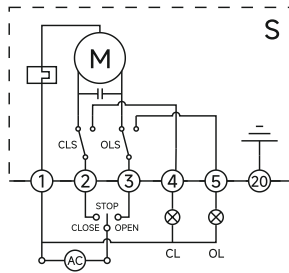




Explosion-Proof Electric Actuator Selection Manual

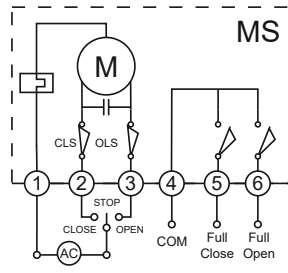
Circuit Diagram



S

Switching Action Mode:

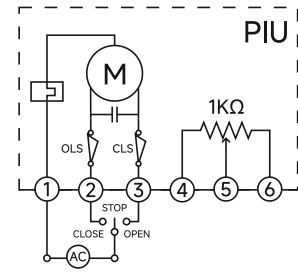
Switching operations (open/close) are achieved via AC switching signals, and a set of active position signals indicating fully open/fully closed status are output.



MS

Switching Action Mode: Outputs passive contact signals.

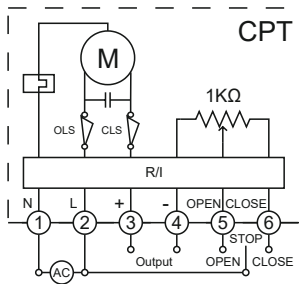
Structure: Equipped with two intermediate position switches.



PIU

Switching Action Mode: Outputs 0~1000Ω feedback signal.

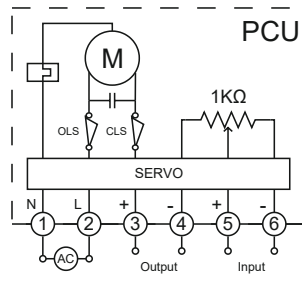
Structure: Equipped with 500Ω or 1kΩ potentiometer.



PCU

Regulating Action Mode: Accepts 4~20mA control signal input and outputs 4~20mA valve position feedback signal.

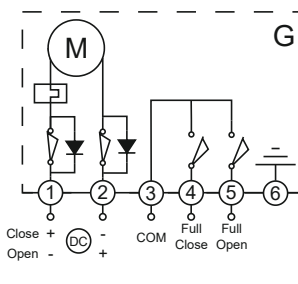
Structure: Integrated with 1kΩ potentiometer and control module (servo amplifier).



CPT

Switching Action Mode: Outputs 4~20mA valve position feedback signal.

Structure: Equipped with 1kΩ potentiometer and R/I converter.



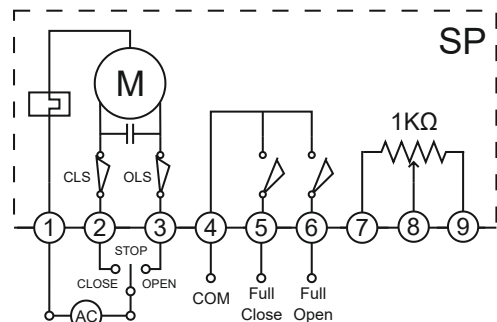
G

DC switching signals are output from the circuit via an external DC power supply to control the opening/closing program, and a set of passive contact signals corresponding to fully open/fully closed positions are provided.

SP

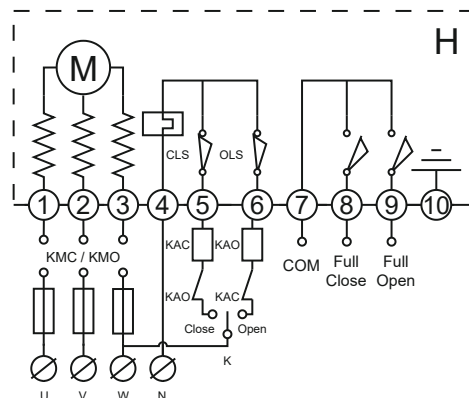
Switching Action Mode: Controls valve opening angle via switching circuit, corresponding to potentiometer resistance value, while enabling intermediate position control function.

Structure: Integrated with potentiometer and intermediate position switch.



H

Three-phase AC switching signals are output through an external three-phase power phase-reversing circuit to control opening/closing operations, accompanied by a set of passive contact signals for fully open/fully closed position indication.



Explosion-proof Electric Actuator Part-turn

EA-50~2500-Ex

Explosion-proof Product Introduction

The EA series explosion-proof products adopt an integral flameproof structure, complying with GB/T 3836.1-2021 Explosive atmospheres – Part 1: Equipment – General requirements and GB/T 3836.2-2021 Explosive atmospheres – Part 2: Equipment protection by flameproof enclosures "d".

The flameproof enclosure assembled from all explosion-proof components withstands internal explosion pressure of flammable gas mixtures and prevents internal explosions from igniting external hazardous atmospheres.

EA series integrated electric actuators deliver output torque of 50 N·m to 600 N·m. They serve on/off and modulating control for rotary equipment including ball valves, butterfly valves, dampers and fluid couplings.



Standard Type



Direct Mount Type

Explosion-proof Grade: Ex db IIC T6 Gb Ex tb IIIC T80°C Db

Ex: Explosion-proof marking for China and IEC standards.

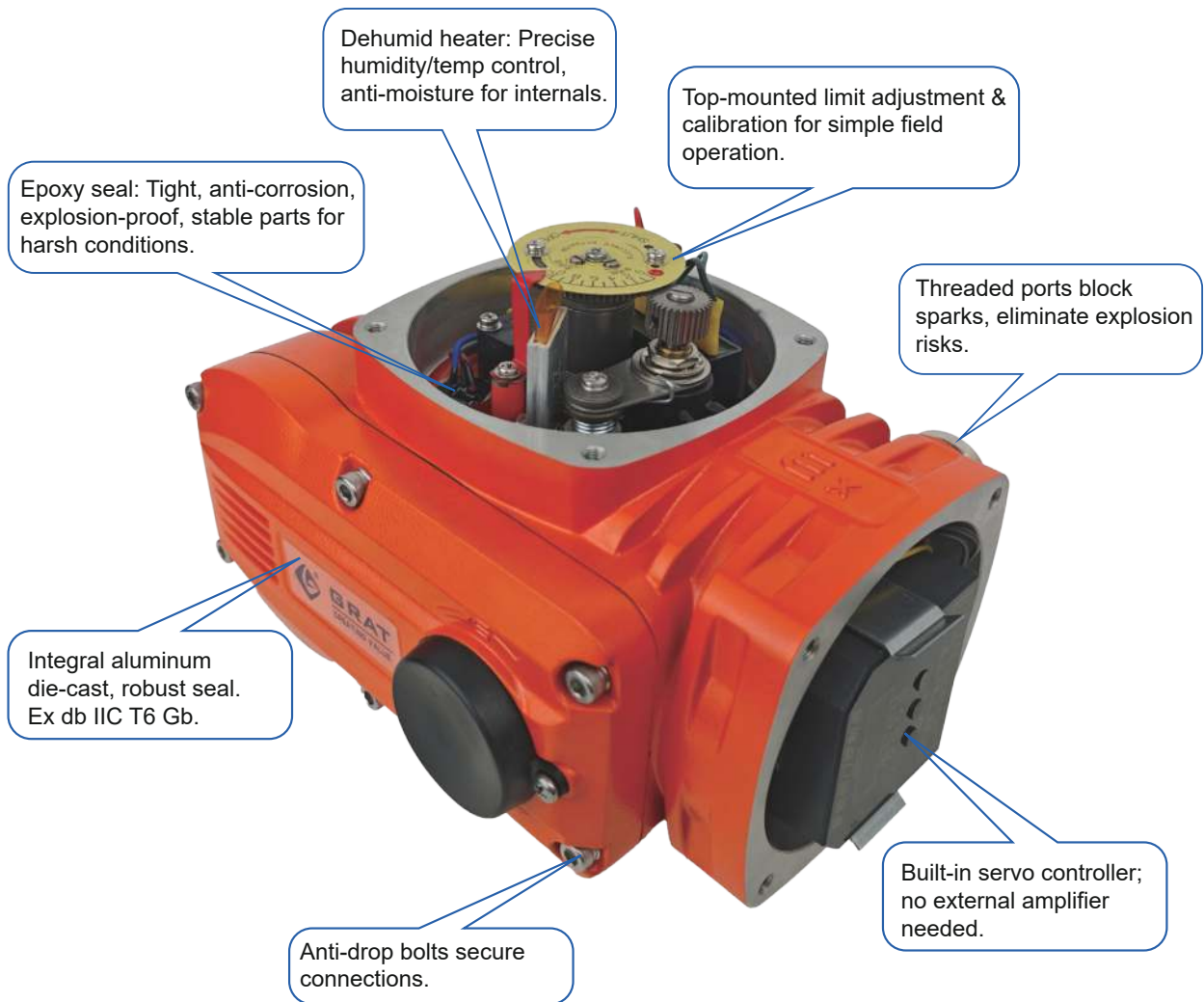
db: Flameproof protection type; enclosure isolates potential ignition sources, suitable for Zone 1 and Zone 2.

IIC: Applicable to Class II C hazardous gas atmospheres, the highest explosion gas classification, covering Class II A and II B scenarios.

T6: Temperature class ranging from T1 to T6. T6 means maximum surface temperature ≤ 85°C.

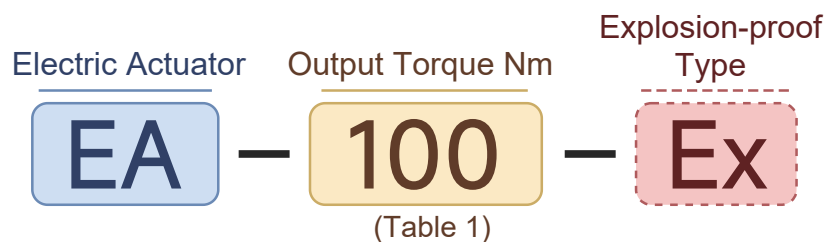
Gb: Equipment protection level for Zone 1 and Zone 2 explosive gas environments.

Structure and Characteristics of Explosion-proof Products



- ◎ Power Supply: Multi-voltage compatible for all demands.
- ◎ Mounting: ISO 5211 standard, tight seal, low maintenance cost.
- ◎ Structure: CNC machined high-grade aluminum, reliable flameproof for hazardous areas.
- ◎ Flameproof Joint: $\geq 12.5\text{mm}$ long, gap $< 0.15\text{mm}$, spark-proof.
- ◎ Epoxy Encapsulation: $\geq 20\text{mm}$ length, improved sealing & insulation.
- ◎ Threaded Flameproof Joint: $\geq 8\text{mm}$ engagement, ≥ 5 threads, enhanced explosion resistance.
- ◎ Single Chamber: Fully enclosed electric & mechanical parts to isolate ignition sources.

Selection Instructions



- ◎ Output torque: N·m, including 50/100/200/400/600;
- ◎ EA-100-Ex indicates: an electric explosion-proof actuator with an output torque of 100 N·m.

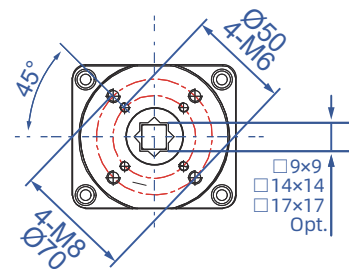
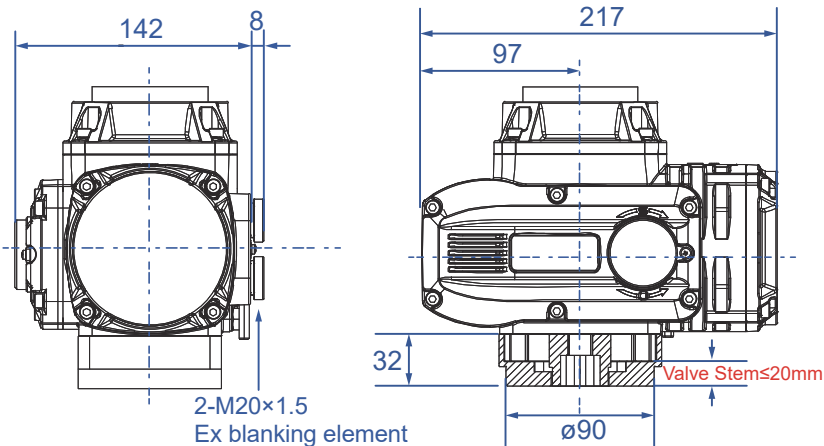
(Table 1) Explosion-proof Actuator Standard Models & Specs

Model		EA-50-Ex	EA-100-Ex	EA-200-Ex	EA-400-Ex	EA-600-Ex
Output Torque		50N·m	100N·m	200N·m	400N·m	600N·m
Recommended Compatible Valve Body	Ball Valve	DN15-40	DN50-65	DN65-80	DN100-125	DN125-150
	Butterfly Valve	DN32-50	DN50-125	DN150-200	DN200-250	DN300
Acting Time		20s	30s	30s	30s	45s
Rotation Angle		0~90°	0~90°	0~90°	0~90°	0~90°
Motor Power	AC24V	10W	25W	75W	150W	150W
	AC110V	10W	25W	40W	90W	90W
	AC220V	10W	25W	40W	90W	90W
	AC380V	6W	15W	30W	40W	40W
	DC24V	13W	25W	40W	70W	70W
Rated Current	AC24V	1.5A	2.12A	3.14A	6.25A	6.25A
	AC110V	0.24A	0.57A	0.63A	1.12A	1.18A
	AC220V	0.15A	0.30A	0.35A	0.64A	0.67A
	AC380V	0.07A	0.10A	0.19A	0.29A	0.29A
	DC24V	1.28A	2.03A	3.12A	7.8A	8.0A
Overall Weight		4.5Kg	5.0Kg	9.0Kg	9.5Kg	10.0Kg
Insulation Resistance		≥50MΩ/500VDC				
Withstand Voltage Class		DC24V: 500VAC for 1 min AC110V: 1000VAC for 1 min AC220V: 1500VAC for 1 min AC380V: 2000VAC for 1 min				
Protection Class		IP67				
Explosion-proof Grade		Ex db II C T6 Gb, Ex tb IIIC T80°C Db			Ex db II B T4 Gb	
Mounting Position		360° Adjustable				
Electrical Interface		2 off M20×1.5 flameproof plugs; fit matching flameproof cable glands per user cables				
Control Circuit		S / MS / PIU / SP / PCU / CPT / G / H Type				
Optional Functions		◆ Dehumidifying heater ◆ Passive contact switch ◆ Over-torque protection ◆ Field protection unit				
Test Standards		JB/T8219-2016, GB/T 3836.1-2021, GB/T 3836.2-2021				

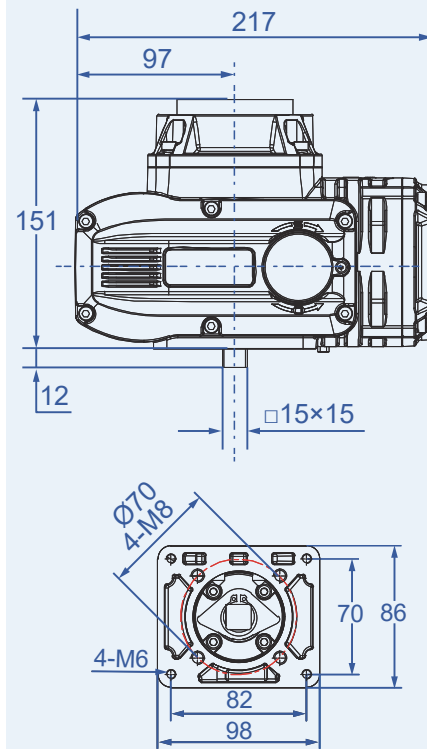
EA-50/100-Ex

Direct-Mount Type

Standard Type

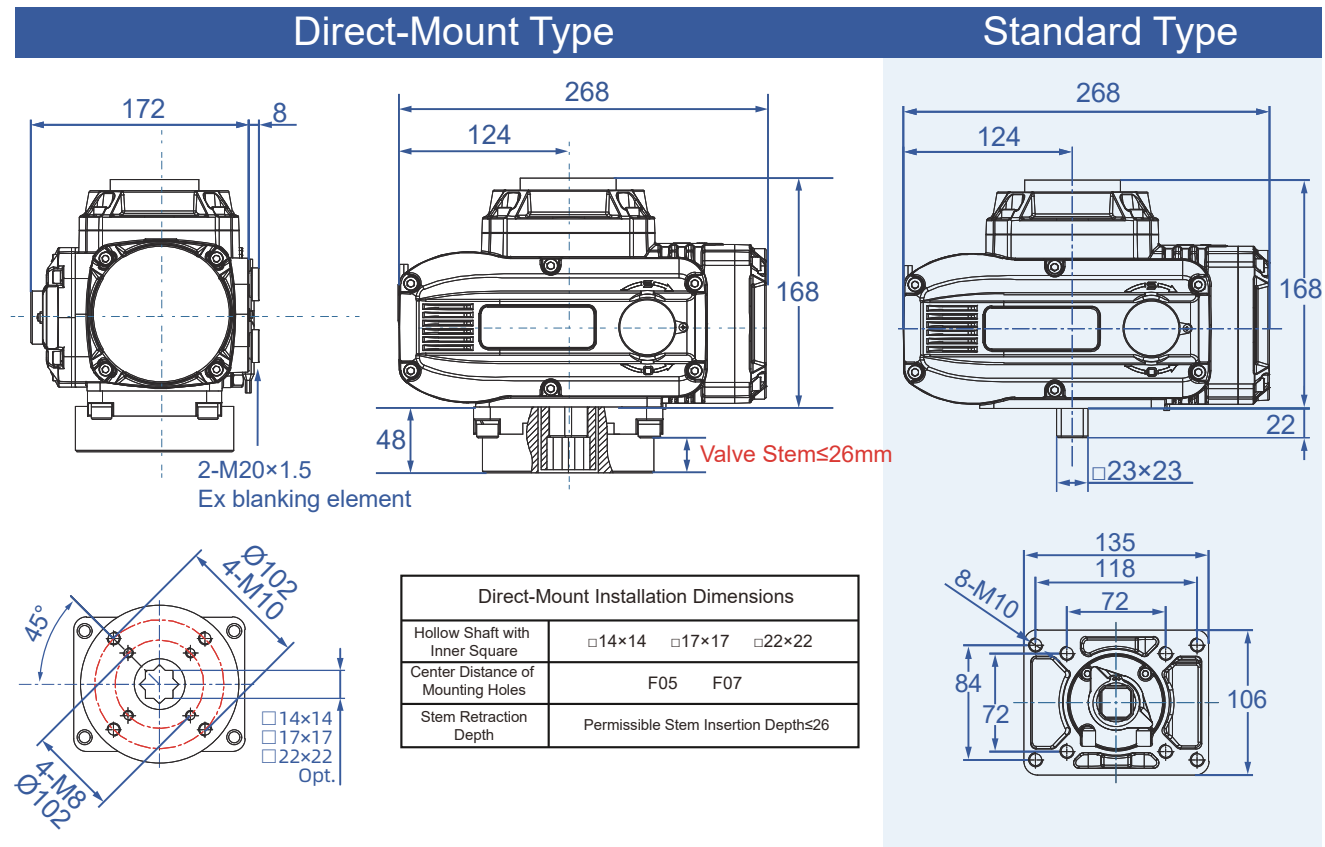


Direct-Mount Installation Dimensions			
Hollow Shaft with Inner Square	□9×9	□14×14	□17×17
Center Distance of Mounting Holes	F05	F07	
Stem Retraction Depth	Permissible Stem Insertion Depths ≤ 20		



Model	EA-50-Ex					EA-100-Ex				
Performance Parameters										
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V	DC24V	AC24V	AC110V	AC220V	AC380V
Motor Power	13W	10W	10W	10W	6W	25W	25W	25W	25W	15W
Rated Current	1.28A	1.5A	0.24A	0.15A	0.07A	2.03A	2.12A	0.57A	0.30A	0.10A
Standard Output	50N·m/15s					100N·m/30s				
Overall Weight	4.5 Kg					5.0 Kg				
Rotation Angle	0~360° arbitrary mounting angle									
Circuit Options	Type S/MS/PIU/SP/CPT/PCU/G/H									
Insulation Resistance	≥50MΩ at 500VDC									
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min									
Protection Grade	IP67									
Explosion-proof Grade	Ex db II C T6 Gb, Ex tb IIIC T80°C Db									
Mounting Method	360° free mounting									
Electrical Interface	2 pcs M20×1.5 flameproof plugs; install matching certified flameproof cable glands as per user cables									
Ambient Temperature	-20℃ ~ +40℃									
Optional Functions	Dehumidifying heater									

EA-200/400/600-Ex



Model	EA-200-Ex				EA-400-Ex				EA-600-Ex			
Performance Parameters	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V
Power Supply	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V	DC24V	AC110V	AC220V	AC380V
Motor Power	40W	40W	40W	30W	70W	90W	90W	40W	70W	90W	90W	40W
Rated Current	3.12A	0.63A	0.35A	0.19A	7.8A	1.12A	0.64A	0.29A	8.0A	1.18A	0.64A	0.29A
Standard Output	200N·m/30s				400N·m/30s				600N·m/45s			
Overall Weight	9 Kg				9.5 Kg				10 Kg			
Rotation Angle	0~360° arbitrary mounting angle											
Circuit Options	Type S/MS/PIU/SP/CPT/PCU/G/H											
Insulation Resistance	≥50MΩ at 500VDC											
Withstand Voltage Class	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min											
Protection Grade	IP67											
Explosion-proof Grade	Ex db II C T6 Gb, Ex tb IIIC T80°C Db											
Mounting Method	360° free mounting											
Electrical Interface	2 pcs M20×1.5 flameproof plugs; install matching certified flameproof cable glands as per user cables											
Ambient Temperature	-20℃ ~ +40℃											
Optional Functions	Dehumidifying heater											

Explosion-proof Electric Actuator Multi-turn

MA-50~200-Ex

Product Overview

This newly developed compact multi-turn explosion-proof electric actuator meets Ex db II B T4 Gb explosion-proof standard with IP68 enclosure protection and max 25 rotation cycles.

It supports multiple power supplies and on/off, modulating, feedback and integrated functions.

Compact, lightweight, stable and reliable, ideal for small & medium gate, globe, diaphragm and plug valves.

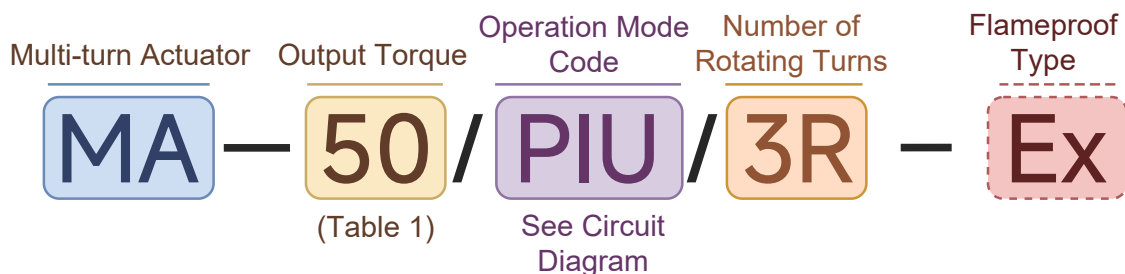


标准型



直装型

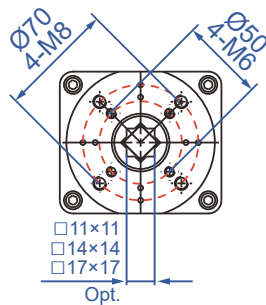
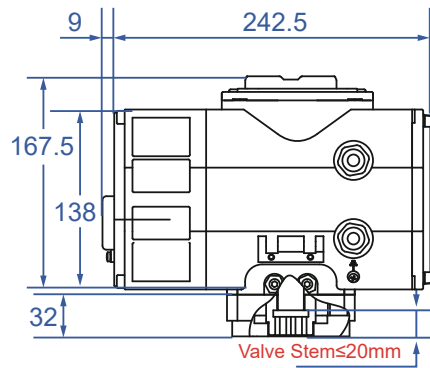
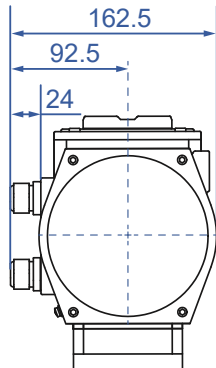
Selection Instructions



© MA-50/PIU/3R indicates: an actuator with an output torque of 50 Nm, an on-off operation mode that outputs a 0~1KΩ signal, and a multi-turn count of 3 revolutions.

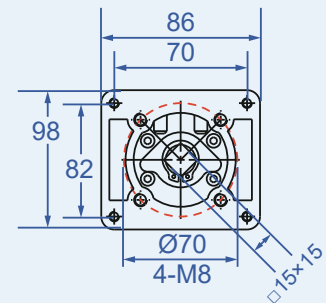
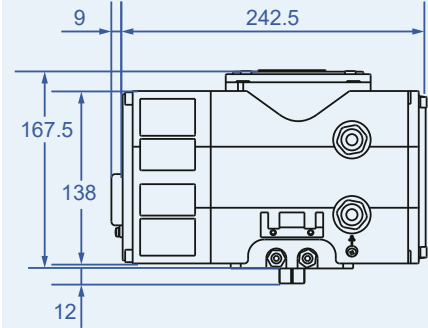
MA-50-Ex

Direct-Mount Type



Direct Mounting Specifications		
Square	□11×11 □14×14 □17×17	
Flange	F05 F07	
Valve Stem	length ≤ 20mm	

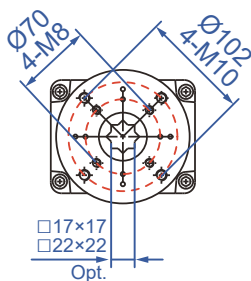
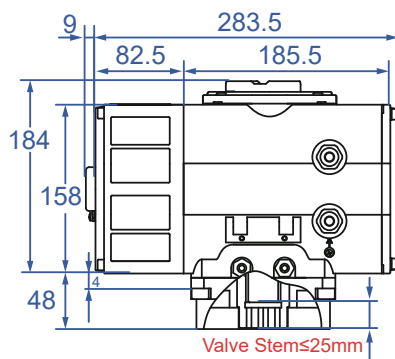
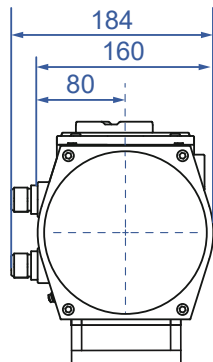
Standard Type



Performance Parameters	Model MA-50-Ex				
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V
Motor Power	50W	50W	50W	50W	65W
Rated Current	2.03A	2.12A	0.57A	0.23A	0.10A
Standard Output	50N·m, 5r/min				
Rotation Cycles	25 rotations				
Circuit Options	Type S/MS/PIU/SP/CPT/PCU/G/H				
Overall Weight	8 kg				
Insulation Resistance	≥50MΩ at 500VDC				
Withstand Voltage Grade	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min				
Protection Grade	IP67				
Explosion-proof Grade	Ex db IIB T4 Gb				
Mounting Method	360° free mounting				
Electrical Interface	2 M20×1.5 flameproof plugs; fit certified cables and matching flameproof cable glands on site				
Ambient Temperature	-30°C ~ +60°C				
Optional Functions	Over-torque protection, dehumidifying heater, local control unit				

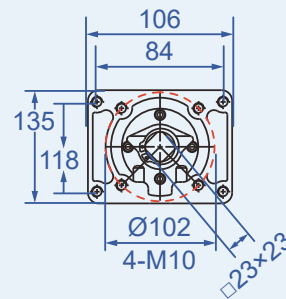
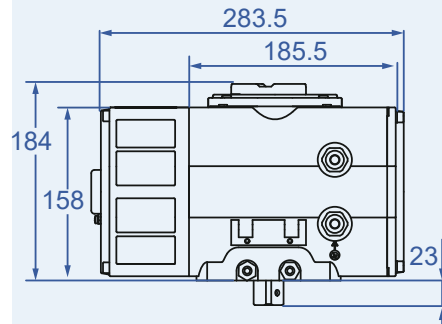
MA-100-Ex

Direct-Mount Type



Direct Mounting Specifications	
Square	□17×17 □22×22
Flange	F07 F10
Valve Stem	length ≤ 25mm

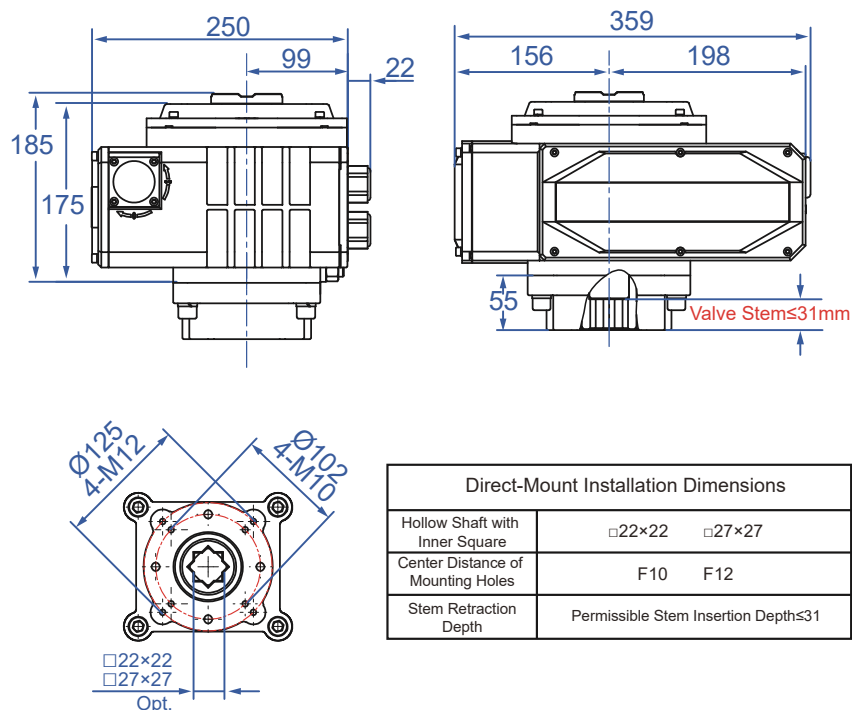
Standard Type



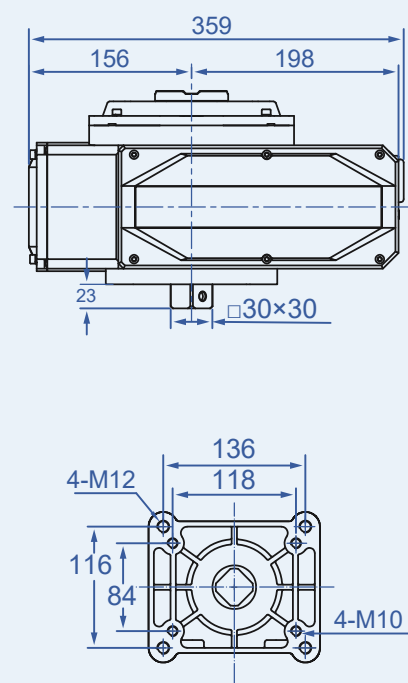
Performance Parameters	Model	MA-100-Ex				
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V	
Motor Power	180W	180W	120W	140W	180W	
Rated Current	7.8A	8.0A	1.12A	0.68A	0.29A	
Standard Output	50N·m, 5r/min					
Rotation Cycles	25 rotations					
Circuit Options	Type S/MS/PIU/SP/CPT/PCU/G/H					
Overall Weight	8 kg					
Insulation Resistance	≥50MΩ at 500VDC					
Withstand Voltage Grade	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min					
Protection Grade	IP67					
Explosion-proof Grade	Ex db IIB T4 Gb					
Mounting Method	360° free mounting					
Electrical Interface	2 M20×1.5 flameproof plugs; fit certified cables and matching flameproof cable glands on site					
Ambient Temperature	-30°C ~ +60°C					
Optional Functions	Over-torque protection, dehumidifying heater, local control unit					

MA-200-Ex

Direct-Mount Type



Standard Type



性能参数	MA-200-Ex		
Power Supply	AC110V	AC220V	AC380V
Motor Power	180W	220W	320W
Rated Current	1.75A	1.03A	0.48A
Standard Output	50N·m, 5r/min		
Rotation Cycles	25 rotations		
Circuit Options	Type S/MS/PIU/SP/CPT/PCU/G/H		
Overall Weight	8 kg		
Insulation Resistance	≥50MΩ at 500VDC		
Withstand Voltage Grade	DC24V: 500V for 1 min; AC110V: 1000V for 1 min; AC220V: 1500V for 1 min; AC380V: 2000V for 1 min		
Protection Grade	IP67		
Explosion-proof Grade	Ex db IIB T4 Gb		
Mounting Method	360° free mounting		
Electrical Interface	2 M20×1.5 flameproof plugs; fit certified cables and matching flameproof cable glands on site		
Ambient Temperature	-30°C ~ +60°C		
Optional Functions	Over-torque protection, dehumidifying heater, local control unit		

Configuration Function

Mounting Kit - Bracket & Adapter

- **Universal Connection:** Adapts electric actuators to various valve stems (square, flat, or keyed) for flexible customization.
- **Rigid Support:** Secures perfect shaft alignment and eliminates vibration or deformation during high-torque operation.
- **Wear Protection:** Absorbs direct mechanical friction to protect core components and extend equipment lifespan.



DKJ Bracket

- **Mode Switching:** Integrated mechanical switching on DKJ bracket enables precise motion mode conversion.
- **Cost Reduction:** Modular bracket fits various controlled devices without actuator replacement to cut retrofit cost.
- **Torque Transmission:** High mechanical efficiency ($\geq 80\%$) ensures effective output torque transfer to controlled equipment.



Dehumidifying Heater

- **Moisture Proofing:** Heating reduces internal humidity of actuator in damp conditions such as basements and rainy outdoors to stop condensation, preventing circuit short and metal corrosion.
- **Temperature Control:** Maintains proper internal temperature under low ambient temperature to secure normal operation of electronics like sensors and controllers against cold-induced performance degradation.
- **Insulation Protection:** Prevents insulation deterioration of motor windings and terminals from moisture erosion to avoid electric leakage and breakdown.



Remote Control

- **Remote Operation:** Adjust actuator via 4-20mA or fieldbus signals without on-site attendance to control valve/damper opening for automatic systems.
- **Centralized Management:** Connect to central control system for unified monitoring and operation of multiple actuators to improve process coordination.
- **Emergency Response:** Remote control avoids personal hazards in hazardous high-temp, high-pressure or toxic working conditions.



Handwheel

- **Emergency Operation:** Manually turn handwheel to drive actuator during power cut or motor fault for normal valve/damper switching and continuous system operation.
- **Commissioning & Calibration:** Manually adjust actuator stroke during installation or maintenance to accurately set valve opening and mechanical limit parameters.
- **Safety Assurance:** Enable manual intervention upon automatic control failure to prevent overpressure and medium leakage caused by stuck equipment.
- **Maintenance Assistance:** Manual positioning facilitates easy access to internal parts and simplifies overhaul work.



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