OK keys for setting stroke closing and opening direction.

5.3.1 Parameter setting of stroke closing direction

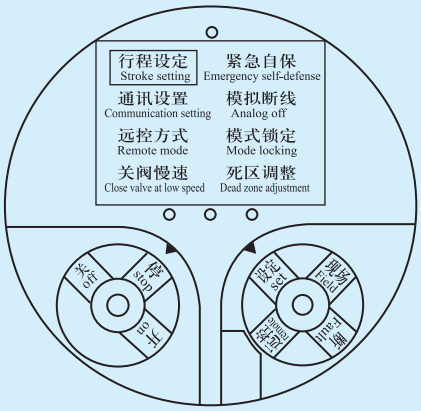


图9（Fig.9）

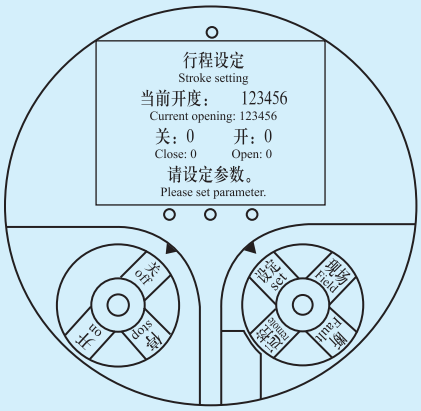


图10（Fig.10）

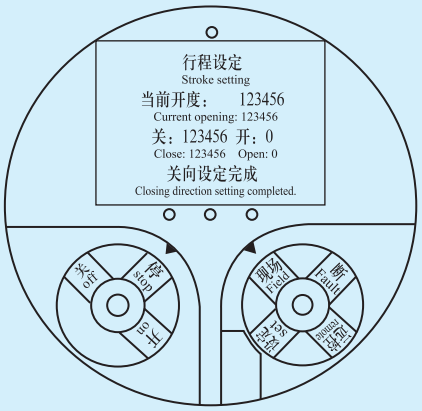


图11（Fig.11）

进入行程设定页面后，将黑色旋钮由图9停状态旋转到图10关状态，则电动执行机构向关向运行，与此同时，页面上方当前开度数字不断变化，下方提示“请设定参数”，当达到用户认可的全关位置时，将黑色旋钮旋转到停止状态，此时也可靠力矩动作自动停止，将红色旋钮旋转到现场状态，如图11所示，保持3秒钟，页面下方出现“关向设定完成”，此时页面上关向数字应与当前开度数字相同。

After entering stroke setting screen, rotate the black knob from Stop state as shown in Fig. 9 to OFF state as shown in Fig. 10, then the electric actuator operates towards closing direction. Simultaneously, the opening number on the upper screen keeps changing, and its lower part indicates “Please set parameter”. When reaching your acceptable full closing position, rotate the black knob to Stop state, or stop automatically through moment action, rotate the red knob to Field state as shown in Fig. 11; 3 seconds later, lower part of the screen displays “Closing direction is set”, and number of closing direction on the screen should be the same as that of opening direction.

5.3.2行程开向参数设定

5.3.2 Parameter setting of stroke closing direction

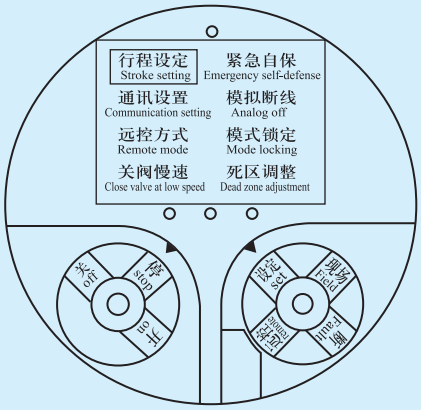


图12（Fig.12）

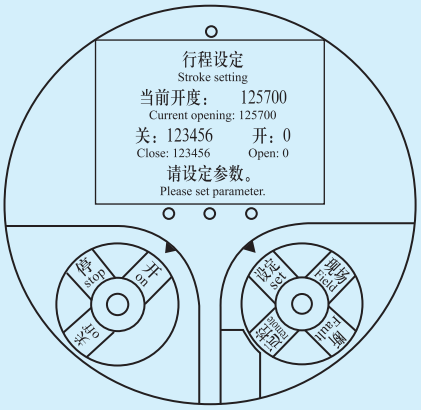


图13（Fig.13）

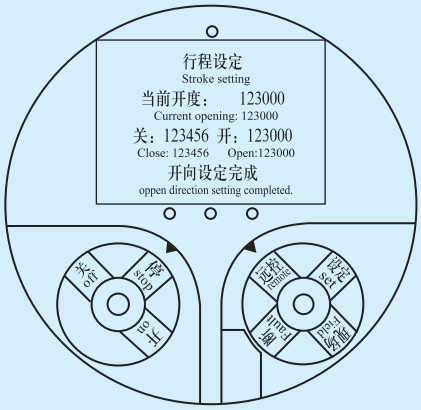


图14（Fig.14）

进入行程设定页面后，将黑色旋钮由图12停状态旋转到图13开状态，则电动执行机构向开向运行，与此同时，页面上方当前开度数字不断变化，下方提示“请设定参数”，当达到用户认可的全开位置时，将黑色旋钮旋转到停止状态，红色旋钮旋转到远控状态，如图14所示，保持3秒钟，页面下方出现“开向设定完成”，此时页面上开向数字应与当前开度数字相同。

开向/关向行程位置设定无先后次序，也可进行单项设置；

执行机构行程位置设定完成，如果需要改变开向或关向行程位置，需重新设定行程位置；开向/关向行程位置设定完成后，阀位反馈信号4～20mA同时整定完毕；

After entering stroke setting screen, rotate the black knob from Stop state as shown in Fig. 12 to ON state as shown in Fig. 13, then the electric actuator operates towards opening direction. Simultaneously, the opening number on the upper screen keeps changing, and its lower part indicates “Please set parameter”. When reaching the full opening position agreed by users, rotate the black knob to Stop state and the red knob to Remote state as shown in Fig. 14; 3 seconds later, the lower screen displays “Opening direction is set”, and number of opening direction on the screen should be the same as that of opening direction.

Stroke position of opening direction /closing direction can be set out of order or separately;

After setting stroke position of the actuator, in order to change stroke position of opening or closing direction, the stroke position should be set again; after setting stroke position of opening or closing direction, feedback signal of valve position is 4~20mA and setting is completed;

行程设定完成后，进入断开页面，具体详见4.4电动操作。

5.4 通讯设置：

此功能未开通。

5.5远控方式设定：

电动执行机构出厂前，远控方式设定为远程自保持。用户如选择其它远程控制方式，需重新设定远程控制方式。远程控制方式有5种形式，自保持、点动、双线开、双线关、及模拟量控制。

- 自保持方式可实现阀门的开、关、停控制，控制信号应持续200ms。
- 点动方式可实现阀门的开、关控制，控制信号应持续到开、关到位。
- 模拟量方式可实现阀门接收4～20mADC模拟量信号，并根据模拟量信号使阀门运行到与其相适应的位置。
- 双线开方式可实现阀门的开、关控制，控制信号接通时开向运行，直至开向到位。断开时关向运行，直至关向到位。
- 双线关方式可实现阀门的开、关控制，控制信号断开时开向运行，直至开向到位。接通时关向运行，直至关向到位。
- 紧急自保（ESD）信号可超越其它控制信号，强制执行，此信号一直维持到阀门到达设定位置。（参见紧急自保设置项）

提示：远程控制的5种方式和紧急关闭接线图参见附图。

After stroke setting, enter Break screen, see 4.4 electric operation for details.

5.4 Communication setting:

This function is unavailable.

5.5 Setting of remote control mode

Before the electric actuator is delivered, the remote control mode is set to remote self-holding. Users should set remote control mode again in order to select other modes. Modes of remote control: self-holding, inching, bi-wiring ON, bi-wiring OFF, and analog control.

- Self-holding mode is used for ON, OFF and Stop control of the valve. Control signal should keep 200ms.
- Inching mode is used for ON and OFF control of the valve. Control signal should keep till opening and closing in place.
- Analog control mode is used for the valve to receive 4~20m ADC analog signal and to enable the valve to operate to its suitable position according to analog signal.
- Bi-wiring opening mode is used for ON and OFF control of the valve. Control signal operates towards opening direction when power on till open in place and operates towards closing direction when break off till close in place.
- Bi-wiring closing mode is used for ON and OFF control of the valve. Control signal operates towards opening direction when break off till open in place and operates towards closing direction when power on till close in place. ESD signal can surpass other control signals and be enforced. This signal maintains till the valve reaches the setting position. (See setting item of ESD)

Notice: see the attached figures for 5 modes of remote control and emergency closing wiring diagram.

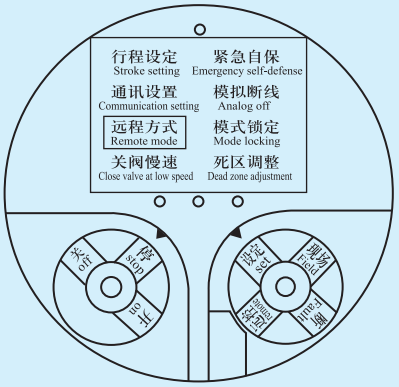


图15（Fig.15）

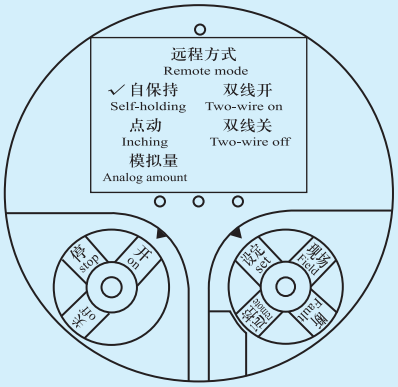


图16（Fig.16）

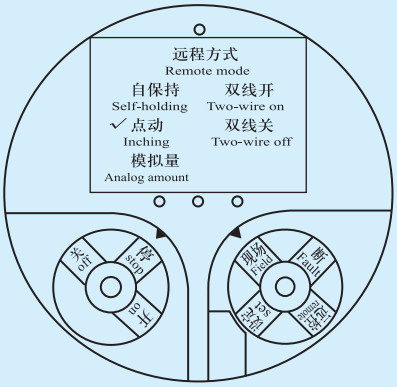


图17（Fig.17）

进入远控方式设定页面后，如图16所示，旋转黑色旋钮到开、关位置，均可使用页面上的“✓”在选项上循环移动。移到用户认可的项目上时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态如图17所示，保持3秒，即设定了所选定的远控方式。

远控方式设定完成后，进入断开页面，具体详见4.4电动操作

旋钮功能说明：

进入远控方式设定页面，黑色旋钮上开、关的作用，均可使页面上“✓”在选项上循环移动。红色旋钮上现场的作用为远控方式确定键。

5.6 关阀慢速功能设置

电动执行机构出厂前，设定慢速起始点和占空比分别为0%和100%（即不启动双速功能）。慢速起始点指阀门在接近全关行程（≤20%）中，哪一个位置开始慢速关闭。

占空比指在一定的时间周期内（本系统设定为五秒），阀门运行的时间占整个周期的百分比。占空比可通过以下关系式求得，占空比（%）=全行程运行时间（S）×设置的慢速起始点（%）/慢速所需运行的时间（S）。

After entering the setting screen of remote control mode, as shown in Fig. 16, “√” of the screen will move circularly between items through rotating the black knob to ON/ OFF position. When it moves to your acceptable item, rotate the black knob to Stop state and the red knob to Field state as shown in Fig. 17, and the selected remote control mode is set 3s later.

After remote control mode is set, enter Break screen, see 4.4 electric operation for details.

Functions of knobs:

Enter the setting screen of remote control mode, move “√” of the screen circularly to select ON/ OFF function of the black knob; Field of the red knob is OK key of the remote control mode.

5.6 Function setting of closing valve at low speed

Before the electric actuator is delivered, low speed initial point and duty ratio have been set to 0% and 100% (namely not start dual-speed function) respect-ively. Low speed initial point is the position to start low speed closing when the valve is near full closing stroke (≤20%).

Duty ratio is operation time of valve as percentage of the whole period within certain time period (setting period of the system is 5s). It can be figured out by the following formula: duty ratio (%) = full stroke operation time (S) × the set low speed initial point (5) / necessary time of low speed operation (S).

旋钮功能说明：

进入双速功能设定页面，黑色旋钮上的关、开分别表示慢速起始点、占空比设定键。

红色旋钮上现场、远控的作用分别为慢速起始点、占空比设定的确定键。

5.6.1关阀慢速起始点设置

Functions of knobs:

Enter dual-speed setting screen, OFF and ON of the black knob are setting keys of low speed initial point and duty ratio respectively.

Field and Remote of the red knob are OK keys of low speed initial point and duty ratio.

5.6.1 Set low speed initial point of closing valve

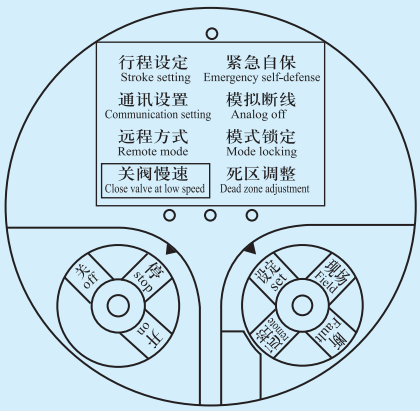


图18（Fig.18）

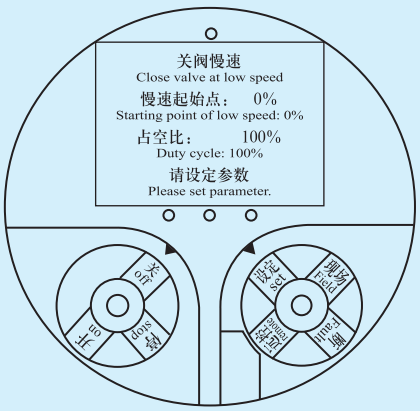


图19（Fig.19）

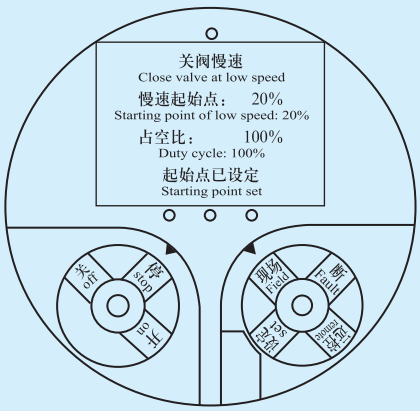


图20（Fig.20）

进入双速设置页面后，将黑色旋钮由图18停状态旋转到图19关状态，页面下方提示“请设定参数”，页面上慢速起始点数字可由0%开始，以1%循环递增到20%，当达用户认可的百分比时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态，如图20所示，保持3秒，页面下方提示“起始点已设定”。

After entering dual-speed setting screen, rotate the black knob from Stop state as shown in Fig. 18 to OFF state as shown in Fig. 19, then the lower screen indicates “Please set parameter”. Number of low speed initial point on the screen can be set from 0% and will increase to 20% by 1%. When reaching your acceptable percentage, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 20; the lower screen displays “Initial point is set” 3s later.

5.6.2关阀慢速占空比设置

进入双速设置页面后，将黑色旋钮由图21停状态旋转到图22开状态，页面下方提示“请设定参数”，每操作1次黑色旋钮到开状态，页面上占空比设定数字以5%循环递增到100%，当到达用户认可百分比时，将黑色旋钮打到停状态，红色旋钮旋转到远控状态，如图23所示，保持3秒，页面下方提示“占空比已设定”。

5.6.2 Set duty ratio of closing valve at low speed

After entering dual-speed setting screen, rotate the black knob from Stop state as shown in Fig. 21 to ON state as shown in Fig. 22, then the lower screen indicates “Please set parameter”. Number of low speed initial point on the screen can be set from 0% and will increase to 20% by 1%. When reaching your acceptable percentage, rotate the black knob to Stop state and the red knob to Remote state, as shown in Fig. 20; the lower screen displays “Initial point is set” 3s later.

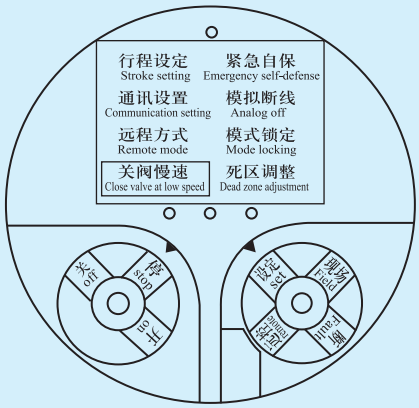


图21（Fig.21）

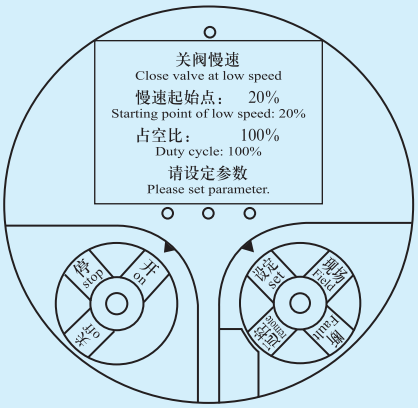


图22（Fig.22）

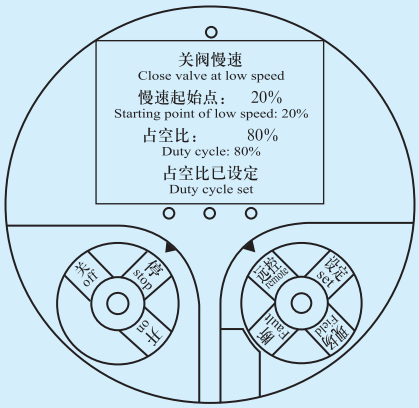


图23（Fig.23）

关阀慢速功能设定完成后，进入断开页面，具体详见4.4电动操作。

After setting closing valve at low speed, enter Break screen, see 4.4 electric operation for details.

5.7 紧急自保

5.7 ESD

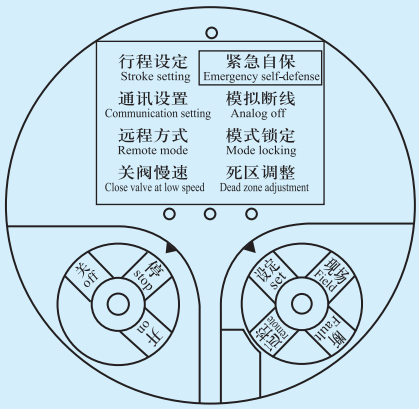


图24（Fig.24）

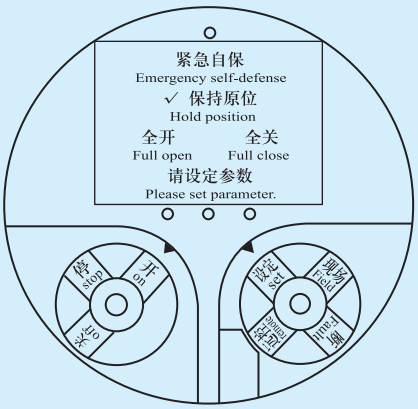


图25（Fig.25）

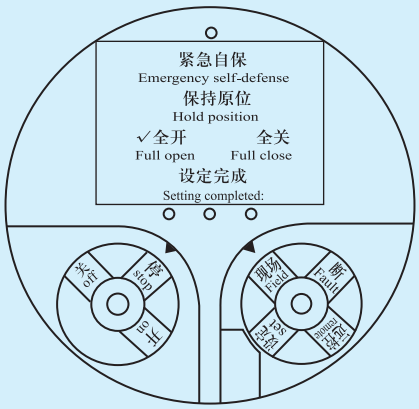


图26（Fig.26）

紧急自保功能是用于用户在事故状态下的紧急处置，紧急自保功能在断开、现场、远控状态下均可起作用，并且会忽略电机热保护故障，控制优先级为最高。在默认状态下紧急自保功能不启动，即处于保持原位状态。

进入紧急自保页面后，页面下方提示“请设定参数”。将旋转黑色旋钮由图24停状态旋到图25关状态，均可使用页面上的“✓”在选项上循环移动。移到用户认可的项目上时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态，如图26所示，保持3秒，页面下方出现“设定完成”，即设定了所选定的紧急自保功能。紧急自保出厂默认设置为“保持原位”。

ESD is for emergency handling of users in case of accident. It works under break, field and remote control state and will ignore the failure of motor thermal protection, and its control priority is the highest. At default state, ESD is not started and keeps at original state.

After entering ESD screen, the lower screen indicates “Please set parameter”. “√” of the screen will move circularly between items through rotating the black knob from Stop state as shown in Fig. 24 to OFF state as shown in Fig. 25. When moving to your acceptable item, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 26; the lower screen will display “Setting complete” 3s later, and the selected ESD function is set. Default setting of ESD is “Keep original position”.

紧急自保设定完成后，进入断开页面，具体详见4.4电动操作。

旋钮功能说明：

进入紧急自保设定页面，黑色旋钮上关的作用，可使页面上“✓”在选项上循环移动。红色旋钮上现场的作用为状态确定键。

After ESD is set, enter Break screen, see 4.4 electric operation for details.

Functions of knobs:

Enter ESD setting screen, “ √ ” of the screen will move circularly between items through rotating the black knob to OFF state. Field of the red knob is OK key.

5.8 模拟断线的设定

5.7 Set analog breakage

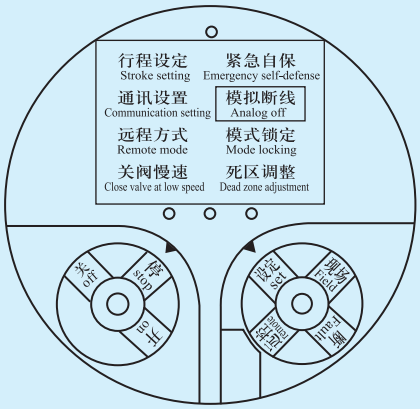


图27（Fig.27）

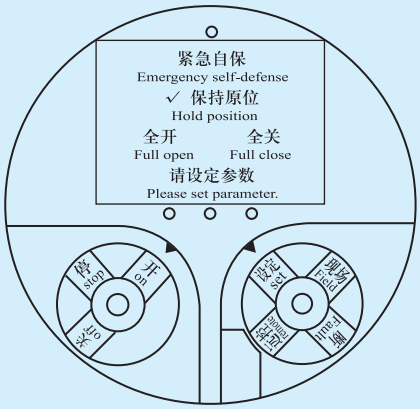


图28（Fig.28）

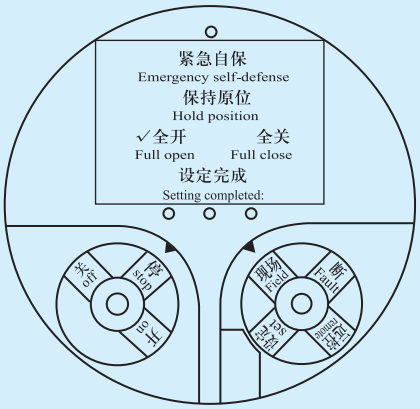


图29（Fig.29）

当选择远程模拟量控制信号时，模拟量信号输入4～20mA可能会断线，控制系统判断输入电流≤2mA认为断线。在此情况下。设备实际处于失控的状态。为了让设备运行到相对安全的位置，可以设定该参数。

当进入模拟断线参数页面后，页面下方提示“请设定参数”，将黑色旋钮由图27停状态旋到图28开状态，使页面上“✓”将在“保持原位”“全关”、“全开”之间循环移动。达到用户认可的项目上时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态，如图29所示，保持3秒，页面下方提示“设定完成”。即设定了所选定的功能。模拟断线出厂时设定为“保持原位”。

模拟断线设置完成后，进入断开页面，具体详见4.4电动操作。

When remote analog control signal is selected, analog signal output 4~20mA may break; control system thinks breakage when input current is ≤ 2mA. In such case, the equipment is out of control. In order to enable the equipment to operate to relative safe position, the parameter can be set.

After entering analog breakage parameter screen, the lower screen indicates “Please set parameter”. Rotate the black knob from Stop state as shown in Fig. 27 to ON state as shown in Fig. 28, so that “ √ ” of the screen will move circularly between “Keep original position”, “Full OFF” and “Full ON”. When reaching your acceptable item, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 29; the lower screen displays “Setting completed” 3s later, so the selected function is set. Default setting of analog breakage is “Keep original position”.

After analog breakage is set, enter Break screen, see 4.4 electric operation for details.

5.9 模拟锁定的设定

一般情况下，用户可以通过操作红色旋钮来选择现场或远程操作模式，但在某些情况下，出于安全的需要，希望电动装置不受旋钮操作的影响，一直工作在现场或远程模式。

旋钮功能说明：

进入模式锁定参数设定页面，黑色旋钮上的开的作用，可使页面“✓”在选项上循环移动。红色旋钮上现场的作用为模式锁定方式确定键。

5.9 Set analog locking

Generally, users may select Field or Remote operation mode by the red knob. However, in order to ensure safety and prevent from being affected by knobs, the electric device will keep working at field or remote mode.

Functions of knobs:

Enter the parameter setting screen of analog locking, rotate the black knob to ON, so that “√” of the screen will move circularly between items. Field of the red knob is OK key of analog locking mode.

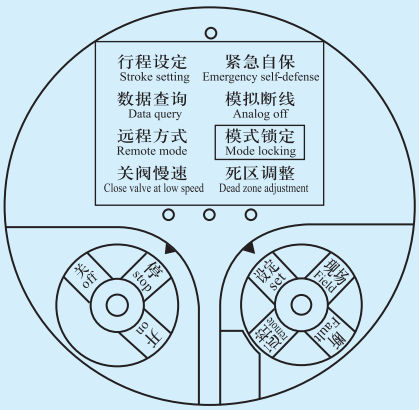


图30（Fig.30）

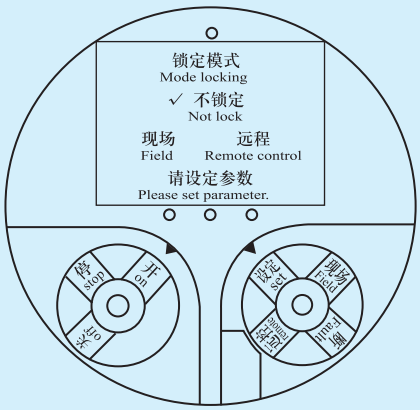


图31（Fig.31）

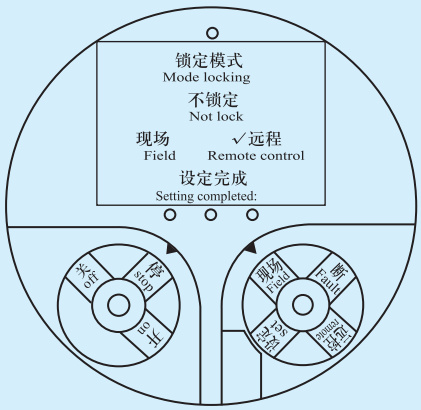


图32（Fig.32）

进入模式锁定参数页页面后，页面下方提示“请设定参数”。将黑色旋钮由图30停状态旋转到图31开状态，使页面上“✓”在选项上循环移动。到用户认可的项目上时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态，如图32所示，保持3秒，页面下方提示“设定完成”。即设定了所选定的模式功能。模式锁定在出厂时设定为“不锁定”。

模式锁定设置完成后，进入断开页面，具体详见4.4电动操作。

After entering the parameter setting screen of analog locking, the lower screen indicates “Please set parameter”. Rotate the black knob from Stop state as shown in Fig. 30 to ON state as shown in Fig. 31. When reaching your acceptable item, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 32; the lower screen displays “Setting completed” 3s later, so the selected analog function is set. Default set of analog locking is “Unlock”.

After analog locking is set, enter Break screen, see 4.4 electric operation for details.

5.10 死区调整

5.10 Dead zone adjustment

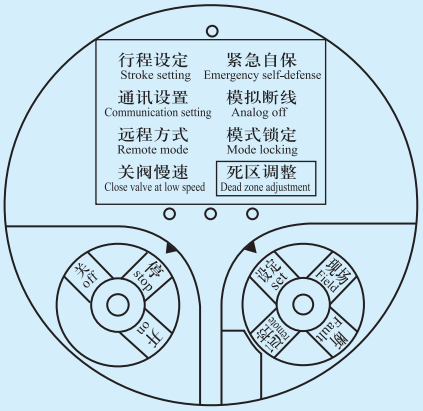


图33（Fig.33）

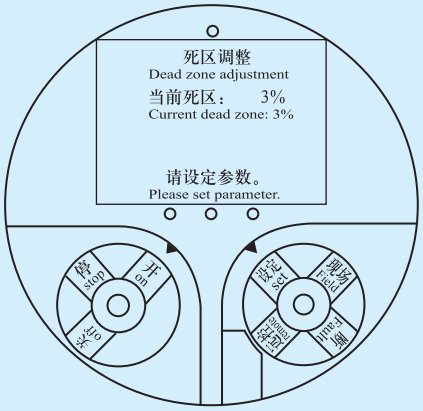


图34（Fig.34）

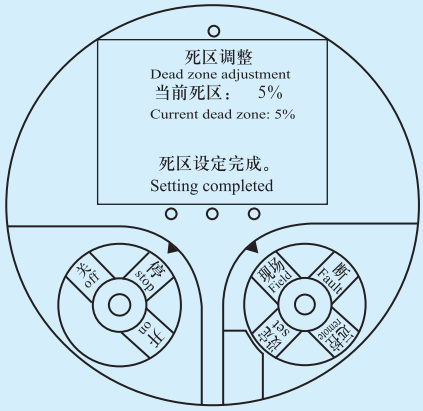


图35（Fig.35）

该参数在模拟量控制方式下有效。当模拟量给定信号与执行机构当前的差值大于该项设定时，执行器开始做相两者误差小的方向运行，直到两者的差值小于设定值。

This parameter is valid in analog control mode. When the difference between demand signal of analog and the actuator is higher than this setting, the actuator operates towards the direction of low error till the difference is lower than the setting value.

该参数设定过小可能导致执行器振荡，设定过大则导致执行器定位误差增大。

If the parameter is too low, the actuator may vibrate; if it is too high, positioning error of the actuator will increase.

当进入死区调整页面后，页面下方提示“请设定参数”，将黑色旋钮由图33停状态旋到图34关状态，页面上死区百分比由0.5% 到9%循环递增，当到达用户认可的百分比时，将黑色旋钮旋到停状态，红色旋钮旋到现场状态，如图35所示，保持3秒，页面下方提示“死区已设定”。死区百分比的出厂默认值为3%。

After entering dead zone adjustment screen, the lower screen indicates “Please set parameter”. Rotate the black knob from Stop state as shown in Fig. 33 to OFF state as shown in Fig. 34, percentage of the dead zone increases form 0.5% to 9%; when reaching your acceptable percentage, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 35. The lower screen displays “Dead zone is set” 3s later. Default percentage of dead zone is 3%.

死区设置完成后，进入断开页面，具体详见4.4电动操作。

After the dead zone is set, enter Break screen, see 4.4 electric operation for details.

5.11 反接制动

5.11 Reverse braking

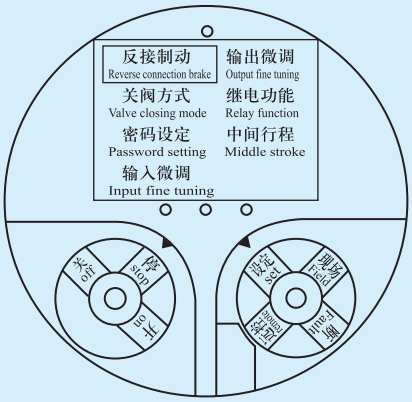


图36（Fig.36）

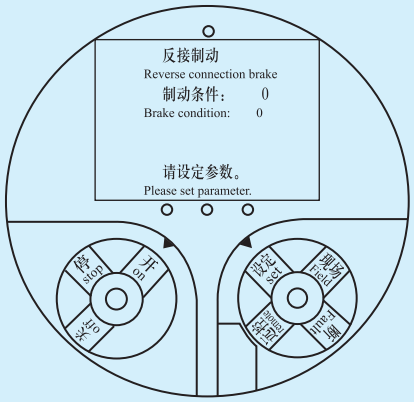


图37（Fig.37）

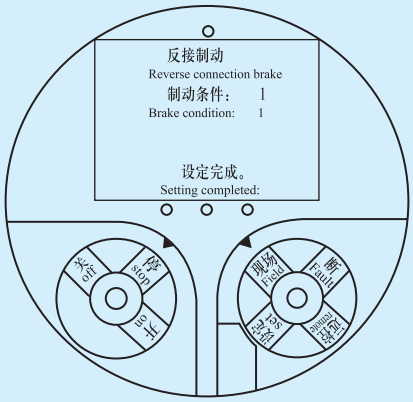


图38（Fig.38）

该参数在远程模拟控制方式下有效。某些品种的执行器运行会过冲一点，通过该功能可以让执行器反向运行细微的行程，以使执行器到达一个更精确的运行位置。

当进入反接制动参数页面后，页面下方提示“请设定参数”，通过操作黑色旋钮由图36停状态旋到图37关状态来选择制动条件：1为有效，0为无效。通过操作红色旋钮到现场状态，如图38所示，保持3秒，页面下方提示“设定完成”。

模拟量控制选用接触器作驱动元件不可设置反接制动。

反接制动设置设定完成后，进入断开页面，具体详见4.4电动操作。

This parameter is valid in remote analog control mode. Some actuators may overshoot, and this function will enable such actuators to operate reversely so asto reach a more accurate operation position.

After entering the parameter screen of reverse braking, the lower screen indicates “Please set parameter”. Rotate the black knob from Stop state as shown in Fig. 36 to OFF state as shown in Fig. 37 so as to select braking condition: 1: valid,, 0: invalid. Rotate the red knob to Field state, as shown in Fig. 38, and the lower screen displays “Setting completed” 3s later.

Analog control chooses contactor as driving element, and reverse braking can’t be set.

After reverse braking is set, enter Break screen, see 4.4 electric operation for details.

5.12 关阀方式

5.12 Valve closing mode

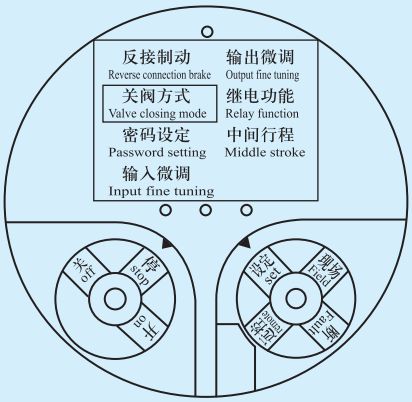


图39（Fig.39）

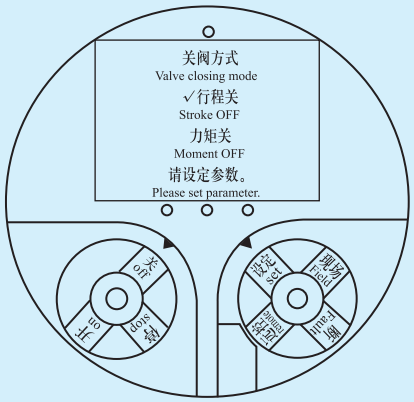


图40（Fig.40）

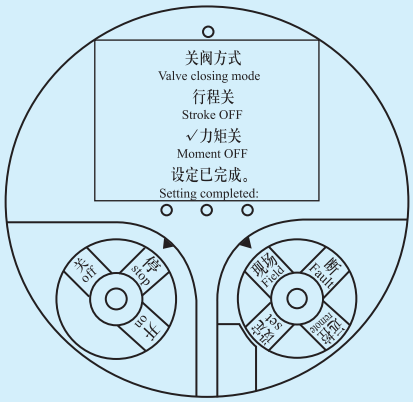


图41（Fig.41）

进入关阀方式参数页面后，页面下方提示“请设定参数”，将黑色旋钮由图39停状态旋到图40关状态，可使页面上的“✓”在“行程关”、“力矩关”之间循环移动，当到达用户认可的要求时，将黑色旋钮旋转到停状态，红色旋钮转到现场状态，如图41所示，保持3秒，页面下方提示“设定完成”。

旋钮功能说明：

进入关阀方式设定页面，黑色旋钮上关的作用，可使页面上“✓”在选项上循环移动。红色旋钮上现场的作用为所选类型确定键。

关阀方式设定完成后，进入断开页面，具体详见4.4电动操作。

After entering the parameter screen of valve closing mode, the lower screen indicates “Please set parameter”. Rotate the black knob from Stop state as shown in Fig. 39 to OFF state as shown in Fig. 40, so that √” of the screen will move circularly between “Stroke OFF” and “Moment OFF”; when reaching your acceptable requirement, rotate the black knob to Stop state and the red knob to Field state, as shown in Fig. 41; the lower screen displays “Setting completed” 3s later.

Functions of knobs:

Enter the setting screen of valve closing mode, rotate the black knob to OFF to move “√” of the screen circularly between items; Field of the red knob is OK key of the selected mode.

After valve closing mode is set, enter Break screen, see 4.4 electric operation for details.

5.13 密码设置

进入密码设置页面后，页面下方提示“请设定密码”。将黑色旋钮由图42停状态旋到图43关或开状态，每操作1次黑色旋钮到开状态，该位数据加1，每操作1次黑色旋钮到关状态，该位数据减1，设定至所需数字后，将红色旋钮旋至远控状态后再回到设定状态，则密码位将向左移动一位，以此循环，当6位密码设置完成后，将红色旋钮旋至现场状态，如图44所示。保持3秒，页面下方提“设定完成”。

5.13 Password setting

After entering password setting screen, the lower screen indicates “Please set password”. Rotate the black knob from Stop state as shown in Fig. 42 to OFF/ON state as shown in Fig. 43. Rotate the black knob to ON state once, the data increases 1; rotate it to OFF state once, the data decreases 1. After the required data is set, rotate the red knob to remote control and then return to setting state, the password digit moves towards the left once, and so on. After the 6-digit password is set, rotate the red knob to Field state, as shown in Fig. 44, and the lower screen displays “Setting completed” 3s later.

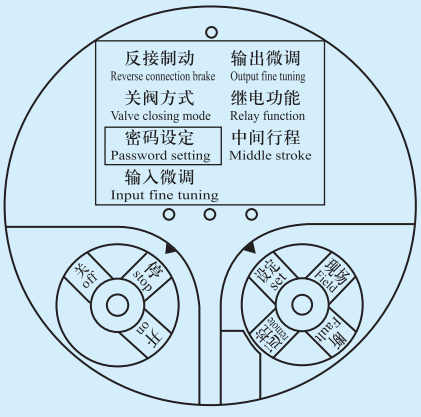


图42（Fig.42）

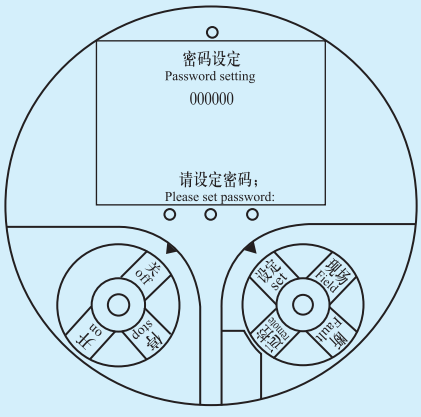


图43（Fig.43）

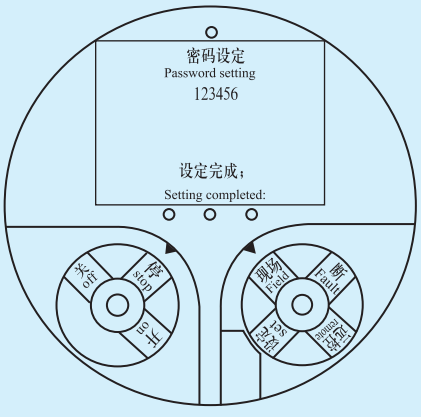


图44（Fig.44）

设定密码功能后，当电动执行机构处于断开、现场、远控状态下，3分钟内不改变控制状态则密码保护功能启动。此时如要改变控制状态就要输入对应密码，输入过程与设定过程类似，2分钟内必须输入完成，否则返回密码锁定的控制状态。

After setting password function, when the electric actuator is at Break, Field and Remote state, the password protection function is started if control state keeps unchan-ged within 3min. Then, in order to change control mode, password should be entered. The entry procedure is the same as the setting procedure. The password must be entered within 2min., otherwise, it will return to the control state of password lock.

密码保护功能起到类似于机械挂锁的作用。它对黑色开、关旋钮不起作用。

Password protection function plays a part similar to that of the machine padlock. It is invalid for ON and OFF of the black knob.

密码设置设定完成后，进入断开页面，具体详见4.4电动操作。

After password is set, enter Break screen, see 4.4 electric operation for details.

提示：电动执行机构出厂时默认密码保护功能不启动。密码保护功能启动后，若想取消，请在密码设置页面输入“000000”并保存。

Notice: password protection function isn't started when the electric actuator is delivered. After starting password protection function, in order to cancel it, you will enter “000000” on password setting screen and save it.

5.14 输入微调

该参数在远程模拟量控制方式下有效，用于校正4～20mA电流输入信号的微小偏差。校正点共有2个，分别是4mA和20mA。

5.14 Input fine tuning

This parameter is valid at remote analog control mode and is used to calibrate fine deviation of 4~20mA current input signal. There are 2 calibration points, respectively 4mA and 20mA.

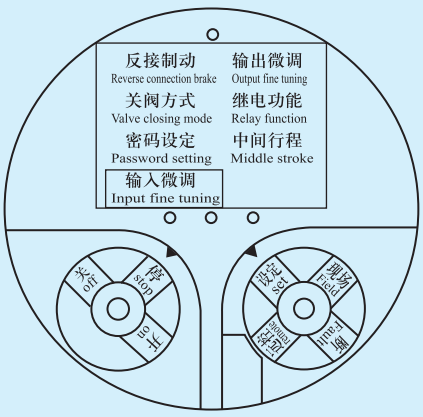


图45（Fig.45）

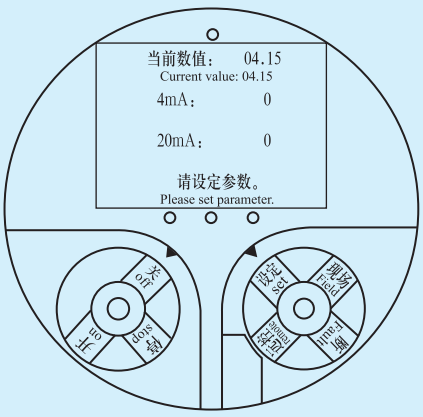


图46（Fig.46）

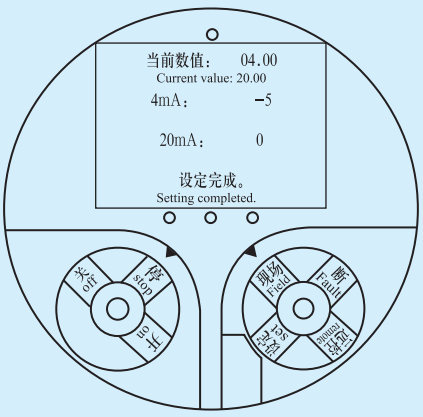


图47（Fig.47）

当进入输入微调参数页面后，屏幕上方会显示当前模拟量输入值，页面下方提示“请设定参数”。此时将外部电流输入调整到标准4.00mA，将黑色旋钮由图45停状态旋转到图46关状态来改变4mA校准值，范围为−50～50，增加到50后再增加便回到−50.当屏幕上方的显示值为4.00mA时，将黑色旋钮转到停，将红色旋钮旋转到现场状态，如图47所示，保持3秒，页面下方提示“设定完成”。

After entering the parameter screen of input fine tuning, the upper screen displays the present analog input valve, and the lower screen displays “Please set parameter”. Adjust external current input to standard 4.00mA; rotate the black knob from Stop state as shown in Fig. 45 to OFF state as shown in Fig. 46 to change calibration value of 4mA within -50~50; if keep increasing after reaching 50, the value returns to -50. When the upper screen displays value 4.00mA, rotate the black knob to Stop and the red knob to Field, as shown in Fig. 47; the lower screen displays “Setting completed” 3s later.

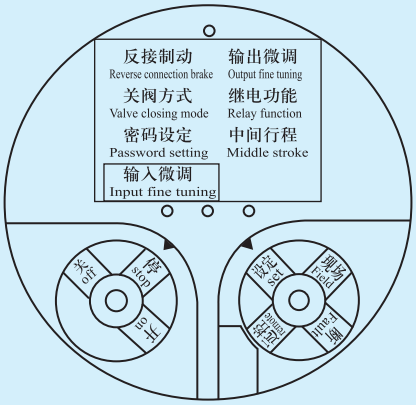


图48（Fig.48）

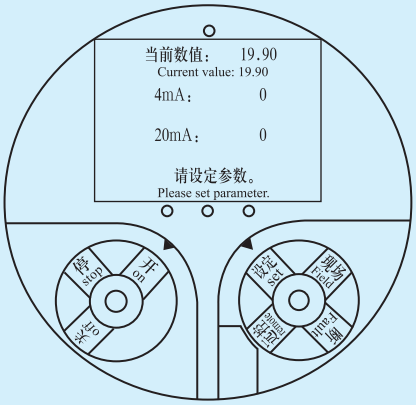


图49（Fig.49）

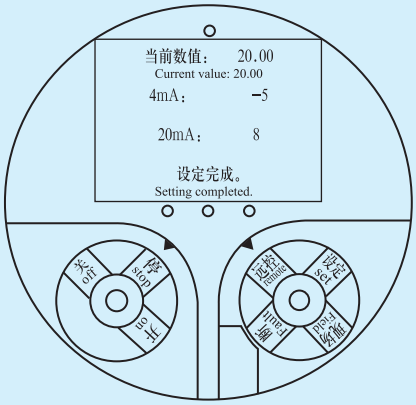


图50（Fig.50）

4mA调整结束后，将外部电流输入调整到标准20.00mA，将黑色旋钮由图48停状态旋转到图49开状态来改变20mA校准值，范围为−50～50，增加到50后再增加便回到−50。当屏幕上方的显示值为20.00mA时，将黑色旋钮转到停，将红色旋钮旋转到远控状态，如图50所示，保持3秒。页面下方提示“设定完成”。

After adjusting 4mA, adjust external current input to standard 20.00mA, rotate the black knob from Stop state as shown in Fig. 48 to ON state as shown in Fig. 49 to change calibration value of 20mA within -50～50; if keep increasing after reaching 50, the value returns to -50. When the upper screen displays value 20.00mA, rotate the black knob to Stop and the red knob to Remote, as shown in Fig. 50; the lower screen displays “Setting completed” 3s later.

输入微调设定完成后，进入断开页面，具体详见4.4电动操作。

After setting the input fine tuning, enter Break screen, see 4.4 electric operation for details.

5.15 输出微调

该参数用于校正4～20mA阀位输出电流信号的微小偏差。校正点共有2个，分别是4mA和20mA。

5.15 Output fine tuning

This parameter is used to calibrate fine deviation of 4~20mA valve position output current signal. There are 2 calibration points, respectively 4mA and 20mA.

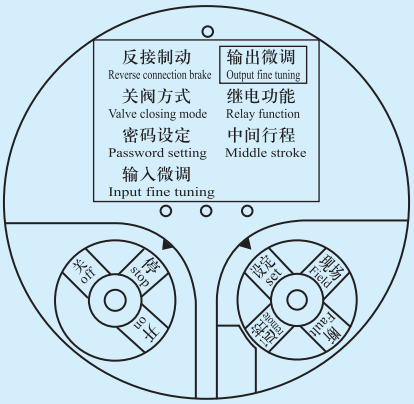


图51（Fig.51）

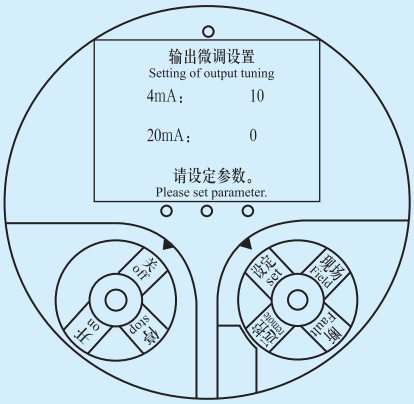


图52（Fig.52）

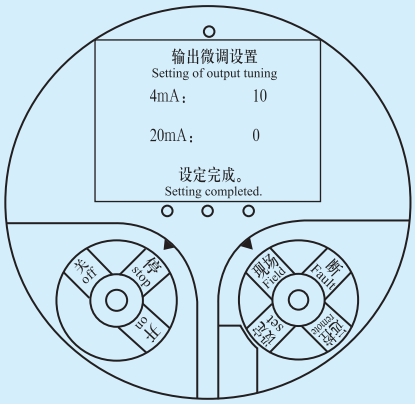


图53（Fig.53）

将阀门关到全关位置后，进入输出微调参数页面后，页面下方提示“请设定参数”。并且在外部接1个标准电流表。将黑色旋钮由图54停状态旋转到图55关状态来改变4mA校准值，范围为–50～50，增加到50后再增加便回到–50.当外部电流表的显示值为4.00mA时，将黑色旋钮转到停，将红色旋钮转到现场状态，如图56，保持3秒，页面下方提示“设定完成”。

输出微调（4mA）设定完成后，进入断开页面，具体详见4.4电动操作

After closing the valve fully and entering the parameter screen of output fine tuning, the lower screen indicates “Please set parameter”. Connect a standard ammeter outside. Rotate the black knob from Stop state as shown in Fig. 54 to OFF state as shown in Fig. 55 to change calibration value of 4mA within -50~50; if keep increasing after reaching 50, the value returns to -50. When the external ammeter displays value 4.00mA, rotate the black knob to Stop and the red knob to Field, as shown in Fig. 56; the lower screen displays “Setting completed” 3s later.

After output fine tuning (4mA) is set, enter Break screen, see 4.4 electric operation for details.

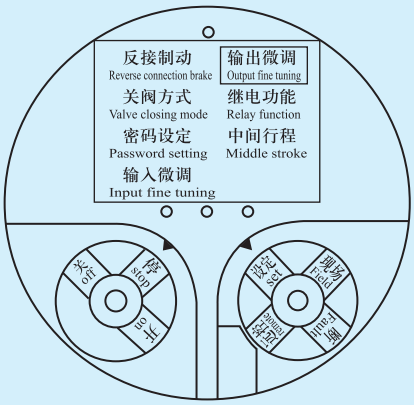


图54（Fig.54）

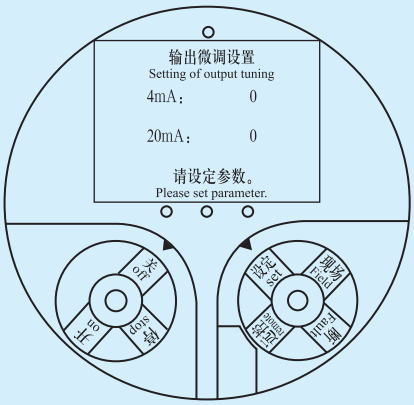


图55（Fig.55）

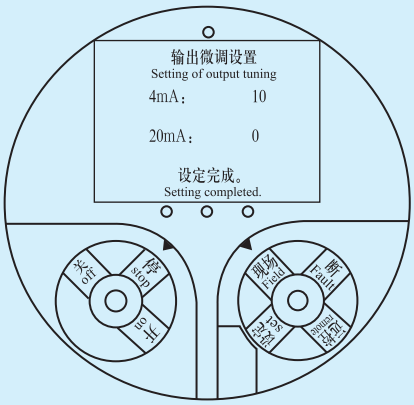


图56（Fig.56）

4mA调整结束后，将阀门开到全开位置，再次进入输出微调页面，同时观测外部电流表的读数，将黑色旋钮由图57停状态旋转到图58开状态来改变20mA校准值，范围为−50～50，增加到50后再增加便回到−50。当外部电流表的显示值为20.00mA时，将黑色旋钮转到停，将红色旋钮转到现场状态，如图59所示，保持3秒，页面下方提示“设定完成”。

After adjusting 4mA, open the valve fully, enter the output fine tuning screen again, check readings of the external ammeter; rotate the black knob from Stop state as shown in Fig. 57 to ON state as shown in Fig. 58 to change calibration value of 20mA within -50～50; if keep increasing after reaching 50, the value returns to -50. When the external ammeter displays value 20.00mA, rotate the black knob to Stop and the red knob to Field, as shown in Fig. 59; the lower screen displays “Setting completed” 3s later.

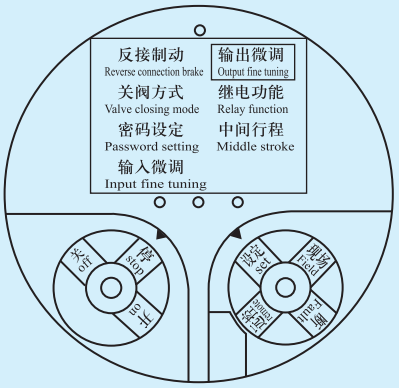


图57（Fig.57）

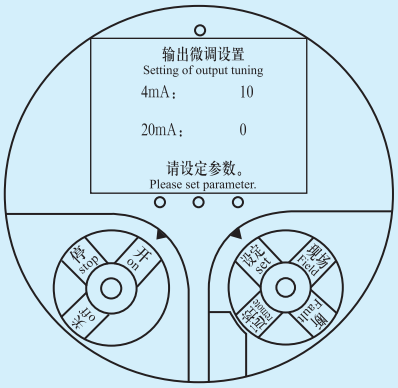


图58（Fig.58）

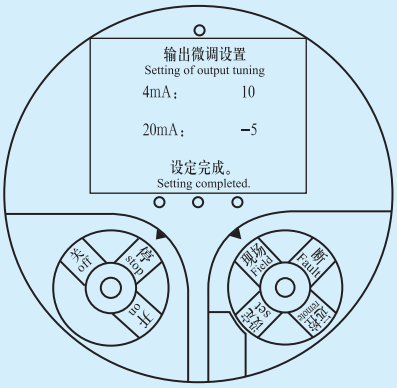


图59（Fig.59）

输出微调设定完成后，进入断开页面，具体详见4.4电动操作

After setting the output fine tuning, enter Break screen, see 4.4 electric operation for details.

5.16 继电（器）功能

控制器带有6个多功能继电器输出。客户可以对各继电器的功能进行设定，并对继电器输出的常开/常闭属性进行指定。

其功能定义如下：

K：输出继电器代号（1～6）。
F：输出功能（代码0−F）。
P：输出状态（0−常闭、1−常开）。

5.16 Function of Relay

The controller has 6 multi-functional relay output. Users may set functions of every relay and choose normal open/ close state of relay output.

The function is defined as follows:

K: code of output relay (1~6);
F: output function (code 0-F);
P: output state (o- normal close, 1- normal open).

输出代码功能如下：

0：无功能　　1：开向行程限位

2：关向行程限位　3：开向过力矩

4：关向过力矩　　5：总故障

6：现场状态　　7：远控状态

8：中间位置1　　9：中间位置2

A:电源缺相B：阀位故障（堵转）

C：模拟量给定异常　D：电机过热

E：未定义　　F：未定义

Functions of output code are as follows:

0: No function 1: Stroke limit of opening direction

2: Stroke limit of closing direction

3: Carry-over moment of opening direction

4: Carry-over moment of closing direction

5: Total failure 6: Field state 7: Remote state

8: Middle position 19: Middle position 2A: Open phase

B: Value position failure (locked)

C: Analog demand abnormal D: Motor overheat

E: Undefined F: Undefined

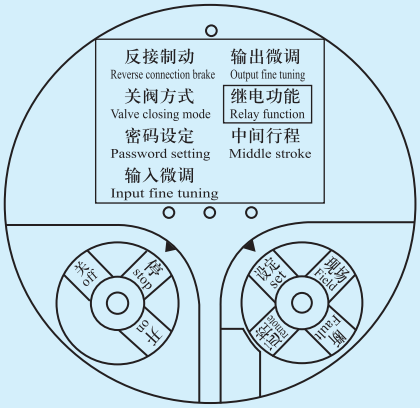


图60（Fig.60）

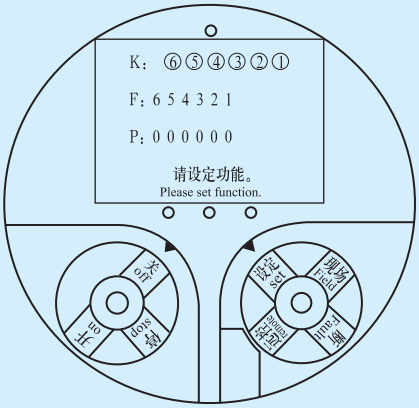


图61（Fig.61）

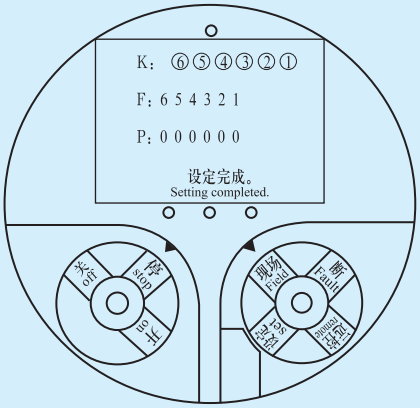


图62（Fig.62）

进入继电功能参数页面后，页面下方提示“请设定功能”，通过操作黑色旋钮由图60停定状态旋转到图61开或关状态来修改破选择的某位数值，将红色旋钮旋至远控后再回到设定状态后，来选择被修改的位数（个十百千…）。当达到用户认可的要求时，将红色旋钮至现场状态，如图62，保持3秒，页面下方提示“设定完成”。：

旋钮功能说明：

进入继电功能设定页面，黑色旋钮上开、关的作用分别表示修改数值加、减设定键，红色旋钮上远控的作用为移位键，红远旋钮上现场的作用为设定好参数功能的确定键。

After entering the parameter screen of relay function, the lower screen displays “Please set function”; rotate the black knob from Stop state as shown in Fig. 60 to ON/OFF state as shown in Fig. 61 to select certain value to be changed; rotate the red knob to Remote and then return to setting state to choose the digit to be changed (unit, tens, hundreds, thousands…). When reaching your requirement, rotate the red knob to Field and keep 3s, as shown in Fig. 62; then, the lower screen displays “Setting completed”.

Functions of knobs:

Enter the setting screen of relay function, rotate the black knob to ON/OFF to increase/decrease the value to be changed. Remote of the red knob is shift key, and its Field is OK key of the set parameter function.

继电功能设定完成后，进入断开页面，具体详见4.4电动操作。

5.17 中间行程

中1和中2两个位置，用户可以根据需要用于开向或关向的中间位置，或用于增加开、关向触点数。电动执行机构出厂前，设定中1、中2行程百分比为0%和100%。

进入中间行程设定页面后，页面下方提示“请设定数”，将黑色旋钮由图63停状态旋转至图64关状态，每操作1次黑色旋钮到关状态，页面上中1数字增加1%循环递增到100%，当到达用户认可的中1百分比时，将黑色旋钮旋转到停状态，红色旋钮旋转到现场状态，如图65所示，保持3秒，页面下方提示“中1完成”。

After setting relay function, enter Break screen, see 4.4 electric operation for details.

5.17 Mid-stroke

Mid-stroke 1 and mid-stroke 2 can be used as middle position of opening or closing direction or be used to increase contact number of opening or closing direction according to demands. Before the electric actuator is delivered, percentages of mid-stroke 1 and mid-stroke 2 are set to 0% and 100%.

After entering setting screen of mid-stroke, the lower screen displays “Please set”. Rotate the black knob from Stop state as shown in Fig. 63 to OFF state as shown in Fig. 64. Rotate the black knob to OFF state once; then number of mid-stroke 1 on the screen will increase to 100% by 1%. When reaching your acceptable percentage, rotate the black knob to Stop state and the red knob to Field state and keep 3s, as shown in Fig. 65; the lower screen displays “Mid-stroke 1 is set”.

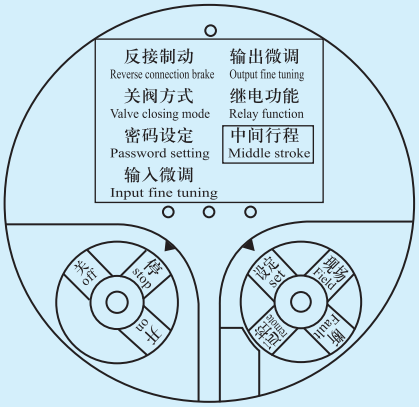


图63（Fig.63）

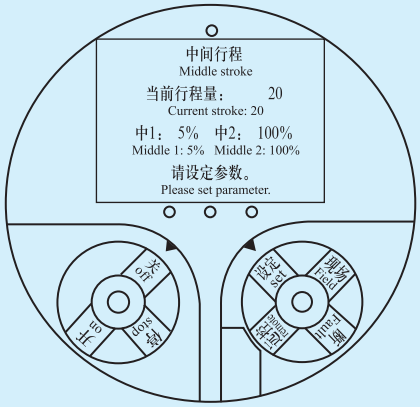


图64（Fig.64）

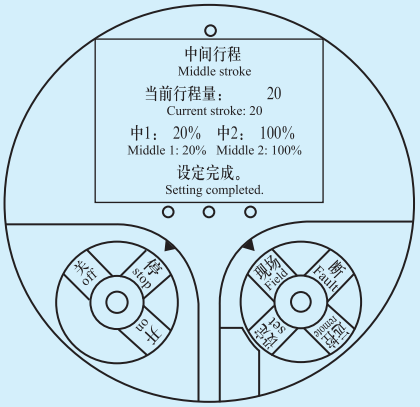


图65（Fig.65）

进入中间行程设定页面后，页面下方提示“请设定数”，将黑色旋钮由图66停状态旋转至图67开状态，每操作1次黑色旋钮到开状态，页面上中2数字增加1%循环递增到100%，当到达用户认可的中2百分比时，将黑色旋钮旋转到停状态，红色旋钮旋转到远控状态，如图68所示，保持3秒，页面下方提示“中2完成”。

After entering setting screen of mid-stroke, the lower screen displays “Please set”. Rotate the black knob from Stop state as shown in Fig. 66 to ON state as shown in Fig. 67. Rotate the black knob to ON state once; then number of mid-stroke 2 on the screen will increase to 100% by 1%. When reaching your acceptable percentage, rotate the black knob to Stop state and the red knob to Remote state and keep 3s, as shown in Fig. 68; the lower screen displays “Mid-stroke 2 is set”.

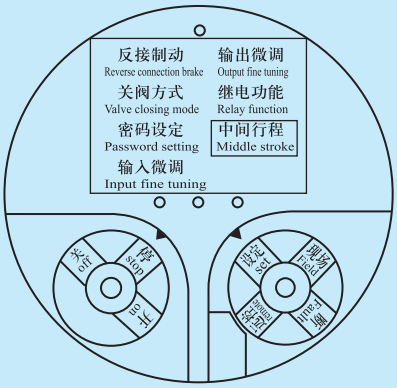


图66（Fig.66）

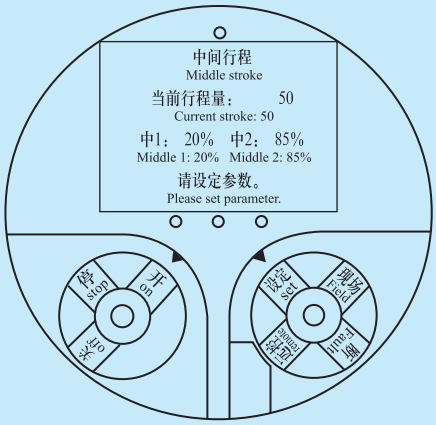


图67（Fig.67）

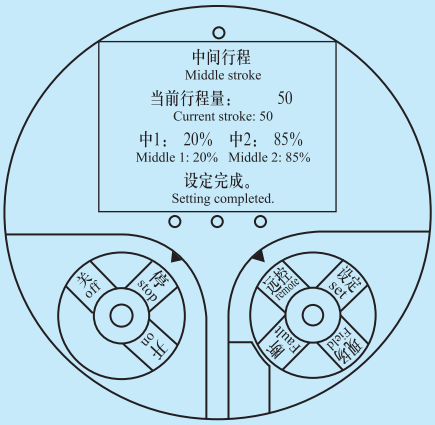


图68（Fig.68）

旋钮功能说明：

进入中间行程设定页面，黑色旋钮上关、开的作用分别表示中1、中2位置设定键，红色旋钮上现场、远控的作用分别为中1、中2设定的确定键。

中间行程设定完成后，进入断开页面，具体详见4.4电动操作。

5.18 转矩控制器调整设定

转矩控制器开关在输出轴的两个旋转方向上各有一只。每台电动执行机构的设置转矩及转矩最小/最大范围出厂时均已按用户订单的要求进行调整设定，如用户订单无要求则在出厂时设定在最小转矩上。

如果需要，用户也可以自已在转矩范围内进行调整设定，调整时只要旋转图1中的件4.1（4.2）即可：当电动执行机构为右旋时（出厂默认值），调整调节件4.1为开向转矩，顺时针旋转转矩变小，逆时针旋转转矩增大。调整调节件4.2为关向转矩，顺时针旋转转矩增大，逆时针旋转转矩变小；当电动执行机构为左旋时，调整调节件4.1为关向转矩，逆时针旋转转矩增大，顺时针旋转转矩变小，调整调节件4.2为开向转矩，逆时针旋转转矩变小，顺时针旋转转矩增大。

Functions of knobs:

Enter setting screen of mid-stroke, OFF and ON of the black knob are setting key of mid-stroke 1 and mid-stroke 2; Field and Remote of the red knob are OK key of mid -stroke 1 and mid-stroke 2.

After mid-stroke is set, enter Break screen, see 4.4 electric operation for details.

The 5.18 torque controller to adjust the settings

Torque controller switch on the output shaft of the two directions of rotationEach one. Each electric actuator set torque andTorque and minimum / maximum range when the factory have according to user's orderRequirements adjust settings, such as customer order requirement in theFactory set at the minimum torque.

If desired, the user can own in torque rangeAdjust settings, adjusted by rotating the figure 1 in part 4.1(4.2) can be: when the electric actuator for the right (aFactory defaults), adjusting element 4.1 is open to the torque, ShunClockwise rotation torque is small, the counterclockwise rotation torque increases. AdjustableThe adjusting element 4.2 is close to the torque, rotating clockwise torque increaseLarge, coun -terclockwise rotation torque is small; when the electric actuator forSinistral, adjusting element 4.1 is close to torque, counterclockwiseRotary torque increases, clockwise rotation torque is small, adjustment ofSection 4.2 is open to the torque, the counterclockwise rotation torque is small, ShunClockwise rotation torque increases.

转矩调整值为13档，分档调整，最大转矩整定在第13档上。

在调整中不得调整紧固件3的内六角螺钉，否则将会改变出厂时电动执行机构的设定参数。

Torque adjustment values for the 13 gear, profile adjustment, the maximum torqueTuning in thirteenth archives.

In the adjustment of do not adjust the fastener 3 inner six angle screws,It will change the factory electric actuator configuration parameters.

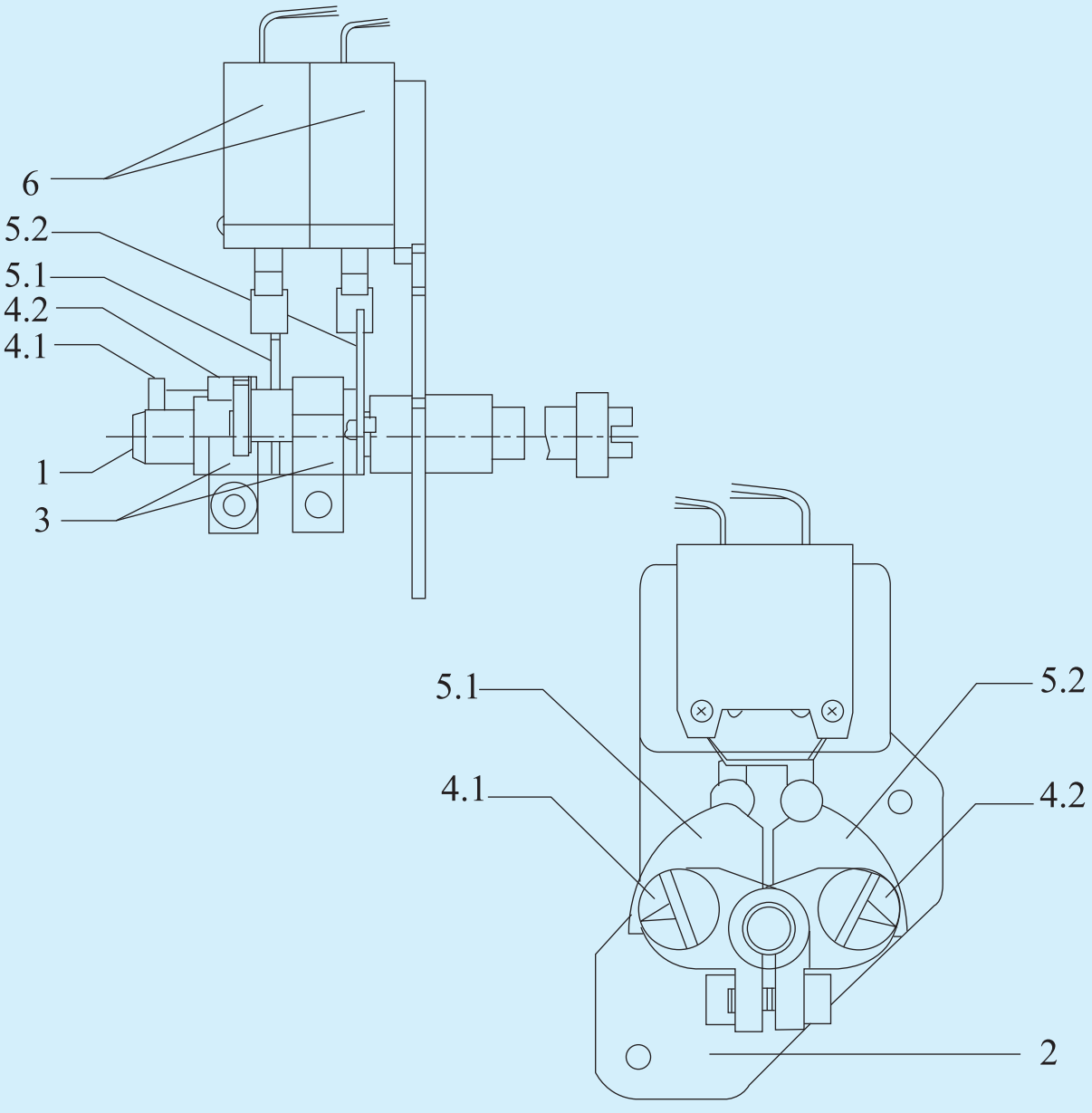


图69　转矩控制器

Fig69 Torque controller

1.轴　2.底座　3.紧固件　4.1调节件　4.2调节件　5.1凸轮盘　5.2凸轮盘　6.转矩控制器开关

1 axis　2 base　3 fasteners　4.1 adjusting component　4.2 adjusting component　5.1 cam　5.2 cam　6 torque controller switch

六、维护及保养

6.1 常规维护应包括如下内容：

- 检查执行机构与阀门之间的固定螺栓是否紧固。
- 确保阀杆与驱动轴套的清洁和润滑。
- 检查并立即更换外部损坏零件。玻璃窗口如果破碎，整个外盖应全部更换。

在对电动执行机构进行维修保养前应保证切断电源，并采取必要的安全措施，以保维修保养安全进行。

6.2 润滑材料的检查及加注周期

每次拆下盖子或其它外部零件时，均应对密封件进行检查，如有损坏应更换，同时应检查或加注润滑材料。

对于正常使用条件下，按下述推荐周期进行检查及润滑。若处于较频繁的使用条下，其周期也要相应缩短。

6.3 维护周期

6.3.1三个月运行周期

一般情况下，通常三个月左右进行一次例行检查

- 检查规定的技术参数；
- 检查电动执行机构的运行情况（如振动、噪音等）；
- 检查紧固零件（如螺栓）是否松动；
- 检查外观是否有油渗漏；
- 检查输出运动部件的润滑情况。

6. Maintenance

6.1 Regular maintenance should include:

- Check the fixing bolts between actuator and valve are tight;
- Keep valve stem and drive sleeve clean and well lubric -ated;
- Check external damaged parts and replace them immed -iately when necessary; replace the whole external cover if the glass window is broken.

Before maintenance of the electric actuator, power must be cut off, and necessary safety measures should be taken to ensure safety of maintenance.

6.2 Inspection and filling period of lubricating material

Whenever removing cover or other external part, seals should be checked and replaced if damaged; lubricating materials should be checked and filled.

Under regular service condition, check and fill lubricating material according to the following periods. If it is used frequently, the period will be shortened accordingly.

6.3 Maintenance period

6.3.1 Operate 3 months

Generally, routine inspection is required every 3 months.

- Check the specified technical parameters;
- Check operation condition of the electric actuator (i.e. vibration, noise etc);
- Check if tightening parts (i.e. bolt) are loose;
- Check if the surface leaks oil;
- Check lubricating condition of the output moving parts.

6.3.2 三年运行周期

● 在第一次满三年运行周期时，调节型电动执行机构应更换减速箱内润滑油并对执行机构进行全面的检查维护，应由具备检修能力的工程技术人员承担此项工作；

● 开关型电动执行机构应根据实际使用情况，确定是否更换减速箱内润滑油；

● 更换齿轮（蜗轮、蜗杆箱）箱内的润滑油，要按正确数量，不能过多，否则将会引起齿轮箱内温度异常升高，并导致密封性能降低。应对润滑油高度进行检查，其油平面至箱体上部表面的距离应为20至24mm；

● 在电机减速齿轮部分的润滑脂与其使用寿命是一致的，只有在重新拆装此部分时才需要更换新的润滑脂。

● 如果电动阀门很少运行，应制订一个运行计划。

6.3.2 Operate 3 years

● After the adjusting type electric actuator operates initially for 3 years, the lubricating oil in its reduction box should be replaced and the actuator should be checked and maintained thoroughly by a engineering technician competent for such maintenance task;

● For ON-OFF type electric actuator, the lubricating oil in its reduction box will be replaced according to actual conditions;

● Replace the lubricating oil in the gear box (worm wheel, worm box). The replacing amount should not be too much; otherwise, temperature of the gear box will rise abnormally and its sealing performance will decrease. Check level of lubricating oil; the distance from oil level to upper surface of the box should be 20~24mm;

● Service life of the lubricating grease on the reduction gear of motor is the same as that of the part; the grease will be replaced only when this part is reassembled.

● If the electric valve seldom operates, an operation plan should be made.

七、故障处理

电动执行机构出现故障，在不打开箱盖的前提下，通过液晶显示屏的故障显示即可实现故障的快速诊断。

执行机构故障显示和处理方法

（1）动力电源接通后，但执行机构液晶显示屏不亮

检查三相电源是否正常，且与铭牌上标称的电压相符。测量执行机构接线端子U、V、W间的相电压。

（2）电源缺相显示

执行机构的液晶显示屏下方的符号由“∴”或“∵”转变为“：”，表示执行机构电源缺相，检查电源。

7. Trouble-shooting

In case of any failure to the electric actuator, it can be found quickly according to failure display of LCD without removing the box cover.

Failure display and solution of the actuator

(1) After power on, LCD of the actuator doesn’t light up Check if the 3-phase power is proper and conforms to voltage of the nameplate; measure phase voltage of wiring terminal U, V and W of the actuator.

(2) Open phase display

When the sign on lower LCD of the actuator changes from “∴” or “∵” to “ : ”, it means the actuator is open phase, and you need to check power.

（3）电机过热显示

执行机构的液晶显示屏右侧的符号由空白转变为“  ”，表示电机过热，可将执行机构停止运行，待电机冷却后，电机线圈内的热保护开关可自动恢复。再次运行执行机构。

（4）过力矩显示

执行机构的液晶显示屏右侧的符号由空白转变为“≯”，表示阀门开向卡死，已开向过力矩。如显示“≮”，表示阀门关向卡死，已过关向力矩。请检查阀门机械装置或设定的开、关力矩的百分比是否合适。

（5）自动相序指示

当电源正相序时，液晶显示屏右上角显示“∴”。逆相序时，显示“∵”但此时相序纠正功能已启动，执行机构仍能正常运行。

（6）故障代码

(3) Motor overheat display

When the sign on the right LCD of the actuator changes from blank to “  ”, it means the motor overheats. You may stop the actuator. After the motor is cool, the thermal protection switch in the motor wire will operate again automatically and you may operate the actuator again.

(4) Carry-over moment display

When the sign on the right LCD of the actuator changes from blank to “≯”, it means opening direction of the valve is blocked, and the opening direction is of carry-over moment. If the sign is “≮”, it means closing direction of the valve is blocked, and the closing direction is of carry -over moment. Please check mechanical device of the valve and if the set percentages of opening and closing moments are proper.

(5) Automatic phase indicator

When power is of positive phase sequence, the upper right LCD displays “∴”. When at negative phase sequence, it displays “∵”; in such case, phase correction function is started, and the actuator can still operate normally.

(6) Failure code

故障号及排除方法

Failure Code and Solution

故障号 Failure code	故障产生原因 Cause	故障排除方法 Solution
E1：1＃故障 E1:1# failure	关向：关阀10秒编码器不变化 Closing direction : coder doesn't change 10s after closing the valve	检查输出轴、电机是否转动，接触器是否吸合 Check if output shaft and motor rotate and if contactor works
E2：2＃故障 E2:2# failure	开向：开阀10秒编码器不变化 Opening direction : coder doesn't change 10s after opening the valve	
E3：3＃故障 E3:3# failure	关向过力矩 Carry-over moment of closing direction	检查输出轴、阀门是否卡死。 Check if output shaft and valve are blocked
E4：4＃故障 E4:4# failure	开向过力矩 Carry-over moment of opening direction	
E5：5＃故障 E5:5# failure	旋转方向错误 Error of rotating direction	重新确定旋转方向 Confirm the rotating direction again
E6：6＃故障 E6:6# failure	电机过热 Motor overheat	负载过大，或电装选型不匹配 Overload, or model doesn't match
E7：7＃故障 E7:7# failure	电源缺相 Open phase	检查输入电源是否符合 Check if input power conforms
E8：8＃故障 E8:8# failure		
E9：9＃故障 E9:9# failure	模拟量输入断线 Break of analog input	检查输入电流是否正确 Check if input current is correct
E10：10＃故障 E10:10# failure	力矩信号断线 Break of moment signal	检查力矩开关接触是否良好 Check if contact of moment switch is good
E11：11＃故障 E11:11# failure	开关阀指令同时输入 Orders of opening and closing valve are input simultaneously	检查远控信号是否正确 Check if remote control signal is correct
E12：12＃故障 E12:12# failure	开关阀位置设定错误 Opening and closing positions of the valve are set incorrectly	重新设定开、关行程位置 Set positions of opening and closing stroke again
E13：13＃故障 E13:13# failure	开向、关向过力矩接点同时动作 Carry-over moment junctions of opening and closing directions act simultaneously	检查力矩开关接触是否良好 Check if contact of moment switch is good
E14：14＃故障 E14:14# failure	力矩关：关向力矩开关失效 Moment switch: moment switch of the closing direction fails	检查力矩开关接触是否良好 Check if contact of moment switch is good
E15：15＃故障 E15:15# failure	模拟量输入＞22mA Analog input ＞22mA	检查输入电流是否正确 Check if input current is correct

电动执行机构控制方式有现场控制、远程控制两种形式。

现场控制：当红色旋钮处于现场位置时，就可通过黑色旋钮实现电动执行机构的打开、关闭和停止功能。

远程控制：当红色旋钮处于远控位置时，就可通过接线端子实现电动执行机构的打开、关闭和停止功能。

远程控制的电源为24V直流（内部已提供）。控制信号的电压为：Von＞20V，VOff＜1.5V。

通过设定功能可设定以下远控方式：

Control modes of the electric actuator are field control and remote control.

Field control: when the red knob is at Field position, the electric actuator can be turned on, off or stopped by the black knob.

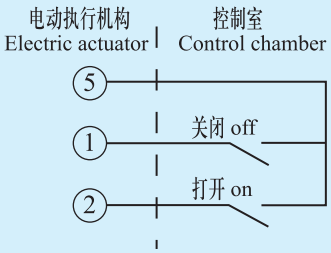
Remote control: when the red knob is at Remote position, the electric actuator can be turned on, off or stopped by the wiring terminal.

Power of remote control is 24V DC (to be provided internally). Voltage of control signal: Von＞20V，VOff＜1.5V.

The following remote control mode can be set by setting function:

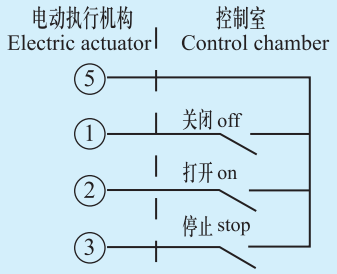
（1）点动：点动打开、关闭控制，信号应持续到开关到位。

Point: point on / off control, signal should continue until the switch position.



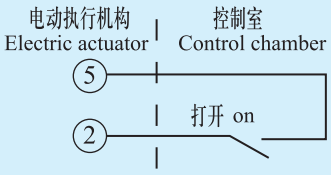
（2）自保持：带自保持的打开、停止、关闭控制，信号应持续500ms以上。

Self holding: with self maintaining open / stop / off control, signal should be continued for more than 500MS



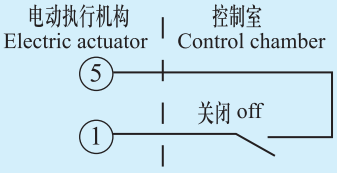
（3）双线开：两 根线单个干接点控制，接点闭合时打开，断开时关闭。

Double open: two lines of single point control, contact closure when open, open close



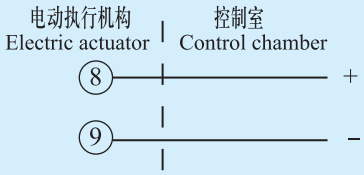
（4）双线关：两 根线单个干接点控制，接点断开时打开，闭合时关闭。

Double pass: two lines of single dry contact control, open contact is opened, closed closed.



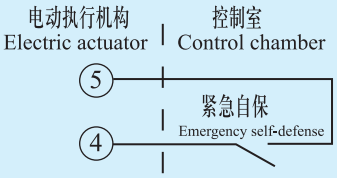
（5）模拟量：可接收4　20mA电流信号，并根据电流值来确定阀位。

Analog : can receive 4-20MA current signal, and according to the current value to determine the valve position.



（6）紧急自保：可超越其他控制信号（无论电动执行机构处于何种控制方式）强制执行（动作取决于事先设定），此信号应一直维持到动作完成。

Emergency self-protection: beyond the other control signals (regardless of electric actuator in the control mode)
Compulsory execution (movement depends on prior setting), the signal should be maintained to finish.



注：1.图中8,9为调节型模拟量输入，开关型无此端子；

2.紧急自保用于事故状态下的紧急处理，它无论在断开、现场、远控状态下均起作用，并且忽略电机热保护故障，控制优先级为最高。在默认状态下设置为“保持原位”。

3.开关型可实现远控方式（1）（2）（3）（4）（6），调节型可实现远控方式（1）（2）（5）（6）。

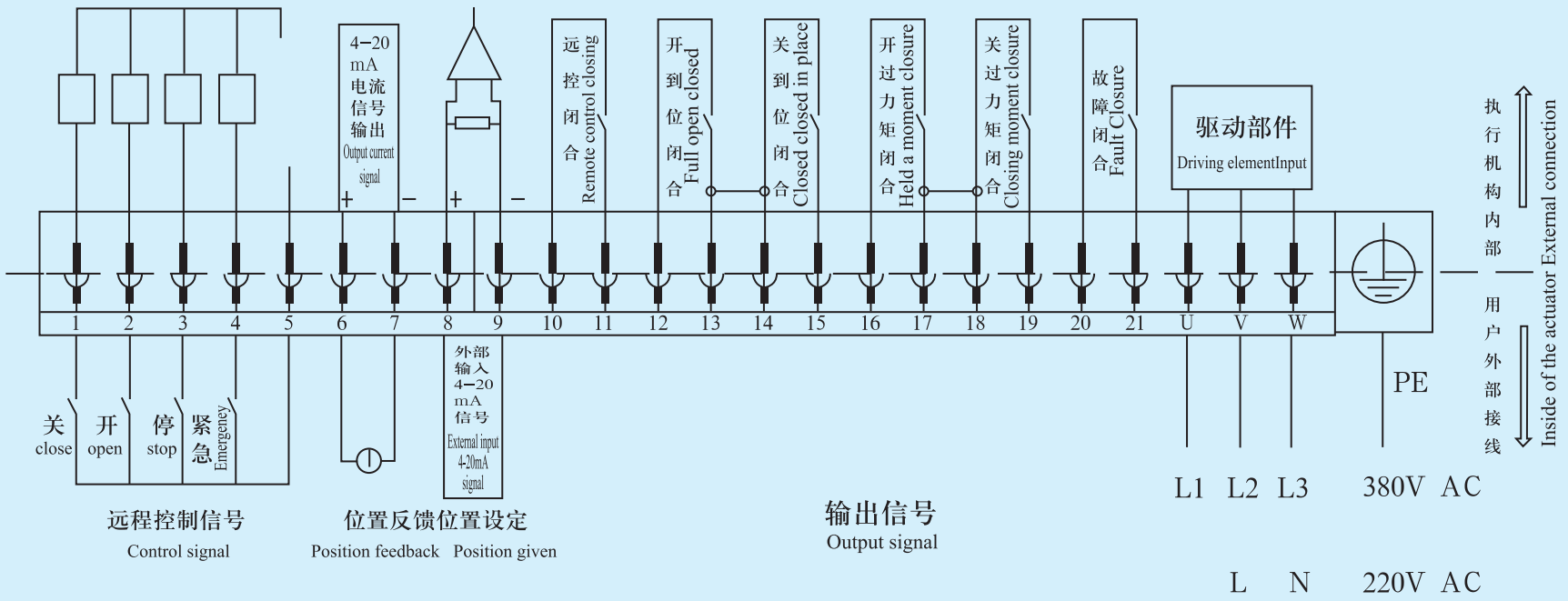
Note: 1. In the above figure, 8 and 9 are analog input of adjusting type actuator, and ON-OFF type has no such terminals.

2. ESD is for emergency handling in case of any accident. It works whether in Break, Field or Remote state and ignores thermal protection failure of the motor, and its control priority is the highest. Its default state is “Keep original position”.

3. ON-OFF type actuator can realize remote control modes (1) (2) (3) (4) (6); adjusting type actuator can realize control modes (1) (2) (5) (6).

八、电气原理接线图

8、Electric Wiring Diagram



(1) 开关量操作的电源为24VDC，用户只需提供无源接点。

(2) 继电器输出信号容量（3A/250V)。

(3) 驱动元件为接触器。

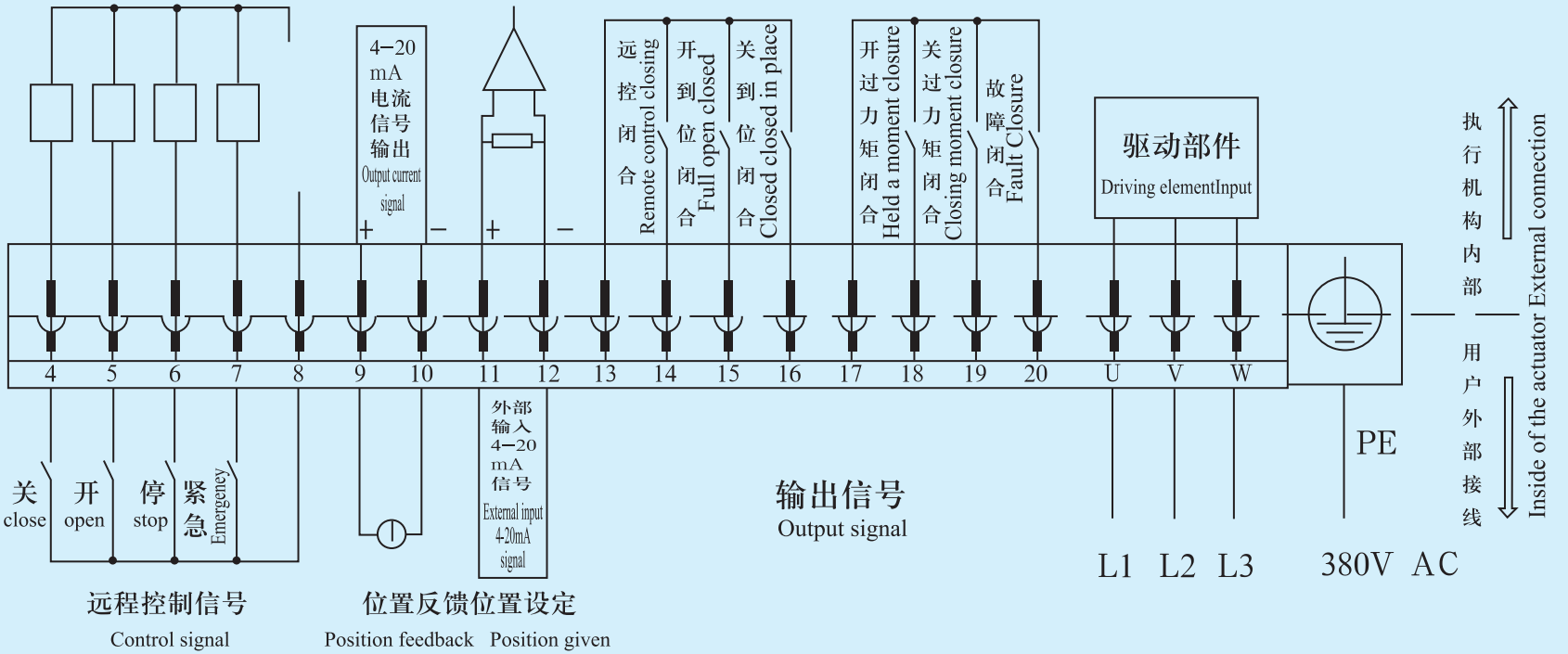
(1) Power of switching value operation is 24VDC. Users will provide electrical independent contact only.

(2) Following the opening of output signal capacity (3S / 250V)

(3) Driving device for contactor

附图一 JDF–□电动执行机构电气接线图

Figure 1 Electric Wiring Diagram of JDF-□Electric Actuator



(1) 开关量操作的电源为24VDC，用户只需提供无源接点。

(2) 继电器输出信号容量（3A/250V)。

(3) 驱动元件为接触器。

(1) Power of switching value operation is 24VDC. Users will provide electrical independent contact only.

(2) Following the opening of output signal capacity (3S / 250V)

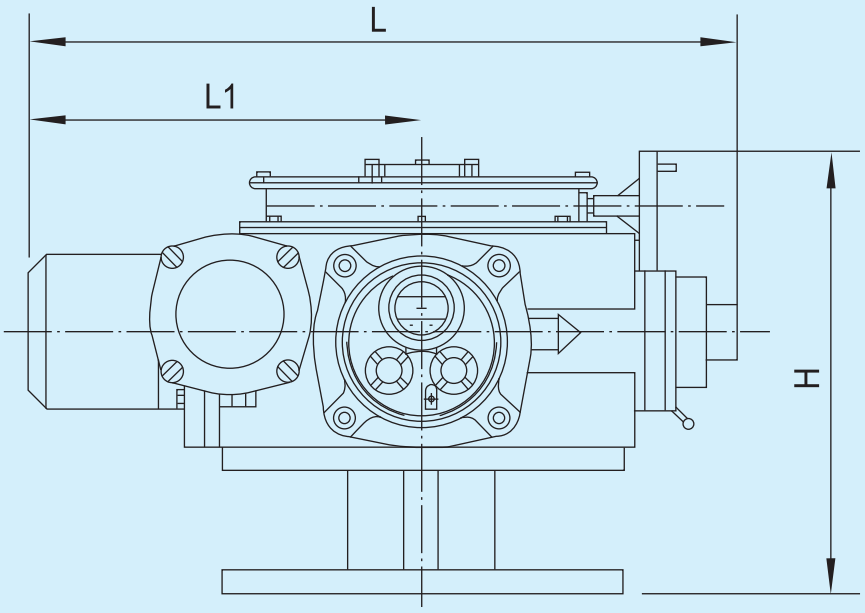
(3) Driving device for contactor

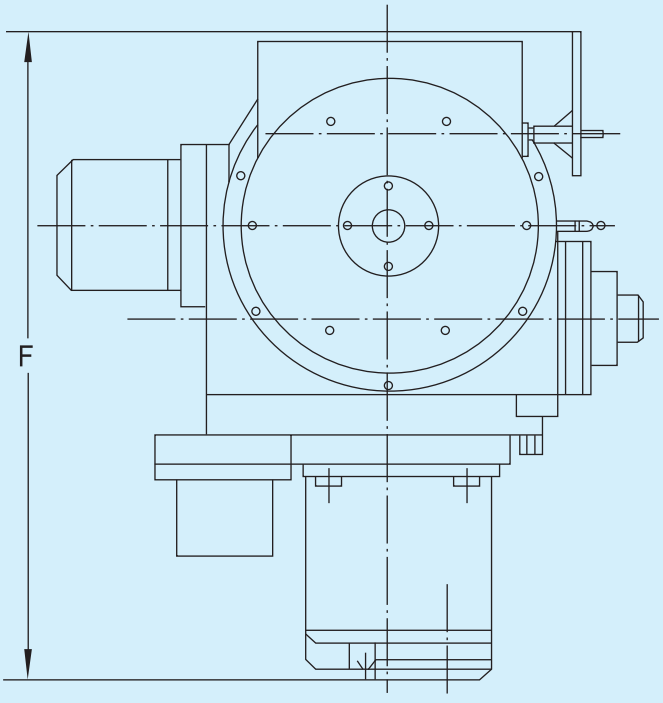
附图二 JDF–□防爆电动执行机构电气接线图

Figure 2 Riot Electric Wiring Diagram of JDF-□Electric Actuator

附录（Appendix）

附录一 Appendix one





JDFZW180–500 外形图

JDFZW180-500 Outside Drawing

JDFZW型电动装置外形尺寸参数表

JDFZW type electric device dimension parameter table

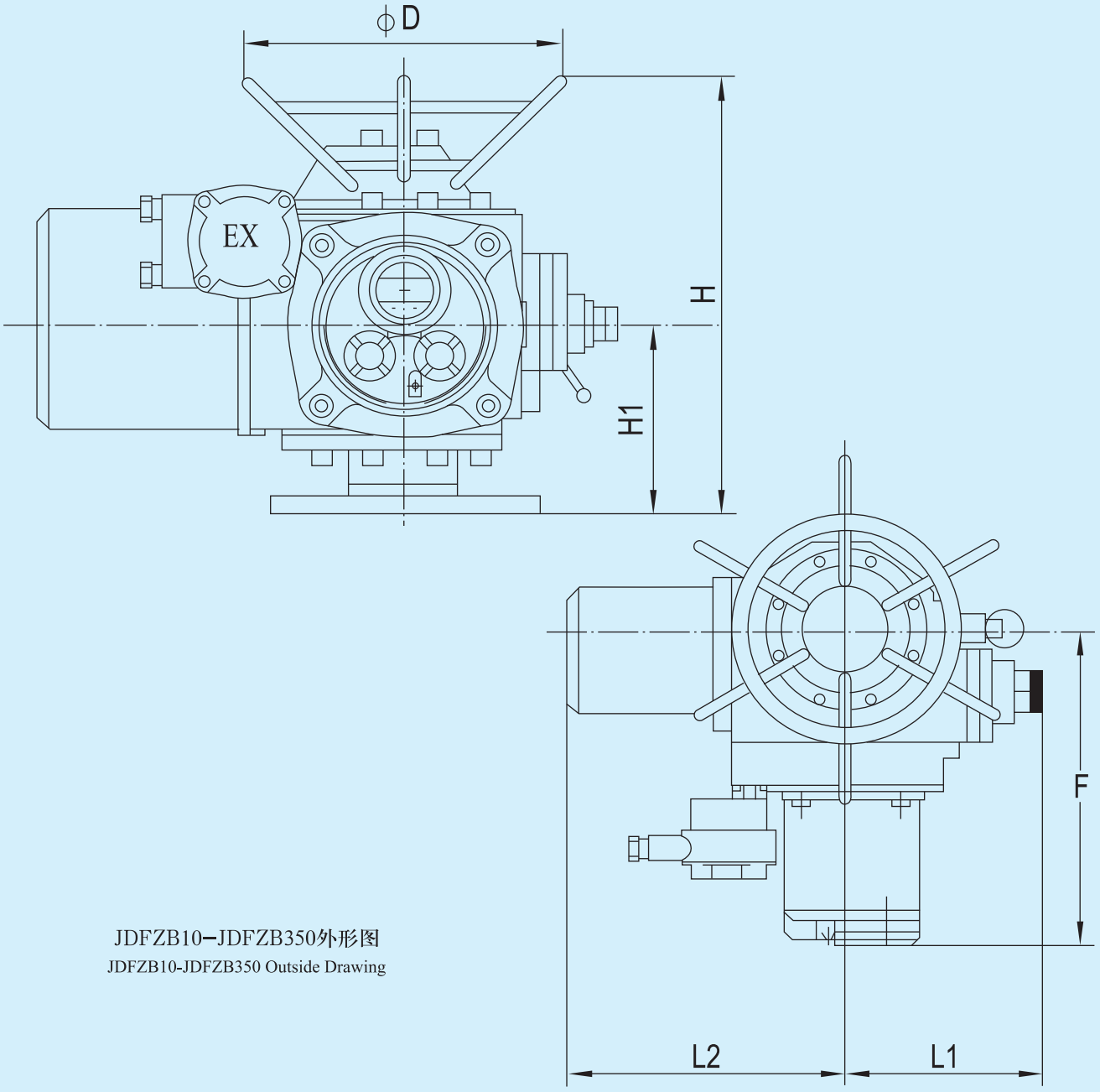
代号Code / 型号Model	H	L	L1	F
JDFZW5	325	400	600	380
JDFZW7.5				
JDFZW10	320	520	290	420
JDFZW15		530	300	
JDFZW20		555	325	
JDFZW30		595	365	
JDFZW45	450	675	385	450
JDFZW60		730	440	
JDFZW90		750	460	480
JDFZW120		780	490	
JDFZW180	610	810	500	680
JDFZW250				
JDFZW350		915	605	
JDFZW500				

附录一 Appendix one

JDFZB型电动装置外形尺寸参数表

JDFZB type electric device dimension parameter table

型号 Model	H1	H	L1	L2	F	ϕD
JDFZB10/JDFZB15	113	282	150	287-300	420	300
JDFZB20/JDFZB30	130	316	200	295-400	420	400
JDFZB45/JDFZB60	195	415	277	394-544	450	460
JDFZB90/JDFZB120	195	453	281	412-562	480	556
JDFZB180/JDFZB250/JDFZB350	250	585	320	474-609	680	320

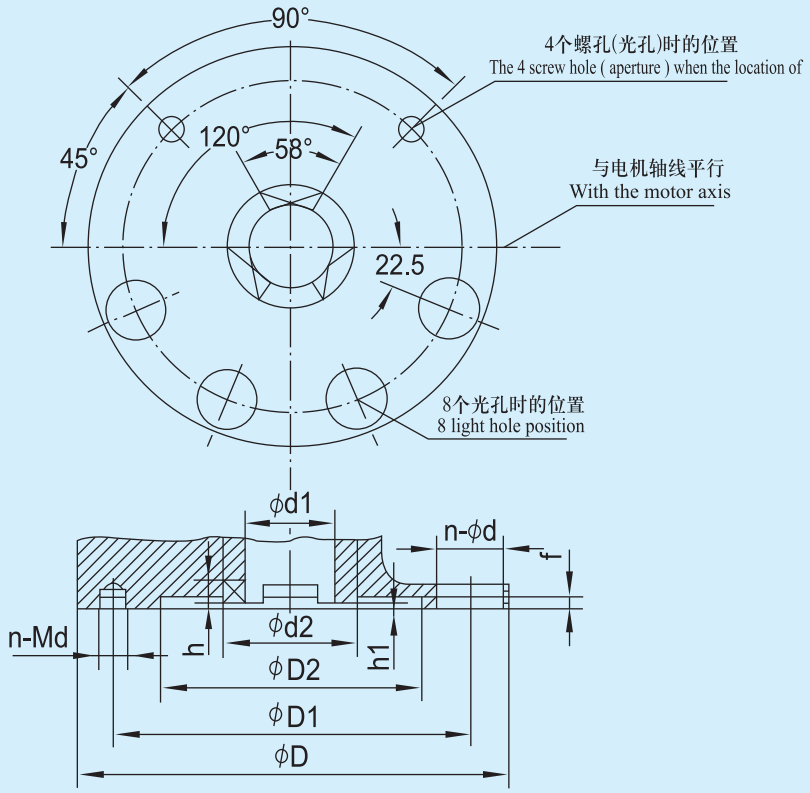


JDFZB10—JDFZB350外形图

JDFZB10-JDFZB350 Outside Drawing

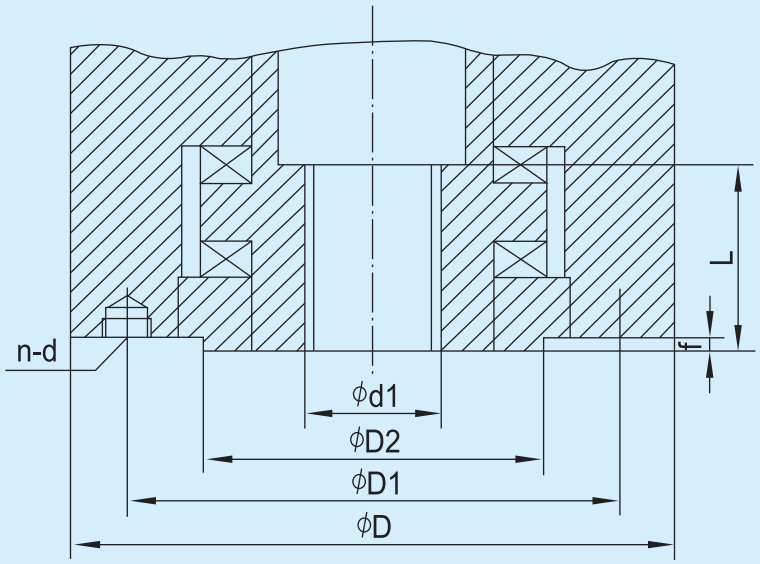
附录一：安装尺寸图

Appendix one： Size of installation



转矩型安装尺寸

Torque type mounting dimensions



推力型安装尺寸

Thrust type mounting dimensions

安装尺寸图

Size of installation

安装尺寸参数表 Installation size parameters

型号 Model	转矩型JB2920 Torque type JB2920											推力型GB12222 Thrust type GB12222								
	机座号 Frame size	D	D1	D2 (H9)	h1	f	h	d1	d2	d	n	法兰号 Flange size	D	D1	D2 (f8)	f	d1 max	d	L	n
JDFZW 5 7.5 10 15	2	145	120	90	2	4	8	30	45	M10	4	F10	125	102	70	3	T28	M10	40	4
	2I	115	95	75	2	4	8	26	39	M8	4									
JDFZW 20 30	3	185	160	125	2	4	10	42	58	M12	4	F14	175	140	100	4	T40	M16	55	4
	3I	145	120	90	2	4	8	30	45	M10	4									
JDFZW 45 60	4	225	195	150	2	5	12	50	72	ϕ18	4	F16	210	165	130	5	T48	M20	70	4
JDFZW 90 120	5	275	235	180	2	5	14	62	82	ϕ22	4	F25	300	254	200	5	T60	M16	90	8
	5I	230	195	150	2	5	12	50	72	ϕ18	4									
JDFZW 180 250	7	330	285	220	3	6	16	72	98	ϕ27	4	F30	350	298	230	5	T70	M20	110	8
JDFZW 350 500	8	380	340	280	3	6	20	80	118	ϕ22	8	F35	415	356	260	5	T75	M30	150	8

注 1．ZB型连接尺寸同ZW型连接尺寸相同。 Note 1 type ZB connected with ZW type connecting dimensions the same size.

2．(I)适用于电站阀门。 2 (I) applied to the power station valve.

附录二 Appendix two

JDFZW、JDFZB型阀门电动装置性能参数表

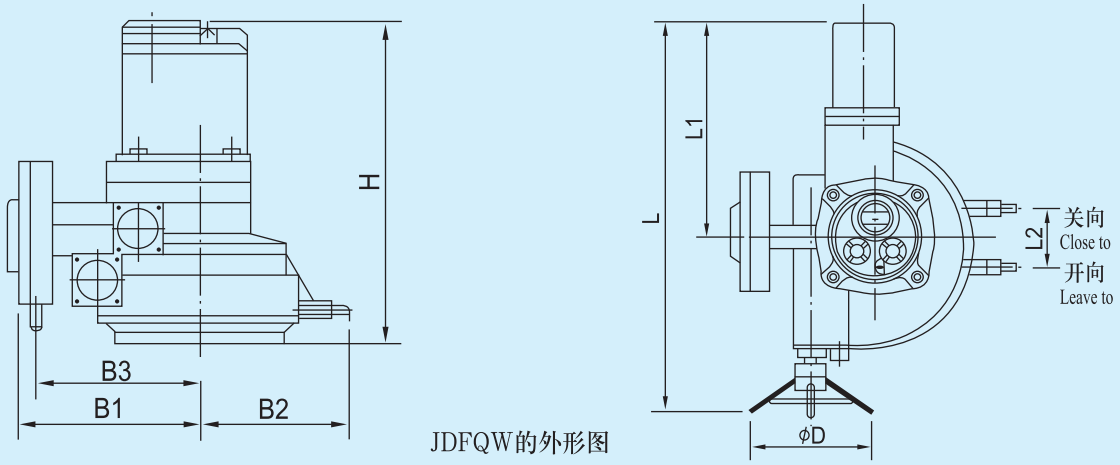
JDFZW, JDFZB type valve electric device performance parameters table

型号 Model	电机 Motor		输出速度r/min Output speed of R / min			公称推力 Nominal thrust KN	允许通过阀杆直径 Allowed to pass Stem diameter	最大转圈数 Maximum revolutions	手动速比 Manual speed	参考重量 Reference weight Kg
	功率 Power kw	电流 Current A	12	24	36					
			输出转矩 N•m Output torque							
JDFZW 5 7.5 JDFZB 5 7.5	0.09	0.6	50			20	28	50	1:1	25~26
	0.12	0.7	75				28			
JDFZW 10 30 JDFZB 10 30	0.25	1.3		100		40	28			55~65
	0.37	1.6		150	100		28			
	0.55	2.4		200	150	100	40			
	0.75	2.9		300	200		40			
JDFZW 45 120 JDFZB 45 120	1.1	3.4		450		150	48	120		130~140
	1.5	4.5		600	450		48			
	2.2	6.5		900	600	200	60			
	3	9		1200	900		60			
JDFZW 180 500 JDFZB 180 500	4	11		1800		325	70	150	25:1	225~310
	5.5	14		2500	1800		70			
	7.5	19		3500	2500	700	75			
	11	26		5000	3500		75			

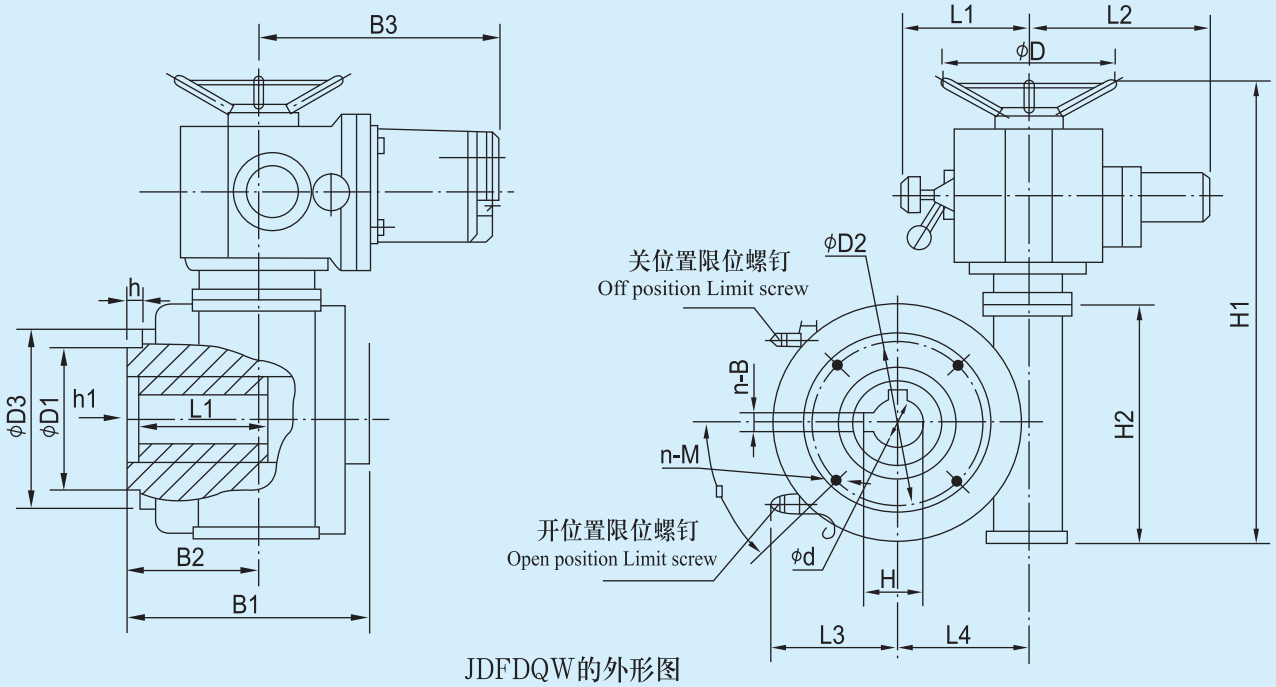
附录三 Appendix three

JDFQW、JDFQB的外形尺寸参数表
JDFQW, JDFQB dimension parameter table

尺寸 Size / 型号Model	B1	B2	B3	H	L	L1	L2	ϕD
10 JDFQW 30	211	100	150	360	420	253	70	200
10 JDFQB 30	300	100	250	360	420	253	70	200
60 JDFQW 120	256	150	195	385	550	330	110	360
60 JDFQB 120	346	150	295	385	550	330	110	360
200 JDFQW 500	286	180	225	448	625	365	150	500
200 JDFQB 500	376	180	325	448	625	365	150	500



JDFQW的外形图
JDFQW Outside Drawing

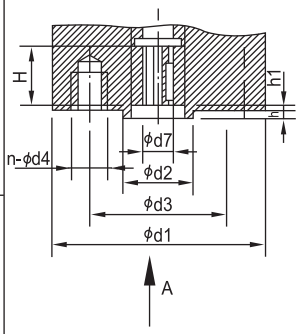
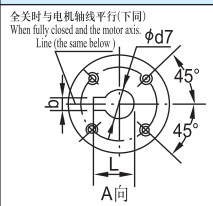
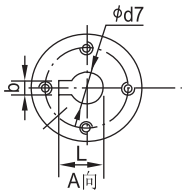
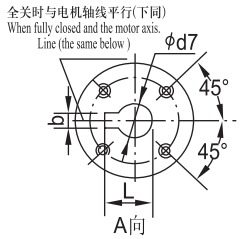
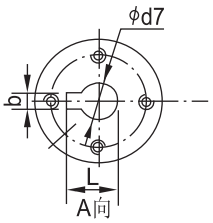
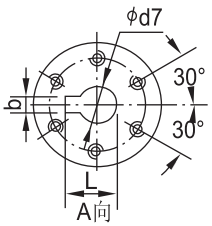


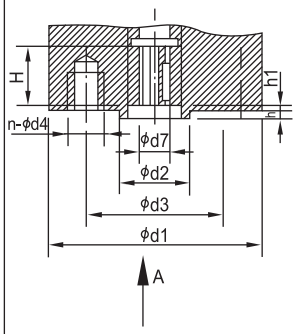
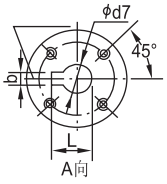
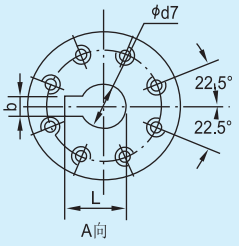
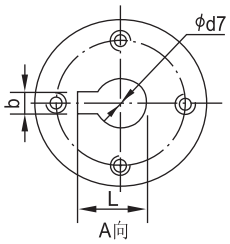
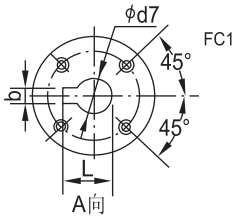
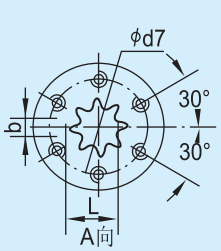
JDFDQW的外形图
JDFDQW Outside Drawing

附录三　Appendix three

JDFQW、JDFQB的连接尺寸

JDFQW, JDFQB connection dimensions

产品代号 Product Code	连接型式 Connection type	法兰螺孔形式尺寸 Flange bolt hole pattern and size														
		FA型 Type FA						FB型 Type FB					FC型 Type FC			
JDFQ1 JDFQB1																
		法兰型式 Flange type / 尺寸代号 Size code / 产品型号 Product model			d1	d2 (f8)	d3	n-d4	d7 标准尺寸 Standard Size	d7 预留尺寸 Reserve Size	d7 最大尺寸 Maximum Size	H	h	h1	b	L
		FA	F05	JDFQ5 JDFQ10	65	35	50	4-M6	/	10	22	40	3	3	/	/
		FA	F07	JDFQ20 JDFQ30	90	55	70	4-M8	/	15	28	45	3	3	/	/
		FA	F10	JDFQ30	125	70	102	4-M10	/		42	45	3	3	/	/
		FB	FB1	JDFQ10	77	0	57	4-M6	12.8	10	22	40	0	3	3	14.2
		FB	FB2	JDFQ20	92	0	70	4-M8	19	15	28	45	0	3	5	21.4
		FB	FB3	JDFQ30	115	0	89	4-M12	22.8	18	28	45	0	3	5	24.5
JDFQ2 JDFQB2																	
		法兰型式 Flange type / 尺寸代号 Size code / 产品型号 Product model			d1	d2 (f8)	d3	n-d4	d7 标准尺寸 Standard Size	d7 预留尺寸 Reserve Size	d7 最大尺寸 Maximum Size	H	h	h1	b	L
		FA	F10	JDFQ60	125	70	102	4-M10	/	15	42	65	3	3	/	/
		FA	F12	JDFQ90	150	85	125	4-M12	/	20	50	65	3	3	/	/
		FA	F14	JDFQ120	175	100	140	4-M16	/	20	50	65	3	3	/	/
		FB	FB1	JDFQ60	115	0	89	4-M12	28.6	20	42	65	0	3	8	31.9
		FB	FB2	JDFQ90 JDFQ120	140	0	108	4-M12	31.7	20	42	65	0	3	8	35
		FB	FB3	JDFQ120	197	0	159	4-M16	33.15	20	42	65	0	3	10	36.45
		FB	FB4	JDFQ120	197	0	159	4-M16	38.0	20	42	65	0	3	10	41.3
		FB	FB5	JDFQ120	197	0	159	4-M16	41.5	20	42	65	0	3	10	44.8
		FC	FC	JDFQ60 JDFQ90	170	110	140	6-M10	28	20	42	65	-7	3	8	31.3

产品代号 Product Code	连接型式 Connection type	法兰螺孔形式尺寸 Flange bolt hole pattern and size												
		FA型 Type FA			FB型 Type FB			FC型 Type FC						
JDFQ3 JDFQB3		全关时与电机轴线平行(下同) When fully closed and the motor axis. Line (the same below)  						 					
		法兰型式 Flange type / 尺寸代号 Size code / 产品型号 Product model			d1	d2 (f8)	d3	n-d4	d7 标准尺寸 Standard Size	d7 预留尺寸 Reserve Size	d7 最大尺寸 Maximum Size	H	h	h1	b	L
		FA	F14	JDFQ200	175	100	140	4-M16	/	20	60	80	3	2	/	/
				JDFQ250												
			F16	JDFQ300	210	130	165	4-M20								
				JDFQ400												
				JDFQ500												
			F25	JDFQ500	300	200	254	8-M16				100				
		FB	FB1	JDFQ250	197	0	159	4-M16	38	20	60	80	0	2	10	41.3
			FB2						41.3							44.7
			FB3	JDFQ300	275	0	216	4-M20	50.8	30	60	100	0	2	16	55.2
				JDFQ400												
				JDFQ500												
		FC	FC1	JDFQ250	170	110	140	6-M10	28	20	60	80	-6	2	8	31.3
			FC2	JDFQ250	215	135	165	6-M16	36	20	60	80	-6	2	7	42
				JDFQ300												
				JDFQ400												
			FC3	JDFQ500	300	200	254	8-M16	55	30	70	110	-6	2	16	62.2

说 明：

1．FA型法兰号为GB12223–89标准，它与国际标准ISO5211等同，建议用户优先选用，以便与国际接轨，便于产品打入国际市场。

2．FB和FC是为满足引进和特殊产品的配套。

3．表中“h”栏中“正数”表示凸止口，“0”表示平面，“负数”表示凹止口。

4．JDFQ3.JDFQB3中FC3螺孔的分布与FA中8螺孔的分布相同。

Explain.

1 FA type flange on the GB12223-89 standard, it with the international standard ISO5211 equivalent, suggest that users preferred, in order to conform with international, for products to enter the international market.

2 FB and FC is to meet the introduction and special products supporting.

Table 3" H" bar" positive" said convex rabbet plane expressed," 0"," negative" said concave rabbet.

4 JDFQ3.JDFQB3 FC3 hole distribution and FA 8 screw holes of the same distribution.

附录四 JDFQW、JDFQB型电装的主要性能参数表

Appendix four: JDFQW, JDFQB type of electric equipment of main performance parameters table

型号 Model	输出转矩 Output torque N•m	输出转速 Output speed r/min	最大阀杆直径 Maximum valve Rod diameter	叠加减速器 Superposition of reducer		配用z型电装型号 With Z type Electric model	电动机 Motor		手动速比 Manual Speed ratio	参考重量 Reference resources Weight	备注 Preparation of Note
				型号 Model	速比 Speed ratio		功率(KW) Power (KW)	额定电流（A） Rated current (A)			
JDFQW 5 JDFQB	50	1	22	/	/	/	0.03	0.3	88		整体式 The whole Body Type
		2					0.06	0.48			
JDFQW 10 JDFQB	100	1		/	/	/	0.06	0.48			
		2					0.09	0.60			
JDFQW 20 JDFQB	200	1	28	/	/	/	0.09	0.60			
		2					0.12	0.70			
JDFQW 30 JDFQB	300	1		/	/	/	0.12	0.70			
		2					0.18	0.95			
JDFQW 60 JDFQB	600	1	42	/	/	/	0.18	0.95	74		
		2					0.25	1.30			
JDFQW 90 JDFQB	900	1	50	/	/	/	0.25	1.30			
		2					0.37	1.6			
JDFQW 120 JDFQB	1200	1		/	/	/	0.37	1.6			
		2					0.55	2.4			
JDFQW 200 JDFQB	2000	0.5	60	/	/	/	0.37	1.6	67		
		1					0.55	2.4			
JDFQW 250 JDFQB	2500	0.5		/	/	/	0.55	2.4			
		1					0.75	3.0			
JDFQW 300 JDFQB	3000	0.5		/	/	/	0.55	2.4			
		1					0.75	3.0			
JDFQW 400 JDFQB	4000	0.5		/	/	/	0.55	2.4			
		1					0.75	3.0			
JDFQW 500 JDFQB	5000	0.5		/	/	/	0.75	3.0			

附录五 JDFDQW、JDFDQB的外形尺寸

Appendix five: JDFDQW, JDFDQB size

尺寸 Size / 型号 Model	B1	B2	B3	H1	H2	L1	L2	L3	L4	∅D
JDFDQW400	204	100	420	620	300	197	363	165	120	350
JDFDQB400	204	100	420	620	300	197	363	165	120	350
JDFDQW600	204	100	420	620	300	197	363	165	120	350
JDFDQB600	204	100	420	620	300	197	363	165	120	350
JDFDQW800	195	85	480	755	330	277	473	195	150	450
JDFDQB800	195	85	480	755	330	277	473	195	150	450
JDFDQW1000 JDFDQW1200	195	85	480	755	330	277	473	195	150	450
JDFDQB1000 JDFDQB1200	195	85	480	755	330	277	473	195	150	450
JDFDQW1600	252	125	480	915	400	277	437	265	180	450
JDFDQB1600	252	125	480	915	400	277	437	265	180	450
JDFDQW2000	252	125	480	946	400	283	526	265	180	500
JDFDQB2000	252	125	480	946	400	283	526	265	180	500
JDFDQW3200	310	150	680	1210	545	283	526	350	280	500
JDFDQB3200	310	150	680	1210	545	309	526	350	280	500
JDFDQW4000	310	150	680	1210	545	309	554	350	280	320
JDFDQB4000	310	150	680	1210	545	309	554	350	280	320
JDFDQW6300	390	190	680	1415	735	309	554	440	400	320
JDFDQB6300	390	190	680	1415	735	309	554	440	400	320
JDFDQW8000	390	190	680	1415	735	309	554	440	400	320

附录五 JDFDQW、JDFDQB型电装的接口尺寸

Appendix five: JDFDQW, JDFDQB type electric device interface size

尺寸 Size / 型号 Model	法兰号 Method of Orchid No.	∅D1 (f 8)	∅D2	∅D3	∅ d(H9)最大 d(H9) Maximum	h	h1	a°	单键或双键 Single or double bond n-B x H x L	花键 Spline n-b x∅d1 x∅d2 x L	n-M
JDFDQW 400/600 JDFDQB	F16	130	165	210	80	5	5	45°	1-22x85.4x95	8-8x42x48x95	4-M20
JDFDQW 800/1000 JDFDQB	F25	200	254	300	100	5	5	22.5°	1-28x106.4x 110	8-10x52x60x110	8-M16
JDFDQW 1600/2000 JDFDQB	F30	230	298	350	120	5	5	22.5°	2-32x127.4x 130	8-12x72x82x130	8-M20
JDFDQW 3200/4000 JDFDQB	F35	260	356	415	160	5	5	22.5°	2-40x169.4x 200	8-20x125x140x200	8-M30
JDFDQW 6300/8000 JDFDQB	F40	300	406	475	180	5	5	22.5°	2-45x190.4x 200	8-22x145x160x200	8-M36

注：法兰号为GB12223—89标准中的法兰号

Note: the flange for the gb12223-89 standard flange.

附录五 JDFDQW、JDFDQB型电装的主要性能参数表

Appendix five: JDFDQW, JDFDQB type of electric equipment of main performance parameters table

型号 Model	输出转矩 Output torque N•m	输出转速 Output speed r/min	最大阀杆直径 Maximum valve Rod diameter	叠加减速器 Superposition of reducer		配用z型电装型号 With Z type Electric model	电动机 Motor		手动速比 Manual Speed ratio	参考重量 Reference resources Weight	备注 Preparation of Note
				型号 Model	速比 Speed ratio		功率(KW) Power (KW)	额定电流（A) Rated current (A)			
JDFDQW 500 JDFDQB	5000	0.375	80	JW120	48	Z30-18/20	0.55	2.4	48		叠加式 Stack Plus Type
JDFDQW 600 JDFDQB	6000	0.375	80	JW120	48	Z30-18/20	0.55	2.4	48		
JDFDQW 800 JDFDQB	8000	0.44	100	JW150	54	Z45-24/20	1.1	3.4	54		
JDFDQW 1000 JDFDQB	10000	0.44	100	JW150	54	Z60-24/20	1.5	4.5	54		
JDFDQW 1200 JDFDQB	12000	0.44	100	JW150	54	Z60-24/20	1.5	4.5	54		
JDFDQW 1600 JDFDQB	16000	0.40	120	JW180	60	Z60-24/20	1.5	4.5	60		
JDFDQW 2000 JDFDQB	20000	0.40	120	JW180	60	Z90-24/20	2.2	6.5	60		
JDFDQW 3200 JDFDQB	32000	0.35	160	JW280	68	Z120-24/20	3.0	9	68		
JDFDQW 4000 JDFDQB	40000	0.26	160	JW280	68	Z180-18/20	4.0	11	1700		
JDFDQW 6000 JDFDQB	60000	0.26	160	JW400	68	Z250-18/20	5.5	14	1700		
JDFDQW 8000 JDFDQB	80000	0.26	160	JW400	68	Z250-18/20	7.5	19	1700		

精迪®
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