



**KV CONTROLS**

Control & Isolation Valves

46 Mercury Street  
Naledi Industrial Park  
Vaalpark  
Tel: +27 (0) 16 100 4592  
www.kvcontrols.co.za

KV Controls (PTY) Ltd. Reg No: 2016/378940/07

## AOX-R Electric Actuator

Patented products,  
Counterfeiting not allowed

© 2023 aox technology copyright ♻️ Ecology protection



AOXIANG  
ELECTRIC INTELLIGENT ACTUATOR  
ELECTRIC VALVES



# AOX-R Electric Actuator

Patented products,  
Counterfeiting not allowed







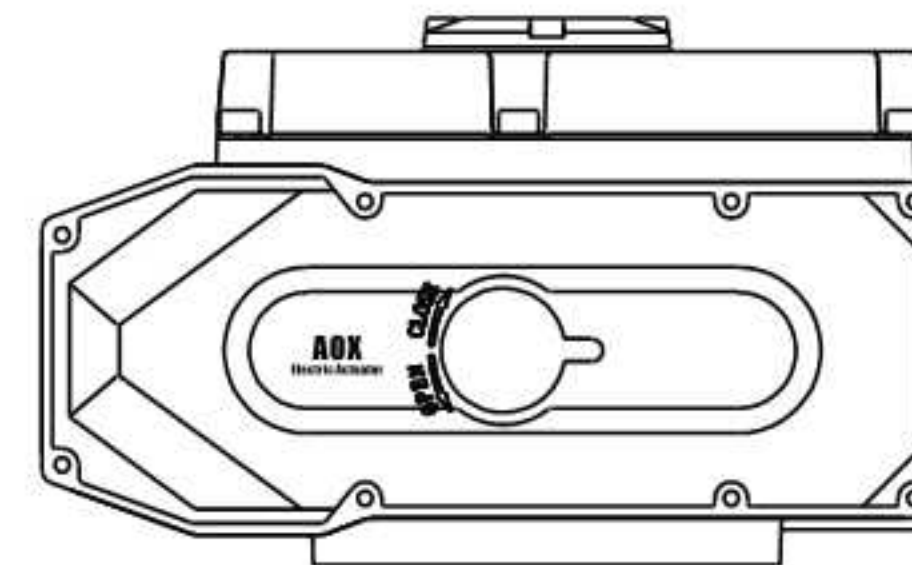
AOXIANG  
ELECTRIC INTELLIGENT ACTUATOR  
ELECTRIC VALVES



## Field Case

### Catalogue

Company Profile -----	01
Cases and certificates -----	02
Product Overview -----	03
Description -----	03
Working Environment -----	04
Basic Control Methods -----	05
Control Functions -----	05
Product Characteristics -----	07
Product Specifications -----	09
Standard Parameters -----	09
Appearance Drawing -----	10
Solutions for Special Applications -----	10



Spray



Cement



Water conservancy



Papermaking



Food



Shipbuilding

# AOX-R Electric Actuator

Patented products, Counterfeiting not allowed.

**AOX** was founded in 1997. With decades of profound understanding of products and rich industrial application experience, rigorous manufacturing process and modular precision design, AOX provides the most professional automatic control products and solutions for various severe working conditions (such as military, nuclear and other fields). Whether in harsh environments or under various operating requirements specified by users, AOX actuators can not only meet high safety standards, but also prove the reliability and robust design of their products.

**AOX** has always focused on the modular design of products. The diversified components ensure that the products can be assembled according to customer needs, and provide various customized products to meet customer needs.

## Honors and qualifications

- First tier supplier of CNPC
- Sinopec Supplier
- Qualified Supplier of CNNC
- National Intellectual Property Advantage Enterprise
- National high-tech enterprises
- National Technological Innovation Fund for Small and Medium sized Enterprises
- National Torch Plan Industrialization Demonstration Project
- Provincial High tech Enterprise Research and Development Center
- Provincial science and technology new products
- Provincial Science and Technology Progress Award
- Provincial patent demonstration enterprise
- AAA Credit Enterprise
- WenZhou specialized, special and new key supporting enterprises
- WenZhou Famous Brand Products
- EU CE certification
- DNVGL certification
- CCS certification
- ATEX certification
- SIL3 certification
- CCC certification
- ISO9001 / ISO14001 / ISO45001



## Product Overview

The "AOX-R" series has a compact structure and excellent weather resistance and shock resistance. When the actuator is powered off, the self-locking transmission mechanism ensures that the valve position remains unchanged, and mechanical double limit is set to prevent overtravel. The removable drive adapter sleeve facilitates processing, and the bottom installation size complies with ISO5211 standard. It is commonly used for butterfly valves, ball valves, dampers, flapper valves, plug valves, louver valves, multi way valves and various special valves.

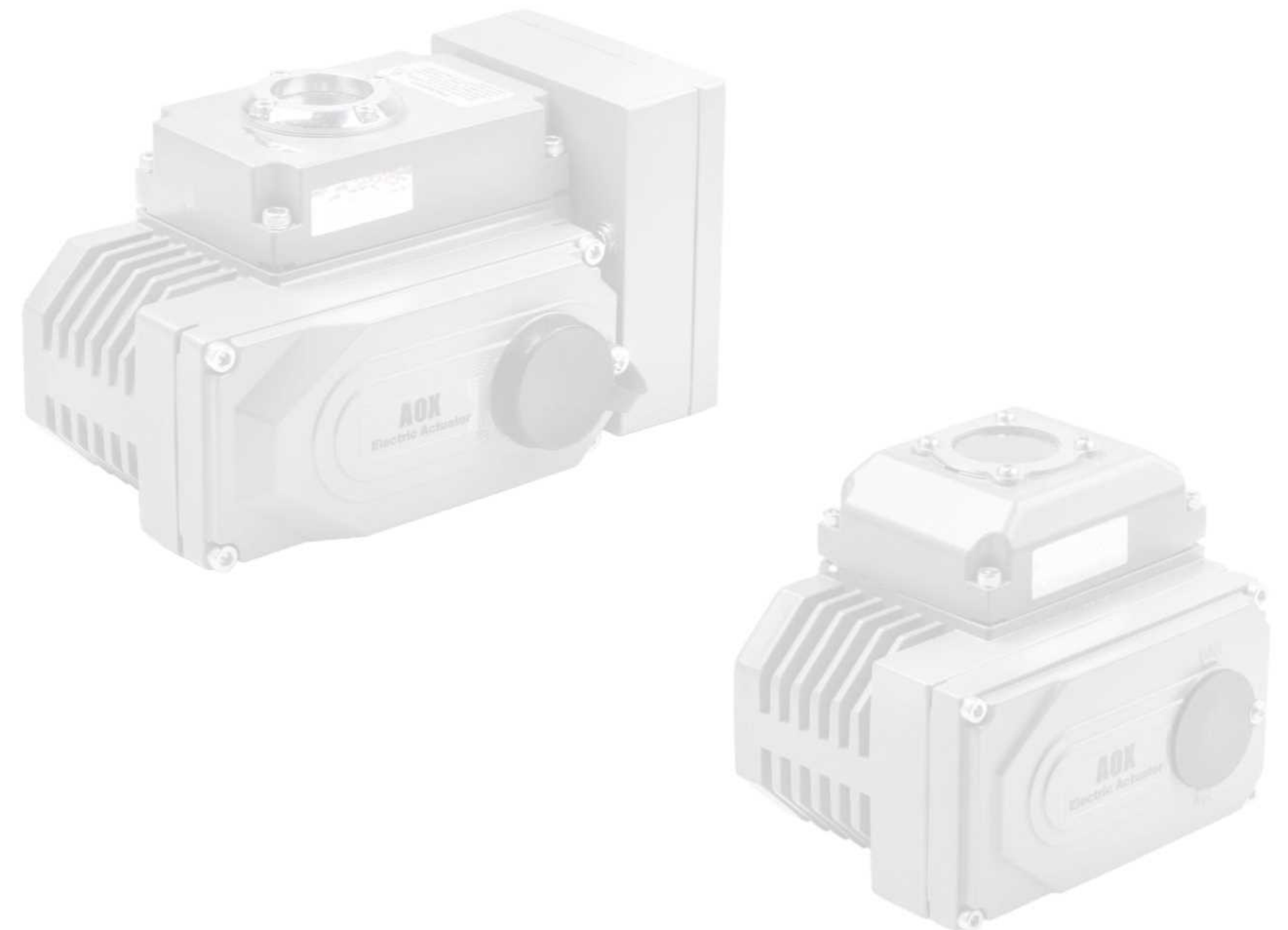
## Description

- Torque range: Direct installation: 30~1000Nm, with gearbox: 1600~5000Nm
- DNVGL, CCS, EU CE certification
- Basic control mode:
  - ON-OFF MODEL
  - MODULATING MODEL
  - CONTINUOUS MODELING MODEL
- Different control types are available according to customer requirements:
  - ON-OFF TYPE
  - MODULATING TYPE (PCU)
  - INTELLIGENT TYPE
- Solutions for special applications:
  - Foundation and crank arm
  - Internet of Things
  - AOX-R-M Series Multi Turn (customized)



## Working Environment

- Sealing protection ----- Conforms to GB/4208-2017 standard, IP67 (standard, all connection surfaces are set with O-ring seal) protection level, available Optional IP68 (double O-rings are set on all connecting surfaces).
- Anti-corrosion protection ----- Is anodized and polyester powder coated, standard color is AOX grey (similar to RAL7039), corrosion resistant Strong corrosion resistance, suitable for working conditions such as industrial corrosive environment (chemical, alumina plant) or marine corrosive environment (offshore/sea).
- Ambient temperature----- Standard: ON-OFF TYPE, MODULATING TYPE ( -30 °C~+75 °C )  
INTELLIGENT TYPE ( -25 °C~+75 °C )  
Low temperature: ON-OFF TYPE, MODULATING TYPE (-60°C~+50°C )  
INTELLIGENT TYPE ( -40 °C~+60 °C )





## Basic Control Methods

According to EN 15714-2 standard, to meet different application conditions and designs, there are three basic control methods as follows

### Type I On-Off type

The actuator drives the valve from fully open to fully closed or fully closed to fully open.

### Type II Modulating Type

The actuator sometimes needs to drive the valve to any position (fully open, midway position and fully closed).

### Type III Continuous Modulating Type

The actuator frequently drives the valve to any position between fully open and fully closed.

For continuously adjustable actuators, the number of starts allowed and the load conditions are additionally referenced to the characteristics.

The switching or regulating type is selected according to the different mechanical loads of the actuator. Therefore, each actuator type can be used in various operating modes.

Working mode	On-Off type	Modulating Type	Continuous Modulating Type
	S2-15min/30min	S2-15min/30min	S4-25%/50%
<b>Model Name</b>			
Applicable control functions	General Type	On-Off type	PCU
			Continuous Modulating Type

Note: the number "1" after the model represents the voltage AC 1ph; "2" stands for voltage AC 3ph; "3" represents voltage DC, such as PCU1 (AC 1ph ordinary regulating type)

## Control Functions

### Modulating Type (PCU)

#### Signal setting

- ▶ Input (setting) and output (feedback) signals are completely isolated.
- ▶ Input/Output: 4-20mA(standard) Input impedance 160Ω
- ▶ Input/Output: 0-10V, 1-5V, 0-20mA, etc. (optional)

#### Analog output

- ▶ Current: Maximum acceptable load is 750Ω at 24VDC supply
- ▶ Voltage: Minimum acceptable load is 50KΩ (shunt resistance 500Ω)

#### Adjustment accuracy

- ▶ Factory standard accuracy 0.7%
- ▶ Accuracy 0.2%~0.5% can be set



### On-Off Type

#### Position Indicator

- ▶ Planar indicator allows the valve position to be viewed from a linear angle. The butterfly spring preload adjustment indicator is simple and fast. The output shaft of the indicator is axially connected to the valve shaft to show accuracy.

#### Worm Wheel

- ▶ Precision worm gear mechanism for efficient transmission, high efficiency, low noise (50dB) and long service life; self-locking function to prevent reversal, stable and reliable transmission part without oiling.



The above are the basic functions. For special requirements, please contact us.

## Product Characteristics



### Reduction gearbox

AOX-R series is equipped with reducer above 1600NM (inclusive), and the reducer housing is made of ductile iron. The worm gears of other models of our company are all full worm gear type, which can rotate 360 degrees, so that they will not be damaged even if they are over adjusted during the commissioning process, which is more convenient for troubleshooting.

### Control line

The control circuit shall conform to the single-phase or three-phase power supply standard, and the circuit layout shall be compact and reasonable. The line is standardized, the cable length is appropriate, the cable will not be pressed during the installation, and there will be no leakage, wear, leakage, short circuit and other phenomena of the cable.



### Gold plated connector

Gold plating can ensure the high stability, high conductivity, high temperature resistance of the connector, as well as excellent corrosion resistance and oxidation resistance, and can effectively avoid signal attenuation. Moreover, due to the wear resistance, ductility and other characteristics of gold, the plugging and unplugging times of connectors are greatly improved. It ensures high contact force after multiple plugging and unplugging, so as to better ensure conductivity and signal continuity.

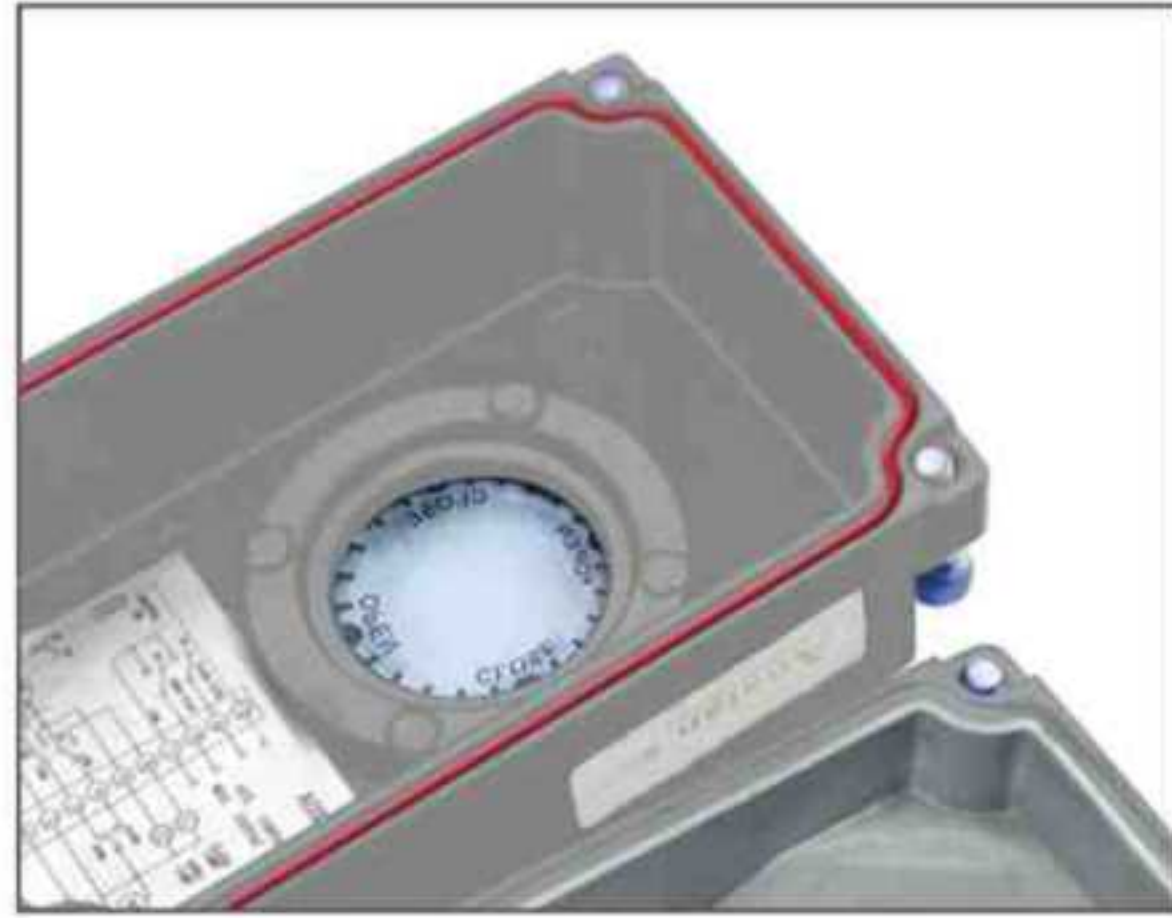
### Capacitance

Capacitor: AC500V voltage. The capacitor is a brand product with reliable quality and stable performance. Under high voltage operation, the capacitor will not be broken down.





## Product Characteristics



### Protection level up to IP67

By improving the concave and convex structure of the upper and lower cover of the product, the sealing is more reliable.



### Reliable transmission part

1.The gear box is made of aluminum alloy to avoid the cracking problem of gear box .  
 2.Gear with 40 chromium steel treated by finishing the two heat, It is more solid and reliable,wear resistance and fatigue resistance is stronger.



### Lower motor temperature

By increasing the size of the motor,under the same power,reducing the capacitance and starting current,thereby reducing the degree of fever.



### Quicker and easier adjustment

By improving the electrical cam structure, integrate the four cam into two, isolated with butterfly spring, pressed with locking nut above.Limit can remain stable at ultra high and low temperature.



### Lens structure

The mechanical seal structure,avoid the use of chemical adhesives for site conditions due to the aging water.The improved products in full compliance outdoor use conditions,even can be used for short time immersion in water.



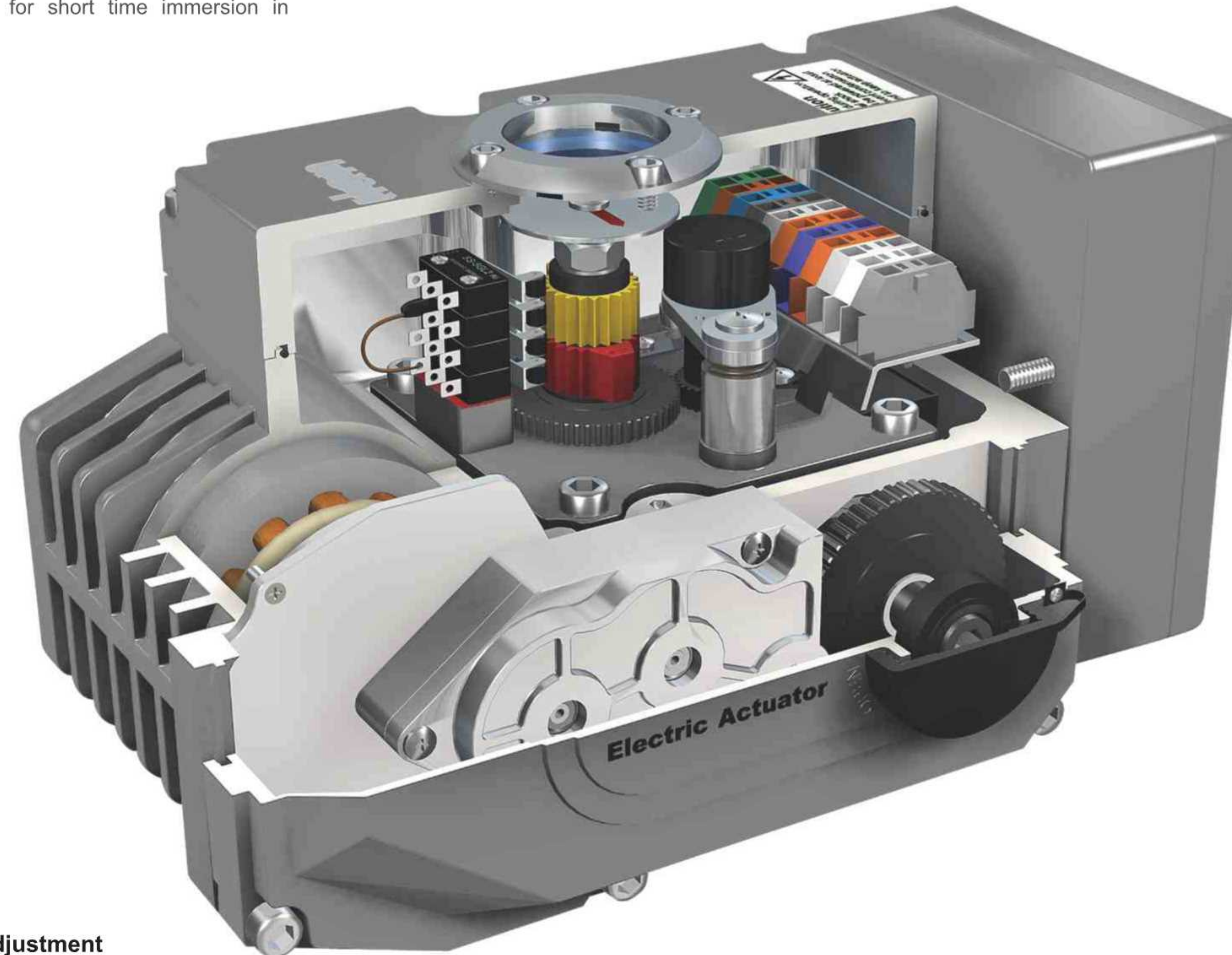
### New appearance, more upscale

Avoiding the monotony of appearance,more attractive.



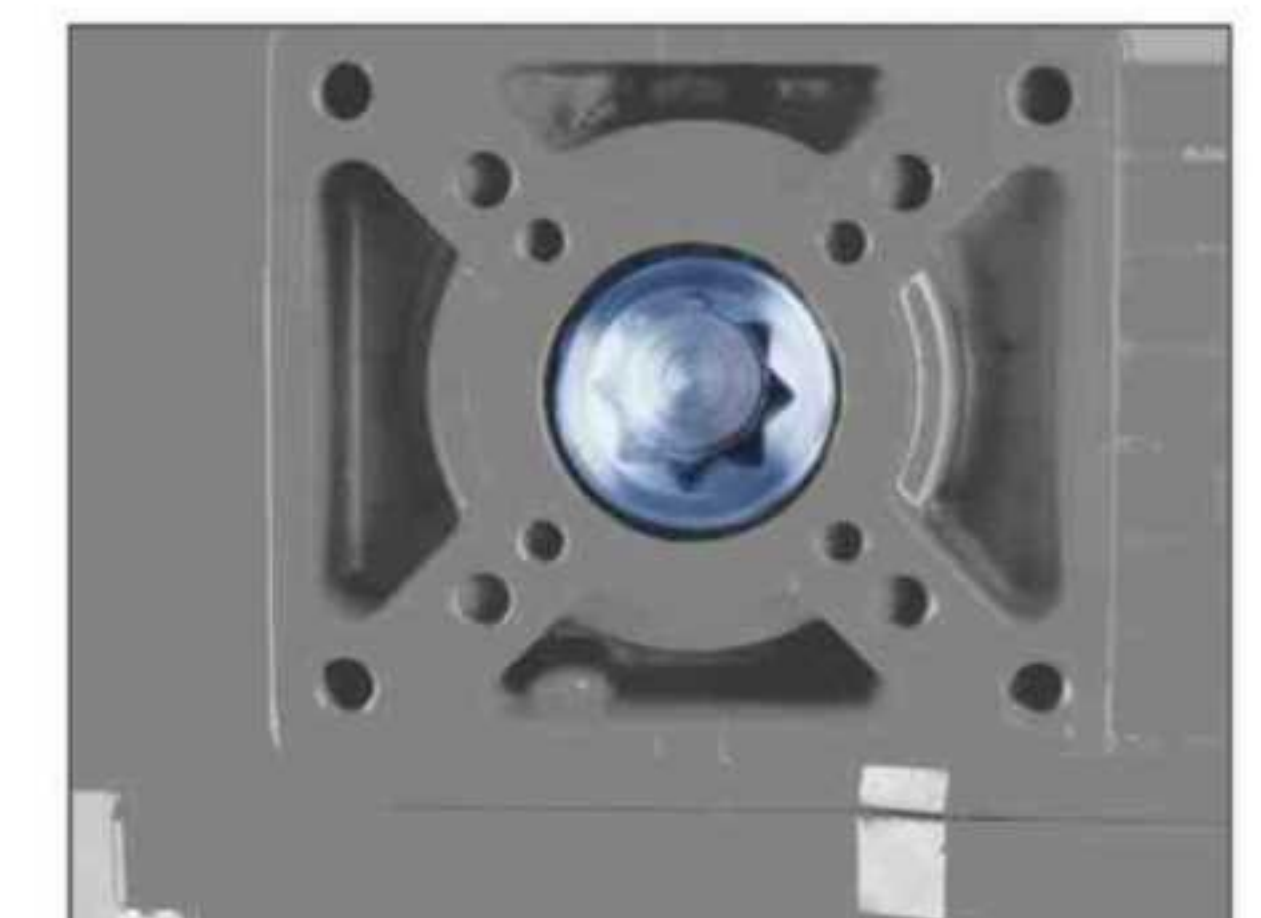
### Stable modulating type structure

The adjustment module adopts external installation, and the bare board has better heat dissipation, which solves the contradiction that the highest temperature of the actuator is 120C, but the electronic power of the module is only 70C; The weak current control power supply will not affect the module quality due to the unstable field voltage.



### Easy to keep manual handle

Position the handle clamp above the mechanical limit screw,so that the wrench is not easy to be lost in the site.



### Easy and reliable assembly with valves

Easy mounting base standard to ISO5211.The stem is directly connected to the worm inside of the actuator, the arm of valve and output shaft is shorter,output is more stable.

# AOX-R Electric Actuator

Patented products,Counterfeiting not allowed.



## Product Specifications

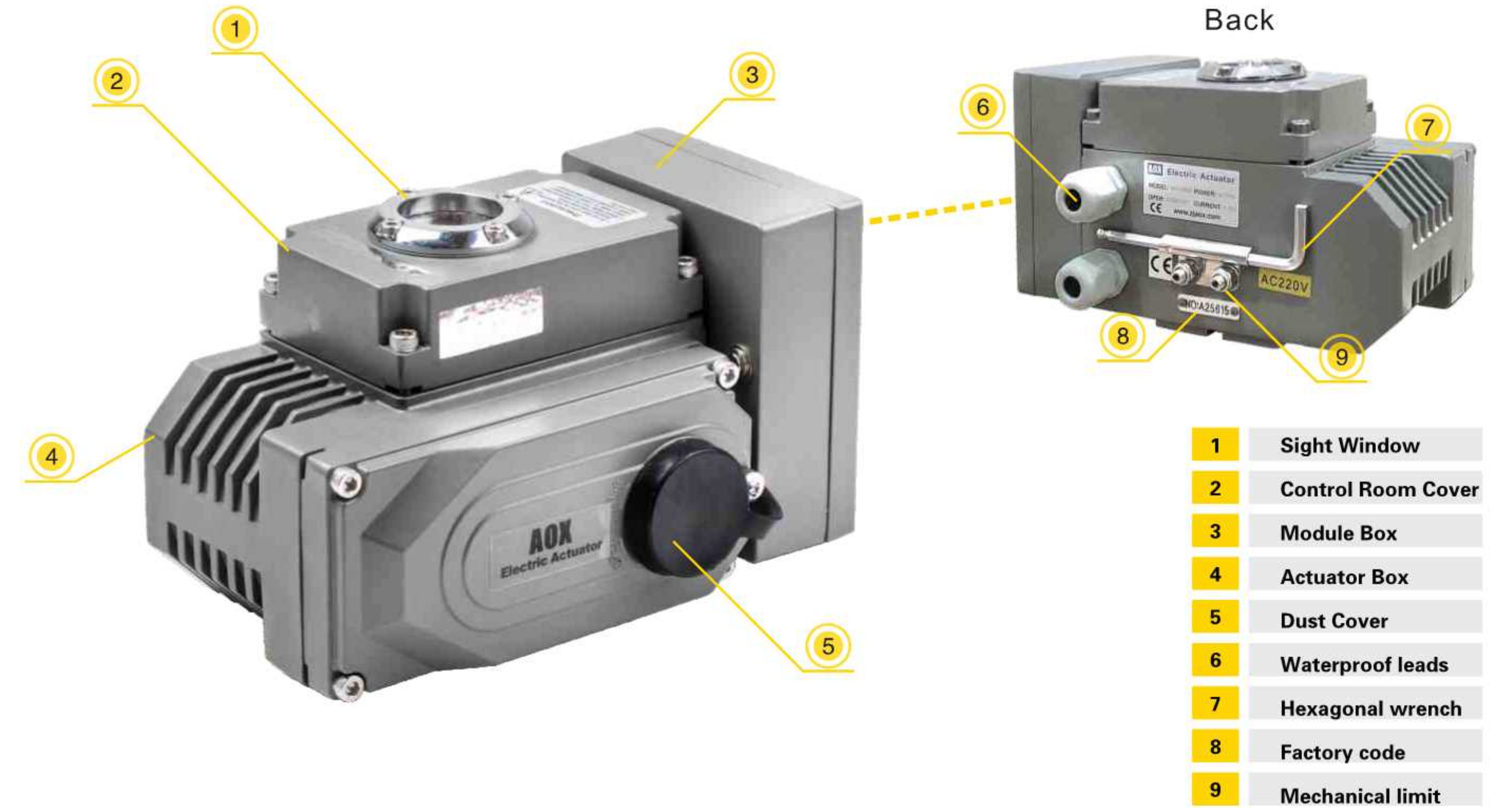
General specifications	
<b>Torque range</b>	• Direct installation:30-1000Nm • With reducer:1600~5000Nm • Larger or quick opening optional AOX-M series
<b>Shell material</b>	Die cast aluminum
<b>Position indicator</b>	Even in case of power failure, the valve position dial can display continuous position changes
Tightness	
<b>External corrosion protection</b>	Paint system • Polyester powder coating conforms to GBT 18593-2001 standard • Optional protection for highly corrosive condition • Screws are all stainless steel screws
Travel/limit	
<b>Trave</b>	90°standard (90°~270° Optional)
<b>Limit switch</b>	2×Open/Close, SPDT, 250V AC 10A
<b>Auxiliary limit switch</b>	2×Open/Close, SPDT, 250V AC 10A
<b>Mechanical limit</b>	2 external adjusting bolts
Mechanical specifications	
<b>Self locking device</b>	Worm gear and worm mechanism provide self-locking
<b>Output flange</b>	The bottom installation dimension shall conform to ISO5211 international standard
<b>output shaft</b>	The output shaft drive sleeve can be disassembled and machined for adaptability. Can be installed vertically or horizontally
<b>Seismic performance</b>	X YZ10g, 0.2~34 Hz, 30 minutes
<b>lubrication</b>	Aluminum base grease (EP type)
<b>Manual operation</b>	Mechanical handle (Optional handwheel)
Electrical specifications	
<b>Motor power supply</b>	110/220V AC 1Phase,380/440V AC 3Phase,50/60Hz,±10%
<b>Control power</b>	110/220V AC 1Phase,50/60 Hz,±10%
<b>Electric machinery</b>	Squirrel cage asynchronous motor, insulation class H
<b>Failsafe/Operating Temperature</b>	Built in thermal protection, open 120 °C± 5 °C/close 97 °C± 5 °C
<b>Heater</b>	30W(220V AC) Anti condensation
<b>Wiring hole</b>	2×M20*1.5 (Except AOX-R-003)
EC Directive	
<b>Conformity with EC Directives</b>	The actuator meets the following requirements • 014/30/EU Electromagnetic Compatibility • 2014/35/EU Low Voltage The following harmonized standards • General emission standard for industrial environment EN 61000-6-44 • Rotating electrical machine standard EN 60034-1 • General anti-interference standard for industrial environment EN 61000-6-4

## Standard Parameters

Model	Maximum output torque	Action time	Output shaft(mm)		Motor class H	Single rated current	Weight
			Square	Deep			
AOX-R-003	30	20	11x11	15.5	8	0.24	2.1
AOX-R-005	50	30	14x14	18	10	0.23	3.6
AOX-R-008	80	30	14x14	18	10	0.24	3.6
AOX-R-010	100	30	17x17	22.5	15	0.41	4.6
AOX-R-015	150	40	17x17	22.5	15	0.41	4.6
AOX-R-020	200	30	22x22	26	40	0.44	13
AOX-R-030	300	30	22x22	26	40	0.48	13.4
AOX-R-040	400	30	22x22	26	60	0.54	13.8
AOX-R-060	600	40	27x27	32.5	60	0.57	14
AOX-R-080	800	40	27x27	32.5	90	0.91	14.3
AOX-R-100	1000	40	27x27	32.5	90	0.99	14.5
AOX-R-160	1600	60	Max Φ 60	Max133	90	1.08	68
AOX-R-200	2000	60	Max Φ 60	Max133	90	1.16	68
AOX-R-300	3000	120	Max Φ 60	Max133	90	1	68
AOX-R-400	4000	200	Max Φ 60	Max133	90	0.93	68
AOX-R-500	5000	200	Max Φ 60	Max133	90	1	68

The above time is the regular time of the actuator. If you need special time, please contact our company.

## Appearance Drawing



## Solutions for Special Applications



### Inflection arm and stand

AOX-R series electric actuators are equipped with an inflection arm and a base to form an inflection arm actuator, which is connected to the valve through a ball dumping chain with convenient connection and high precision. It is applied to the occasion of high ambient temperature and vibration. The technical parameters of this inflection arm actuator are the same as those of the partial rotary actuator.



### AOX-R-M Series Multi Turn

The AOX-R-M series multi turn electric actuator is a modification of the mechanical and control parts of the original AOX-R series, specifically adapted to small-diameter gate and globe valves.