



**KENZO**<sup>®</sup>  
The Expert in Flow Control



智能型电动执行机构  
Intelligent Electric Actuator

宣传手册

<http://www.kenzochina.com>

肯佐控制设备(上海)有限公司  
Kenzo Control Equipment (Shanghai) Co., Ltd.

SHANGHAI · CHINA

# Workshop Glance 车间实况

CNC Machine, Horizontal machining center 数控机床、卧式加工中心



Large-scale Assembly Lines 规模化的组装流水线



Adequate inventory of parts 充足的零部件库存

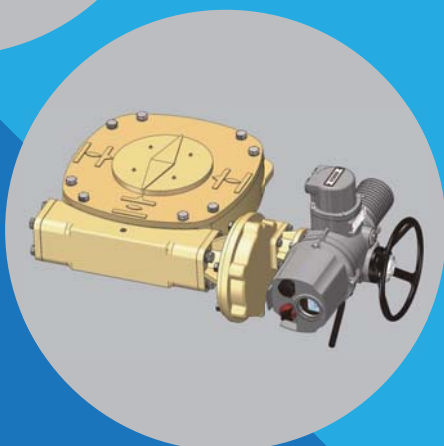


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## Company Profile 公司简介



肯佐控制设备（上海）有限公司-上海工厂  
KENZO - Shanghai Factory

肯佐控制设备（上海）有限公司是上海市优秀守合同重信用企业、上海市“专精特新”企业、“创业在上海”优胜企业、入围第九届中国创新创业大赛全国总决赛、荣获品牌网颁发的“2019年度中国角行程电动执行机构十大品牌”的荣誉称号；公司前身是上海奇忠控制设备有限公司，在行业内拥有近30年的持续经验。

上海肯佐成立于2015年，总部位于上海青浦，在全国拥有16个办事处；公司拥有2个大型现代化制造工厂，分别位于长三角一体化示范区：上海青浦、嘉兴嘉善，工厂占地70余亩；主要生产智能型电动执行机构及齿轮箱，建立了上海市企业标准《KZ/KZM系列智能型电动执行机构及防爆智能型电动执行机构》；公司研制的《600kNm超大扭矩智能型电动执行机构》的主要技术指标经行业学会鉴定为达到了国内领先水平。公司始终以“以质量求生存，凭科技促发展”为经营方针，凭借优异的技术实力和科学的管理模式得以稳健发展。

上海肯佐已先后通过ISO9001:2015国际质量管理体系认证、ISO14001:2015环境管理体系认证、ISO45001:2018职业健康安全管理体系认证、中石油以及中石化HSE管理体系认证、国家强制性产品（CCC）认证、欧盟CE认证、俄罗斯EAC海关联盟认证、德国TÜV南德意志认证集团颁发的功能安全（SIL3）认证、法国BV必维检验集团颁发的船级社认证、五星级售后服务认证、上海仪控所和国家级仪器仪表防爆安全监督检验站出具的型式试验报告及防爆认证，有效确保了产品质量满足用户需求。

目前，公司是中国核工业集团、国家管网、中国石化、中国石油、中国海油、中国电建、国家能源集团、中国华电、中国国电、上海电气集团、浙能集团、海螺集团、新疆天业、铜陵有色等大型国央企、上市公司的物资采购供应商。



## 肯佐控制设备（上海）有限公司-嘉兴工厂 KENZO - Jiexing Factory

Kenzo Control Equipment (Shanghai) Co., Ltd. is an outstanding contract abiding and trustworthy enterprise in Shanghai, a "specialized and innovative" enterprise in Shanghai, and a winning enterprise in "entrepreneurship in Shanghai". It was shortlisted in the national finals of the 9th China Innovation and Entrepreneurship Competition, and was awarded the honorary title of "Top Ten Brands of Electric Actuators in 2019 in China" by Brand Network; The predecessor of the company is Shanghai Kenzo Control Equipment Co., Ltd., with nearly 30 years of continuous experience in the industry.

Shanghai Kenzo was established in 2015, headquartered in Qingpu, Shanghai, with 16 offices nationwide; The company has two large modern manufacturing factories located in the Yangtze River Delta integration demonstration area: Qingpu, Shanghai, and Jiashan, Jiexing. The factory covers an area of more than 70 acres; It mainly produces intelligent electric actuators and gearboxes, and has established the Shanghai enterprise standard "KZ/KZM Series Intelligent Electric Actuators and explosion-proof Intelligent Electric Actuators"; The main technical indicators of the "600kNm Super Torque Intelligent Electric Actuator" developed by KENZO have been identified by the industry association as reaching the domestic leading level. KENZO is always pursuing "Quality for Survival, Technological Development" as the business policy, with excellent technical strength and scientific management mode to steady development.

Shanghai Kenzo has successively passed ISO9001:2015 certification, ISO14001:2015 certification, ISO45001:2018 certification, CNPC and Sinopec HSE certification, China national mandatory product (CCC) certification, European Union CE certification, Russian EAC customs union certification, functional safety (SIL3) certification issued by TÜV SUD Germany, the classification society certification by Bureau Veritas (BV) France, five-star after-sales service certification, the type test report issued by SITIIAS, and the explosion-proof certificates issued by NEPSI, effectively ensure that the product quality meets user needs.

Currently, KENZO is the supplier for large state-owned enterprises and listed companies such as China Nuclear Industry Group, National Pipeline Network Group, Sinopec, CNPC, CNOOC, Power China, National Energy Group, China Huadian, China Guodian, Shanghai Electric, Zhejiang Energy Group, Conch Group, Xinjiang Tianye, Tongling Nonferrous Metals Group, etc.

# Product Qualification 产品资质



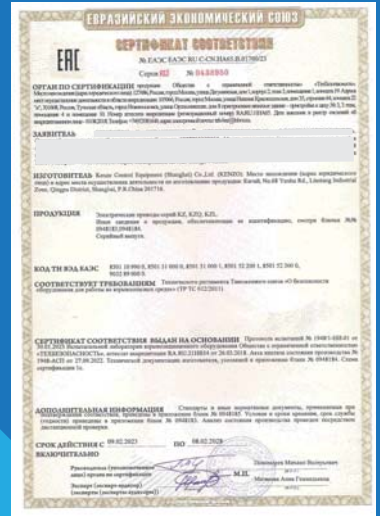
ISO Certification  
ISO管理体系认证



国家强制性CCC认证



国家强制性CCC认证



俄罗斯EAC认证



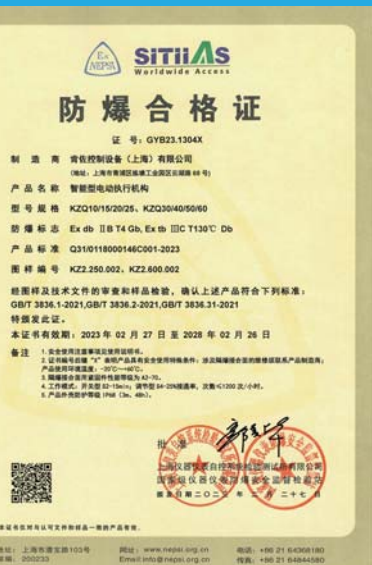
BV船级社认证



功能安全SIL3认证



欧盟CE认证



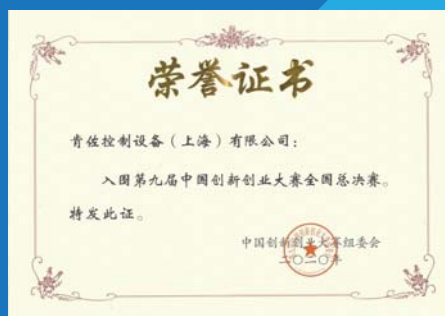
防爆认证证书

# Product Qualification

## 产品资质



User trusted brand  
用户可信赖品牌



Finalized for the National Competition  
入围全国总决赛



Outstanding units in the industry  
行业突出贡献单位



Council Members  
理事单位



CNNC Supplier  
中核集团合格供应商



Council Members  
理事单位



Shanghai Specialized, refined,  
and innovative enterprises  
上海专精特新企业



Winning Enterprise  
优胜企业



Excellent contract abiding  
and trustworthy enterprise  
优秀守合同重信用企业



Top Ten Brands in the Industry  
行业十大品牌

KENZO endeavors to provide professional solutions in oil & gas, power, water treatment & etc.  
肯佐执行器致力于石油化工、天然气、电力、冶金、水处理等市场的解决方案



KENZO's high quality relies on strict R&D, manufacturing, QC, service & customer satisfactory.  
肯佐执行器的高品质取决于工匠级的研发、生产、检测、售后服务及顾客满意度



# Multi-Turn Product Profile

## 多回转产品简介 - KZ

### KZ Series Basic Info 基本信息

肯佐KZ、KZM系列智能型电动执行机构是新一代产品。采用先进的大规模数字集成芯片，专业的数字力矩传感器、位移传感器，以及机电一体化结构设计；打造出完备的功能和优异的性能、轻巧美观、调试简单、操作方便。适合与各种阀门配套，应用于石油、天然气、电力、冶金、水处理等自动化控制系统中，既能满足频繁调节控制，又能满足断续控制的要求。

KENZO KZ&KZM series intelligent electric actuator adopts advanced large-scale digital integrated chips, professional torque sensor, displacement sensor, mechantronics design. It integrates complete function, high performance, fashion appearance, easy operation & debugging. Actuators mount with different valves to fulfill frequent regulating or intermittent control in oil & gas, power, metallurgy, and water treatment industry.



### Main Features 主要特点

- 采用高精度的大规模数字集成芯片、机电一体化设计、中英文菜单一键切换，结构精巧、操作简单方便。  
By using precise large-scale digital integrated chips, mechantronics design, easy to shift between Chinese & English menu.
- 双密封结构：在工程安装调试阶段，即使执行机构的接线端盖长期打开，由于端子盘与外壳间的第二级密封的存在，完全隔绝灰尘、潮气等进入电气壳体内部，使电气元件和控制电路免受侵蚀，提高了可靠性。  
Double-sealing structure: the second stage sealing can still prevent dust and moisture into the inside control units, even if the actuator's cover is open for long periods during installation & debugging. It protects the motor and control circuit from erosion and improves reliability.
- 非侵入式设计：1). 旋钮采用磁钢无接触控制干簧管，淘汰了传统的旋钮贯通轴。2). 采用手持式红外遥控器对执行机构进行免开盖的参数设置及功能操作，避免灰尘和潮气入侵。  
Non-invasive design: 1). The rotary knob use magnetic steel to contactless control the reed inside the electric shell, which eliminates the way of traditional knob through shaft. 2). The parameter is setup by infrared remote controller without opening the case.
- 位移传感器：采用先进的磁电绝对编码器检测阀位，输出轴带动磁电绝对编码器转动，定位精度的基本误差 $\leq 1\%$ ，由于获取的是阀位绝对信息，断电和干扰均不会造成阀位丢失。  
Displacement sensor: by using magnetolectricity absolute encoder to measure valve position. Its positional accuracy  $\leq 1\%$ , and power failure & disturbance have no influence on valve position memory because of its fetched absolute position data.
- 采用进口的压力传感器测量输出轴的力矩值，提高了力矩测量值的准确度，并可动态实时显示。  
Output torque measured by imported pressure sensor to improve the accuracy of measure results with dynamic display.
- 断电调试：在无外部电源供电情况下，调试菜单可被激活，进行开关限位设置等操作。  
The actuator can be activated for setup such as travel limit without outside power supply.
- 手动切换、电动优先：执行机构可手动和电动；失电时，手轮可应急操作，电机一旦运转电动优先。  
The actuator can be manual or motorised. During power failure, the handwheel can ensure emergency operation. The motor has higher priority compared to manual operation.
- 可变显示方位：就地显示窗可以变换不同方位，以适应执行机构的安装角度。  
Changeable display orientation: local display can transform to different directions to adapt the installation angle.
- 电机过热保护：低惯量、高转矩、设有过热保护的电机，启动后能迅速达到峰值扭矩。  
Motor overheating protection: low inertia, high torque, and overheating protection motor reaches its peak torque rapidly.
- 传动寿命：蜗杆在油浴槽内驱动蜗轮，最大限度提高传动寿命。  
Transmission lifetime: the worm gear drives the worm under oil bath to maximize its transmission lifetime.
- 可拆卸式推力底座：延长传动寿命、易拆卸，可与阀杆进行定制加工。  
Removable thrust base: lifetime increased, easy dismount, customized manufacturing according to valve stem.
- 模块化设计：电机轴与蜗杆轴相互独立，输出速度可根据工况进行选配。  
Modular design: the motor shaft and the worm are mutual independent to fit for customized output speed.
- 防爆结构设计根据：GB3836.1-2000和GB3836.2-2000有关规定要求设计的隔爆性产品，隔爆标志为ExdIICT4。适用于含有II A、II B、II C、T1~T4级爆炸性混合物的1、2工区环境，大气压力86 KPa~106KPa，环境温度-20℃~+60℃。  
According to GB3836.1-2000 and GB3836.2-2000, the explosion proof design is Exd II CT4. It fits for explosive mixture with II A, II B, II C, T1~T4 under zone 1&2 environments, atmosphere pressure 86 KPa ~ 106KPa, ambient temperature: -20℃ ~ +60℃.
- 基于物联网技术的智能型电动执行机构，取代了传统的现场布线，对网络覆盖区域内执行机构进行远程控制并诊断。  
By using Internet of Things based actuators, they are controlled and diagnosed via Internet without physical signal connection.

## Main Function 主要功能

- 遥控器设定功能
- 状态指示触点功能
- 电机过热保护
- 电池电量低保护
- 触点方式选择功能
- 力矩旁路设置功能
- 就地控制点动/自保持选择
- 行程限位保护功能
- 堵转报警功能
- 内部系统故障保护
- 附加指示触点功能
- 条件控制设置功能
- 执行机构显示功能
- 过力矩报警功能
- 内电源故障保护
- 电源缺相、掉相保护
- 外部联锁设置功能
- ESD超越保护功能
- 当前阀位信号丢失保护
- 力矩保护功能
- 控制报警功能
- 就地接线故障报警
- 中断设置功能
- 两线控制设置功能

## Basic Parameter 基本参数

- Power Supply 供电电源：
  - Three Phase four Wire 三相四线制：380V/400V/415V/525V/600V, 50/60Hz±5%
  - Single Phase Two Wire 单相两线制：220V±10%, 50/60Hz±5%
- Operation Mode 工作模式：
  - On-off Type 开关型：短时工作，S2—25% Success Rate 接通率
  - Regulating Type 调节型：断续工作，S4—50% Success Rate 接通率，Frequency 次数≤1200 cycle/hour 次/小时
- Input, Output Signal 输入、输出信号：
  - 1) Switch Quantity 开关量：pulse width 脉宽≥150ms open, close, stop 开、关、停
  - 2) Analog Quantity 模拟量：4~20mA.DC Load impedance 负载阻抗≤750Ω
  - 3) Fieldbus 现场总线（Optional 可定制，如Modbus, Profibus, HART, FF等）
- Basic Error 基本误差（Regulating 调节型）：
  - 1) Multi-Turn 多回转（Travel 行程≥3 turns 圈）Error 误差≤1%
  - 2) Quarter-Turn 角行程 Error 误差≤1%
  - 3) Linear 直行程（Travel 行程≥25mm）Error 误差≤1%
- Deadband Control 控制死区（Regulating 调节型）：
  - Default Setting 默认设置为1.0% (0.1%~9.9% Adjustable 可调)
- Midway Limit 中途限位：
  - Open Limit Range 开限位设置范围为：40%~100% (1%~99%)
  - Close Limit Range 关限位设置范围为：0%~60% (1%~99%)
- Enclosure Protection 防护等级：IP68 (Standard 标配, 48 hours submerged under 3 meter water 可在3米深水下工作48小时)
- EMC Performance 性能：Conform to EN61800 Part III
- Restricted operation duration 禁止运行时间：0~99s Adjustable



- Explosion Level 防爆等级：
  - 1) Remote controller intrinsic safety type 遥控器本安型 ib II CT4 Gb
  - 2) Actuator explosion proof 执行机构为隔爆型 d II CT4 Gb
- Interval 间隙：
  - 1) KZ/KZM Multi Turn Actuator 多回转电动执行机构 ≤1°
  - 2) KZ/KZM Quarter Turn Actuator 角行程电动执行机构 ≤1°
  - 3) KZML Linear Actuator 直行程电动执行机构 ≤1mm
- Output Contact 输出触点：250V.AC, 5A；30V.DC, 5A
- Ambient Temperature 使用环境：
  - 1) Ambient Temperature 环境温度：
    - Standard 标准型：-30°C~80°C；
    - Explosion Proof Type 防爆型：-20°C~60°C；
    - Split Type 分体安装型：-30°C~100°C；
  - 2) Relative Humidity 相对湿度：5%~98%；
  - 3) Atmosphere Pressure 大气压力：86~106kPa；
- Anti-Interference Performance 抗干扰指标：
  - 1). external magnetic field 外磁场：≤400A/m, 50Hz
  - 2). common mode interference 共模干扰：250V, 50Hz
  - 3). serial mode interference 串模干扰：effective value 1V, AC signal frequency 50Hz, phase position 0~360° 有效值为1V的交流信号频率为50Hz，相位0~360°
  - 4). electrostatic discharge 静电放电：4kV
  - 5). electrical instantaneous pulse 电快速瞬态脉冲群：power side 电源端1000V；input signal side 信号输入端：500V
  - 6). radio-frequency interference 射频干扰：
    - frequency 频率80~1000MHz,
    - test field intensity 试验场强3V/m, distance 距离1m
  - 7). surge interference 浪涌干扰：1kV

## Product Category 产品分类



KZ 多回转执行机构：17Nm~3000Nm 适用于闸阀、截止阀  
 KZ 多回转执行机构与QB系列多回转锥齿轮箱组合力矩：300Nm~15,000Nm 适用于闸阀、截止阀  
 KZ 多回转执行机构与QST系列多回转直齿轮箱组合力矩：750Nm~100,000Nm 适用于闸阀、截止阀



KZ 多回转执行机构与QL系列线性推力单元组合力矩：5KN~217KN 适用于截止阀、调节阀  
 KZL系列直行程执行机构力矩：2.5KN~25KN 适用于截止阀、调节阀



KZ 多回转执行机构与QS或QW系列角行程减速箱组合力矩：100Nm~600,000Nm 适用于蝶阀、球阀、旋塞阀  
 KZ 多回转执行机构与QW/QF系列支架式角行程减速箱组合力矩：100Nm~130,000Nm 适用于风门挡板  
 KZQ角行程执行机构：100Nm~600Nm 适用于蝶阀、球阀、旋塞阀

# Function & Feature

## 功能特点

### Operation Interface 操作界面



### Reliable Structural Design 可靠的结构设计

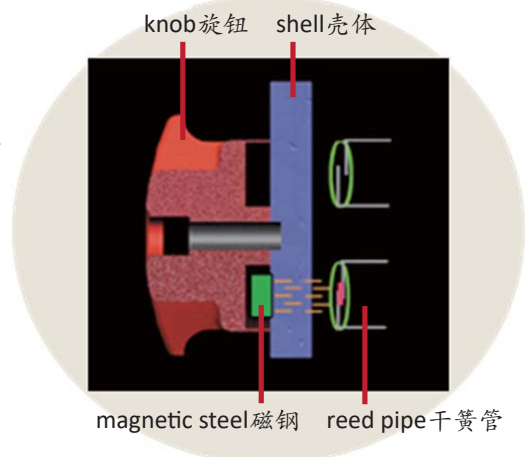
#### Non-intrusive Design 非侵入式设计:

● 可以不打开执行机构电气箱盖的情况下, 使用手操器对行程、力矩以及其它参数进行设定;

Use remote controller to setup data without opening actuator case.

● 操作旋钮采用干簧管和磁钢配套, 仅有磁力的联系, 而无机械的接触, 电气箱盖上无导通孔, 提升了防护等级 (右侧图示)。

The rotary knob use magnetic steel to contactless control the reed inside the electric shell without hole to improve enclosure protection(right pic).

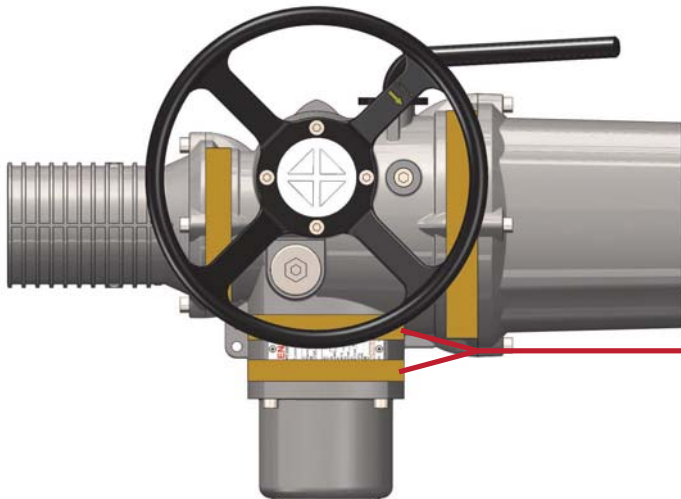


#### 腔体密封形式(左侧图示, 黄标部分):

现场接线时, 即使是在下雨的环境中打开端子箱外端盖, 也能保证内部的电气元件不受影响。

#### Shell Sealing Form (left pic, yellow Part):

During on-site connection, wiring under rainy day has no impact on the inside electric components.



### Backup Power Connection 备用动力应急接口

带有备用动力接口的肯佐电动执行机构主要工作方式: 当常规动力主电源失电时, 备用电源的插口可以直接与执行机构自带的外接电源插口相连, 通过备用电源提供动力源, 实现对执行机构的各项操作。

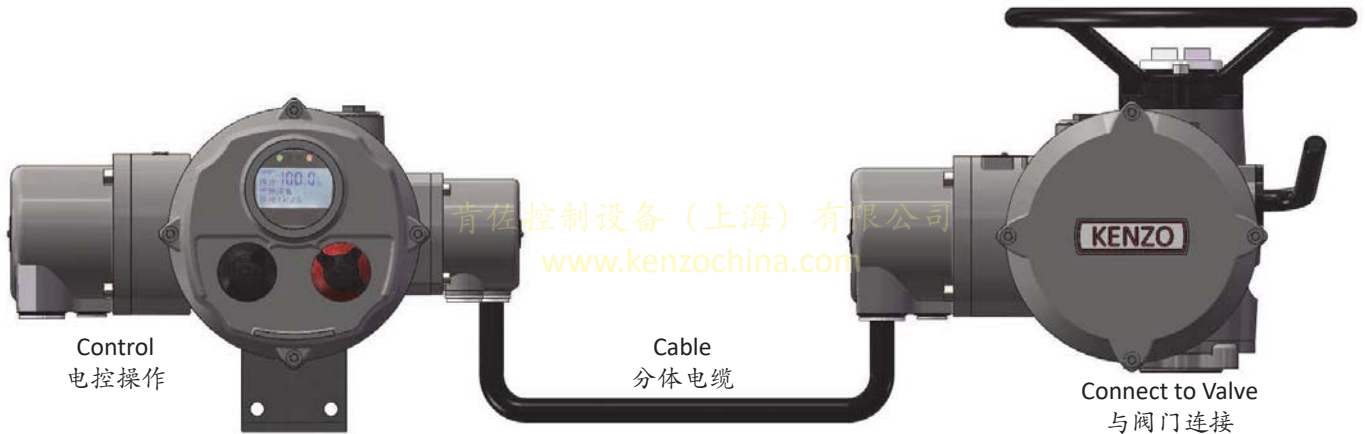
Main working mode: When the main power lost, the backup power socket connects with external backup power supply, then to rapidly supply power to the actuator to recover working.



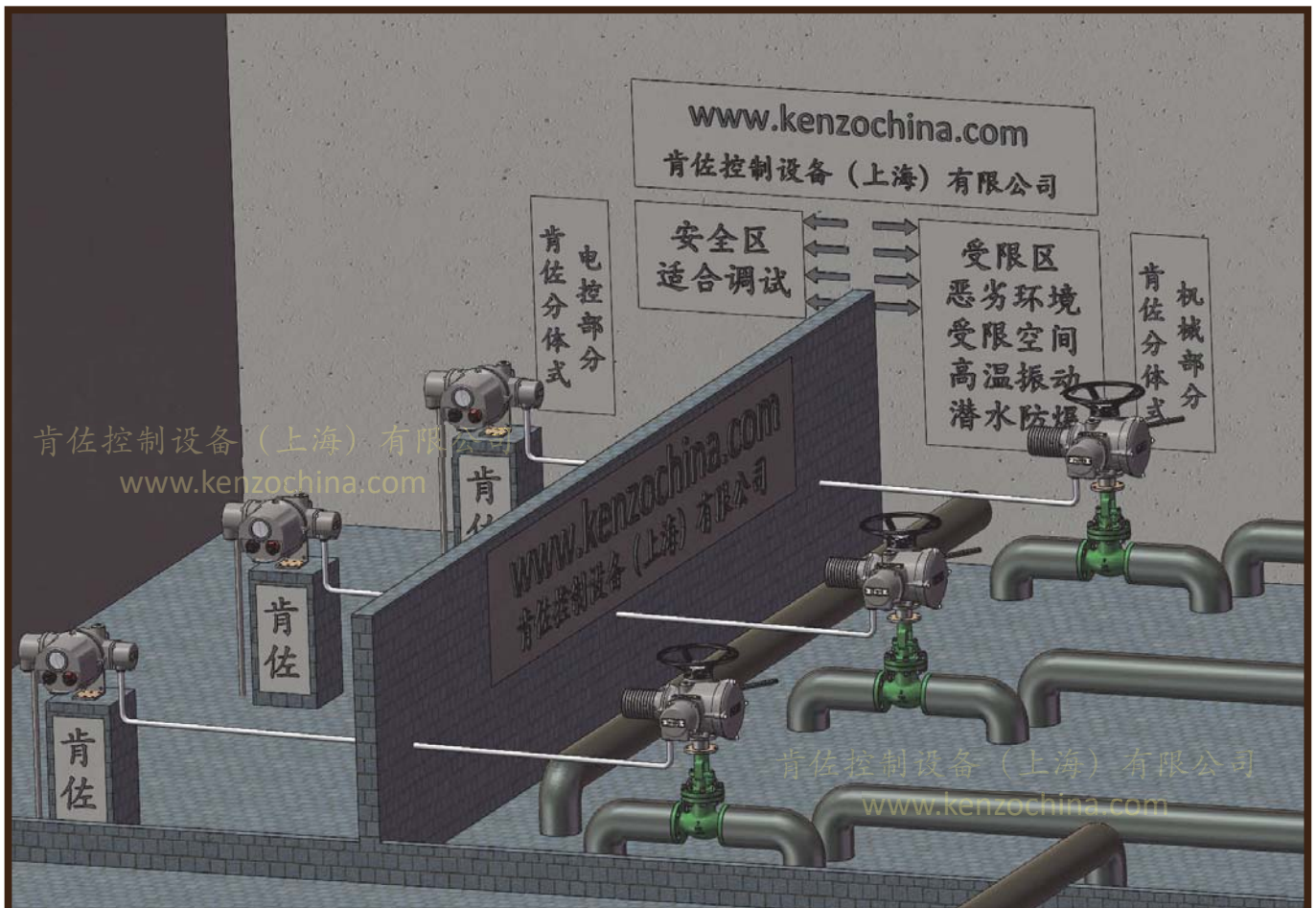
### Split Type Installation 分体式安装

如在恶劣的使用环境或者空间不便于调试的现场，KZ/KZM系列电动执行机构可以使用分体式安装，机械部分安装于阀门上，电气控制及操作部分可以远离受限空间以及恶劣环境，如高温、振动等；此外，还提供全套的安装组件及防水接头，保证了电动执行机构的整体性能。

Under extreme ambient environments or restricted areas, the KZ/KZM series electric actuators can be split type installations to avoid these trouble. The mechanical parts could be installed upon valves, and the electric control parts could be apart from restricted area or extreme environments, such as super high temperature, and vibration. Moreover, installation kits and water-proof connectors are all provided to ensure the whole performance of electric actuators.



### Split Type Application Scenario 分体式应用场景



# Structure Principle

## 结构原理

主传动机构：铜蜗轮及蜗杆浸泡在高效清洁的润滑油中。传动平稳、噪音低、寿命长、可长期运行免维护。  
Main Transmission Gearing: worm & worm gear are immersed with lubrication oil for operation with stable transmission, low noise, long life-time, and long-term maintenance free.

力矩检测和行程限位  
压力传感器，精确可靠，可用遥控器对力矩保护值进行设置。  
Torque Protection & Travel Limit  
Pressure sensor, exact & reliability, can be setup by remote controler.

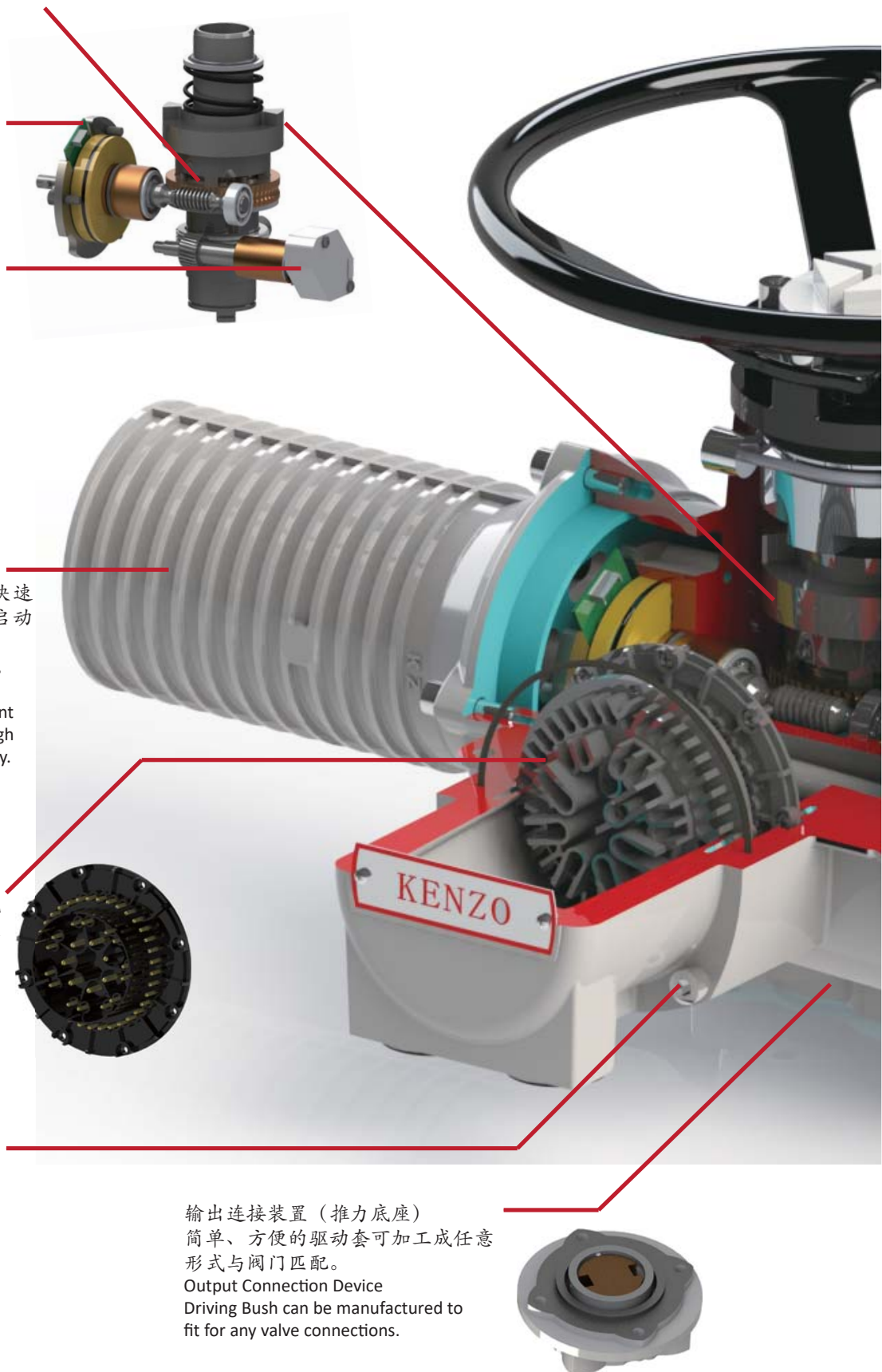
绝对编码器，不用电池也可以记忆阀位。  
Absolute encoder can remember valve position without battery.

电机与驱动  
电机轴与蜗杆是相互独立的以便快速更换。低惯量、高转矩电机使得启动后可迅速达到峰值力矩。  
电动部分包括一个空程“锤击”功能。  
Motor & Driving  
Separate motor axis & worm ensure instant replacement. Motor with low inertia & high torque can reach peak torque immediately. Motorised part includes an idle running "hammering" function.

插拔式双密封结构接线盘  
接插件采用表面镀银工艺，提高抗氧化性能。双重密封结构设计，保证内部电气空间不受外部侵袭。  
Plug Type Wiring Socket  
Double sealing design to protect interior electric parts against outside erosion. The plug pins adopt silver plating to ensure antioxidant.

紧固螺栓  
所有紧固螺栓均为304不锈钢材质，具有优秀的耐腐蚀性。  
Fastening Bolts  
All the fastening bolts are made of #304 stainless steel with excellent corrosion resistant performance.

输出连接装置（推力底座）  
简单、方便的驱动套可加工成任意形式与阀门匹配。  
Output Connection Device  
Driving Bush can be manufactured to fit for any valve connections.





### 铝合金箱体

壳体选用优质铝合金材质，采用压铸成型，具有强度高、重量轻的特点。

### Aluminum Alloy Housing

Housing is made of die-casting aluminum alloy with high strength and light weight.

### 手自动切换

压下手柄可实现手动操作，并且可以用锁锁在手动位置，电动优先。

### Manual & Automatic Shift

Depress the hand shank to realize manual operation, and can be locked down until motor works.



### 非侵入式设计

通过透明视察窗，可完成执行机构全部设定和诊断，无需打开控制箱盖。

### Non-intrusive Design

Through transparent inspecting window, all settings and diagnosis can be finished without opening the control case.



### 就地控制

通过旋钮或者遥控器操作可现场控制执行机构。

### Local Control

Operating rotary knob or remote controller to locally control actuator.



# Quarter-Turn Product Profile

## 角行程产品简介 - KZQ

### KZQ Series Basic Info 基本信息

肯佐KZQ系列电动执行机构采用MCU控制，可接受开关量信号、模拟量信号，处理后驱动配接控制电机正、反转的三相接触器或固态继电器等驱动部件，实现执行机构的开关操作。控制器内部集成完善的过热、缺相等保护电路。控制器可对外提供比例信号反馈。肯佐KZQ系列电动执行机构应用于电站、石油、冶金、化工、输油管道、水处理等自动控制系统中，既能满足频繁调节控制，又能满足断续控制的要求。

KENZO KZQ series intelligent electric actuators adopt MCU control. It realizes open & close function by sending on-off signal & analog signal into driving three-phase contactor or solid-state relay which controls motor to turn CW or CCW. The internal controller integrates overheat protection & phase loss protection, and etc. It provide proportional signal feedback. KENZO KZQ series intelligent electric actuators operate automatic control in power plants, metallurgy, chemical industry, oil & gas pipelines, water treatment, and etc to meet frequent modulating & intermittent control.

### Function & Features 功能特点

- Output Torque 输出扭矩: 100Nm ~ 2000Nm
- Enclosure Protection 防护等级: IP68 (Standard 标配, 72hours submerged under 6 meter water 可在6米深水下工作72小时)
- Explosion Level 防爆等级: d II BT4 Gb
- Power Supply 供电电源: AC220V or AC380V or DC24V
- Travel Angle Range 回转角度范围: 0° ~ 120° Adjustable
- Input/Output Signal 输入输出信号: DC (4-20mA, 1-5V, 0-10V)
- Output Current Load Resistance 输出电流负载电阻: ≤700Ω
- Connection Type 连接方式: Customization 按照阀杆要求可任意加工
- Waterproof Cable Gland 防水电缆接头: M25×1.5, for power cable & signal cable 电源线及信号线
- Gear Pair 齿轮组
  - 1) Gears designed with self-locking to avoid valve reversing back. 齿轮设计有自锁功能以避免阀门回转。
  - 2) Gear cluster injected with high temperature lubricating oil. 齿轮组在厂内已涂抹足够的抗高温润滑油。
- Working Condition 工作条件
  - 1) Ambient Temperature 周围环境: -30°C ~ +80°C
  - 2) Relative Humidity 相对湿度: 5% ~ 98%
- Motor 电机
  - 1) 30% starting frequency for standard induction motor, and 75% starting frequency for DC motor. 标准感应式电机使用与30%启动频率之驱动器，75%启动频率是使用DC电机。
  - 2) All motor insulation grades are class F. 所有型号电机绝缘等级都为F级。
  - 3) Inside temperature control (135°C) for overheat protection. 内有温控保护装置(135°C)防止电机过热烧毁。
- 中英文菜单可切换，易学、易操作。  
Easy to shift between Chinese & English menu.

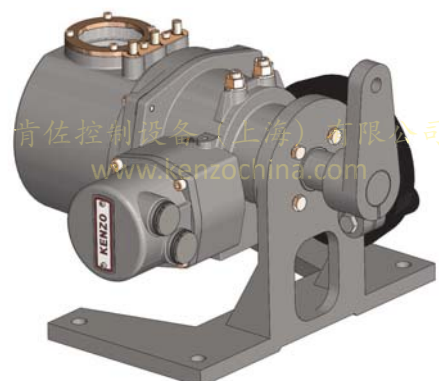


### Structure Features 结构特点

- 机电一体化设计，铝合金壳体，体积小，重量轻；  
Mechatronics design with aluminum alloy shell, light & tiny.
- 少齿差行星齿轮传动，效率高、传动平稳、抗冲击、抗振动强度大、传动比大；  
Few-tooth planetary gearing with high transmission efficiency, stable, impact & vibration resistant, wide ratio.
- 无离合设计，在无电源情况下，不需要进行任何手/自动切换，可以直接转动手轮对阀门进行开关操作；  
No clutch design, handwheel can operate valve without shift from automatic to manual under power failure.
- 位移传感器采用绝对编码器，准确可靠，无需电池记忆；  
Displacement sensor use absolute encoder memory without battery.
- 执行机构的功能、参数设置、调试和现场电动操作都通过手持式遥控器（或按键）进行设定，毋需打开箱盖；  
All data setup by remote controller or button without opening case.
- 在极端使用环境下，可选用分体式控制。  
Under extreme environments, split type actuator should be applied.

### KZQ Lever Type 支架式

通过在KZQ输出部分组裝支架拐臂结构，从而能够推动连杆机构，解决实际工况，例如：风门挡板等连杆运动机构。  
Through equipping lever structure at KZQ's output part to push the connected linkage to work, such as damper baffle.



## Structure Principle 结构原理

●非侵入式设计：参数设定简单实用，可在不开盖情况下进行各项操作。

Non-intrusive design: the parameter setting is simple and easy and can be operated without opening the shell.

●液晶显示：液晶屏实时数字显示阀门的开度大小，并实时显示报警信息。

Liquid-crystal display: LCD screen displays real-time valve position, and shows alarm message.

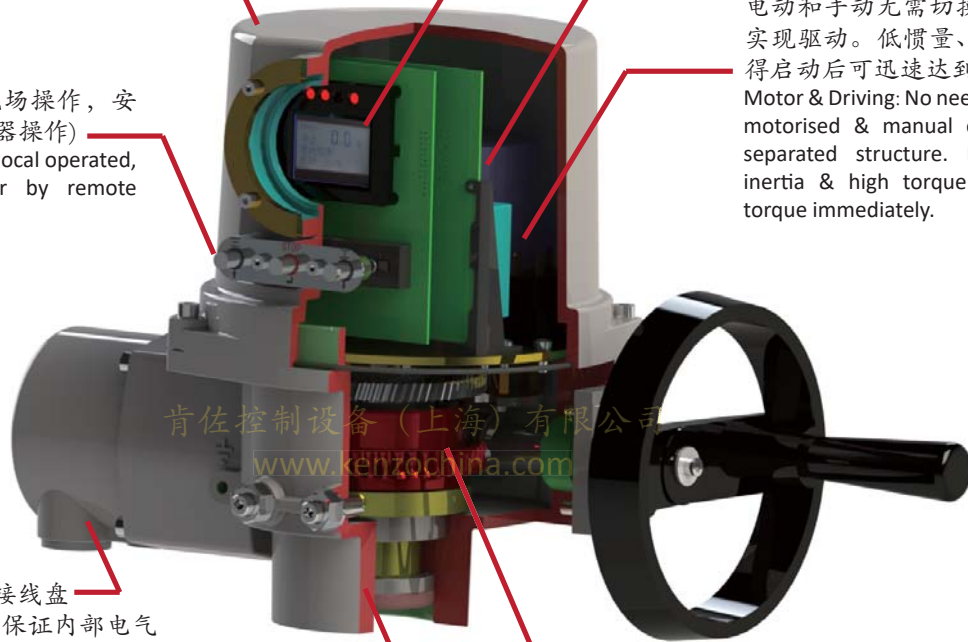
●绝对编码器：精度高、零磨损、寿命长、抗干扰能力强、无死角。 Absolute encoder: High precision, wear free, long life-time, strong anti-interference ability, no dead zone.

●电机与驱动

电动和手动无需切换，可各自独立实现驱动。低惯量、高转矩电机使得启动后可迅速达到峰值力矩。

Motor & Driving: No need to shift between motorised & manual operation due to separated structure. Motor with low inertia & high torque can reach peak torque immediately.

●按钮式按键：可现场操作，安全实用(也可用遥控器操作) The push button can be local operated, safe and practical (or by remote controller).



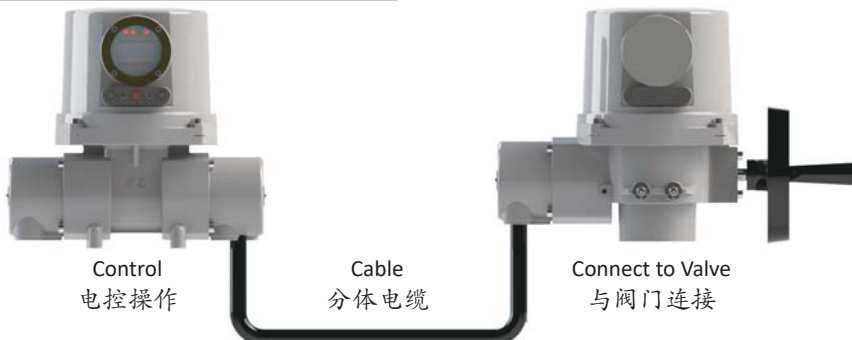
●插拔式双密封结构接线盘 双重密封结构设计，保证内部电气空间不受外部侵袭。接插件采用镀银工艺，提高抗氧化性能。 Plug Type Wiring Socket: Double sealing design to protect interior electric parts against outside erosion. The plug pins adopt silver plating to ensure antioxidant.

●输出连接装置：可拆卸式特殊不锈钢输出轴套提高抗腐蚀性能(可选，专用于脱硫酸液防腐环境) Output Connection Device: Removable special stainless driving bush improves corrosion resistance. (Optional)

●少齿差行星齿轮传动

效率高，传动平稳，抗冲击、抗振动强度大，传动比大。 Few-tooth difference of planetary gearing: high transmission efficiency, stability, impact & vibration strength, and wide range of ratio.

## Split Type 分体式执行机构



如在恶劣的使用环境或者空间不便于调试的现场，KZQ系列电动执行机构可以使用分体式安装，机械部分安装于阀门上，电气控制及操作部分可以远离受限空间以及恶劣环境，如高温、振动等；此外，还提供全套的安装组件及防水接头，保证了电动执行机构的整体性能。

Under extreme ambient environments or restricted areas, the KZQ series electric actuators can be split type installations to avoid these trouble. The mechanical parts could be installed upon valves, and the electric control parts could be apart from restricted area or extreme environments, such as super high temperature, and vibration. Moreover, installation kits and water-proof connectors are all provided to ensure the whole performance of electric actuators.



# Linear Product Profile

## 直行程产品简介 - KZL

### KZL Series Basic Info 基本信息

肯佐KZL系列电动执行机构采用MCU控制，可接受开关量信号、模拟量信号，处理后驱动配接控制电机正、反转的三相接触器或固态继电器等驱动部件，实现执行机构的开关操作。控制器内部集成完善的过热、缺相等保护电路。控制器可对外提供比例信号反馈。肯佐KZL系列电动执行机构应用于电站、石油、冶金、化工、输油管道、水处理等自动控制系统，既能满足频繁调节控制，又能满足断续控制的要求。

KENZO KZL series intelligent electric actuators adopt MCU control. It realizes open & close function by sending on-off signal & analog signal into driving three-phase contactor or solid-state relay which controls motor to turn CW or CCW. The internal controller integrates overheat protection & phase loss protection, and etc. It provide proportional signal feedback. KENZO KZL series intelligent electric actuators operate automatic control in power plants, metallurgy, chemical industry, oil & gas pipelines, water treatment, and etc. In order to meet the frequent modulating control and intermittent control.



### Functional Features 功能特点

- Output Torque 输出扭矩: 2.5KN ~ 25KN
- Max Travel 最大行程: 30 ~ 100mm
- Enclosure Protection 防护等级: IP68 (Standard 标配, 72hours submerged under 6 meter water 可在6米深水下工作72小时)
- Explosion Level 防爆等级: d II BT4 Gb
- Power Supply 供电电源: AC220V 或 AC380V 或 DC24V
- Input/Output Signal 输入输出信号: DC (4-20mA, 1-5V, 0-10V)
- Output Current Load Resistance 输出电流负载电阻: ≤700Ω
- Connection Type 连接方式: Customization 按照阀杆要求可任意加工
- Waterproof Cable Gland 防水电缆接头: M25×1.5, for power cable & signal cable 供电电源线及信号线
- Gear Pair 齿轮组
  - 1) Gears designed with self-locking to avoid valve reversing back. 齿轮设计有自锁功能以避免阀门回转。
  - 2) Gear cluster injected with high temperature lubricating grease. 齿轮组在厂内已涂抹足够的抗高温润滑油。
- Working Condition 工作条件
  - 1) Ambient Temperature 周围环境: -30℃ ~ +80℃
  - 2) Relative Humidity 相对湿度: 5% ~ 98%
- Motor 电机
  - 1) 30% starting frequency for standard induction motor, and 75% starting frequency for DC motor. 标准感应式电机使用与30%启动频率之驱动器，75%启动频率是使用DC电机。
  - 2) All motor insulation grades are class F. 所有型号电机绝缘等级都为F级。
  - 3) Inside temperature control (135℃) for overheat protection. 内有温控保护装置(135℃)防止电机过热烧毁。
- 中英文菜单可切换，易学、易操作。  
Easy to shift between Chinese & English menu.



### Structural Features 结构特点

- 机电一体化设计，铝合金壳体，体积小，重量轻。  
Mechatronics design with aluminum alloy shell, light & tiny.
- 少齿差行星齿轮传动：  
效率高、传动平稳、抗冲击、抗振动强度大、传动比大  
Few-tooth planetary gearing with high transmission efficiency, stable, impact & vibration resistant, wide ratio.
- 无离合设计：  
在无电源情况下，不需要进行任何手/自动切换，可以直接转动手轮对阀门进行开关操作。  
No clutch design, handwheel can operate valve without shift from automatic to manual under power failure.
- 位移传感器：  
采用绝对编码器，准确可靠，无需电池记忆。  
Displacement sensor use absolute encoder memory without battery.
- 执行机构的功能、参数设置、调试和现场电动操作都通过遥控器或按钮进行设定，毋需打开箱盖。  
All data setup by remote controller or button without opening case.
- 在极端使用环境下，可选用分体式控制。  
Under extreme environments, split type actuator could be applied.



600kNm超大扭矩智能型电动执行机构 600kNm Intelligent Electric Actuator



中国仪器仪表学会于2018年12月在上海主持召开了由肯佐控制设备(上海)有限公司研制的“600kNm超大扭矩智能型电动执行机构”新产品鉴定会。新产品主要技术指标达到了国内领先水平,有以下技术特点:

- 一、产品完成了基本性能、功能、环境适应性、寿命等试验,并经国家工业控制系统安全和自动化仪表质量监督检验中心检测,结果满足技术条件和相关标准要求;
- 二、采用双防护、双密封、防水型结构设计,其防护等级达到IP68;
- 三、采用磁电编码技术,实现了阀位自动检测和诊断,解决了电动执行机构失电后阀位记忆难题;
- 四、具备总线、无线通信选项,可实现强弱电路隔离、支持多种通讯、远程控制、在线诊断及维护等功能。

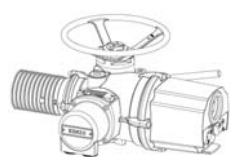
China Instrument and Control Society (CIS) held a product achievement appraisal called ‘600kNm Extra Huge Torque Intelligent Electric Actuator’ at Kenzo Control Equipment (Shanghai) Co., Ltd. in Shanghai at Dec. 2018. The new product’s main technologies reach at Chinese’s Leading Level, which has listed attributes:

- 1. The product accomplished the basic performance, functions, environmental suitability, lifetime tests & etc. It was qualified by National Industrial Control System Safety & Automation Instrument Quality Supervision & Inspection Center. The result meets the requirement of technical criteria and related standards.
- 2. Using double protection, double sealing, waterproof structural design, IP68 enclosure protection.
- 3. Using magnetoelectric coding, realizing valve position auto-check & diagnosis, solving the puzzle of valve position memory under power failure.
- 4. Equipped with Fieldbus, wireless communication options, realizing strong & weak electrical isolation, supporting various communication, remote control, online diagnosis & maintenance function.



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Size and component specification in this catalogue are subject to change without prior notice for quality improvement.

In case of ambiguity, the Chinese version shall prevail.