

EMICO

EMICO

MA Series



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Electric Multi-turn Actuator



Contents

Section	Page	Section	Page
Configuration	4	Setting Tool Setting	10
Cutaway	6	Standard Specification	10
Base & Drive Bushing	8	Optional Specification	10
Base & Drive Bushing & Cable Entries SPEC.	8	Speed-torque table	11
Board	9	Dimension (MA01~MA04)	12
Battery	9	Wiring	13

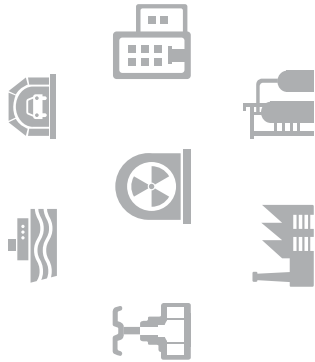
EMICO, founded in 1986, is the leading manufacturer of electric actuators in Korea and provides the best quality products with high technology and satisfactory services.

EMICO supplies electric actuators especially to buildings, plant, steelworks, power plants over 30 countries as well as domestic sales.

EMICO has launched spring return actuator for the first time in Korea and accelerated to expand market and to satisfy customers' need by specialized products.

We have made concerted efforts with expertise in electric actuators and continuous investment in R&D to be the world best in the market.

We promise we do everything we can to supply the reliable products and competent services.



Australia	Finland	Greece	Korea	Peru	Singapore	Turkey
Belgium	France	Israel	Malaysia	Russia	Spain	United Kingdom
China	Germany	Italy	New Zealand	Republic Of South Africa	Sweden	U.S.A

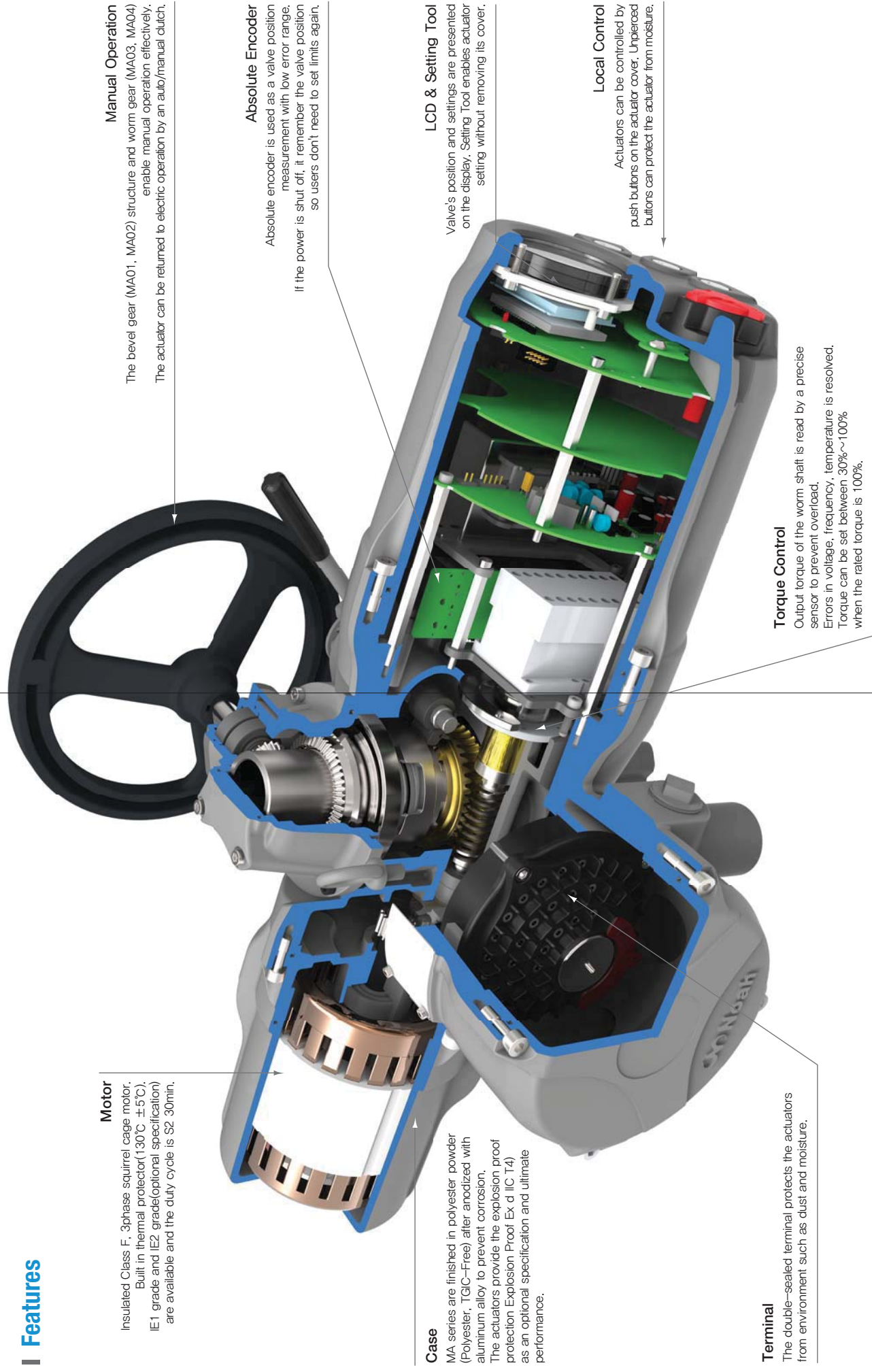
I Configuration



- ① Motor
- ② Eye Bolts
- ③ Terminal Cover
- ④ Cable Entries
- ⑤ Base
- ⑥ Local Control Unit
- ⑦ Nameplate
- ⑧ Stem Cover
- ⑨ Handle
- ⑩ Manual Lever
- ⑪ Body
- ⑫ Setting Tool



MA

I Features



■ Base & Drive Bushing

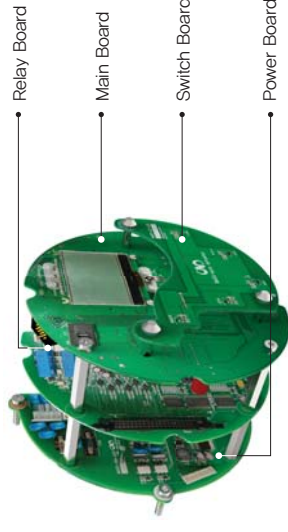
Manufactured in accordance with ISO5210 and both Thrust type and Non-Thrust type are available.

Thrust Type		Non-Thrust Type	
			
<ul style="list-style-type: none">• In case of mounting the valve with the actuator directly. For gate valves or globe valves.		<ul style="list-style-type: none">• When there is a gear box between the valve and the actuator. For butterfly valves or ball valves.	

■ Base & Drive Bushing & Cable Entries SPEC.

Model	Flange (ISO5210)	P.C.D	Tap	Max Size		Cable Entries Standard	Cable Entries Option
				Screw	Key		
MA01	F10	Ø102	4 - M10	40	30	2 x NPT1" 1 x NPT1 1/2"	4 x NPT1" 1 x NPT1 1/2"
MA02	F14	Ø140	4 - M16	58	46		
MA03	F16	Ø165	4 - M20	72	58	2 x M25 Pitch1.5 1 x M40 Pitch1.5	4 x M25 Pitch1.5 1 x M40 Pitch1.5
MA04	F25	Ø254	8 - M16	97	82		

■ Board



- ① Main Board
 - A main board provides precise control depending on the user's need
 - Output 4~20mA
 - The saved settings can be reset again.
- ② Relay Board
 - Valve's running direction can be measured by 8 relays on the board, (terminal number 24~42)
 - Provided 4 relays(terminal number4~11) can be used as the user's need among the 10 functions.
- ③ Power Board
 - It receives the 3phase power and provides the power supply to internal boards.
 - It delivers the control signal to the magnet switch to operate the motor.
 - It includes safety circuit against external noise and depending on the environment a heater can be added.
- ④ LCD & LED
 - It can be controlled by push buttons and setting tool, and all the settings and are presented on the LCD. Valve position and actuator's mode are shown on the LED.
- ⑤ ESD
 - Decision of behavior for Emergency shut down signal
- ⑥ Auto reversing magnetic contactors
- ⑦ MOTOR TP
 - Motor protection. If the temperature of the motor exceeds 130°C ±5°C, the thermal protector is disconnected to protect the motor.
- ⑧ Connector
 - connectors' shapes and colors are different for ease of assembly and produced against vibration.

■ Battery

If the power is shut off, valve position and running direction can be presented on the display by the battery.
If there is no operation in actuators, LCD screen is turned off for the battery lifespan and recover when there is operation.

Manufacturer / Model	XENOENERGY / XL-100F	Voltage	3.6V	Capacity	3500mAh	UL Approval Number	MH28122
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Setting Tool



This is to set actuators and operate locally.

Battery	1.5V AA Size 2EA
Setting Tool Method of Operation	
+	In OFF mode, menus and values can be set. In LOCAL mode, operate the actuator to open direction.
-	In OFF mode, menus and values can be set. In LOCAL mode, operate the actuator to close direction.
S	In OFF mode, to enter the setting menu.
J	In OFF mode, select the menu.
↺	In OFF mode, to return to previous menu. In LOCAL mode, to stop the actuator.

Standard Specification

Enclosure	Watertight Ingress Protection 68 Nema 4 and 6
Ambient Temperature	-20°C to +70°C
Power Supply	3PH 220 / 380 / 400 / 415 / 440 / 460 / 480 VAC 50/60Hz
Stall Protection	Built - in Thermal Protection
Manual Override	Manual /electric operating device
Limit Switch	Absolute Encoder
Torque Switch	Torque Sensor
Handle	MA01,02: Bevel Gear, MA03,04: Worm Gear
Duty Cycle	S2 30min
Base	ISO5210
Self Locking	Provided by means of Worm Gearing
Lubrication	Shell Gadus S2 V220 00
Material	Aluminium
Surface Treatment	Anodizing
External Coating	Polyester(TGIC-Free)

Optional Specification

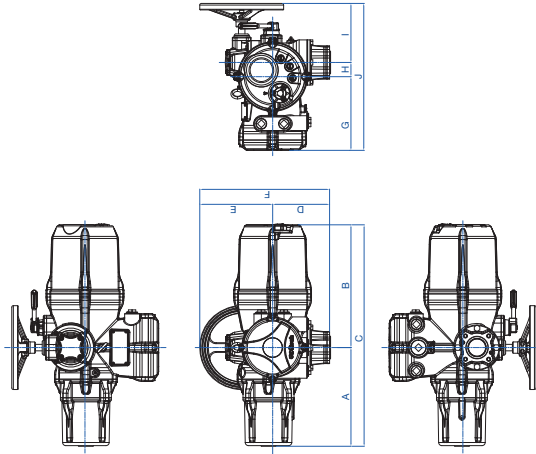
E X P	Explosion Proof / Ex d IIC T4
P C U	Proportional Control Unit (Input : DC 4-20mA, DC 0-10V / Output: DC 4-20mA)
C P T	Current Position Transmitter (Output: DC 4-20mA)
Field-Bus	Profi-Bus, Mod-Bus, Can-Bus

Speed-torque table

Model	Hz	50	60	50	60	50	60	50	60	Max torque: N·m										Ft·lb
	rpm	16.0	19.2	20.0	24.0	27.7	33.3	35.4	42.5	45.1	54.2	62.5	75.1	78.4	94.2					
MA01	0.2	82	64	46	37	29	21	15	-	-	-	-	-	-	-					
		60	47	34	27	21	15	-	-	-	-	-	-	-	-					
	0.4	138	127	92	73	58	42	32	32	32	32	32	32	32	32					
		102	94	68	54	43	31	24	24	24	24	24	24	24	24					
	0.75	138	138	138	127	101	73	56	56	56	56	56	56	56	56					
		102	102	102	94	74	54	41	41	41	41	41	41	41	41					
MA02	0.75	302	246	169	-	-	-	-	-	-	-	-	-	-	-					
		223	181	125	-	-	-	-	-	-	-	-	-	-	-					
	1.5	415	415	340	270	214	155	120	120	120	120	120	120	120	120					
		306	306	251	199	158	114	89	89	89	89	89	89	89	89					
	2.2	415	415	415	372	295	214	165	165	165	165	165	165	165	165					
		306	306	306	274	218	158	122	122	122	122	122	122	122	122					
MA03	2.2	793	613	444	-	-	-	-	-	-	-	-	-	-	-					
		585	452	327	-	-	-	-	-	-	-	-	-	-	-					
	3.7	845	845	720	572	454	328	254	254	254	254	254	254	254	254					
		623	623	531	422	335	242	187	187	187	187	187	187	187	187					
	5.5	845	845	845	826	655	474	367	367	367	367	367	367	367	367					
		623	623	623	609	483	350	271	271	271	271	271	271	271	271					
MA04	5.5	1774	1436	1040	-	-	-	-	-	-	-	-	-	-	-					
		1308	1059	767	-	-	-	-	-	-	-	-	-	-	-					
	7.5	1774	1774	1340	1064	844	611	473	473	473	473	473	473	473	473					
		1308	1308	988	785	623	451	349	349	349	349	349	349	349	349					
	11	1774	1774	1774	1445	1147	830	642	642	642	642	642	642	642	642					
		1308	1308	1308	1066	846	612	474	474	474	474	474	474	474	474					

Dimension (MA01~MA04)

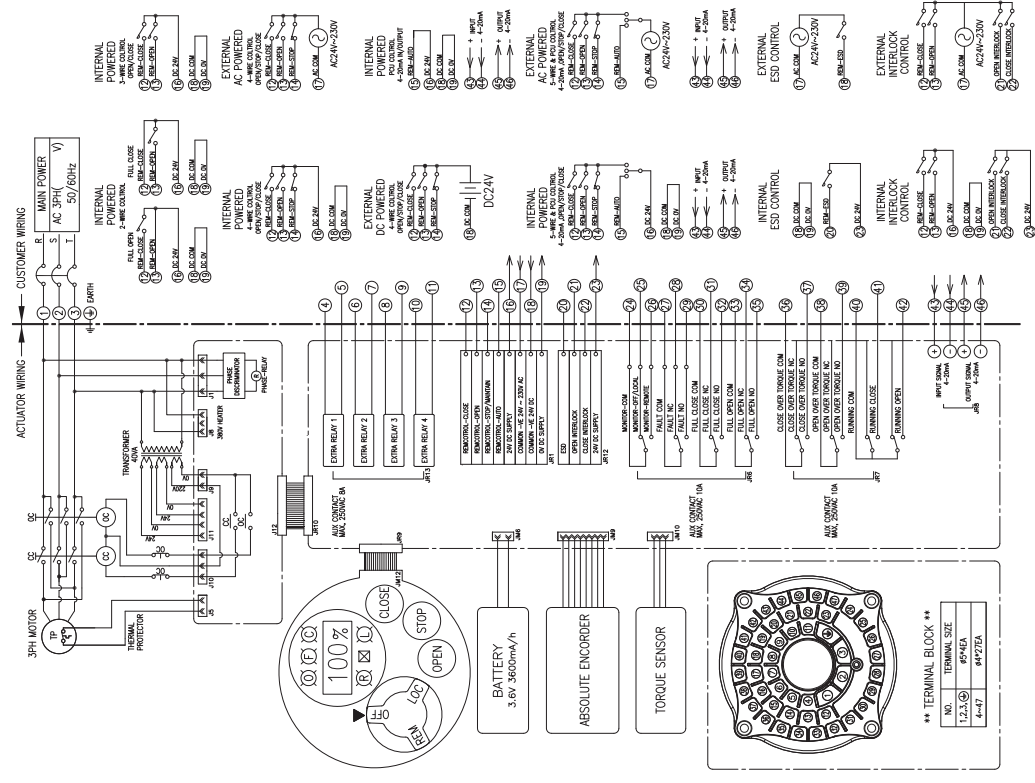
MODEL : MA01~MA04



Type	A	B	C	D	E	F	G	H	I	J	K	L
MA01	306	380.5	686.5	176.5	226	402.5	228.5	44	183	455.5	46.8	189.5
MA02	388	395	783	193	263.5	456.5	228	37.8	205.5	471.3	34.5	217.5
MA03	483.75	420.75	904.5	227	280.5	507.5	228	53	206	487	33.5	254.5
MA04	549.5	521	1070.5	270.5	323.5	594	249	69	235	553	74	332

Wiring

MODEL : MA01~MA04



※ The above wiring diagram is for the multi-turn actuator with full optional specification. Please contact EMICO or its distributor to get the wiring diagrams with other specification.