

ESR SERIES

Spring Return Electric Actuator

Reliable Performance | Safe Operation | Built for Demanding Applications

The ESR Series spring return electric actuator is designed to automatically move equipment to a safe position in the event of power failure. It is ideal for quarter-turn valves, dampers, and other rotary devices, ensuring reliable operation and safety in critical applications.



90°
Quarter-Turn



Emergency
Safe Position



Spring Energy
Storage



Manual
Override



Stable
Operation



Power Failure
Protection

APPLICATION FIELDS

- Oil & Gas
- Chemical Plants & Hazardous Fluids
- Power Plants (Bypass Valves, Water Supply)
- Tunnels (Air Supply & Ventilation Systems)

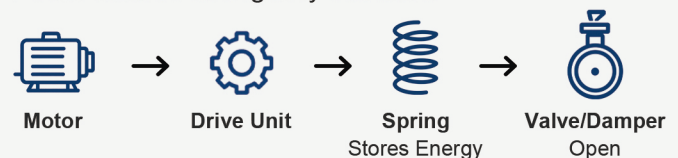
- Storage, Transportation & Production
- Firefighting Systems
- Refineries
- Water Treatment

PRODUCT OVERVIEW

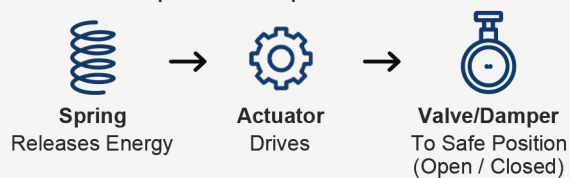
ESR Series Spring Return Electric Actuators use a mechanical spring energy storage system. During normal operation, the motor drives the valve while charging the spring. In the event of a power failure, the stored spring energy automatically returns the valve to its preset safe position, helping prevent water hammer and pipeline damage. The actuator integrates a drive unit, spring energy storage unit, and locking unit into a complete gear transmission system. An optional manual override enables manual positioning and locking, with automatic lock release during powered operation.

WORKING PRINCIPLE

Power failure / emergency condition



Valve/Damper to safe position



TECHNICAL FEATURES



Compact Structure

Space-saving design for easy installation.



Safe Maintenance

Low-maintenance design for reliable long-term operation.



Position Detection

Simple and reliable travel limit switch setting. The 3D position indicator can be viewed from multiple angles.



Operational Safety

Safely opens or closes the valve in emergency conditions, providing a reliable mechanical fail-safe solution.



Safety Integrity Level

Designed for safety-related applications. SIL 2/3 certification should be confirmed according to project requirements.



Replaceable Connection Parts

Flanges and drive sleeves are designed according to ISO 5211, with multiple options available for replacement.



Fire & Heat Insulation Cover

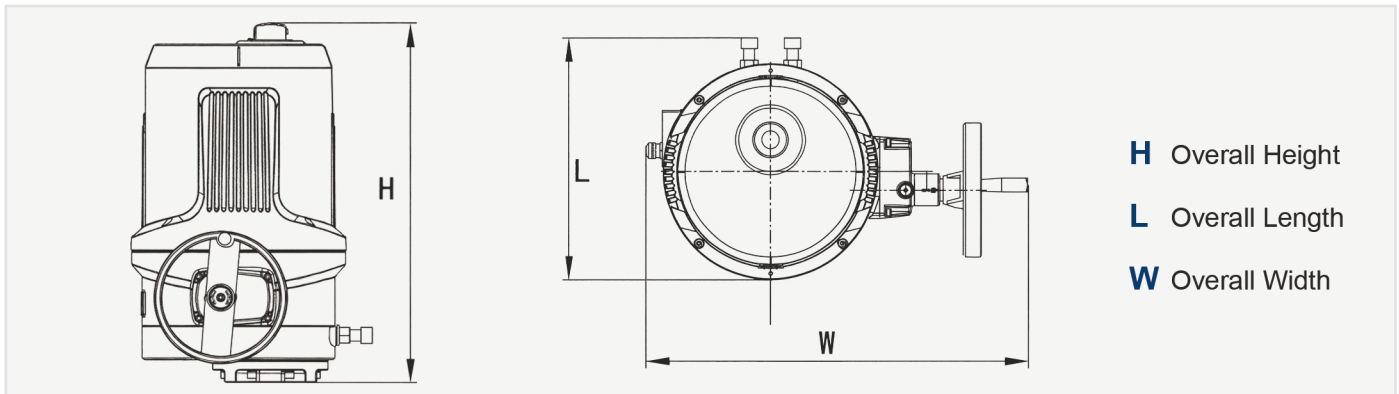
Optional fire-resistant and thermal insulation cover available for demanding applications.



Explosion-Proof Design

Explosion-proof version available upon request.

OUTLINE DIMENSIONS



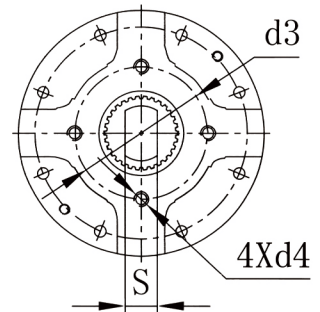
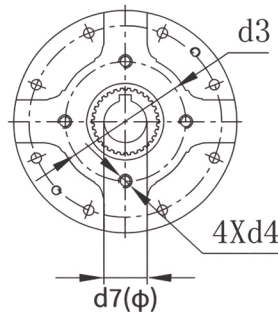
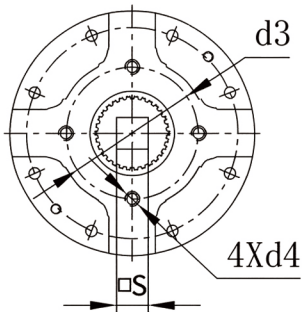
DIMENSION TABLE

Model	Torque N·m	H mm	L mm	W mm	Weight* Kg
ESR050	50	485	309	587	35
ESR150	150	485	309	587	38
ESR300	300	532	332	607	55
ESR600	600	564	410	652	80

ESR SERIES

Spring Return Electric Actuators

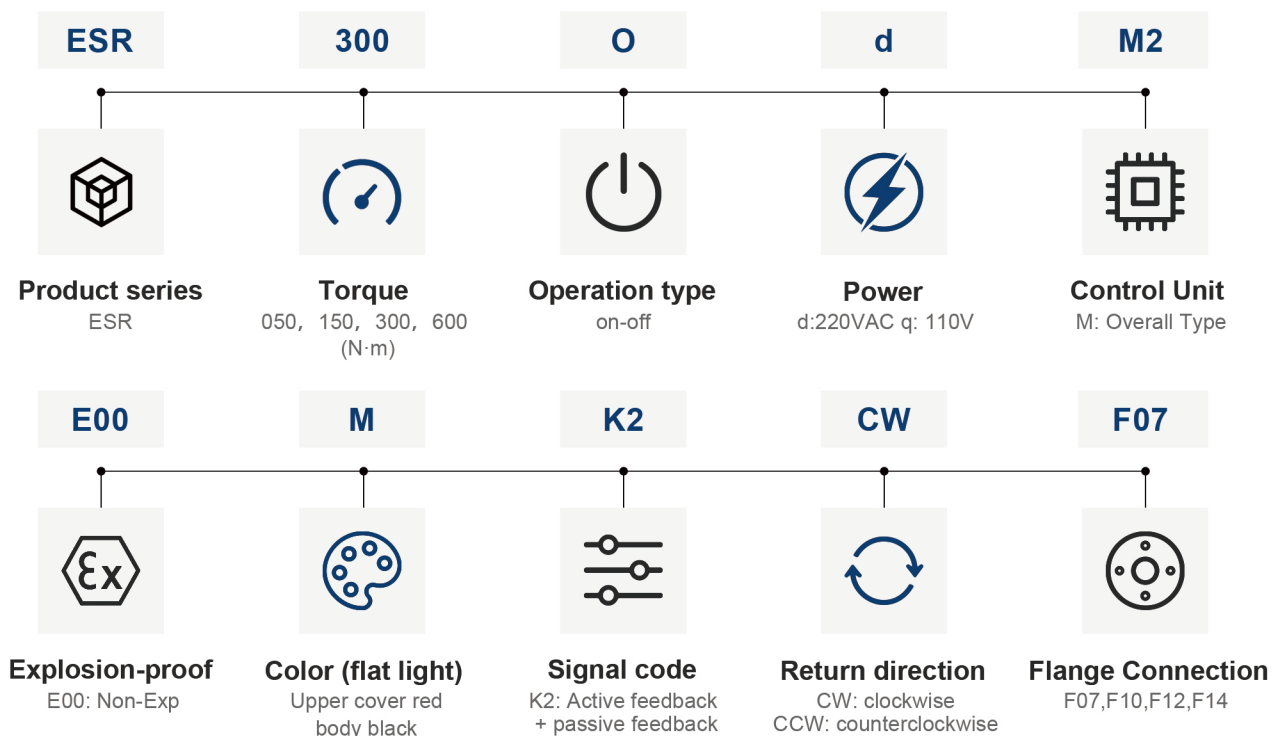
MOUNTING INTERFACE



INTERFACE DATA

Model	ISO 5211	d3	d4	□S	d7	S	Extension I5
ESR050	F07	70	M8	11 / 14 /	14 / 18 / 22	11 / 14 /	40
	F10	102	M10	17 / 22			
ESR150	F07	70	M8	11 / 14 /	18 / 22	17 / 19 / 22	40
	F10	102	M10	17 / 22			
ESR300	F10	102	M10	19 / 22	22 / 25*	19 / 22	40
	F14	140	M16				
ESR600	F12	125	M12	22 / 27	28 / 36	22 / 27	55
	F14	140	M16				

HOW TO ORDER












TECHNICAL PARAMETERS

Model	ESR050	ESR150	ESR300	ESR600
Torque (N·m)	50	150	300	600
Power (W)	30 / 15	40 / 30	90 / 70	180 / 120
Rated Voltage	AC 220 V (AC 24 V / AC 110V optional)			
Frequency	50 / 60			
Duty Cycle	S2 - 15 min			
Opening Time (s)	27* / 54	27* / 54	28* / 56	26* / 51
Spring Return Time (s)	≤10	≤10	≤10	≤10
Spring Life (Times)	20000	20000	10000	10000
Output Flange (ISO5211)	F07 / F10	F07 / F10	F10 / F14	F12 / F14
Ambient Temperature	-25~65°C (without manual) / 0-65°C (with manual)			
Relative Humidity	95%			
Enclosure Protection	IP67 / NEMA 4 / 4X			
Manual Override	Optional			
Manual Operation Mode	Power off operation with locking device			
Fail-Safe Return Direction	Default clockwise (CW); counterclockwise (CCW) optional. Direction is viewed from the actuator top/output shaft side and must be specified when ordering.			
Intermediate Stop	Electromagnetic brake control			
Cable Entry	2 × 3 / 4" NPT cable entries			
Lubrication	Grease			
Limit Switches	Mechanical limit on both directions			
Color	Default white upper cover, black body			

STANDARD CONFIGURATION AND ORDERING CODE

The following table shows the standard configuration of ESR series actuators.

Model	ESR050	ESR150	ESR300	ESR600
 Torque (N·m)	50	150	300	600
 Control Mode	O (On / Off)	O (On / Off)	O (On / Off)	O (On / Off)
 Voltage	d (220VAC)	d (220VAC)	d (220VAC)	d (220VAC)
 Control Unit	M2	M2	M2	M2
 Explosion-Proof Grade	E00	E00	E00	E00
 Color	M (red cover black body)	M (red cover black body)	M (red cover black body)	M (red cover black body)
 Signal Code	K2	K2	K2	K2
 Return Direction	CW	CW	CW	CW
 Flange	F07	F07	F10	F12