

# Electric Actuator

Valve Accessories Professional Manufacturer

- MTQ Series Quarter Turn Electric Actuator
- MTM Series Multi-turn Electric Actuator
- MTQL Series Linear Stroke Electric Actuator



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<b>1</b>	<b>Company Introduction</b>
<b>2</b>	<b>MTQ Series Quarter Turn Electric Actuator</b>
2	Overview
2	Characteristic
5	TECHNICAL SPECIFICATION
7	DIMENSION
10	Model Code
<b>11</b>	<b>MTMS/MTMD Series Multi-turn Electric Actuator</b>
11	Overview
12	Characteristic
13	MTMS General Parameters
14	MTMSTECHNICAL SPECIFICATION
15	MTMS Output torque
19	MTMS Model Code
20	MTMS DIMENSION
21	MTMD Characteristic
22	MTMD TECHNICAL SPECIFICATION
23	MTMD Output torque
26	MTMD DIMENSION
30	MTMD Model Code
31	Multi-turn electric actuator supporting travel reducer combination torque
31	Multi-turn electric actuator with multi-turn reducer combination torque
<b>32</b>	<b>MTQL Series Linear Stroke Electric Actuator</b>
32	Overview
32	Characteristic
33	TECHNICAL SPECIFICATION
37	Model Code

**Introduction & Qualification Certificate**

**Introduction**

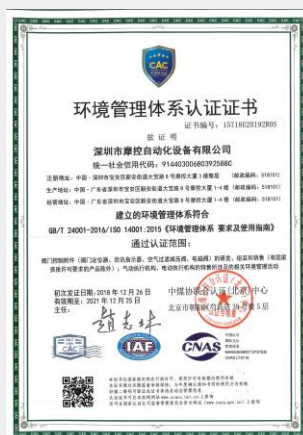
Shenzhen MORC Controls Co., Ltd. was established in October 2008, as Chinese High Technology and New Technology Enterprise and , it mainly engaged in the research, development ,production and sales of valve accessories. The company has gained ISO9001 quality management system and ISO14001 environmental management system certification, and successfully joined the HART Communications Foundation. The products have obtained CE, ATEX, NEPSI, SIL3 ,3C as well as other quality and safety certificates.

In June 2022, Anhui MORC Technology Co., Ltd. was officially put into production, with a total area of more than 10,000 square meters, which is the main production base of MORC products.

MORC product range involves in valve positioner, solenoid valve, limit switch, air filter regulator and Pneumatic /Electric Actuator, which are widely used in petrochemical, natural gas, metallurgy, power, new energy, paper-making, foodstuff, pharmaceutical, water treat-ment industries, aerospace industry,shipping and so on. We are also capable of providing complete set of control valve and on-off valve solution as we have a very close relationship with valve manufacturer.

With the rapid development of industrialization, automation and intelligence in the world, MORC will adhere to the development philosophy of "quality first, technology first, continuous improvement, customer satisfaction", provide customers with better products and services, and build MORC into world's leading valve accessories brand.

**Qualification Certificate**



**Overview**



The MTQ Series electric actuator is designed and manufactured by MORC Corporation High-performance products, can provide you with the most suitable in the field of valve automation reasonable solution. The MTQ series electric actuator has high performance, High protection, small size, high integration, long service life, stable performance Settings and other advantages. It can be operated on site or controlled at a long distance.compliant 90° rotating ball valve, butterfly valve, windshield valve panel and other suitable for 90° Rorotating equipment can meet the needs of industrial automation control pipeline ask. Can be widely used in electric power, petroleum, chemical industry, metallurgy, water treatment, paper making, shipbuilding, building automation and other industries.

**Characteristic**

**Basic Character**

**User interaction interface**

Intelligent type is equipped with brand new UI control interface, with thespecialized remote control, achieves a variety of functions of the actuatorconfiguration operation. Supports multi-language, satisfies all kinds of demandsfrom the customer. It can also be customized based on special requirements.

**Engny efficiency**

Single-phase and DC power supply is optional, ultra-low energyconsumption, suitable for solar and wind powered applications.

**360° position indicator**

Adopts high strength, anti-sunlight and RoHS-compliant plastic 3D window indicator. Users are able to observe the stroke position of the actuator within the 360° visual angle as there' s no dead angles.

**Control mode**

**Non-invasive control**

Non-through-the-shaft magnetic switch design, it is controlled by the Hall switch inside the actuator. Equipped with local control / remote control / disable knob, and on / off / stop button(knob), accommodating with the indicator light and LCD screen to achieve non-invasive fieldcontrol operations.

**Infrared remote control**

The intelligent type actuator is able to provide different remote control sets based on different application requirements. Such as portable infrared remote control in general places, and explosion-proof remote control for hazardous locations.

**Patent mechanic design---Paving the way for future trend**

MTQ series of electric actuators are equipped with manual / electric automatic switching function. No clutch design thus enables the hand wheel to be rotated while the machine is running; this is to ensure the safety of the operator. Such design will be the mainstream trend in the future.

**Professional gear design**

The adoption of the planetary gear design achieved a combination of manual and electric control without the need of the clutch which ensures the operator' s safety. Above all, the unique solar planetary gear design has gotten the national patent. .

**Interchangeable spline sleeve**

Depending on the spindle of the valve, the output sleeve of the actuator is designed in spline form. The inner holes can be replaced into square holes and keyways and other different sizes. Fast debugging and replacing makes the operation more flexible.

**Interchangeable connecting flange**

The base connecting holes are in accordance with ISO 5211 standard, also with various connecting flange sizes. It can be replaced and rotated for the same type of actuators in order to achieve with different hole positions and angles of the valve flange connection purposes.

**Planetary gears**

Using high strength alloy steel for the planetary gear set, more compact and efficient, achieving greater output for the same volume. At the same time, having differential input for motor drive andhand wheel operation, we are therefore able to operate electrically and manually at the same time.

**Sprocket operatio**

Based on the features of operating manually and electrically without clutch mechanism, sprocket operation is more convenient to operate the valve at higher positions.

## MTQ Series Quarter Turn Electric Actuator

### Reliable & stable

#### Overload protection

The power will automatically shut off when the valve jam occurs. Thus preventing further damage to the valve and actuator.

#### Operational diagnosis

Intelligent actuators are equipped with multiple sensing devices. With the functions of real-time reflections of the control signal received by the actuator, fault alarm, operating parameters, status indication and other status. Multi-diagnostic function can locate the fault, thus making it easy for the users.

#### Password protection

Intelligent actuators possess classifiable password protection, which can be authorized to different operators to avoid misuse which causing the actuator failure.

#### Operational safety

F grade insulation motor. The motor winding has a temperature control switch to sense the temperature of the motor to protect the over heating issues, thus ensures the operational safety of the motor. (H grade optional). Installed with heater inside the actuator used to remove the internal condensation which cause damages to electrical parts.

#### Moisture resistance

Installed with heater inside the actuator used to remove the internal condensation which cause damages to electrical parts.

#### Phase sequence control

Phase detection and correction functions avoid the actuator being damaged by connecting to the wrong power supply.

#### Voltage protection

Protection against the high and low voltage situations.



### Working environment

#### Anti-corrosion protection

Epoxy resin enclosure meets NEMA 4X, customer-special painting is available.

#### Ingress protection

IP67 is standard, IP68 is optional.  
The definition of IP68 is: Depth of water: Maximum 7 m under water level. Duration of continuous immersion in water : Max. 72 hours.

#### Fireproofing grade

High temperature fireproof enclosure meets requirements in different situation. It can be customized according to special needs.

#### Explosion proof rating

Ex d IIC T6 design and IECEx, ATEX certifications which satisfy the requirements in hazardous locations.

#### Ambient temperature

Temperature range is from -25 °C to 70 °C

#### Ambient Humidity

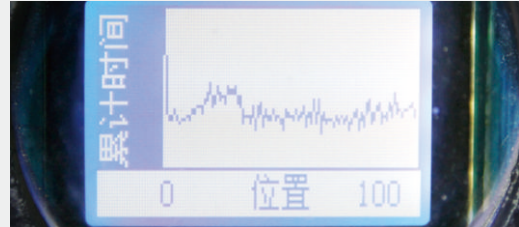
≤ 95 % ( at 25 °C ) .

## MTQ Series Quarter Turn Electric Actuator

### Data monitoring & management

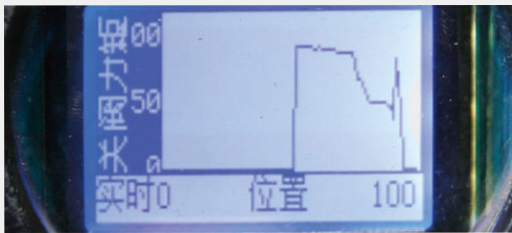


Super intelligent type actuators adopting high-performance microprocessors, real-time collection of valve position, torque and other operational information. Logical calculation truly reflects the operating status. Real-time monitoring & managing data provides references for the actuator maintenance.



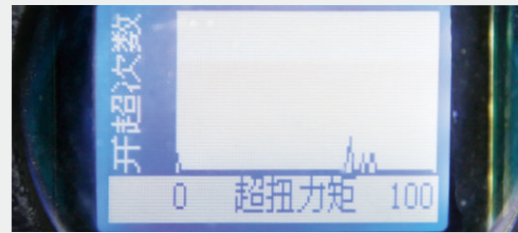
**Time-position curve**

The curve shows the running trend of the actuator, and the number of times the actuator has been passed at the corresponding positions.



**Average torque curve**

It records the average output torques in the corresponding positions of both OPEN and CLOSE directions. The operating load of the actuator can be detected via the curve.



**Operation trend curve**

The curve shows the cumulative number of positions corresponding to the control signal received by the actuator so far. It enables the clients to understand the overall controlling trend of the actuator.

### Installation & maintenance

- MTQ350 and above models are equipped with lifting ring for easy handling and on-site installation construction.
- The mounting flange is in accordance with ISO 5211 international standard, and the replaceable spline sleeve makes the installation more flexible.
- The wiring cavity with double sealing structure can be selected, while the actuator is well sealed and protected when installed and debugged on site.
- $\alpha$  shrapnel terminal block, doesn't need to install a special wiring copper ring and can be directly connected. On-site installation is more convenient.
- Seal off lubrication design, without regular grease supplement, life-long maintenance-free.



## MTQ Series Quarter Turn Electric Actuator

<b>Technical specification</b>	<b>General Parameters</b>		Torque Range      On/Off Type: 35 - 20000 N.m; Modulating Type : 10 - 2000N.m; Intelligent Type : 100 - 2000N.m Stroke Time        11 - 155 s Ambient Temp.     -25 °C ... 70 °C , Optional : -40 °C ... 60 °C Anti-vibration Level    JB/T8219 Noise Level        Less than 75 dB within 1 m Electrical Interface    Two PG13.5 ( < 100N.m ) ,two PG16 ≥100N.m Ingress Protection    IP67 , Optional:IP68 Connection Size      IS05211	
	<b>Mechanical Parameters</b>		<b>Motor Specifications</b> <ul style="list-style-type: none"> <li>Class F, with thermal protector up to +135 °C (+275 °F)</li> <li>Optional: Class H</li> </ul>	
			<b>Working System</b> <ul style="list-style-type: none"> <li>On-off Type: S2 ~ 15 min, no more than 600 times per hour start</li> <li>Modulating type: S4~50% up to 600 triggers per hour</li> <li>Optional: 1200 times per hour</li> </ul>	
			<b>Applicable Voltage</b> <ul style="list-style-type: none"> <li>1 phase: Voltage (±10 %); Hz (±5 %)               <ul style="list-style-type: none"> <li>50 Hz (24, 220, 230, 240 V)</li> <li>60 Hz (24, 110, 120, 220, 230, 240 V)</li> </ul> </li> <li>3 phase: Voltage (±10 %); Hz (±5 %)               <ul style="list-style-type: none"> <li>50 Hz (220, 240, 380, 400, 460, 500, 525, 550 V)</li> <li>60 Hz (208, 220, 230, 240, 380, 440,460, 480 V)</li> </ul> </li> <li>DC : 24 V (±10 %)</li> </ul>	
			<b>Field Bus</b> <ul style="list-style-type: none"> <li>Modbus(LCD or SLCD only)</li> </ul>	
			<b>On/off Type Signal</b>	<b>Input</b> <ul style="list-style-type: none"> <li>Built-in contacts for 5A @ 250Vac (depending on the control box)</li> <li>Optoelectronic isolation</li> </ul>
				<b>Signal Feedback</b> <ul style="list-style-type: none"> <li>Opening stroke limit, closing stroke limit</li> <li>Opening over torque, closing over torque</li> <li>Optional: Semi-modulating type - position feedback potentiometer</li> <li>Optional: 4 ~ 20 mA to send</li> </ul>
				<b>Malfunction Feedback</b> <ul style="list-style-type: none"> <li>Integrated fault alarm: Motor overheating, over torque and such contacts</li> <li>Optional: Undercurrent protection contact</li> </ul>
<b>Modulating Type Signal</b>			<b>Input</b> <ul style="list-style-type: none"> <li>Input signal : 4 - 20 mA; 0 - 10 V; 2 - 10 V</li> <li>Input impedance : 250 Ω (4 - 20 mA)</li> </ul>	
			<b>Output</b> <ul style="list-style-type: none"> <li>Output signal : 4 - 20 mA;0 - 10 V; 2 - 10 V</li> <li>Output impedance : ≤ 750 Ω (4 - 20 mA)</li> </ul>	
	<b>Dead Zone</b> <ul style="list-style-type: none"> <li>Basic Type: ≤ 2.5 %</li> <li>Intelligent Type : 0.5 ~ 9.9 % adjustable rate within full stroke</li> </ul>			
<b>Control mode</b>	<b>Indication</b> <ul style="list-style-type: none"> <li>3D opening indicator , or Indicator of pointer</li> </ul>			
	<b>Operation Settings</b> <ul style="list-style-type: none"> <li>Settings done without opening cover(menu settings by the remote control)</li> </ul>			
	<b>Local Control</b> <ul style="list-style-type: none"> <li>On/off/remote control/fault indicator (Button type)</li> <li>Open/close/power indicator (Knob)</li> </ul>			
<b>Other</b>	<b>Intelligently Analyze Data Records</b> <ul style="list-style-type: none"> <li>Use infrared remote control to conduct fault diagnosis analysis on the display</li> </ul>			
	<b>Other Function</b> <ul style="list-style-type: none"> <li>Moisture-resistant heaters(anti-moisture device)</li> <li>Torque protection</li> <li>Motor overheat protection</li> <li>Phase correction(3-phase power supply only)</li> <li>Operation start up recording</li> <li>Operational trend records</li> <li>ESD can be set to fully opened, fully closed, and remain still</li> <li>Torque bypass</li> <li>Event log</li> <li>Operation time</li> <li>Average torque</li> <li>Valve torque curve</li> </ul>			



**MTQ Series Quarter Turn Electric Actuator**

**Parameters**



Model	Motor Power (W)	Max Output Torque (N.m)			Max Output Torque (lbf.in)			Running time (Sec)				ISO 5211	Remarks
		AC 110 V AC 220 V AC/DC 24 V	AC 220 V AC 380 V 3 phase	AC 110 V AC 220 V AC/DC 24 V	AC 220 V AC 380 V 3 phase	50 Hz		AC/DC 24 V	Fail-safe				
						AC 110 V AC 220 V	AC 380 V 3 phase						
MTQ001	5	10	-	89	-	13	-	13	-	F03/F04/ F05	Manual wrench		
MTQ002	8	20	-	177	-	12	-	12	-				
MTQ003	10	30	-	266	-	11	-	11	-				
MTQ004	10	35	-	310	-	11	-	-	8	F03/F05/ F07	Manual wrench options: Handwheel		
MTQ005		50	-	443	-	15	-	10					
MTQ008		80	-	708	-	22	-	15					
MTQ010	40	100	-	885	-	19	-	14	-	F05/F07/ F10/F12	Handwheel operation, planetary gear mechanism		
MTQ020		200	-	1770	-	39	-	28					
MTQ030		300	-	2655	-	39	-	28					
MTQ040	400	-	3540	-	29	-	21						
MTQ060	90	600	-	5310	-	39	-	28	F10/F12/ F14				
MTQ080		800	-	7080	-	47	-	34					
MTQ100		1000	-	8850	-	47	-	34					
MTQ130	120	1300	-	11505	-	47	-	34	F12/F14/ F16				
MTQ170		1700	-	15045	-	34	-	25					
MTQ200		2000	-	17700	-	34	25	-					
MTQ230	200	2300	-	20355	-	47	34	-	F14/F16				
MTQ350		3500	-	30975	-	76	55	-					
MTQ500		5000	-	44250	-	105	76	-					
MTQ800	8000	-	70800	-	143	103	-	F25					
MTQ1300	400	-	13000	-	115050	-	109	-	F25/F30				
MTQ1600		-	16000	-	141600	-	129	-					
MTQ2000		-	20000	-	177000	-	155	-					

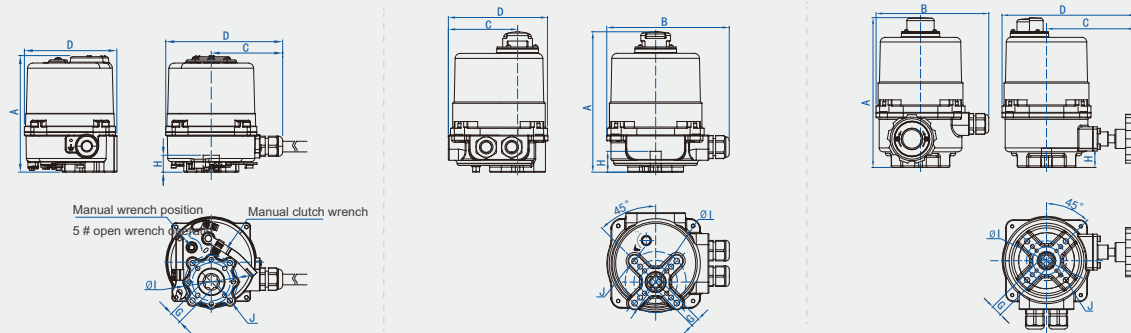
- Note: 1. Standard configuration.  
 2. Rated torque is 75 % of the max torque.  
 3. Motor insulation is class F, class H is optional.  
 4. The running time of 60 Hz is 5/6 of that of 50 Hz. The max output torque is the same as above.  
 5. MTQ001-003 no explosion-proof type.



## MTQ Series Quarter Turn Electric Actuator

### Dimensions

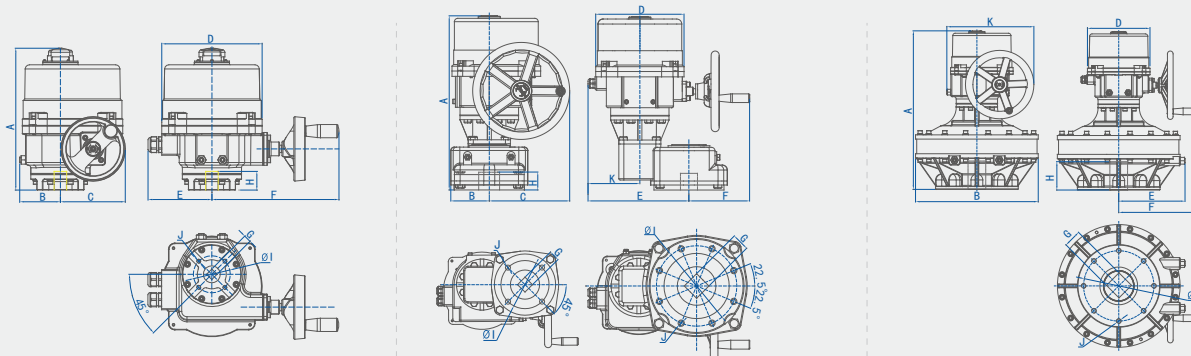
#### MTQ Basic Type



MTQ001-003

MTQ004-005(Wrench )

MTQ004-008(Handwheel )



MTQ010-230

MTQ350-800

MTQ1300-2000

Model	A	B	C	D	E	F	G	H	ΦI	J	Wight ( kg )	
MTQ001~3	110	111	71	87	-	-	11x11	16	36 42 50	4-M5 4-M5 4-M6	1	
MTQ004 On/Off	165	150	82	118	-	-	11x11 14x14	20	36 50 70	4-M5	3	
MTQ005 Modulate	185										3.2	
* MTQ004(H) On/Off	192		11x11 14x14	4-M6			3.6					
MTQ005(H) Modulate	212		17x17	4-M8			3.8					
MTQ010	268	77	123	216	121	240	14x14 17x17	35	70	4-M8	11	
MTQ020							22x22		102	4-M10	22	
MTQ040							22x22 27x27		102 125	4-M10 4-M12		
MTQ060	327	103	187	266	150	297	27x27	55	125	4-M12	36	
MTQ080									125	4-M12		
MTQ100												
MTQ170	380	127	242	293	161	333	27x27	65	125 140	4-M12 4-M16	76	
MTQ230									140 165	4-M16 4-M20		
MTQ350	532	118	242	293	308	186	40x40	85	165	4-M20	107	
MTQ500	545	160	242		343	160	55x55		130	165		4-M20
MTQ800										254		8-M16
MTQ1300	672	520	-	-	281	331	55x55 75x75	120	254	8-M16	218	
MTQ1600									298	8-M20		
MTQ2000												

\*(H): Manual Handwheel

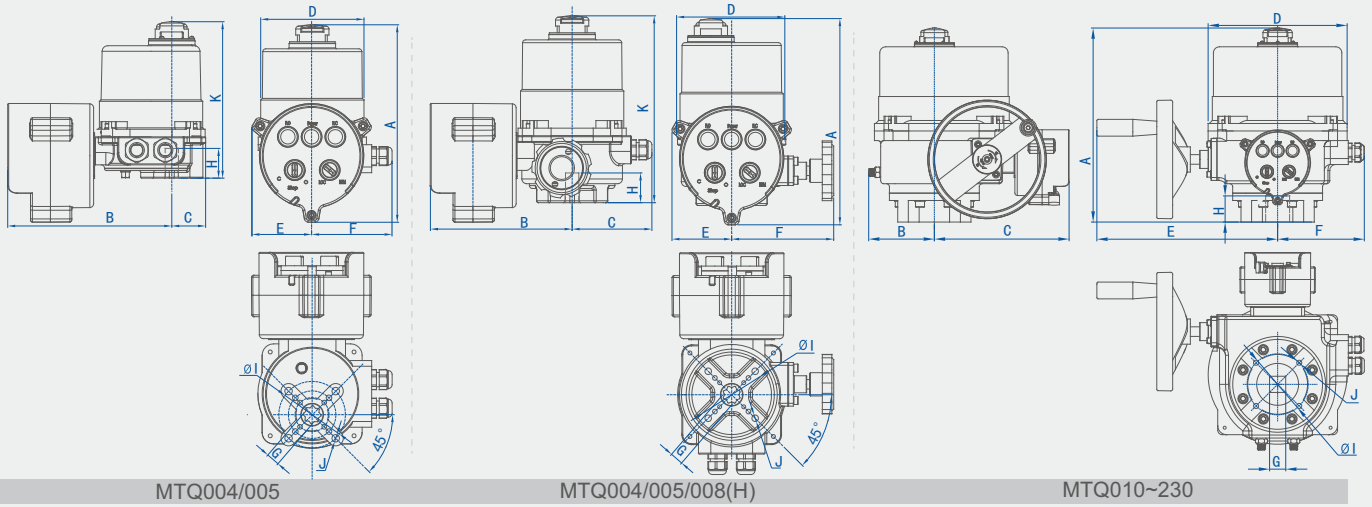
Note : 1. Dimension unit is mm.

2. Above "G" dimension is what we recommended. However, it can be customized according to customers' requirements.

3. Above "ΦI" and "J" dimensions are in accordance with ISO 5211 flange specifications. Which means that there's only one specification can be chosen, please specify when ordering.

**MTQ Series Quarter Turn Electric Actuator**

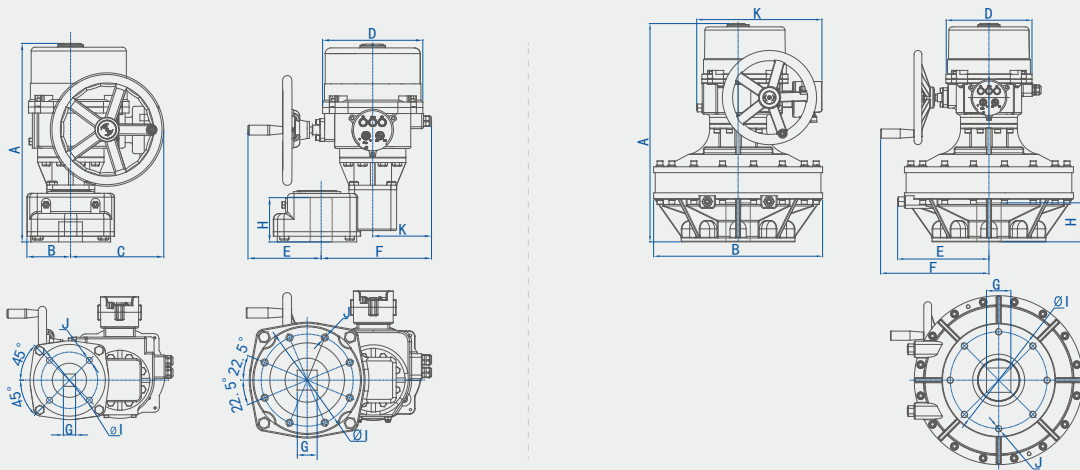
**MTQ+LCU**



MTQ004/005

MTQ004/005/008(H)

MTQ010~230



MTQ350~800

MTQ1300~2000

Model	A	B	C	D	E	F	G	H	Φ I	J	K	Wight (kg)
MTQ004 On/Off	207	173	36	114	63	85	11 X 11	20	36	4- M5	164	4.1
MTQ005 Modulate	227						14 X 14		50	4- M6		4.3
MTQ004(H) On/Off	217	149	84	114	63	108	11 X 11	20	36	4- M5	197	4.7
MTQ005(H) On/Off	217						14 X 14		50	4- M6		4.7
MTQ008(H) Modulate	237						17 X 17		70	4- M8		4.9
MTQ010	268	77	208	190	240	121	14 X 14	35	70	4- M8	-	12.2
MTQ020							17 X 17					
MTQ040	327	110	225	266	301	145	22 X 22	55	102	4- M10	-	23.2
MTQ060							22 X 22		102	4- M10		
MTQ080							27 X 27		125	4- M12		
MTQ100							27 X 27		125	4- M12		
MTQ170							27 X 27		125	4- M12		
MTQ230	380	127	248	265	333	161	36 X 36	65	125	4- M12	-	37.2
MTQ350	532	118	242	265	194	292	40 X 40	85	140	4- M16	156	77.2
MTQ500							46 X 46		165	4- M20		
MTQ800	545	160	242	265	168	343	55 X 55	130	254	8- M16	156	108.2
MTQ1300							75 X 75		298	8- M20		
MTQ1600	672	520	-	265	281	331	55 X 55	120	254	8- M16	385	219.2
MTQ2000							75 X 75		298	8- M20		

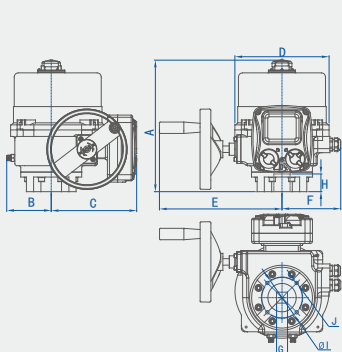
Note : 1. Dimension unit is mm.

2. Above "G" dimension is what we recommended. However, it can be customized according to customers' requirements.

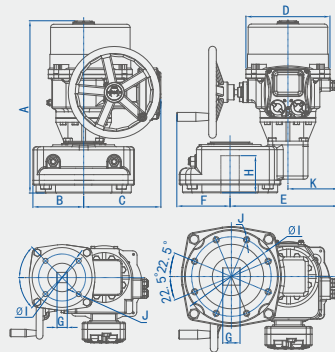
3. Above "ΦI" and "J" dimensions are in accordance with ISO 5211 flange specifications. Which means that there's only one specification can be chosen, please specify when ordering.

**MTQ Series Quarter Turn Electric Actuator**

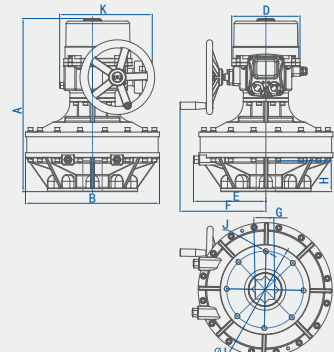
**MTQ+LCD**



MTQ010~230



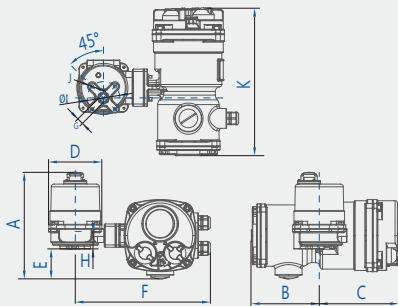
MTQ350~800



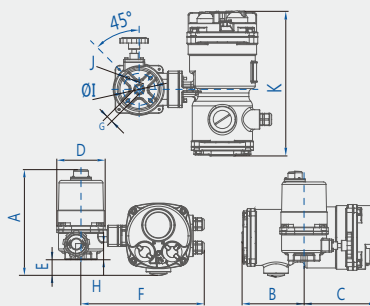
MTQ1300~2000

型号	A	B	C	D	E	F	G	H	ΦI	J	K	Wight (kg)
MTQ010	268	79	198	190	240	121	14×14	35	70	4-M8	-	13
MTQ020							17×17					
MTQ040							22×22					
MTQ060	327	110	210	232	301	145	22×22	55	102	4-M10	-	24
MTQ080							27×27		125	4-M12		
MTQ100							27×27		125	4-M12		
MTQ170	380	127	234	265	333	161	27×27	65	125	4-M12	-	38
MTQ230							36×36		140	4-M16		
MTQ350							40×40		85	4-M16		
MTQ500	545	160	244	265	168	343	46×46	130	165	4-M20	156	109
MTQ800							55×55		254	8-M16		
MTQ1300							254		8-M16			
MTQ1600	672	520	-	265	281	331	55×55	120	298	8-M20	385	220
MTQ2000							75×75					

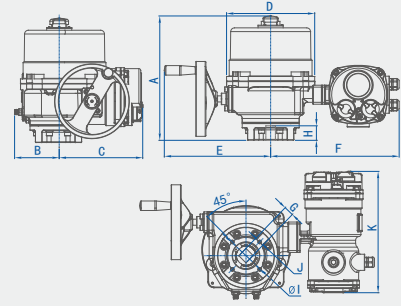
**MTQ+SLCD**



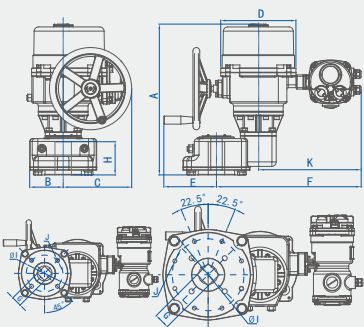
MTQ004/005



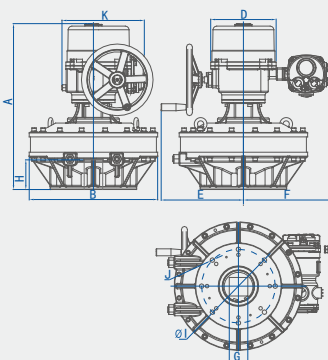
MTQ004/005/008(H)



MTQ010~230



MTQ350~800

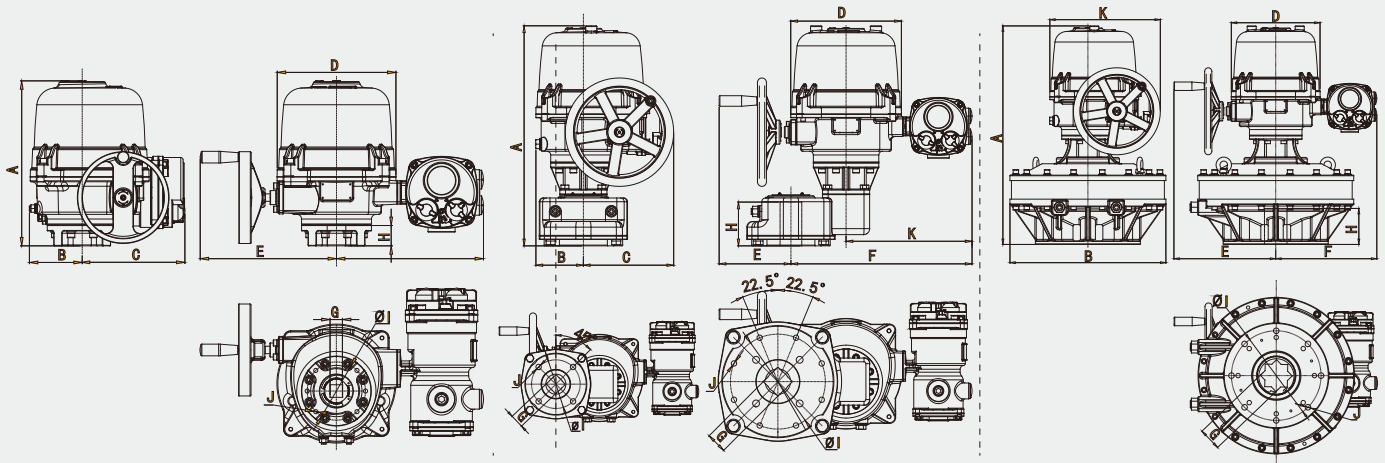


MTQ1300~2000

Model	A	B	C	D	E	F	G	H	ΦI	J	K	Wight(kg)
MTQ004/005	185	147	172	115	38	298	11×11	30	36	4-M5	319	8
MTQ004/005/008(H)	212				65		14×14		50	4-M6		
MTQ010	268	79	198	190	240	121	14×14	35	70	4-M8	319	13
MTQ020							17×17					
MTQ040							22×22					
MTQ060	327	110	210	232	301	338	22×22	55	102	4-M10	319	24
MTQ080							27×27		125	4-M12		
MTQ100							27×27		125	4-M12		
MTQ170	380	127	234	265	333	361	27×27	65	125	4-M12	319	38
MTQ230							36×36		140	4-M16		
MTQ350							40×40		85	4-M16		
MTQ500	545	160	244	265	168	545	46×46	130	165	4-M20	361	109
MTQ800							55×55		254	8-M16		
MTQ1300							254		8-M16			
MTQ1600	672	520	-	265	281	363	55×55	120	298	8-M20	333	220
MTQ2000							75×75					

**MTQ Series Quarter Turn Electric Actuator**

**MTQ+SLCD(Ex)**



	MTQ010~230				MTQ350~800				MTQ1300~2000			
Model	A	B	C	D	E	F	G	H	ΦI	J	K	Wight (kg)
MTQ010	286	83	160	209	242	294	14×14	35	70	4- M8	319	13
MTQ020							17×17					
MTQ040							22×22					
MTQ060	354	113	220	255	293	315	22×22	55	102	4- M10	319	24
MTQ080							27×27		102			
MTQ100							27×27		125			
MTQ170	415	127	242	296	340	337	27×27	65	125	4- M12	319	38
MTQ230							36×36		140			
MTQ350	589	127	242	296	192	484	40×40	85	140	4- M16	337	78
MTQ500							46×46		165			
MTQ800							55×55		165			
MTQ1300	729	520	-	296	340	337	55×55	120	254	8- M16	369	220
MTQ1600							75×75		298			
MTQ2000							75×75		298			

Note : 1. Dimension unit is mm.

2. Above "G" dimension is what we recommended. However, it can be customized according to customers' requirements.

3. Above "ΦI" and "J" dimensions are in accordance with ISO 5211 flange specifications. Which means that there's only one specification can be chosen, please specify when ordering.

**Model Code**

MTQ [1] - [2] [3] [4] [5] - [6] [7] - [8]

- [1] Out Torque    [2] Voltage code    [3] Ingress Protection    [4] Explosion-proof    [5] Ambient temp.    [6] Control Mode    [7] Field Bus<sup>[1]</sup>
- 001:10Nm    S : 220VAC/1PH    1 : IP67    1 : Non-Explosive    S: -20~70°C    K : On-Off    0: None
- 002:20Nm    T : 380VAC/3PH    2 : IP68    2 : ExdIICT6    L: -40~80°C    T : Modulate    H: HART
- 003:30Nm    D : 24VDC    3 : ExdIIBT6    H: -20~120°C    P: Profibus-DP
- 004:35Nm
- 005:50Nm    P : Other )
- 008:80Nm
- 010:100Nm
- 020:200Nm
- 030:300Nm
- 040:400Nm
- 060:600Nm
- 080:800Nm
- 100:1000Nm
- 130:1300Nm
- 170:1700Nm
- 200:2000Nm
- 230:2300Nm
- 350:3500Nm
- 500:5000Nm
- 800:8000Nm
- 1300:13000Nm
- 1600:16000Nm
- 2000:20000Nm

- [8] Optional
- 0:None(Basic Type)
  - 1: LCU(Local control unit)
  - 2: LCD(Intelligente Type )
  - 3: SLCD(Supper Intelligente Type)

[1] : HART Only for Modulate Type.

## MTM Series Multi-turn Electric Actuator

### Overview

Multi-turn electric actuator is an actuator with an output angle greater than 360°. It is suitable for multi-turn motion or linear motion valves, such as gate valve, stop valve, regulating valve and other similar valves. It can also cooperate with 90° worm wheel reducer to drive Angle stroke valves such as butterfly valve, ball valve, plug valve and other similar valves.

MORC multi-rotary electric actuator is divided into two series: MTMS and MTMD according to the application environment, and the direct output torque of MTMS series is 35N.m~3000N.m, output speed in the range of 18rpm~192rpm; MTMD series can directly output the torque of 50N.m~900N.m, output speed in the range of 18rpm~144rpm. These two series of products are divided into three types, namely, basic types, intelligent integration and intelligent types.

The MORC multi-rotation series electric actuator has the characteristics of safety, stability and reliability, which can meet the applications in different fields, and the customized services can meet the various needs of users.

### ▶ MTMS Series Multi-Rotary Electric Actuator/explosion-proof / non-explosion-proof environment



Basic Type



Intelligent Type

### ▶ MTMD Series Multi-Rotary Electric Actuator/non-explosion-proof environment



Basic Type



Intelligent Type

## MTM Series Multi-turn Electric Actuator

### Characteristic

#### Operational safety



F grade insulation motor. The different positions of the motor windings are arranged with two thermal protectors to sense the temperature of motor. This marvelous design ensures the operational safety of the motor (H grade is optional).

#### Anti-humidity resistance



Installed with heater inside the actuator used to remove the internal condensation which cause damages to electrical parts.

#### Clutch handle



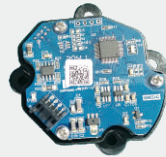
An ergonomically designed clutch handle is used to switch to the manual mode in the case of emergency or adjustment. Cooperating with the hand wheel, the clutch will disconnect from the motor drive to ensure personnel safety.

#### Infrared remote control



The intelligent type actuator is able to provide different remote control based on different application requirements. Such as portable infrared remote control in ordinary location and explosion-proof remote control for hazardous locations.

#### Multiloop absolute value encoder



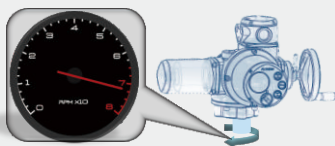
Using a 24-bit multi-loop photoelectric absolute encoder, enabling position recording of no less than 1024 rpm, minimum resolution less than 0.1% (minimum resolution of MTM is 5°), The absolute value type design can ensure the accurate record of the valve position under the condition of power loss.

#### Worm gear set



The adoption of high-strength alloy steel worm and high wear-resistant characteristics worm gear made of copper alloy. For its characteristics developed a worm gear & worm meshing device, for each pair of worm gear & worm are tested to ensure maximum transmission torque efficiency after the installation.

#### High speed output



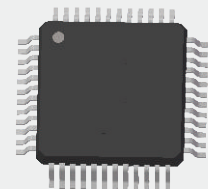
192 rpm can be achieved by all models in this series. Especially for the controlling of high speed valves and so on.

#### Non-invasive control



Non-through-the-shaft magnetic switch design, it is controlled by the Hall device inside the actuator. Equipped with local/off/remote knob, and open/stop/close button (knob), accommodating with the indicator light and LCD screen to achieve non-invasive field control operations.

#### High-performance microprocessor



The intelligent electric actuator uses high-performance microprocessor to collect the operation information such as valve position and torque in real time, and reflect the running state of the actuator, and monitor the management data in real time to provide reference for the maintenance of the actuator.

**MTMS Series Multi-turn Electric Actuator**

► **MTMS Series General parameter**

**Anti-corrosion protection:** Epoxy resin enclosure meets NEMA 4X, customer-special painting is available.

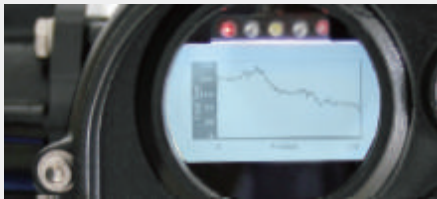
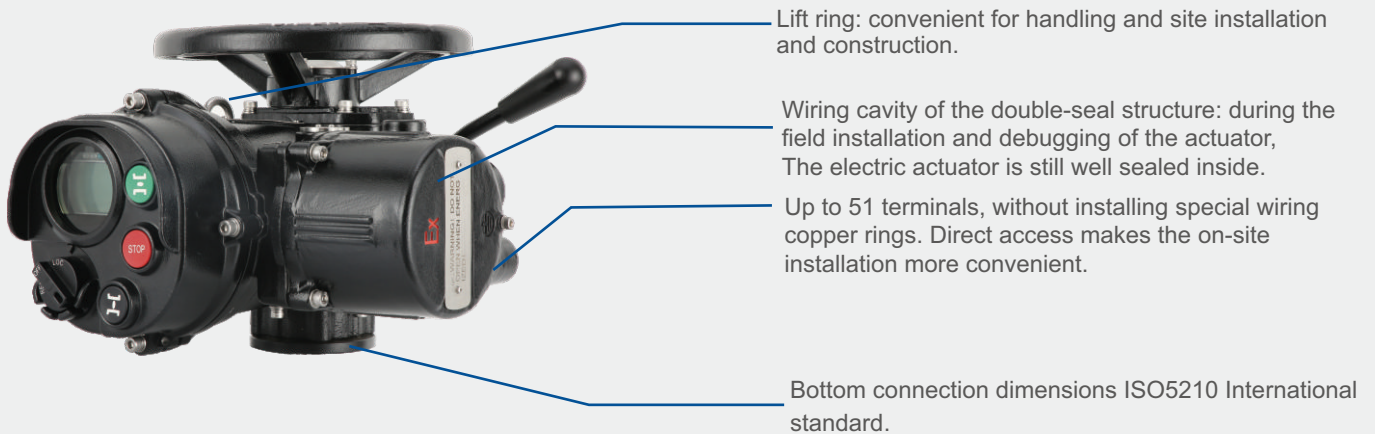
**Ingress protection:** Ip67 is standard, IP68 is optional.

**Fireproofing grade:** High temperature fireproof enclosure meets requirements in different situation. It can be customized according to special needs.

**Explosion-proof rating:** Ex d IIC T6 design and IECEx, ATEX certifications which satisfy the requirements in hazardous locations.

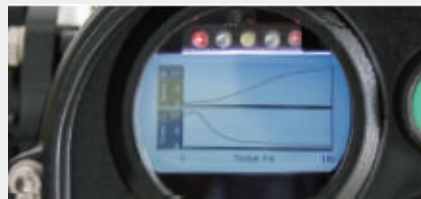
**Ambient temperature:** Temperature range is from -25 °C to 70 °C

**Ambient Humidity :** ≤ 95 % ( at 25 °C ) .



**Time position curve**

The curve shows the running trend of the actuator, and the number of times the actuator has been passed at the corresponding positions.



**Average torque curve:**

It records the average output torques in the corresponding positions of both OPEN and CLOSE directions. The operating load of the actuator can be detected via the curve.

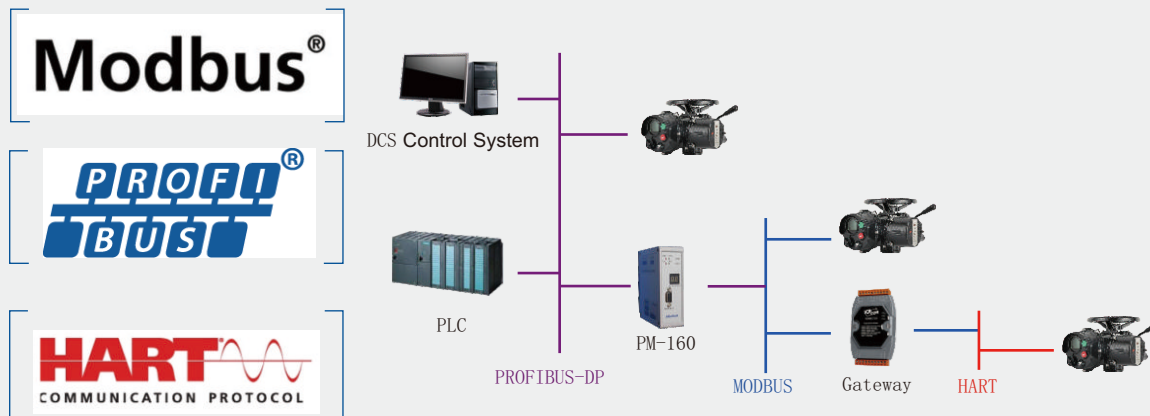


**Operation trend curve:**

The curve shows the cumulative number of positions corresponding to the control signal received by the actuator so far. It enables the clients to understand the overall controlling trend of the actuator.

► **Field-bus control function**

The fieldbus control system of electric actuator is flexible and flexible, which has strong applicability and expansion function, and can effectively solve the problems of interference noise, control distance, contact capacity and working environment. The fieldbus control system is generally composed of the main control station, the communication loop and the field unit. The MTMS series multi-rotary electric actuator currently supports optional communication protocols such as Modbus, Profibus-DP, HART and so on.



**MTMS Series Multi-turn Electric Actuator**

**Parameters**

Model		Basic Type	Intelligent Type(LCD)	Super Intelligent Type(SLCD)
Torque Range		35-3000N.m		
Speed	50Hz	18、24、36、48、72rpm	18、24、36、48、72、96、144、192rpm	
	60Hz	21、29、43、57、86rpm	21、29、43、57、86、115、173、230rpm	
Ambient Temperature		▪ -30°C~70°C(-22OF~158OF) Optional: -40°C~60°C(-40OF~140OF) JB/T8219		
Noise Level		▪ Less than 75 dB within 1 m		
Electrical Interface		▪ Two NPT 3/4, One NPT1 1/2		
Ingress Protection		▪ IP67, Optional:IP68		
Connection Size		▪ ISO5210(Thrust type\ torque type)and JB2920(Three claw type)▪ N/A		
Motor Specifications		▪ Class F, with thermal protector up to +135		
Working System	On-Off	▪ On-off Type: S2 ~ 15 min, no more than 600 times per hour start		
	Modulating	—	S4 ~ 25 %, up to 600 triggers per hour	
Applicable Voltage		<ul style="list-style-type: none"> <li>▪ 3 phase: AC 380 V (±10 %) /50/60 Hz (±5 %)</li> <li>3 phase 3 wires</li> <li>▪ Optional: 1 phase AC 220 V (1...3 series)</li> </ul>		
Input	On-Off	▪ Built-in contacts for 5 A at 250 VAC (depending on the control box)	▪ AC/DC 24 input, AC 110/220 V input(optional) ▪ Optoelectronic isolation	▪ 20-60V AC/DC or 60-120V AC ▪ Optoelectronic isolation
	Modulating	—	—	▪ Input signal: 4 ~ 20 mA; 0 ~ 10 V; 2 ~ 10 V ▪ Output impedance: ≤750 Ω (4 ~ 20 mA)
Signal Feedback	On-Off	<ul style="list-style-type: none"> <li>▪ Close the valve contact</li> <li>▪ Open the valve contact</li> <li>▪ Opening torque signal contact</li> <li>Closing torque signal contact</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local/remote contacts</li> <li>▪ Integrated fault contact (contact capacity: 5 A at 250 VAC)</li> <li>▪ Opening torque signal contact</li> <li>▪ Closing torque signal contact</li> </ul>	<ul style="list-style-type: none"> <li>▪ Relay X 5 (4 can be set to "natural open" or "natural closed" contacts. 1 integrated fault contact)</li> <li>A. Single or multi-phase power down</li> <li>B. Control circuit power failure</li> <li>C. Selection switch is in place or the stop position</li> <li>D. Motor temperature protector jumps off</li> </ul>
Malfunction Feedback	On-Off	▪ Motor overheating, over torque contacts	▪ Integrated fault alarm: Power off, motor overheating, Losing phase, over torque, lose signal,ESD, terminal output	<ul style="list-style-type: none"> <li>▪ Jammed valve protection</li> <li>▪ Lose signal protection</li> <li>▪ Phase correction</li> <li>▪ Torque switch</li> <li>▪ Thermal protection</li> <li>▪ Instantaneous reverse protection</li> <li>▪ Other alarms</li> </ul>
	Modulating	—	—	<ul style="list-style-type: none"> <li>▪ Support Signal Reverse and Loss Signa</li> <li>▪ Dead Zone:0 ~ 25.5 % adjustable rate within full stroke.</li> <li>▪ Time lag: 0 ~ 25.5 s (adjustable)</li> </ul>
Indication		▪ Pointer type opening indicator plate	▪ LCD screen disply Fully open/Fully close/remote/ fault indicator(digital display of the opening percentage)	▪ 4-level grayscale LCD screen opening indicator, Fully open/Fully close/remote/fault indicator

\*Note: The single phase in the above applicable voltage is only applicable to the MTMS 1-3 series. If there are other voltage requirements, please contact our business personnel to provide customized services.



**MTMS Series Multi-turn Electric Actuator**

**Out Torque**

▶ MTMS series three-phase On-Off Type (for no more than 600 movements per hour)

Model	Speed ( rpm)		Output Torque ( N.m)	Moto Power ( KW)	Current Rate ( A)		Start Current ( A)		Locked-rotor current ( A)		Maximum valve rod diameter ( mm)	
	50Hz	60Hz			220V	380V	220V	380V	220V	380V	A Type	B Type
	MTMS11	18			21	35	0.2	1.0	0.4	2.5	0.9	2.0
24		29	35	0.2	1.4	0.5	3.6	1.2	2.9	0.9		
36		43	35	0.2	1.4	0.7	3.5	1.8	2.8	1.4		
48		57	35	0.2	1.4	0.9	3.5	2.4	2.8	1.9		
72		86	35	0.35	2.3	1.4	5.7	3.6	4.5	2.9		
96		115	35	0.35	2.9	1.9	7.2	4.8	5.8	3.8		
*144		173	30	0.5	4.4	2.5	11	6.1	8.8	4.9		
*192		230	25	0.5	4.5	2.7	11.5	6.8	9.0	5.5		
MTMS12	18	21	80	0.35	2.2	0.8	5.4	2.1	4.8	1.8	32	22
	24	29	80	0.35	2.5	1.1	6.2	2.7	5.4	2.4		
	36	43	80	0.35	2.5	1.6	6.3	4.1	5.5	3.6		
	48	57	70	0.35	2.5	1.9	6.3	4.8	5.5	4.2		
	72	86	50	0.35	2.5	2.1	6.3	5.1	5.5	4.5		
	96	115	40	0.35	2.5	2.2	6.3	5.5	5.5	4.8		
	*144	173	35	0.6	3.9	2.9	9.8	7.2	8.6	6.3		
	*192	230	30	0.6	3.9	3.3	9.8	8.2	8.6	7.2		
MTMS13	18	21	105	0.45	2.7	1.1	6.8	2.7	5.4	2.2	32	22
	24	29	105	0.45	2.7	1.4	6.8	3.6	5.4	2.9		
	36	43	100	0.45	3.0	2.1	7.5	5.1	6.0	4.1		
	48	57	90	0.45	3.0	2.5	7.5	6.1	6.0	4.9		
	72	86	60	0.45	3.0	2.5	7.5	6.1	6.0	4.9		
	96	115	50	0.45	3.0	2.7	7.5	6.8	6.0	5.5		
	*144	173	40	0.7	4.6	3.3	11.5	8.2	9.2	6.6		
	*192	230	35	0.7	4.6	3.8	11.5	9.6	9.2	7.6		
MTMS21	18	21	200	1.1	5.6	2.1	14	5.1	11.2	4.1	47	32
	24	29	200	1.1	5.6	2.7	14.0	6.8	11.2	5.5		
	36	43	200	1.1	6.2	4.1	13.8	9.1	11.0	7.3		
	48	57	200	1.1	6.7	5.5	14.9	12.1	13.1	10.7		
	72	86	170	1.1	7.9	6.9	17.6	15.5	15.5	13.6		
	96	115	150	1.1	7.9	7.6	17.6	16.9	15.5	14.9		
	*144	173	100	1.5	9.4	8.2	20.9	18.2	18.4	14.9		
	*192	230	60	1.5	9.4	6.6	20.9	14.6	18.4	12.8		
MTMS22	18	21	300	1.1	6.8	3.1	17	7.7	13.6	6.1	47	32
	24	29	300	1.1	6.8	4.1	17	10.2	13.6	8.2		
	36	43	250	1.1	7.8	5.1	17.2	11.4	15.2	10.0		
	48	57	220	1.1	7.4	6	14.7	12	12.9	10.6		
	72	86	200	1.1	7.4	8.2	14.8	16.4	13.0	14.4		
	96	115	170	1.1	7.4	9.3	14.8	18.6	13.0	16.3		
	*144	173	120	1.8	11.3	9.8	22.6	19.6	19.9	17.3		
	*192	230	80	1.8	11.3	8.7	22.6	17.5	19.9	15.4		
MTMS23	18	21	400	1.25	8.8	4.1	22	10.2	17.6	8.2	47	32
	24	29	400	1.25	8.8	5.5	17.6	10.9	14.0	8.7		
	36	43	300	1.25	8.8	6.1	17.5	12.3	15.4	10.8		
	48	57	250	1.25	9.3	6.8	18.7	13.6	16.4	12.0		
	72	86	250	2	12.8	10.2	25.6	20.5	22.5	18.0		
	96	115	230	2	14.7	12.6	29.4	25.1	25.9	22.1		
	*144	173	150	2.3	13.8	12.3	27.6	24.6	24.3	21.6		
	*192	230	90	2.3	13.8	9.8	27.6	19.6	24.3	17.3		

**MTMS Series Multi-turn Electric Actuator**

Model	Speed ( rpm)		Output Torque ( N.m)	Moto Power ( KW)	Current Rate (A)		Start Current (A)		Locked-rotor current ( A)		Maximum valve rod diameter ( mm)	
	50Hz	60Hz			220V	380V	220V	380V	220V	380V	A Type	B Type
MTMS31	18	21	620	2.4	14.7	5.1	36.8	12.7	29.5	10.2	60	45
	24	29	620	2.4	12.2	5.9	30.5	14.8	24.4	11.8		
	36	43	550	2.4	13.8	7.9	30.7	17.5	27.0	15.4		
	48	57	480	2.4	17.4	9.2	38.7	20.4	34.0	17.9		
	72	86	480	3	17.4	13.8	38.7	30.6	34.0	26.9		
	96	115	370	3	17.4	14.1	38.7	31.4	34.0	27.6		
	*144	173	250	4	24.3	14.3	54.0	31.8	47.6	29.9		
	*192	230	200	4	15.3	16.1	33.9	35.7	29.9	31.4		
MTMS41	18	21	1050	3.5	7.5	7.5	18.8	18.8	16.5	16.5	83	60
	24	29	1050	3.5	10.0	10.0	22.3	22.3	20.1	20.1		
	36	43	850	3.5	12.2	12.2	27.1	27.1	24.3	24.3		
	48	57	700	3.5	13.4	13.4	29.7	29.7	26.7	26.7		
	72	86	700	3.5	20.1	20.1	44.6	44.6	41.4	41.4		
	96	115	550	3.5	21.0	21.0	46.7	46.7	43.4	43.4		
	*144	173	420	6.5	24.1	24.1	53.5	53.5	49.7	49.7		
	*192	230	250	6.5	19.1	19.1	42.4	42.4	39.5	39.5		
MTMS42	18	21	1500	5.3	8.6	15.2	21.5	21.5	19.3	19.3	83	60
	24	29	1500	5.3	11.5	16.5	25.5	25.5	22.9	22.9		
	36	43	1300	5.3	14.9	22.3	33.1	33.1	31.4	31.4		
	48	57	1050	5.3	16.0	19.7	35.6	35.6	33.9	33.9		
	72	86	1050	5.3	18.5	24.0	41.1	41.1	39.1	39.1		
	96	115	750	5.3	17.6	23.0	39.2	39.2	37.2	37.2		
	*144	173	650	11	22.9	25.5	50.9	50.9	48.4	48.4		
	*192	230	550	11	25.9	28.3	57.4	57.4	54.6	54.6		
MTMS43	18	21	2050	7.5	10.7	17.0	26.7	26.7	24.0	24.0	83	60
	24	29	2050	7.5	14.2	22.3	29.7	29.7	26.7	26.7		
	36	43	1750	7.5	18.2	24.0	37.9	38.0	35.3	35.3		
	48	57	1400	7.5	17.8	24.3	37.1	37.1	34.5	34.5		
	72	86	1400	7.5	22.9	36.2	47.7	47.7	45.3	45.3		
	96	115	1050	7.5	22.9	30.9	47.7	47.7	45.3	45.3		
	*144	173	880	15	28.8	37.3	60.0	60.0	57.0	57.0		
	*192	230	750	15	32.7	38.5	68.2	68.2	64.8	64.8		
MTMS44	18	21	3000	7.5	14.3	14.3	31.8	31.8	30.2	25.9	83	60
	24	29	3000	7.5	19.1	19.1	42.4	42.4	40.3	34.6		
	36	43	2050	9	19.6	22.6	43.5	50.2	41.3	48.2		
	48	57	1750	9	26.7	25.7	59.4	57.1	56.4	54.8		
	72	86	1750	9	40.1	38.6	89.1	96.4	84.6	92.5		
	96	115	1450	9	49.2	42.6	109.4	106.5	107.2	75.9		
	*144	173	1360	20	62.3	59.9	138.5	171.2	135.7	122.1		
	*192	230	1360	20	23.1	79.9	184.6	242.1	180.9	172.7		

- Note: 1. Above torque is the maximum torque. Please contact us if in need of special torque or speed.  
 2. Designed according to EN 15714-2009, Class A & B. The working time is S2 ~ 15 min.  
 3. Products with a\* means the speed inertia is larger. Therefore, directly driving the gate valves and other similar applications is not recommended. For multi-turn actuators with A-type lift nut connection mechanism, the maximum permissible shaft speed (output speed) must follow:  
 A. The maximum for gate valve is 500 mm/min.  
 B. For the cut-off valve is up to 250 mm/min (maximum 45 rpm).  
 4. Modulating duty is available for option; the intermittent duty is S4 ~ 25 % and up to 600 starts per hour.

**MTMS Series Multi-turn Electric Actuator**

► MTMS series three-phase Modulating Type (for no more than 1200 movements per hour)

Model	Speed ( rpm)		Output Torque ( N.m)	Moto Power ( KW)	Current Rate ( A)	Start Current ( A)	Locked-rotor current ( A)	Maximum valve rod diameter ( mm)	
	50Hz	60Hz			380V	380V	380V	A Type	B Type
MTMS11	18	21	35	0.2	0.6	1.4	1.1	32	22
	24	29	35	0.2	0.6	1.6	1.4		
	36	43	31	0.2	0.7	1.7	1.4		
	48	57	28	0.2	0.7	2.2	1.8		
	72	86	25	0.35	1.1	3.2	2.8		
MTMS12	18	21	60	0.35	1.1	3.2	2.7	32	22
	24	29	60	0.35	1.2	3.2	2.8		
	36	43	50	0.35	1.5	4.2	3.7		
	48	57	45	0.35	1.5	4.2	3.7		
	72	86	35	0.35	1.5	4.2	3.8		
MTMS13	18	21	80	0.45	1.4	3.9	3.2	32	22
	24	29	80	0.45	1.7	4.6	3.9		
	36	43	72	0.45	1.7	4.6	4.0		
	48	57	65	0.45	1.7	7.2	6.5		
	72	86	50	0.45	1.7	6.4	5.7		
MTMS21	18	21	160	1.1	3.0	7.0	6.3	47	32
	24	29	160	1.1	3.0	7.1	6.3		
	36	43	140	1.1	3.0	9.3	8.1		
	48	57	110	1.1	3.4	12.1	10.8		
	72	86	90	1.1	4.3	14.3	12.7		
MTMS22	18	21	240	1.1	2.9	9.1	8.6	47	32
	24	29	240	1.1	3.4	10.5	9.4		
	36	43	200	1.1	3.7	11.5	10.2		
	48	57	170	1.1	3.8	13.1	12.0		
	72	86	150	1.1	3.8	16.3	14.8		
MTMS23	18	21	300	1.25	4.2	15.9	14.3	47	32
	24	29	300	1.25	4.8	16.5	14.7		
	36	43	260	1.25	4.5	15.9	14.2		
	48	57	210	1.25	4.5	15.9	14.4		
	72	86	190	2	6.5	20.1	18.3		
MTMS31	18	21	550	2.4	7.4	25.8	23.3	60	45
	24	29	550	2.4	7.4	25.8	24.2		
	36	43	510	2.4	7.4	25.9	24.2		
	48	57	410	2.4	9.5	32.5	32.1		
	72	86	380	3	12.5	45.4	43.8		

Note: 1. Above modulating torque is 1/2 of the max torque.

2. Designed according to EN 15714-2009, Class C & D. With the standard startup frequency of 50 %, not exceeding 1200 starts per hour.

Please contact us for special inquiry.

**MTMS Series Multi-turn Electric Actuator**

▶ MTMS series Single-phase On-off Type

Model	Speed ( rpm )		Output Torque (N.m)	Moto Power (KW)	Current Rate ( A )	Start Current ( A )	Locked-rotor current ( A )	Maximum valve rod diameter ( mm )	
	50Hz	60Hz			220V	220V	220V	A Type	B Type
MTMS11	18	21	60	0.3	0.91	2.27	2.27	32	22
	24	29	60	0.3	1.21	3.03	3.03		
	36	43	50	0.4	1.82	4.54	4.54		
	48	57	50	0.4	2.42	6.06	6.06		
	72	86	35	0.4	2.67	6.66	6.66		
	96	115	35	0.4	3.55	8.88	8.88		
MTMS21	18	21	150	0.75	5.19	12.98	11.4	47	32
	24	29	150	0.75	6.92	17.31	15.2		
	36	43	130	1	7.62	19.04	16.8		
	48	57	100	1	10.15	22.56	19.9		
	72	86	50	1	12.95	28.77	25.3		
	96	115	50	1	15.23	33.85	31.1		
MTMS31	18	21	250	1.25	13.28	26.56	24.7	60	45
	24	29	250	1.25	12.88	25.75	24.0		
	36	43	200	1.5	17.13	34.27	31.9		
	48	57	170	1.5	18.28	40.62	38.6		
	72	86	130	1.5	27.42	60.92	57.9		
	96	115	100	1.5	28.18	62.62	59.5		

Note: 1. Above torque is the maximum torque. Please contact us if in need of special torque or speed.

2. Designed according to EN 15714-2009, Class A & B. The working time is S2 ~ 10 min.

**MTMS** [1] - [2] [3] [4] [5] [6] - [7] [8] - [9]

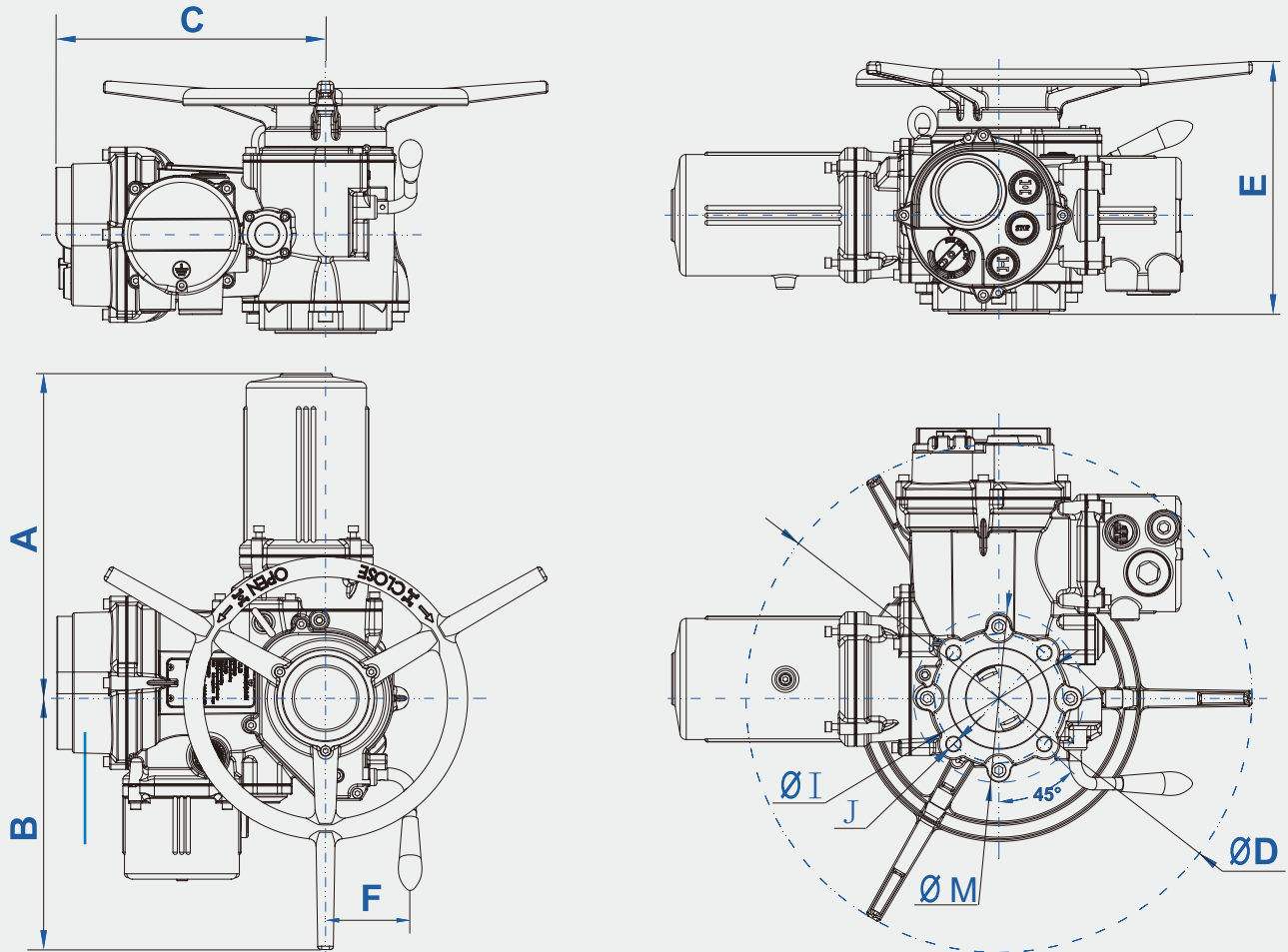
- |  |  |  |   |  |  |
|--|--|--|---|--|--|
| <b>[1] Output<sup>[1]</sup><br/>Torque</b><br>11:35Nm<br>12:80Nm<br>13:105Nm<br>21:200Nm<br>22:300Nm<br>23:400Nm<br>31:620Nm<br>41:1050Nm<br>42:1500Nm<br>43:2050Nm<br>44:3000Nm | <b>[2] Motor<br/>speed</b><br><b>50Hz</b><br>18: 18rpm<br>24: 24rpm<br>36: 36rpm<br>48: 48rpm<br>72: 92rpm<br>96: 96rpm<br>144: 144rpm<br>192: 192rpm<br><b>60Hz</b><br>21: 21rpm<br>29: 29rpm<br>43: 43rpm<br>57: 57rpm<br>86: 86rpm<br>115: 115rpm<br>173: 173rpm<br>230: 230rpm | <b>[3] Working<br/>Voltage</b><br>S : 220VAC/1PH<br>T : 380VAC/3PH<br>D : 24VDC<br>P : Other Voltage                               | <b>[4] Ingress<br/>Protection</b><br>1 : IP67<br>2 : IP68 | <b>[5] EXPLOSION-<br/>PROOF</b><br>1 : Non-Explosion<br>2 : ExdIICT6 | <b>[6] Ambient<br/>Temperature</b><br>S: -20~70°C<br>L: -40~80°C<br>H: -20~120°C |
| <b>[7] Control type</b><br>K: On-off<br>T: Modulate  | <b>[8] Field-Bus<sup>[2]</sup></b><br>0 : None<br>H : HART<br>M : Modbus<br>P : Profibus-DP  | <b>[9] Optional</b><br>0: None(Basic Type)<br>1: LCU(Field Control Unit)<br>2: LCD(Intelligent Type)<br>3: SLCD(Super Intelligent) |   |  |  |

[1]: The rated torque option is the corresponding torque at 18rpm, and please select the appropriate model by referring to the torque table.

[2]: The HART option is limited to conditioning options only.

**MTMS Series Multi-turn Electric Actuator**

**Dimension**



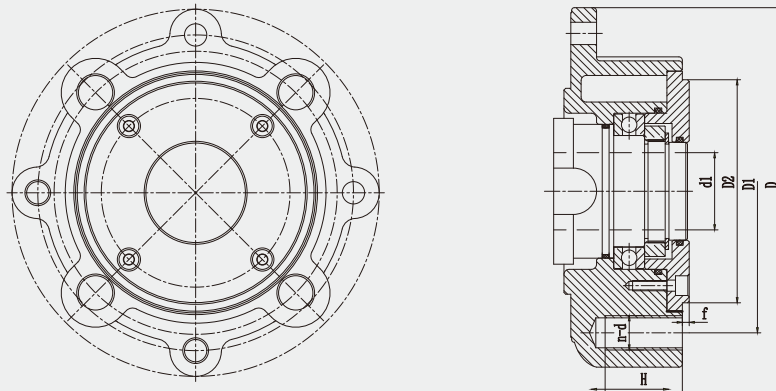
Unit : mm

Model	Dimension				E		F	ΦI	ΦM	J	Weight(kg)
	A	B	C	ΦD	Type A	Type B					
MTMS11/12/13	330	254	310	300	310	282	90	102	120	4-M10	25
MTMS21/22/23	384	283	331	509	335	303	111	140	175	4-M16	42
MTMS31	420	325	346	650	355	323	111	165	205	4-M20	60
MTMS41/42/43/44	580	465	510	930	568	440	140	298	335	8-M20	175

Note: All the above connection dimensions are ISO5210, the company can make corresponding connection parts according to customer requirements.

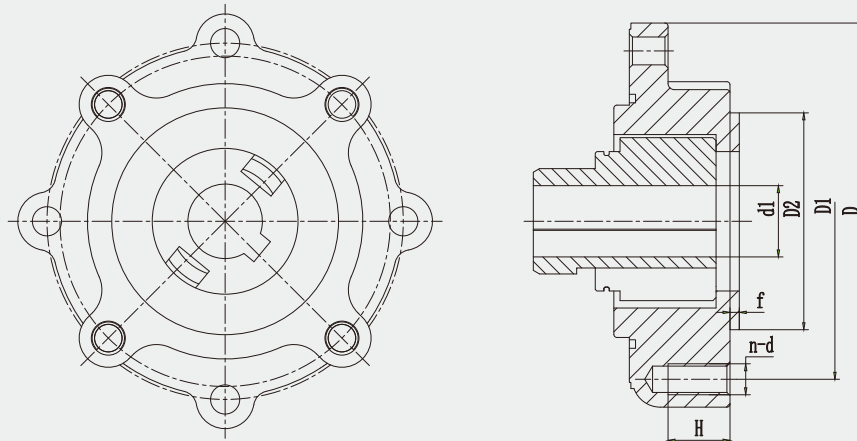
**MTMS Series Multi-turn Electric Actuator**

▶ **MTMS Series Type A output (Thrust) — standard GB / T12222 (ISO5210)**



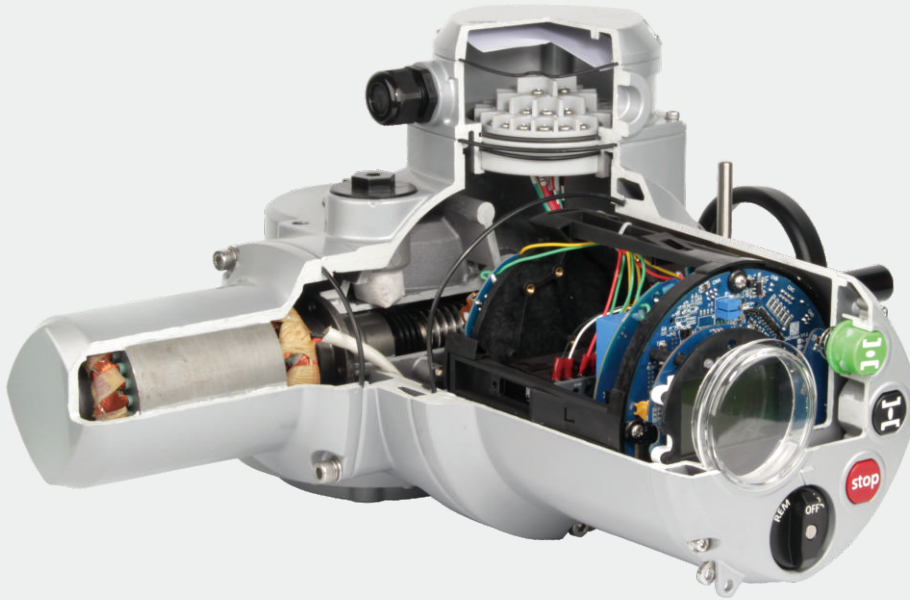
Model	Flange	ΦD	ΦD1	ΦD2	f	Φd1 ( Max. )	Φd1 (Standard)	n-d	a	H
MTMS11/12/13	F10	120	102	70	4	Φ 32	≤ Φ 22	4-M10	45°	15
MTMS21/22/23	F14	175	140	100	4	Φ 51	≤ Φ 32	4-M16	45°	24
MTMS31	F16	205	165	130	5	Φ 67	≤ Φ 45	4-M20	45°	30
MTMS41/42/43/44	F30	338	298	230	4	Φ 82	≤ Φ 70	4-M20	45°	30

▶ **MTMS Series Type B output (Torque) — standard GB / T12222 (ISO5210)**



Model	Flange	ΦD	ΦD1	ΦD2	f	Φd1 ( Max. )	Φd1 (Standard)	n-d	a	H
MTMS11/12/13	F07/F10	120	102	70	4	Φ 22	≤ Φ 20	4-M10	45°	15
MTMS21/22/23	F10/F14	175	140	100	4	Φ 32	≤ Φ 30	4-M16	45°	24
MTMS31	F16	205	165	130	5	Φ 45	≤ Φ 40	4-M20	45°	30
MTMS41/42/43/44	F30	338	298	230	4	Φ 60	≤ Φ 50	4-M20	45°	30

► MTMD Series Multi-turn Electric Actuator



Characteristic

1

The MTMD series multi-rotation electric actuators are designed for multi-rotation motion or linear motion of valves such as gates Application of valve, stop valve, regulating valve and other similar valves. It can also be matched with the worm gear reducer To drive the angle stroke valve such as butterfly valve, ball valve, cock valve and other similar valve applications.

2

The direct output torque of the MTMD series ranges from a wide range of 50N.m~900N.m, with an output speed of 18~144rpm, and the gearbox can output more torque to meet the torque requirements of various valve applications.

3

MORC multi-turn MTMD series, from the basic mining demand of the conventional standard type 15, the intelligent machine that can be used for configuration setting and intelligent feedback in the intelligent control project, Can both provide a suitable solution.

4

- Die-cast aluminum alloy enclosure
- Speed: 18-144 rpm
- High-cost-effective intelligent integration
- LCD display, without open cover debugging
- Full series of standard IP67 protection grade



**MTMD Series Multi-turn Electric Actuator**
**Parameters**

		Basic Type	Intelligent Type(LCD)	Super Intelligent Type(SLCD)
Torque Range		50-900N.m		
Speed	50Hz	18、24、36、48、72rpm	18、24、36、48、72、96、144rpm	
	60Hz	21、29、43、57、86rpm	21、29、43、57、86、115、173、230rpm	
Ambient Temperature		-30°C~70°C		
Noise Level		<ul style="list-style-type: none"> <li>Less than 75 dB within 1 m</li> </ul>		
Electrical Interface		<ul style="list-style-type: none"> <li>Standard with 2-NPT 1" and 1-NPT 1 1/2"</li> <li>Optional 3-NPT 3/4" (increased to 3-NPT 1")</li> </ul>	<ul style="list-style-type: none"> <li>Standard with 2-NPT 1" and 1-NPT 3/4"</li> <li>Optional 3-NPT 1" and 1"</li> </ul>	
Ingress Protection		<ul style="list-style-type: none"> <li>IP67, Optional: IP68</li> </ul>	IP68	
Connection Size		<ul style="list-style-type: none"> <li>ISO5210(Thrust type) torque type) and JB2920(Three claw type)</li> <li>N/A</li> </ul>		
Motor Specifications		<ul style="list-style-type: none"> <li>Class F, with thermal protector up to +135</li> </ul>		
Working System	On-Off	<ul style="list-style-type: none"> <li>On-off Type: S2 ~ 15 min, no more than 600 times per hour start</li> </ul>		
	Modulating	-	<ul style="list-style-type: none"> <li>S4:25%</li> </ul>	
Applicable Voltage		-	<ul style="list-style-type: none"> <li>3 phase: AC 380 V (±10 %) /50/60 Hz (±5 %)</li> <li>3 phase 3 wires</li> <li>Optional: 1 phase AC 220 V (1...3 series)</li> </ul>	
Input	On-Off	<ul style="list-style-type: none"> <li>Built-in contacts for 5 A at 250 VAC (depending on the control box)</li> </ul>	<ul style="list-style-type: none"> <li>AC/DC 24 input, AC 110/220 V input(optional)</li> <li>Optoelectronic isolation</li> </ul>	
	Modulating	-	<ul style="list-style-type: none"> <li>Input signal 4-20 mA(0-10V; 2-10V optional)</li> <li>Input impedance: 150 Ω / 4-20 mA</li> </ul>	
Signal Feedback	On-Off	<ul style="list-style-type: none"> <li>Close the valve contact</li> <li>Open the valve contact</li> <li>Opening torque signal contact</li> <li>Closing torque signal contact</li> </ul>	<ul style="list-style-type: none"> <li>1 set of integrated fault points; 5 sets of configuration contacts (contact capacity 5 A @ 250 Vac)</li> </ul>	
	Modulating	-	<ul style="list-style-type: none"> <li>Output signal: 4 ~ 20 mA(0-10V; 2-10V optional)</li> <li>Output impedance: ≤750 Ω (4 ~ 20 mA)</li> </ul>	
Malfunction Feedback	On-Off	<ul style="list-style-type: none"> <li>Motor overheating, over torque contacts</li> </ul>	<ul style="list-style-type: none"> <li>Integrated fault alarm: Power off, motor overheating, Losing phase, over torque, lose signal, ESD, terminal output</li> </ul>	
	Modulating	—	<ul style="list-style-type: none"> <li>Support Signal Reverse and Loss Signal</li> <li>Dead Zone: 0~2 %</li> </ul>	
Indication		<ul style="list-style-type: none"> <li>Pointer type opening indicator plate</li> </ul>	<ul style="list-style-type: none"> <li>LCD screen display</li> </ul>	<ul style="list-style-type: none"> <li>4-level grayscale LCD screen opening indicator, Fully open/Fully close/remote/fault indicator</li> </ul>

\*Note: The single phase in the above applicable voltage is only applicable to the MTMS 1-3 series. If there are other voltage requirements, please contact our business personnel to provide customized services.



**MTMD Series Multi-turn Electric Actuator**

**Out Torque**

▶ MTMD series three-phase(380V) On-off Type (for no more than 60 movements per hour)

Model	Speed ( rpm)		Output Torque (N.m)	Motor Power (KW)	Current Rate ( A)	Start Current ( A)	Locked-rotor current ( A)	Manual speed ratio	Standard valve rod diameter (mm)
	50Hz	60Hz							
MTMD05	18	21	50	0.35	1.0	2.1	1.8	80:1	≤30
	24	29	50	0.35	1.0	2.4	2.1	60:1	
	36	43	50	0.35	1.0	2.5	2.1	40:1	
	48	57	50	0.35	1.3	3.2	2.8	30:1	
	72	86	40	0.35	1.3	3.8	3.4	20:1	
MTMD10	18	21	100	0.35	1.3	3.6	3.2	80:1	≤30
	24	29	100	0.35	1.3	4.3	3.7	60:1	
	36	43	100	0.35	1.3	5.3	4.7	40:1	
	48	57	100	0.45	1.7	8.0	7.2	30:1	
	72	86	70	0.45	1.7	7.9	7.3	20:1	
	96	115	50	0.6	2.1	6.5	5.8	40:1	
	*144	173	40	0.6	2.1	6.9	6.1	20:1	
MTMD15	18	21	150	0.45	1.5	6.3	5.5	80:1	≤30
	24	29	150	0.45	1.5	6.3	5.5	60:1	
	36	43	150	0.45	1.5	7.2	6.5	40:1	
	48	57	120	0.7	2.3	6.8	5.9	30:1	
	72	86	100	0.7	2.5	7.4	6.7	20:1	
	96	115	75	0.7	2.7	9.8	8.4	40:1	
	*144	173	60	0.7	2.7	10.4	9.3	20:1	
MTMD20	18	21	200	0.75	2.2	6.9	6	80:1	≤42
	24	29	200	0.75	2.3	7.0	6.3	60:1	
	36	43	200	1.25	3.4	9.2	8.4	40:1	
	48	57	200	1.25	3.4	11.9	10.4	30:1	
	72	86	170	1.25	4.3	13.8	12.6	20:1	
	96	115	150	1.8	5.0	16.8	14.5	40:1	
	*144	173	100	1.8	5.2	14.0	12.6	20:1	
MTMD30	18	21	300	0.75	2.9	11.9	10.7	80:1	≤42
	24	29	300	0.75	2.9	12.4	10.8	60:1	
	36	43	300	1.25	4.5	16	14.8	40:1	
	48	57	250	1.25	5.4	19.5	18.2	30:1	
	72	86	200	1.25	5.2	16.5	14.9	20:1	
	96	115	170	1.8	5.6	19	17.4	40:1	
	*144	173	120	1.8	5.5	18.7	16.5	20:1	
MTMD40	18	21	400	1.25	4.2	15.9	14.3	80:1	≤42
	24	29	400	1.25	4.8	16.5	14.8	60:1	
	36	43	350	2	5.3	18.7	16.6	40:1	
	48	57	300	2	5.4	19.5	17.1	30:1	
	72	86	250	2	6.5	20.6	19	20:1	
	96	115	230	2.3	7	26.7	24.5	40:1	
	*144	173	150	2.3	6.9	20.3	18.7	20:1	

Note: 1. The above torque is the maximum torque of the electric actuator, the motor working is S2-15min, and the power supply is three-phase 380VAC.

2. With "\*" speed inertia is large, direct drive gate valve and other similar applications are not recommended.

**MTMD Series Multi-turn Electric Actuator**

▶ MTMD series three-phase(380V) On-off Type (for no more than 60 movements per hour)

Model	Speed ( rpm)		Output Torque (N.m)	Moto Power (KW)	Current Rate ( A)	Start Current ( A)	Locked-rotor current ( A)	Manual speed ratio	Standard valve rod diameter (mm)
	50Hz	60Hz							
MTMD50	18	21	500	2.2	6.7	21.1	19.4	80:1	≤50
	24	29	500	2.2	6.7	21.1	19.6	60:1	
	36	43	500	2.2	6.7	23.9	21.8	40:1	
	48	57	500	2.4	9.9	34.3	31.7	30:1	
	72	86	400	2.4	10.4	38.3	35.4	20:1	
	96	115	300	2.8	9.8	37.3	36.2	40:1	
	*144	173	200	2.8	12	49.3	47.6	20:1	
MTMD60	18	21	610	2.4	6.4	25.8	24.5	80:1	≤50
	24	29	610	2.4	6.4	25.8	22.4	60:1	
	36	43	610	2.4	8.2	29.1	27	40:1	
	48	57	550	3	12.1	41.8	39.4	30:1	
	72	86	450	3	13	47.9	45.6	20:1	
	96	115	330	4	13.1	49.7	47.3	40:1	
	*144	173	260	4	13.5	37.1	35.1	20:1	
MTMD90	18	21	900	2.9	8.5	30.6	28.4	80:1	≤50
	24	29	900	2.9	10.4	37.6	34	60:1	
	36	43	750	2.9	10.6	43.3	41.7	40:1	
	48	57	600	2.9	12.4	38.9	37.2	30:1	
	72	86	480	2.9	12.4	49.9	47.5	20:1	
	96	115	350	3.5	15.1	50.1	48.1	40:1	

Note: 1. The above torque is the maximum torque of the electric actuator, the motor working is S2-15min, and the power supply is three-phase 380VAC.

2. With "\*" speed inertia is large, direct drive gate valve and other similar applications are not recommended.

▶ MTMD series three-phase(220V) On-off Type (for no more than 60 movements per hour)

Model	Speed ( rpm)		Output Torque (N.m)	Moto Power (KW)	Current Rate ( A)	Start Current ( A)	Locked-rotor current ( A)	Manual speed ratio	Standard valve rod diameter (mm)
	50Hz	60Hz							
MTMD10	18	21	60	0.26	1.7	5.9	5.2	80:1	≤30
	24	29	60	0.26	2.3	7.8	6.9	60:1	
	36	43	50	0.28	2.6	8.9	7.9	40:1	
	48	57	50	0.32	2.9	9.8	8.7	30:1	
	72	86	35	0.35	3	10.1	9.1	20:1	
MTMD40	18	21	150	0.6	4.3	11.8	10.7	80:1	≤42
	24	29	150	0.6	5.7	15.7	14.3	60:1	
	36	43	130	0.6	6.4	17.5	15.9	40:1	
	48	57	100	0.6	6.2	18.4	16.7	30:1	
	72	86	50	0.6	5.4	18.3	16.2	20:1	
MTMD60	18	21	250	1.4	7.6	21	19.1	80:1	≤50
	24	29	250	1.4	8.9	25.8	23.5	60:1	
	36	43	180	1.4	9.3	28.8	26.5	40:1	
	48	57	150	1.4	11.1	34.6	31.7	30:1	
	72	86	110	1.4	11.7	36.2	33.5	20:1	

Note: 1. The above torque is the maximum torque of the electric actuator, the motor working is S2-15min.

**MTMD Series Multi-turn Electric Actuator**

► MTMD series three-phase(380V) ModulatingType (for no more than 600 movements per hour)

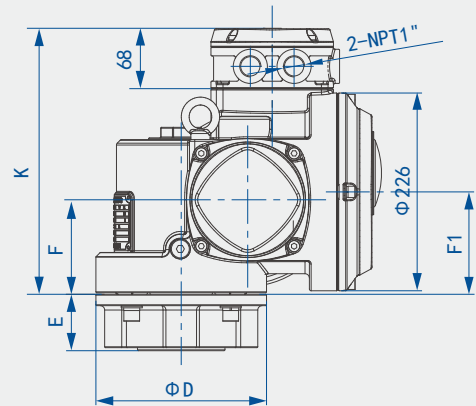
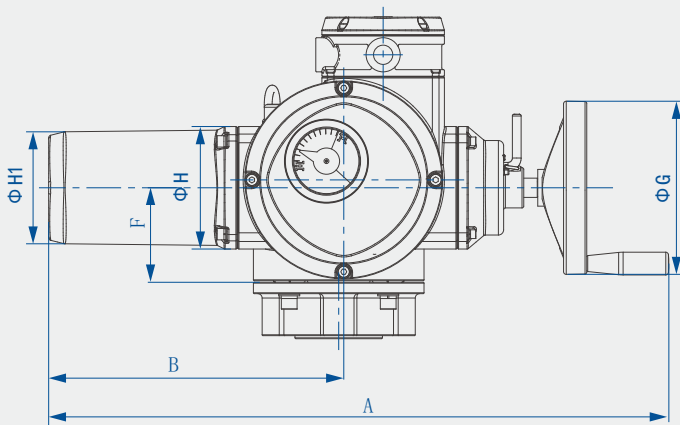
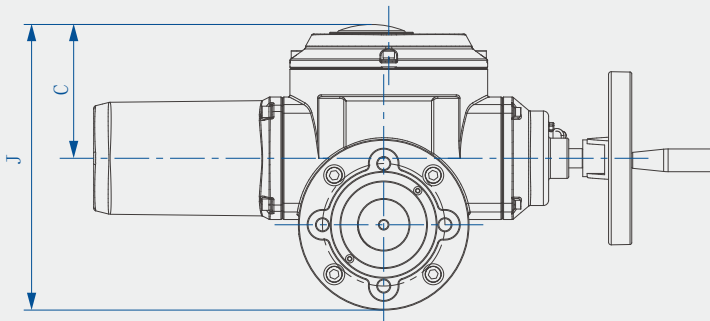
Model	Speed ( rpm)		Output Torque (N.m)	Moto Power (KW)	Current Rate ( A)	Start Current ( A)	Locked-rotor current ( A)	Manual speed ratio	Standard valve rod diameter (mm)
	50Hz	60Hz							
MTMD05	18	21	50	0.35	0.4	1.5	1.31	80:1	≤30
	24	29	50	0.35	0.6	2.0	1.75	60:1	
	36	43	50	0.35	0.9	3.0	2.63	40:1	
	48	57	50	0.35	1.2	4.0	3.51	30:1	
	72	86	40	0.35	1.4	4.8	4.21	20:1	
MTMD10	18	21	100	0.35	0.9	3.0	2.63	80:1	≤30
	24	29	100	0.35	1.2	3.9	3.51	60:1	
	36	43	100	0.35	1.7	5.9	5.26	40:1	
	48	57	100	0.45	2.3	7.9	7.01	30:1	
	72	86	70	0.6	2.4	8.3	7.36	20:1	
MTMD15	18	21	150	0.45	1.3	4.5	3.94	80:1	≤30
	24	29	150	0.45	1.7	5.9	5.26	60:1	
	36	43	150	0.45	2.6	8.9	7.89	40:1	
	48	57	120	0.7	3.5	11.9	10.52	30:1	
	72	86	100	0.7	3.5	11.9	10.52	20:1	
MTMD20	18	21	200	0.75	1.7	5.9	5.26	80:1	≤42
	24	29	200	0.75	2.3	7.9	7.01	60:1	
	36	43	200	1.25	3.5	11.9	10.52	40:1	
	48	57	200	1.25	4.6	15.9	14.03	30:1	
	72	86	170	1.8	5.9	19.7	17.88	20:1	
MTMD30	18	21	300	0.75	2.6	8.9	7.89	80:1	≤42
	24	29	300	0.75	3.5	11.9	10.52	60:1	
	36	43	300	1.25	5.2	17.4	15.78	40:1	
	48	57	250	1.25	6.9	23.1	21.04	30:1	
	72	86	200	1.8	6.9	23.4	21.04	20:1	
MTMD40	18	21	400	1.25	3.5	11.9	10.52	80:1	≤42
	24	29	400	1.25	4.6	15.9	14.03	60:1	
	36	43	350	2	6.1	20.3	18.41	40:1	
	48	57	250	2	6.9	23.1	21.04	30:1	
	72	86	250	2.3	8.7	28.9	26.3	20:1	
MTMD50	18	21	500	2.2	4.3	14.9	13.15	80:1	≤50
	24	29	500	2.2	5.8	19.1	17.53	60:1	
	36	43	500	2.2	8.7	28.7	26.3	40:1	
	48	57	500	2.4	11.6	31.5	28.93	30:1	
	72	86	400	2.8	13.9	36.9	33.87	20:1	
MTMD60	18	21	610	2.4	5.3	18.1	16.04	80:1	≤50
	24	29	610	2.4	7.1	24.2	21.39	60:1	
	36	43	610	2.4	10.6	30.7	27.86	40:1	
	48	57	610	3	14.1	36.8	34.43	30:1	
	72	86	500	4	17.4	40.5	38.57	20:1	

Note: 1. The above torque is the maximum torque of the electric actuator, the motor working is S2-15min.

**MTMD Series Multi-turn Electric Actuator**

**Dimension**

▶ **MTMD Series Multi-turn Electric Actuator(Basic Type)**



**Dimension**

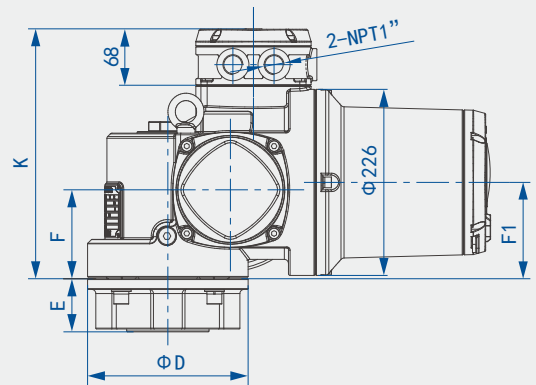
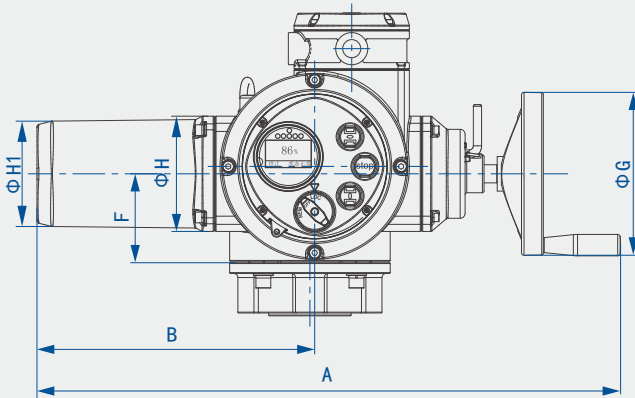
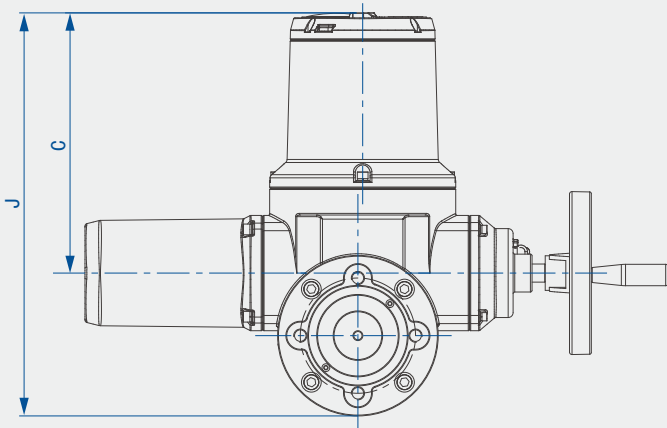
Unit:mm

Model	A	B	C	ΦD	E			F	F1	ΦG	ΦH	ΦH1	J	K	Weight(kg)
					JB	Type A	Type B								
MTMD05/10/15	600	280	132	145	2	50	40	111	120	100	140	98	262	307	30
MTMD20/30/40	710	338	153	195	2	65	42	114	117	200	140	128	490	303	36
MTMD50/60/90	760	382	160	234	2	65	42	114	118	200	161	148	545	303	47

Note: 1. The above connection dimensions are in accordance with ISO5210, and the company can make the corresponding connection parts according to the customer requirements.

**MTMD Series Multi-turn Electric Actuator**

► MTMD Series Multi-turn Electric Actuator(MTMD+LCD)



Diimension

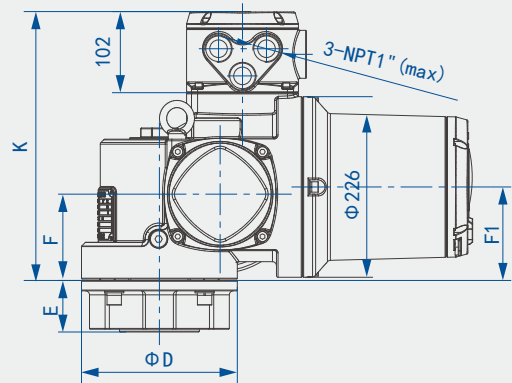
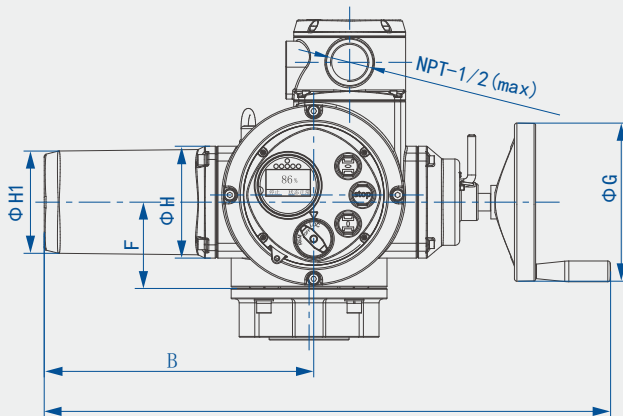
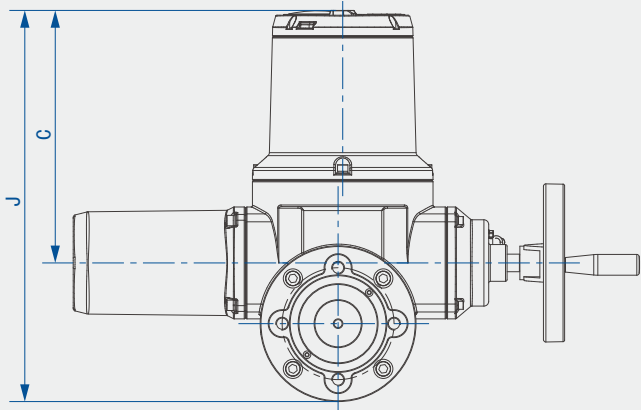
Unit:mm

Model	A	B	C	ΦD	E			F	F1	ΦG	ΦH	ΦH1	J	K	Weight(kg)
					JB	Type A	Type B								
MTMD05/10/15	600	280	316	145	2	50	40	111	120	100	140	98	446	307	30
MTMD20/30/40	710	338	316	195	2	65	42	108	117	200	140	128	490	303	36
MTMD50/60/90	760	382	332	234	2	65	42	114	118	200	161	148	545	303	47

Note: 1. The above connection dimensions are in accordance with ISO5210, and the company can make the corresponding connection parts according to the customer requirements.

**MTMD Series Multi-turn Electric Actuator**

▶ **MTMD Series Multi-turn Electric Actuator(MTMD+SLCD)**



Dimension

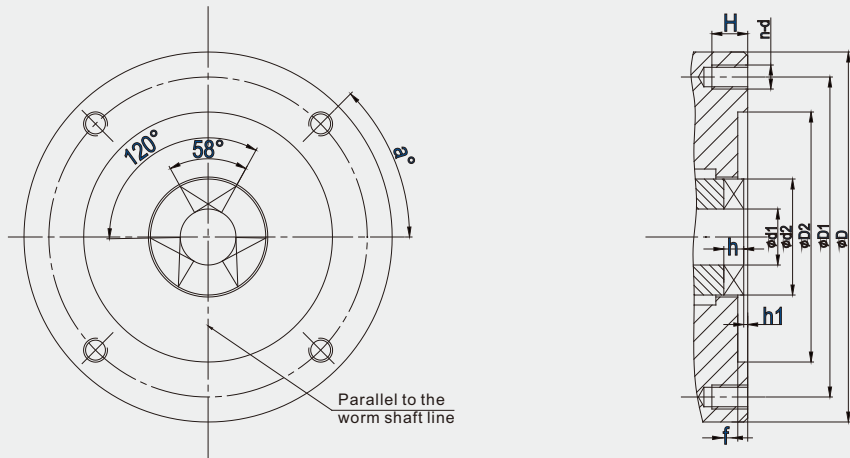
Unit:mm

Model	A	B	C	ΦD	E			F	F1	ΦG	ΦH	ΦH1	J	K	Weight(kg)
					JB	Type A	Type B								
MTMD10/15	600	280	316	145	2	50	40	111	120	100	140	98	446	341	30
MTMD20/30/40	710	338	316	195	2	65	42	108	117	200	140	128	490	337	36
MTMD50/60/90	760	382	332	234	2	65	42	114	118	200	161	148	545	337	47

Note: 1. The above connection dimensions are in accordance with ISO5210, and the company can make the corresponding connection parts according to the customer requirements.

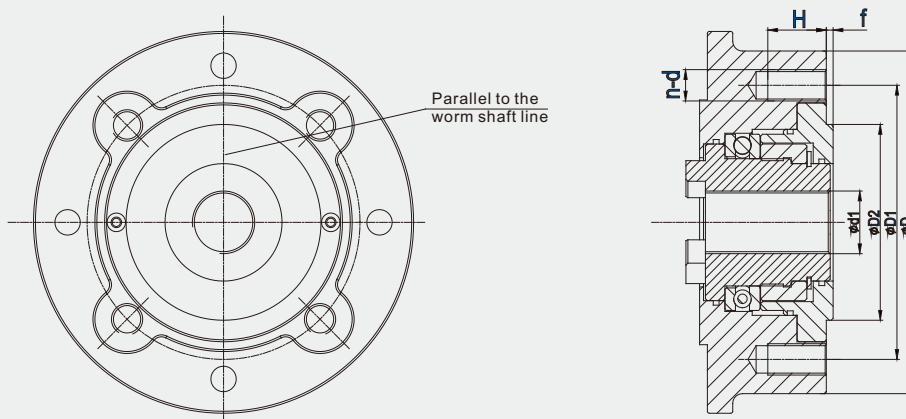
**MTMD Series Multi-turn Electric Actuator**

▶ MTMD series JB output (Torque type of the three-claw drive connection) — execution standard is Jb2920



Model	base No.	ΦD	ΦD1	ΦD2	h1	f	h	Φd1	Φd2	n-d	a	H
MTMD05/10/15	JB2	145	120	90	2	5	8	≤ Φ30	Φ45	4-M10	45°	15
MTMD20/30/40	JB3	185	160	125	2	5	10	≤ Φ42	Φ58	4-M12	45°	15
MTMD50/60/90	JB4	225	195	150	2	5	12	≤ Φ50	Φ72	4-M16	45°	30

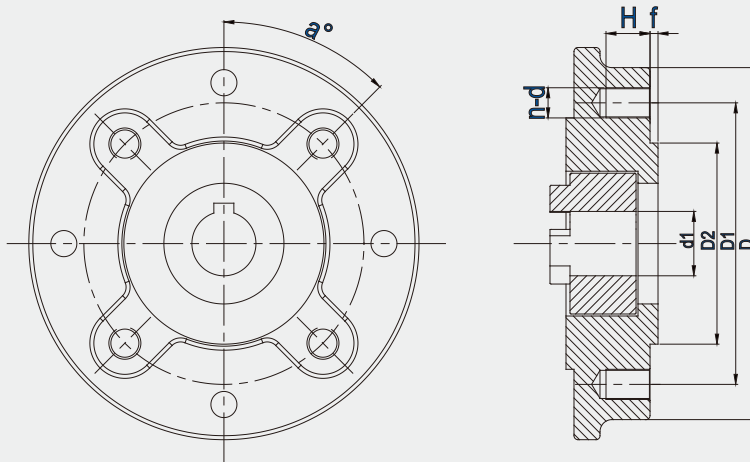
▶ MTMD Series Type A output (thrust) — standard GB / T12222 (ISO5210)



Model	Flange	ΦD	ΦD1	ΦD2	f	Φd1	n-d	a	H
MTMD05/10/15	F10	120	102	70	3	≤Tr30	4-M10	45°	15
MTMD20/30/40	F14	175	140	100	4	≤Tr42	4-M16	45°	24
MTMD50/60/90	F16	205	165	135	5	≤Tr50	4-M20	45°	30

**MTMD Series Multi-turn Electric Actuator**

▶ MTMD Series Type B output (thrust) — standard GB / T12222 (ISO5210)



Model	Flange	ΦD	ΦD1	ΦD2	f	Φd1	n-d	a	H
MTMD05/10/15	F10	120	102	70	3	≤ Φ 30	4-M10	45°	15
MTMD20/30/40	F14	175	140	100	4	≤ Φ 42	4-M16	45°	24
MTMD50/60/90	F16	205	165	135	5	≤ Φ 50	4-M20	45°	30

**Model Code**

MTMD 1 - 2 3 4 5 6 - 7 8 - 9

- |  |  |   |   |   |   |
|--|--|---|---|---|---|
| <p><b>1</b> Output Torque<sup>[1]</sup></p> <p>05:50Nm<br/>10:100Nm<br/>15:150Nm<br/>20:200Nm<br/>30:300Nm<br/>40:400Nm<br/>50:500Nm<br/>60:610Nm<br/>90:900Nm</p> | <p><b>2</b> Motor speed</p> <p><b>50Hz</b><br/>18: 18rpm<br/>24: 24rpm<br/>36: 36rpm<br/>48: 48rpm<br/>72: 92rpm<br/>96: 96rpm<br/>144: 144rpm<br/>192: 192rpm<br/><b>60Hz</b><br/>21: 21rpm<br/>29: 29rpm<br/>43: 43rpm<br/>57: 57rpm<br/>86: 86rpm<br/>115: 115rpm<br/>173: 173rpm<br/>230: 230rpm</p> | <p><b>3</b> Working Voltage</p> <p>S: 220VAC/1PH<br/>T: 380VAC/3PH<br/>D: 24VDC<br/>P: Other Voltage</p>  | <p><b>4</b> Ingress Protection</p> <p>1: IP67<br/>2: IP68</p> | <p><b>5</b> EXPLOSION-PROOF</p> <p>1: Non-Explosion<br/>2: ExdIICT6</p> | <p><b>6</b> Ambient Temperature</p> <p>S: -20~70°C<br/>L: -40~80°C<br/>H: -20~120°C</p> |
| <p><b>7</b> Control type</p> <p>K: On-off<br/>T: Modulate</p>  | <p><b>8</b> Field-Bus<sup>[2]</sup></p> <p>0: None<br/>H: HART<br/>M: Modbus<br/>P: Profibus-DP</p>  | <p><b>9</b> Optional</p> <p>0: None(Basic Type)<br/>1: LCU(Field Control Unit)<br/>2: LCD(Intelligent Type)<br/>3: SLCD (Super Intelligent)</p> |   |   |   |

[1]: The rated torque option is the corresponding torque at 18rpm, and please select the appropriate model by referring to the torque table.

[2]: The HART option is limited to conditioning options only.



## MTM Series Multi-turn Electric Actuator

► Multi-turn electric actuator supporting travel reducer combination torque

Suitable for ball valve, butterfly valve, stopcock valve and other valves

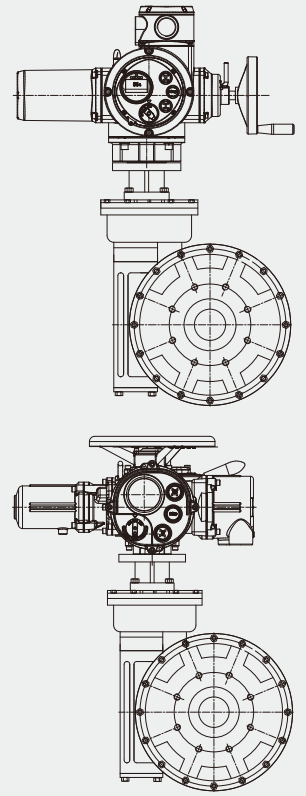
MTMD Series

Combinatorial output (N.m)	Actuator Input (N.m)	Actuator moto speed (r/min)	Default speed ratio of the gearbox	on-off time (S)
960	80	18	40:1	34
2200	105	18	70:1	59
3680	200	18	80:1	67
7120	221	21	140:1	100
9660	300	18	140:1	117
16560	400	24	180:1	113
25700	620	18	180:1	150
34200	620	18	240:1	200
51300	620	18	360:1	225

MTMS Series

Combinatorial output (N.m)	Actuator Input (N.m)	Actuator moto speed (r/min)	Default speed ratio of the gearbox	on-off time (S)
1050	50	18	70:1	59
2100	100	18	70:1	59
2310	110	24	70:1	44
5520	200	24	120:1	75
9660	300	24	140:1	88
19320	350	36	240:1	100
27600	500	24	240:1	150
33670	610	18	240:1	200
62100	750	36	360:1	150

Note: For detailed parameters and other torque, please contact our business personnel.



► Multi-turn electric actuator with multi-turn reducer combination torque

Suitable for gate valve, stop valve and other valves

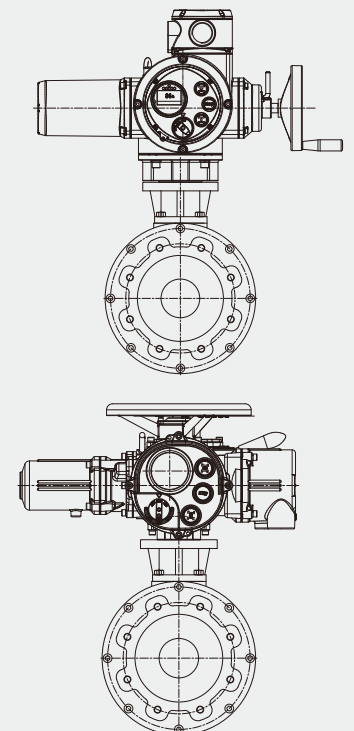
MTMD Series

Combinatorial output (N.m)	Actuator Input (N.m)	Actuator moto speed (r/min)	Default speed ratio of the gearbox
680	200	18	4:1
1530	300	18	6:1
1785	350	36	4:1
2720	400	18	8:1
3060	450	21	8:1
3400	500	18	8:1
4140	610	18	8:1
5100	750	36	8:1
6120	900	18	8:1

MTMS Series

Combinatorial output (N.m)	Actuator Input (N.m)	Actuator moto speed (r/min)	Default speed ratio of the gearbox
680	200	18	4:1
1530	300	18	6:1
2720	400	18	8:1
3107	457	21	8:1
3740	550	36	8:1
4216	620	18	8:1
5100	774	21	8:1
7650	1500	18	6:1
10455	2050	18	6:1

Note: For detailed parameters and other torque, please contact our business personnel.



## MTQL Series Linear Stroke Electric Actuator

### Overview



Direct stroke electric actuator is an actuator of output thrust drive valve rod for straight movement, which is suitable for valve rod for straight movement, such as single seat valve, stop valve and piston valve.

The output thrust range of MTQL straight electric actuator is 1000 N to 25000 N. MTQL series is divided into three types: basic, intelligent and super intelligent according to different functional configurations. With the characteristics of security, stability and reliability, it can meet the applications of different fields, and the customized services can meet the various needs of users.

### Characteristic

#### Patent drive mechanism design

The MTQL01~08 series electric actuator has the patented hand / electric switching function. In the electric state, push the hand wheel forward at any time, the actuator automatically switches to the manual mode, the hand wheel will not rotate with the motor, to ensure personal safety. In the manual state, If you need to switch to electric drive, just pull the hand wheel back and switch to electric mode.

The MTQL10~25 series electric actuator has the hand / electric automatic switching function. No clutch design, in the product electric operation can also rotate the hand wheel, do not interfere with each other, so as to ensure the safety of the operator. This kind of design agency will become the mainstream trend of the industry in the future.

#### Professional gear design

The MTQL10~25 series actuator adopts planetary gear technology , realizing the combination of manual and electric control, and no clutch mechanism, to ensure the safety of operators. One of the unique planetary solar wheel technology has obtained the national patent.

#### Operational safety

F grade insulation motor. The different positions of the motor windings are arranged with two thermal protectors to sense the temperature of motor. This marvelous design ensures the operational safety of the motor (Hgrade is optional).

#### Anti-humidity resistance

Installed with heater inside the actuator used to remove the internal condensation which cause damages to electrical parts.

#### Phase protection

Phase detection and correction functions avoid the actuator being damaged by connecting to the wrong phase.

#### Voltage protection

.Protection against high and low voltage situations.

#### Overload protection

The power will automatically shut off when valve jam occurs. Thus preventing further damage to the valve and actuator.

#### Operational diagnosis

Intelligent actuators are equipped with multiple sensing devices. With the functions of real-time reflections of the control signal received by the actuator, fault alarm, operating parameters, status indication and other status. Multi-diagnostic function can locate the fault, thus making it easy for the users.

#### Password protection

Intelligent actuators possess classifiable password protection, which can be authorized to different operators to avoid misuse which causing the actuator failure.



#### Disc spring tightening mechanism

The output unit of the actuator is equipped with a two-way disc spring device, which has a certain pre-tightening force to effectively switch the valve for a long time and reduce the impact of the valve differential pressure instability on the actuator.

#### Interchangeable connection bolts

According to the different thread connection mode of the spindle of the valve, the connection bolts of the actuator can be designed for different thread connection specifications, which can be quickly replaced and easily operated.

#### User interaction interface

Intelligent type is equipped with brand new UI control interface, with the specialized remote control, achieves a variety of functions of the actuator configuration operation. Supports multi-language, satisfies all kinds of demands from the customer. It can also be customized based on special requirements.

#### Energy efficiency

Single-phase and DC power supply is optional, ultra-low energy consumption, suitable for solar and wind powered applications.

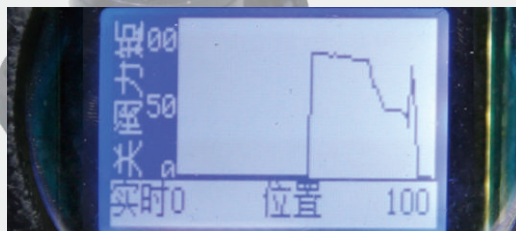
## MTQL Series Linear Stroke Electric Actuator

### Non-invasive control

Non-through-the-shaft magnetic switch design, it is controlled by the Hall switch inside the actuator. Equipped with local control / remote control / disable knob, and on / off / stop button (knob), accommodating with the indicator light and LCD screen to achieve non-invasive field control operations.

### Screw nut assembly

Using the antirust screw of high strength alloy steel and the copper alloy nut with high wear resistance, each pair of screw nut is tested before installation to ensure the minimum clearance and maximum efficiency transfer torque after installation.



Average torque curve

It records the average output torques in the corresponding positions of both OPEN and CLOSE directions. The operating load of the actuator can be detected via the curve.

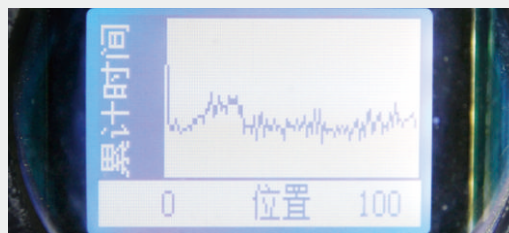
### Clutch handle

An ergonomically designed clutch handle is used to switch to the manual mode in the case of emergency or adjustment. Cooperating with the hand wheel, the clutch will disconnect from the motor drive to ensure personnel safety.

### Infrared remote control

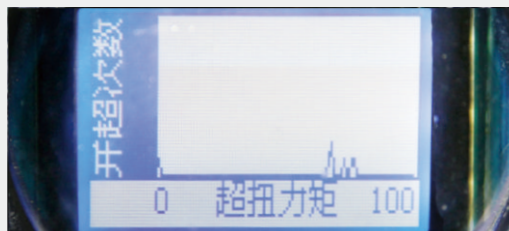
The intelligent type actuator is able to provide different remote control sets based on different application requirements. Such as portable infrared remote control in general places, and explosion-proof remote control for hazardous locations.

Super intelligent type actuators adopting high-performance microprocessors, real-time collection of valve position, torque and other operational information. Logical calculation truly reflects the operating status. Real-time monitoring & managing data provides references for the actuator maintenance.



Time-position curve

The curve shows the running trend of the actuator, and the number of times the actuator has been passed at the corresponding positions.



Operation trend curve

The curve shows the cumulative number of positions corresponding to the control signal received by the actuator so far. It enables the clients to understand the overall controlling trend of the actuator.

## Working environment

**Anti-corrosion protection** Epoxy resin enclosure meets NEMA 4X, customer-special painting is available.

**Ingress protection** IP67 is standard, IP68 is optional.  
The definition of IP68 is: Depth of water: Maximum 7 m under water level. Duration of continuous immersion in water : Max. 72 hours.

**Fireproofing grade** High temperature fireproof enclosure meets requirements in different situation. It can be customized according to special needs.

**Explosion proof rating** Ex d IIC T6 design and IECEx, ATEX certifications which satisfy the requirements in hazardous locations.

**Ambient temperature** Temperature range is from -25 °C to 70 °C

**Ambient Humidity** ≤ 95 % ( at 25 °C ) .

## MTQL Series Linear Stroke Electric Actuator

**TECHNICAL SPECIFICATION**

General Parameters	Force Range	1000 – 25000N	
	Max stroke	MTQL01~08: 60mm; MTQL10~25: 100mm	
	Stroke time	MTQL01~08: 40~122S; MTQL10~25: 50~122S	
	Ambient Temp.	-25 °C ... 70 °C , Optional : -40 °C ... 60 °C	
	Anti-vibration Level	JB/T8219	
	Noise Level	Less than 75 dB within 1 m	
	Electrical Interface	Two PG13.5 ( < 100N.m ) ,two PG16(≥100N.m)	
	Ingress Protection	Ip67 , Optional:IP68	
Mechanical Parameters	Motor Specifications	<ul style="list-style-type: none"> <li>Class F, with thermal protector up to +135 °C (+275 °F)</li> <li>Optional: Class H</li> </ul>	
	Working System	<ul style="list-style-type: none"> <li>On-off Type: S2 ~ 15 min, no more than 600 times per hour start</li> <li>Modulating type: S4~50% up to 600 triggers per hour</li> <li>Optional: 1200 times per hour</li> </ul>	
	Applicable Voltage	<ul style="list-style-type: none"> <li>1 phase: Voltage (±10 %); Hz (±5 %)                             <ul style="list-style-type: none"> <li>50 Hz (24, 220, 230, 240 V)</li> <li>60 Hz (24, 110, 120, 220, 230, 240 V)</li> </ul> </li> <li>3 phase: Voltage (±10 %); Hz (±5 %)                             <ul style="list-style-type: none"> <li>50 Hz (220, 240, 380, 400, 460, 500, 525 , 550 V)</li> <li>60 Hz (208, 220, 230, 240, 380, 440,460, 480 V)</li> </ul> </li> <li>DC : 24 V (±10 %)</li> </ul>	
	Field Bus	<ul style="list-style-type: none"> <li>Modbus(LCD or SLCD only)</li> </ul>	
	On/off Type Signal	Input	<ul style="list-style-type: none"> <li>Built-in contacts for 5A @ 250Vac (depending on the control box)</li> <li>Optoelectronic isolation</li> </ul>
		Signal Feedback	<ul style="list-style-type: none"> <li>Opening stroke limit, closing stroke limit</li> <li>Opening over torque, closing over torque</li> <li>Optional: Semi-modulating type - position feedback potentiometer</li> <li>Optional: 4 ~ 20 mA to send</li> </ul>
		Malfunction Feedback	<ul style="list-style-type: none"> <li>Integrated fault alarm:                             <ul style="list-style-type: none"> <li>Motor overheating, over torque and such contacts</li> </ul> </li> <li>Optional: Undercurrent protection contact</li> </ul>
	Modulating Type Signal	Input	<ul style="list-style-type: none"> <li>Input signal : 4 - 20 mA; 0 - 10 V; 2 - 10 V</li> <li>Input impedance : 250 Ω (4 - 20 mA)</li> </ul>
		Output	<ul style="list-style-type: none"> <li>Output signal : 4 - 20 mA;0 - 10 V; 2 - 10 V</li> <li>Output impedance : ≤ 750 Ω (4 - 20 mA)</li> </ul>
		Dead Zone	<ul style="list-style-type: none"> <li>Basic Type: ≤ 2.5 %</li> <li>Intelligent Type : 0.5 ~ 9.9 % adjustable rate within full stroke</li> </ul>
Control mode	Indication	<ul style="list-style-type: none"> <li>3D opening indicator , or Indicator of pointer</li> </ul>	
	Operation Settings	<ul style="list-style-type: none"> <li>Settings done without opening cover(menu settings by the remote control)</li> </ul>	
	Local Control	<ul style="list-style-type: none"> <li>On/off/remote control/fault indicator (Button type)</li> <li>Open/close/power indicator (Knob)</li> </ul>	
Other	Intelligently Analyze Data Records	Use infrared remote control to conduct fault diagnosis analysis on the display	
	Other Function	<ul style="list-style-type: none"> <li>Moisture-resistant heaters(anti-moisture device)</li> <li>Torque protection</li> <li>Motor overheat protection</li> <li>Phase correction(3-phase power supply only)</li> <li>Operation start up recording</li> <li>Operational trend records</li> <li>ESD can be set to fully opened, fully closed, and remain still</li> <li>Torque bypass</li> <li>Event log</li> <li>Operation time</li> <li>Average torque</li> <li>Valve torque curve</li> </ul>	



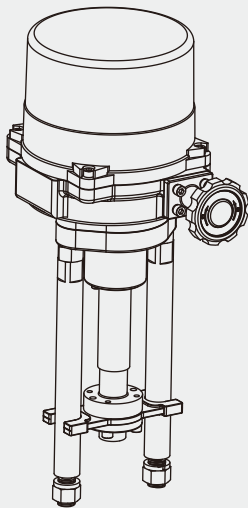
## MTQL Series Linear Stroke Electric Actuator

### Parameters

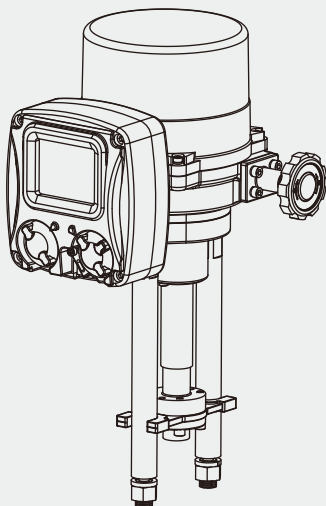
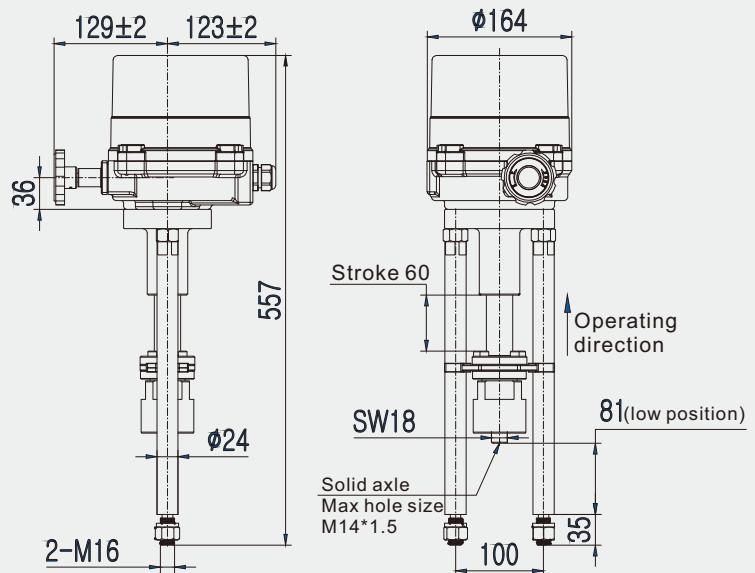
Model	Motor Power (W)	Max. Stroke (mm)	Max. force (N)	Stroke speed (s/mm)		Stroke speed (mm/s)		Remark
				50 Hz		50 Hz		
				AC 110 V AC 220 V	AC/DC 24V	AC 110 V AC 220 V	AC/DC 24 V	
MTQL01	10	60	1000	0.83	0.64	1.20	1.56	Handwheel operation Manual/electric Switch mechanism,
MTQL02	10	60	2000	0.83	0.64	1.20	1.56	
MTQL04	10	60	4000	1.58	1.23	0.63	0.81	
MTQL08	15	60	8000	2.04	1.58	0.49	0.63	

**Note**

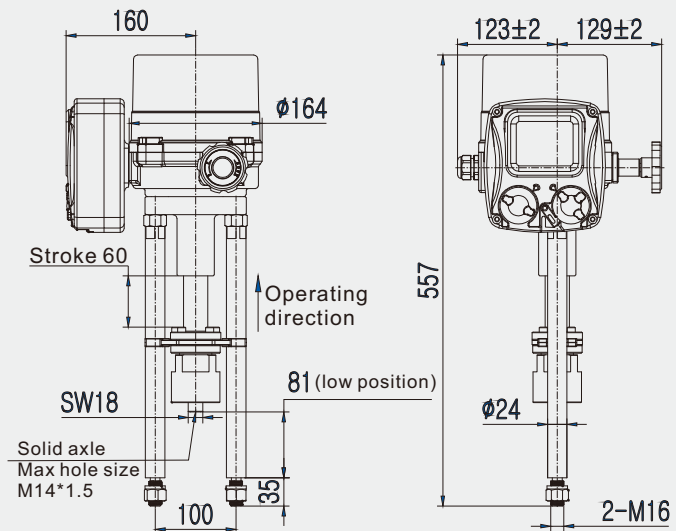
1. The rated output of the actuator is 0.75 times the maximum force.
2. The standard color is black. Please contact us for other colors.



MTQL08 Basic Type(10Kg)



MTQL08+LCD(12Kg)



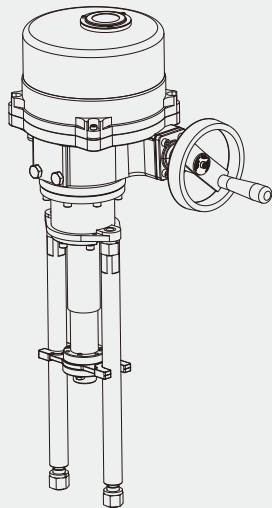
Note: Above connection size is the standard configuration. Please contact us for special connection methods.

**MTQL Series Linear Stroke Electric Actuator**

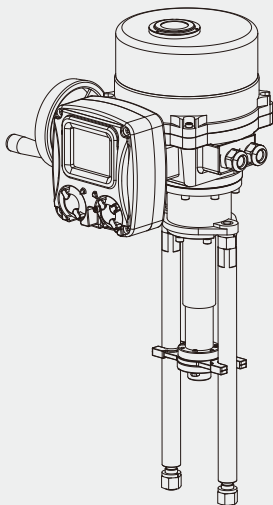
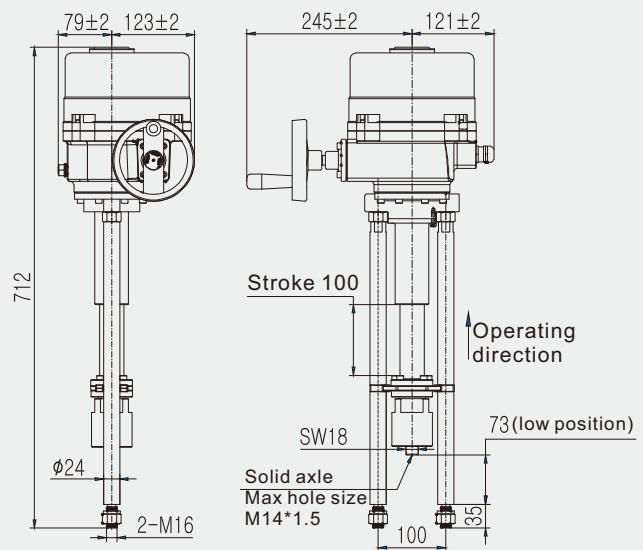
Model	Motor Power (W)	Max. Stroke (mm)	Max. force (N)	Stroke speed (s/mm)		Stroke speed (mm/s)		Remark
				50 Hz		50 Hz		
				AC 110 V AC 220 V	AC/DC 24V	AC 110 V AC 220 V	AC/DC 24 V	
MTQL10	40	100	10000	1.08	0.9	0.93	1.11	Handwheel operation Manual/electric Switch mechanism
MTQL20	40	100	20000	1.79	1.49	0.56	0.67	
MTQL25	40	100	25000	1.79	1.49	0.56	0.67	

**Note**

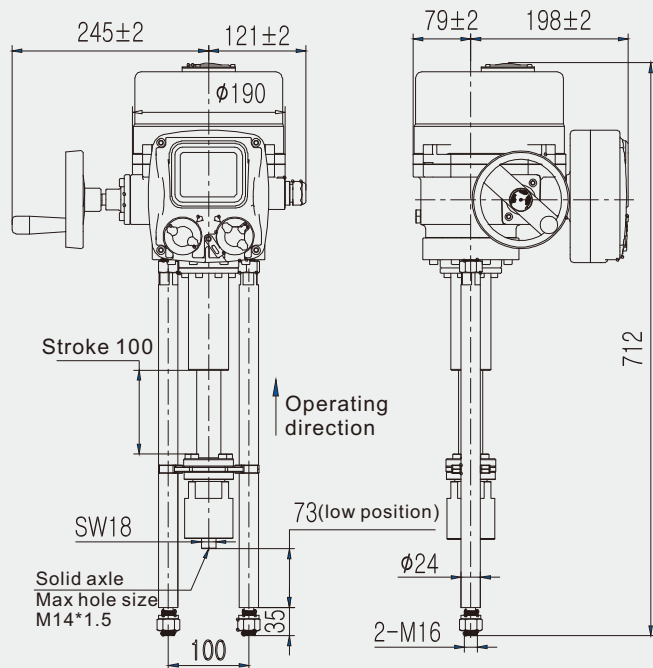
1. The rated output of the actuator is 0.75 times the maximum force.
2. The standard color is black. Please contact us for other colors.



MTQL25 Basic Type(16Kg)

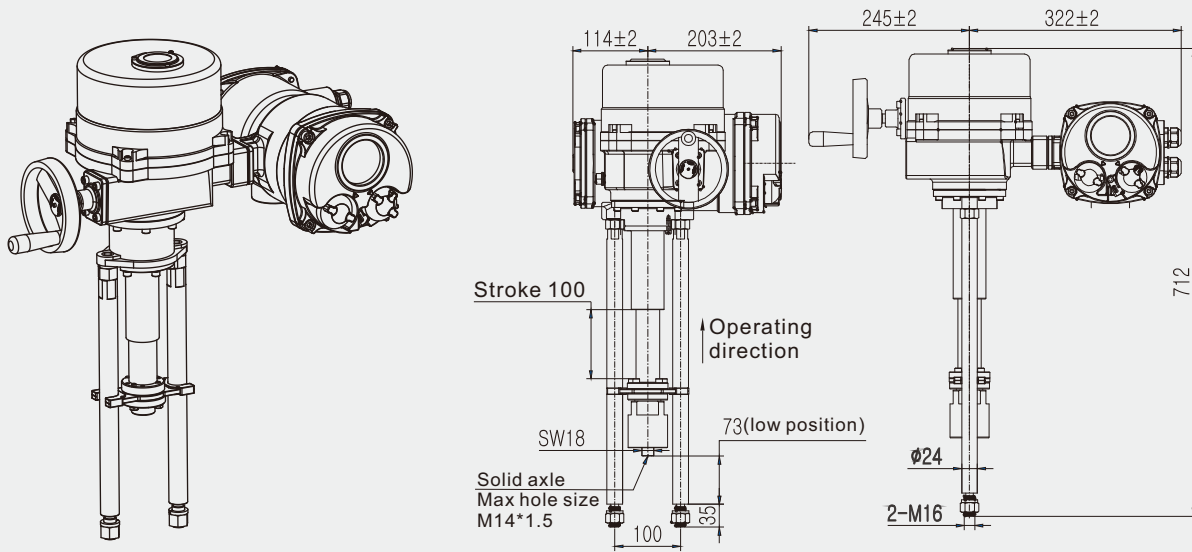


MTQL25+LCD(18Kg)



Note: Above connection size is the standard configuration. Please contact us for special connection methods.

**MTQL Series Linear Stroke Electric Actuator**



MTQL25+SLCD(23Kg)

Note: Above connection size is the standard configuration. Please contact us for special connection methods.

**Model Code**

MTQL [1] - [2] [3] [4] [5] - [6] [7] - [8]

[1] Force	[2] Voltage code	[3] Ingress Protection	[4] EXPLOSION-PROOF	[5] AMBIENT TEMP.	[6] Control Mode
010:1KN 020:2KN 040:4KN 080:8KN 100:10KN 200:20Nm 250:25KN	S : 220VAC/1PH T : 380VAC/3PH D : 24VDC P : Other Voltage	1 : IP67 2 : IP68	1 : Non-Explosive 2 : ExdIICT6 3 : ExdIIBT6	S: -20~70°C L: -40~80°C H: -20~120°C	K : On-Off T : Modulate

[7] Field Bus <sup>[1]</sup>	[8] Optional
0 : None H : HART M : Modbus P : Profibus-DP	0 : None ( Basic Type ) 1 : LCU ( Local control unit ) 2 : LCD ( Intelligente Type ) 3 : SLCD ( Supper Intelligente Type )

[1] : HART Only for Modulate Type.

# MORC<sup>®</sup> MORC CONTROLS LTD.

MORC Controls Ltd.

Add: MORC Building, No.8 Dabao Road, Baoan, Shenzhen, China

Tel.: +86-755-26977701/03/04/05/06/07

Fax: +86-755-26977702/10

Email: [info@morc.com.cn](mailto:info@morc.com.cn)

## Our vision

Be the world leading brand and successful valve accessories company.

## Our Mission

Deliver superior service to our customer and pursue growth through improved and high-quality product; always strive to exceed our customers' expectations; manage our business with integrity.

## General industry

Chemical

Oil & Gas

Pulp & Paper

Food & Pharmaceutical

HVAC & Water system

Petrochemical & Refining

Metals and Mining

MORC can supply not only reliable products to ensure extended service life, but experienced technical support and unmatched after sales service.