

Electric Actuator
MULTI-TURN

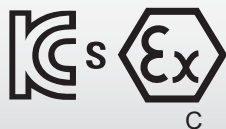


ITM Series

0180 / 0450 / 0750 / 1800 / 3000



INNOBIZ
기술혁신형중소기업



As such experience of long years and wide range in the global industrial Valve Automation market has made I-TORK® achieve successful reputation and technical improvement to take another step forward once again, we, “I-TORK® Controls Ltd.”, are introducing our Multi-turn Electric Actuator ‘ITM Series’ following our well-known Quarter-turn Electric Actuator ‘ITQ Series’. Our ITM Series is expected to be fundamentally required for the world market demand of industrial valve automation as well as our ‘ITQ Series’ has been so far for many years since 2003.

We are now totally ready to provide our Multi-turn Electric Actuator ITM Series along with our ITQ Series with reliability and quality follow-up service accordingly for your request all the time. Meeting with you and your requirements is always our pleasure and our first target.

Main Application Field

ENERGY : Petrochemical/Oil-Refining Facility, Power Plant, District Heating System,

WATER TREATMENT : Filtration, Sewage Disposal Plant, Reservoir, Pump Station, Sluice Gate, Dam,

CHEMICAL PLANT : Pharmaceutical Factory, Various Industrial Plants,

OTHERS : Steel Mill, Cement Factory, Shipbuilding, Food Factory, HVAC, and so on.





General Information

- High efficiency & torque motor with thermal protectors
- Digitalized torque sensing system
(adjustable range: 30% - 100%)
- Precisely machined gearing system & oil lubrication
- Top mount hand-wheel for easy operation
- Battery back-up for position detecting system
- Integrated local control unit
- 52-pin terminal block
- Mounting base according to ISO5210
- Bushing for adapting valve stem
- Remote control for setting device/tool
- IP68 Enclosure (10m for 100hrs in water)

STANDARD SPECIFICATIONS

- *MAIN POWER : 3PH, AC 220/380/400/415/440/460/480 V, 50/60Hz (+/-10%)
- *MOTOR : TENV, External Cooling Pin, Insulation Class: F, Thermostat,
- *REMOTE MONITORING SWITCH : Standard-8EA (S1-S8, LATCH, AC250V 2A), Other-1EA (FAULT, 1C)
- *INDICATION ON LOCAL CONTROL PANEL : Graphic LCD Display, 4-LED (Power, Fault, Close, Open)
- *TERMINAL : Double Sealing Structure with O-ring
 - CONTROL : 48 Contacts/M4 (Voltage rated: AC250V 5A)
 - POWER : 4 Contacts/M5 (Voltage rated: AC660V 63A)
- *ENCLOSURE : IP68 (10m for 100hrs in water)
- *SPACE HEATER : 10W, DC 24V
- *OPERATIONAL TEMPERATURE : -20°C ~ 70°C
- *MANUAL HAND-WHEEL : top mount, directly connected to driving sleeve,
switching lever (manual-electric) with automatic reset
- *CABLE ENTRY : 1 - PF1 1/2", 2 - PF1"
- *LOCAL CONTROL PANEL : Selector Switch of OPEN/CLOSE, Selector Switch of REMOTE/STOP/LOCAL
- *STANDARD PAINTING : Liquefied Paint

OPTION

- *REMOTE SIGNAL TRANSMITTER : CT (Current Transmitter) (Output: 4-20mA)
- *MODULATING : RPC (Remote Position Controller)
 - INPUT SIGNAL : 4-20mA, 0-10VDC, 2-10VDC, 0-5VDC, 1-5VDC
 - OUTPUT SIGNAL : 4-20mA (Option: 0-10VDC)
- *FIELD BUS : Profibus, CANOPEN, other Bus communication protocol types available
- *EXPLOSION-PROOF : Ex d IIC T4

MANUAL HAND-WHEEL AND SWITCHING LEVER

Top Mount Hand-wheel for easy manual operation
No-interruption structure while installing actuator
Easily switchable (electric to manual) by switching lever even when the motor is running
Automatically switchable (manual to electric) if the motor is running by electricity

BATTERY HOLDER

Battery : U9VL (9V, 1200mAh)
LITHIUM/Manganese Dioxide Designation
NEDA 1604LC

MOTOR (TENV Type)

TENV (Totally Enclosed Non-Ventilated) Type
Insulation Class: F, Thermostat installed, Standard Rated: 15min.
Voltage: available within +/-10%
Large torque Motor with a large output starting torque
Radiating Cooling Plate to maximize radiation effect
in high temperature during abnormal operation
Easy-detachable structure for the motor in case motor damaged

DECELERATOR / REDUCTION-GEAR

High efficient 'single reduction gear (worm)' ensured without noise
Higher efficiency compared to multi-level gearing

TERMINAL UNIT

Double sealing structure with O-ring
to ensure protection of the actuator inside
when terminal cover opened
Rigid outer wiring

CABLE ENTRY

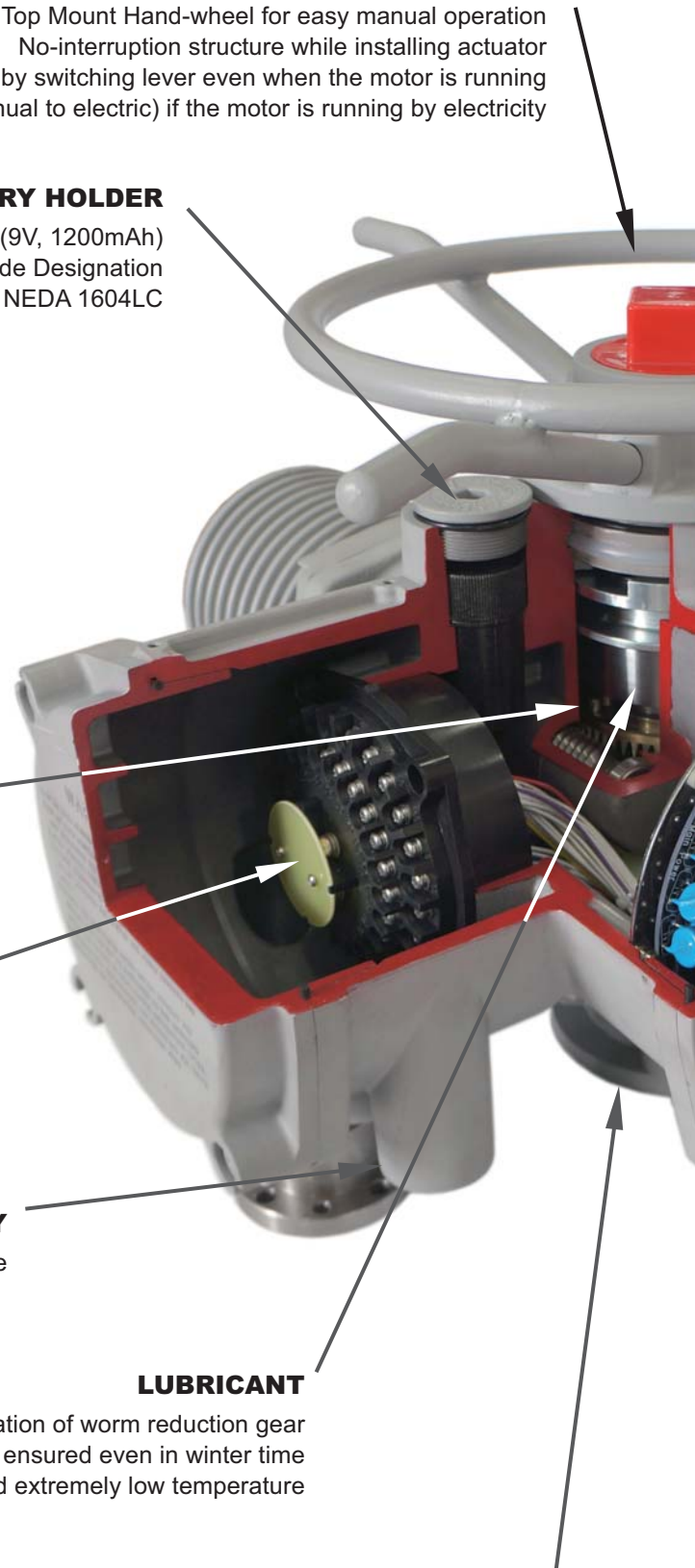
Various types available

LUBRICANT

Oil applied for lubrication of worm reduction gear
Stable operation ensured even in winter time
and extremely low temperature

THRUST UNIT

Detachable as separated from the actuator main body for easy installation
Ductile material, Drive bushing and Thrust bearing
Drive Bushing: two (2) types for Quarter-turn and Multi-turn



POSITION DETECTING SWITCH

Hall Incremental Encoder developed by I-TORK to ensure accurate valve position detection, Valve position memorized and recorded exactly even without power supply

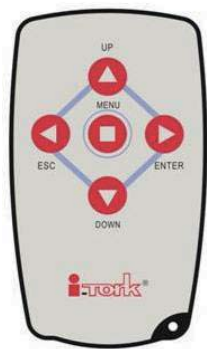
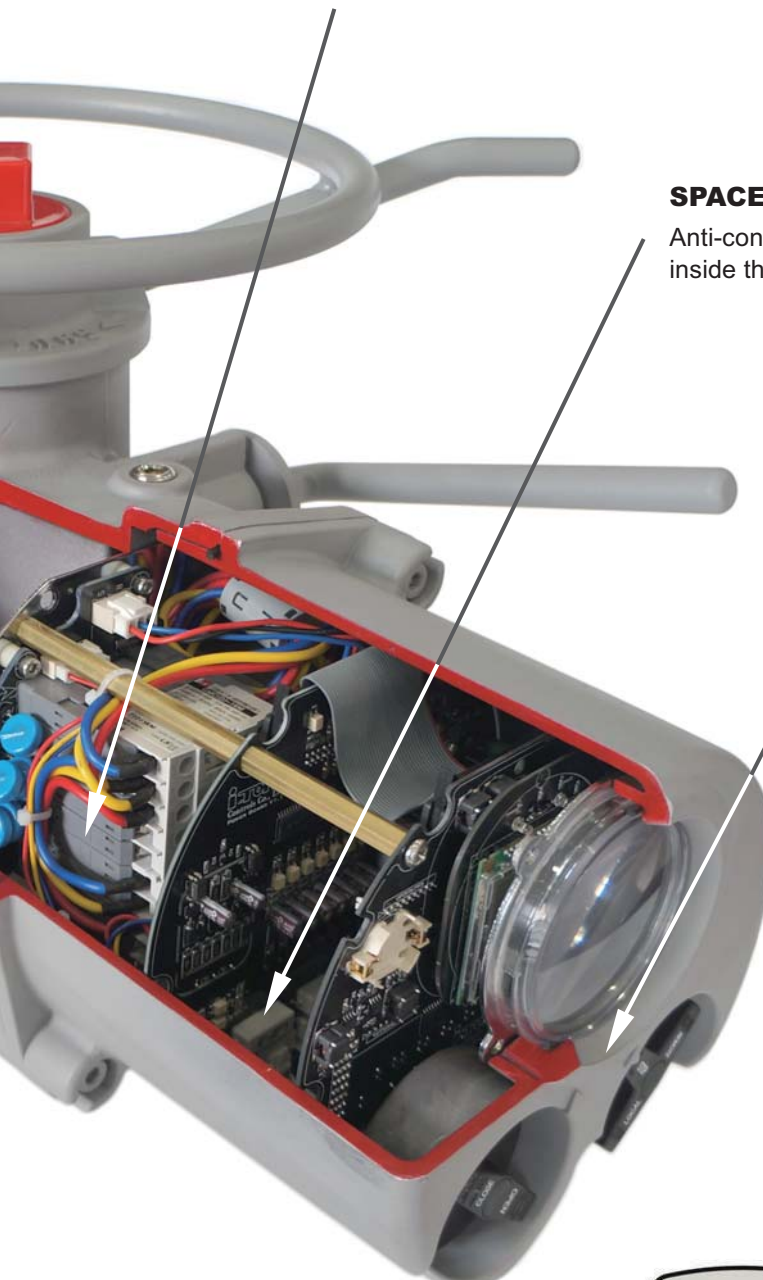
SPACE HEATER

Anti-condensation ensured by consistent temperature inside the enclosure based on regular power supply

LOCAL CONTROL

All selector switches : non-penetration type and complete separation to ensure insulation with internal circuit, Remote Control and Selector Switches to ensure easy setting and checking the actuator condition (no need to open local control cover), Water-proof,

- Operating Selector Switch:
Open/Close, Remote/Stop/Local, Indication and Setting on LCD display, Remote Control Receiver
- Integral Unit:
Automatic Phase Change, Negative/Open Phase Protection, Transformer, Magnetic Contactor, CPU Card, Relay Card



REMOTE CONTROL

Up/Down/ESC/Enter/Menu, Water-proof (up to IP67),
Size : 80 x 46 x 11.2mm
Power : 3.0V DC, CR2025 x 1pcs

MAIN POWER	3PH, AC 220/380/400/415/440/460/480V, 50/60Hz, (+/- 10%)
CONTROL POWER	INTERNAL POWER: DC 24V EXTERNAL POWER: AC/DC 24V~48V EXTERNAL POWER: AC 110V, 1PH EXTERNAL POWER: AC 220V, 1PH
LOCAL CONTROL	OPEN/CLOSE LOCAL/STOP/REMOTE - SELECTABLE
INTERLOCK	INCHING / HOLDING NORMAL (CW=CLOSE) / REVERSE (CCW=CLOSE)
STATUS (DRY CONTACT : N/O)	OPENING (LATCH, *N/O, N/C) FULL OPEN (LATCH, *N/O, N/C) CLOSING (LATCH, *N/O, N/C) FULL CLOSE (LATCH, *N/O, N/C) CLOSE OVER TORQUE (LATCH, *N/O, N/C) OPEN OVER TORQUE (LATCH, *N/O, N/C) REVERSE 3PH (LATCH, *N/O, N/C) LOCAL / REMOTE STATUS (LATCH, *N/O, N/C) POWER FAIL (N/C) (*I-TORK Standard)
PROTECTION	From Reversed-Phase and Open-Phase Auto-Phase Discriminator or Phase-Protection Motor Protection with built-in TP in the motor
ESD (EMERGENCY SHUTDOWN)	User can select the status of the actuator when ESD signal is detected; CLOSE / STOP / OPEN
MODULATION	INPUT SIGNAL: DC 4-20mA / DC 0-5V / DC 0-10 / DC 1-5V / DC 2-10V FAIL SAFE POSITION: CLOSE / STOP / OPEN (When Input Signal Lost) OUTPUT SIGNAL: DC 4-20mA
DISPLAY	LCD: 128 x 64 Graphic LCD 4 LEDs POWER : WHITE FAULT : YELLOW CLOSE : GREEN OPEN : RED

ITM	180	450	750	1800	3000
BODY TYPE	TOP HANDLE			WORM GEAR HANDLE	
CEARING	WORM GEAR				
ENCLOSURE	IP68				
EXPLOSION PROOF	Ex d II C T4				
OUTPUT TORQUE(Kg.m)	18	45	75	180	300
rpm 50/60Hz	11.7 ~ 236 rpm				
MOTOR (Kw)	0.75	1.5	3.7	7.5	15
STEM Ø KEY	Ø 35	Ø 50	Ø 60	Ø 95	Ø 115
STEM SCREW	TW40	TW60	TW72	TW110	TW130
FLANGE (ISO 5210)	F10	F14	F16	F25	F30
DECLUTCHING	OK				
SELF LOCKING	WORM GEAR				
TORQUE SWITCHES	TOEQUE SENSOR				
LIMIT SWITCHES	HALL INCREMENTAL ENCODER				
DISPLAY	128 X 64 Graphic LCD / 4-LED				
DUTY CYCLE	S2 : 15min (Option : S4 : 30min)				
MOTOR CLASS (INSULATION)	F				
MAIN POWER	3PH, AC 220/380/400/415/440/460/480V, 50/60Hz (+/- 10%)				
AMBIENT TEMPERATURE	-20°C ~ 70°C				
TERMINAL	52 PIN			75 PIN	
CONDUIT ENTRIES	*1-PF 1-1/2", NPT 1-1/2" 1 - M40 x 1.5, 1 - PG29 *2 - PF 1", 2 - NPT 1" 2 - M25 x 1.5, 2 - PG16			4 - PF 1", 4 - NPT 1" 4 - M25 x 1.5, 4 - PG16	
BODY MATERIAL	AC2B METAL MOLD CAST				
LUBRICATION	OIL				

*I-TORK Standard



SPEED TORQUE TABLE

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(*Strong Motor Standard)

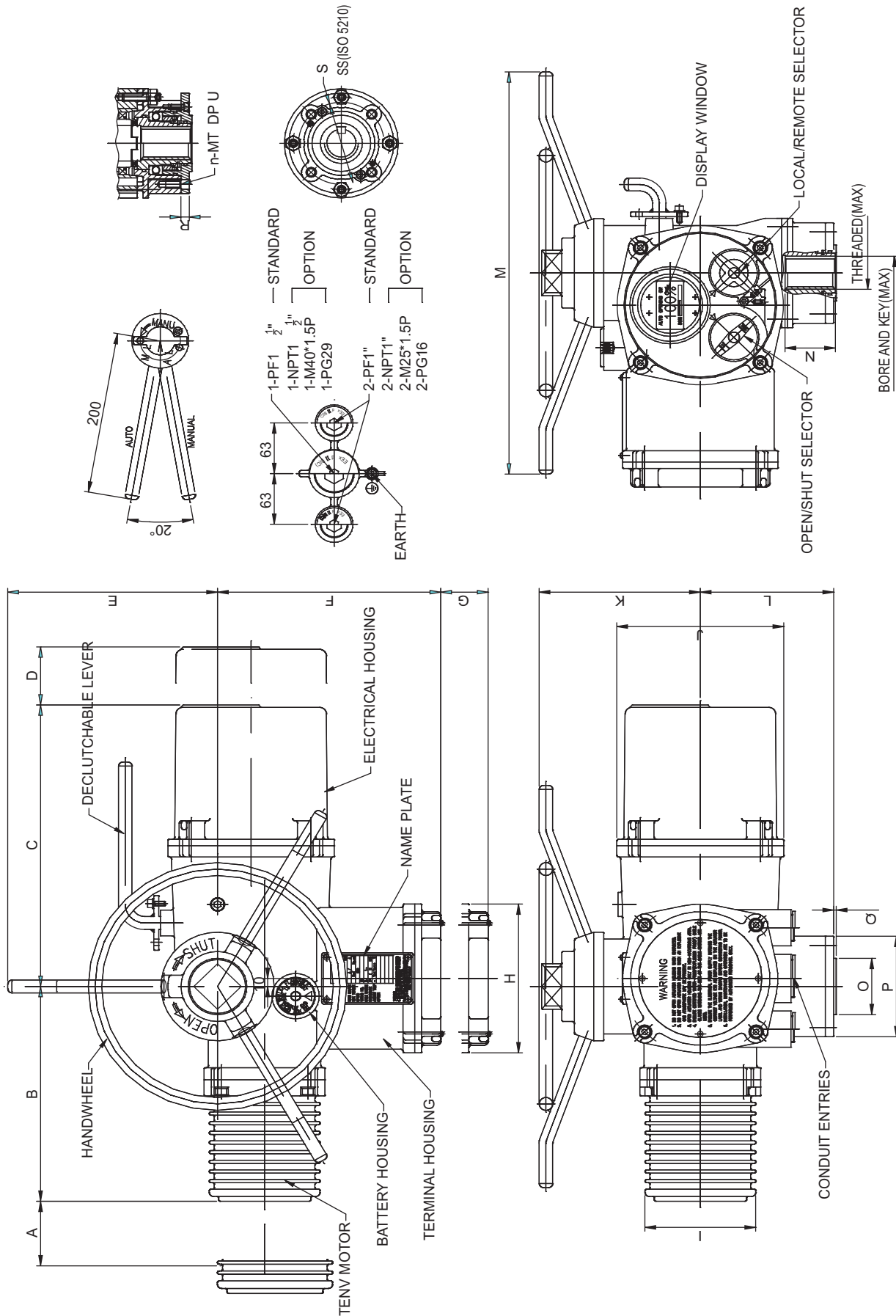
MODEL	RPM 50/60Hz	12/14	16/19	<u>*23/28</u>	32/38	<u>*48/57</u>	<u>*73/87</u>	<u>*98/118</u>
	Motor (Kw)	Max. Torque (Kgf . m)						
ITM 0180	0.2	2.66	3.7	6.65	2.66	3.2	2.13	1.33
	0.35	4.7	6.58	11.75	4.7	5.64	3.76	2.35
	0.75	10	14	25	10	12	8	5
ITM 0450	0.75	11	17	22.5	12	16	11	7.5
	1.5	22	34	45	24	32	22	15
ITM 0750	1.5	15.2	22.4	30	15.6	20.8	14.4	10
	2.2	22.8	33.6	45	23.4	31.2	21.6	15
	3.7	38	56	75	39	52	36	25
ITM 1800	3.7	45	67.5	90	47.5	63	44	31
	5.5	65.7	98.6	131.4	69.4	92	64.2	45.3
	7.5	90	135	180	95	126	88	62
ITM 3000	7.5	75	112.5	150	79	105	73.5	51.5
	11	109.5	164.3	219	115.3	153.3	107.3	75.2
	15	150	225	300	158	210	147	103

MODEL	TORQUE (Kgf . m)	STEM DIAMETER (mm) Key / Threaded	FLANGE ISO No. TAP PCD/ SIZE (mm)	Weight (Kg)
ITM 0180	18	35 / 40	125 F10 102/ 4 - M10 70	40
ITM 0450	45	50 / 60	175 F14 140/ 4 - M16 100	60
ITM 0750	75	60 / 72	210 F16 165/ 4 - M20 130	89
ITM 1800	180	95/110	300 F25 254 8 - M16 200	
ITM 3000	300	115/130	350 F30 298 8 - M20 230	



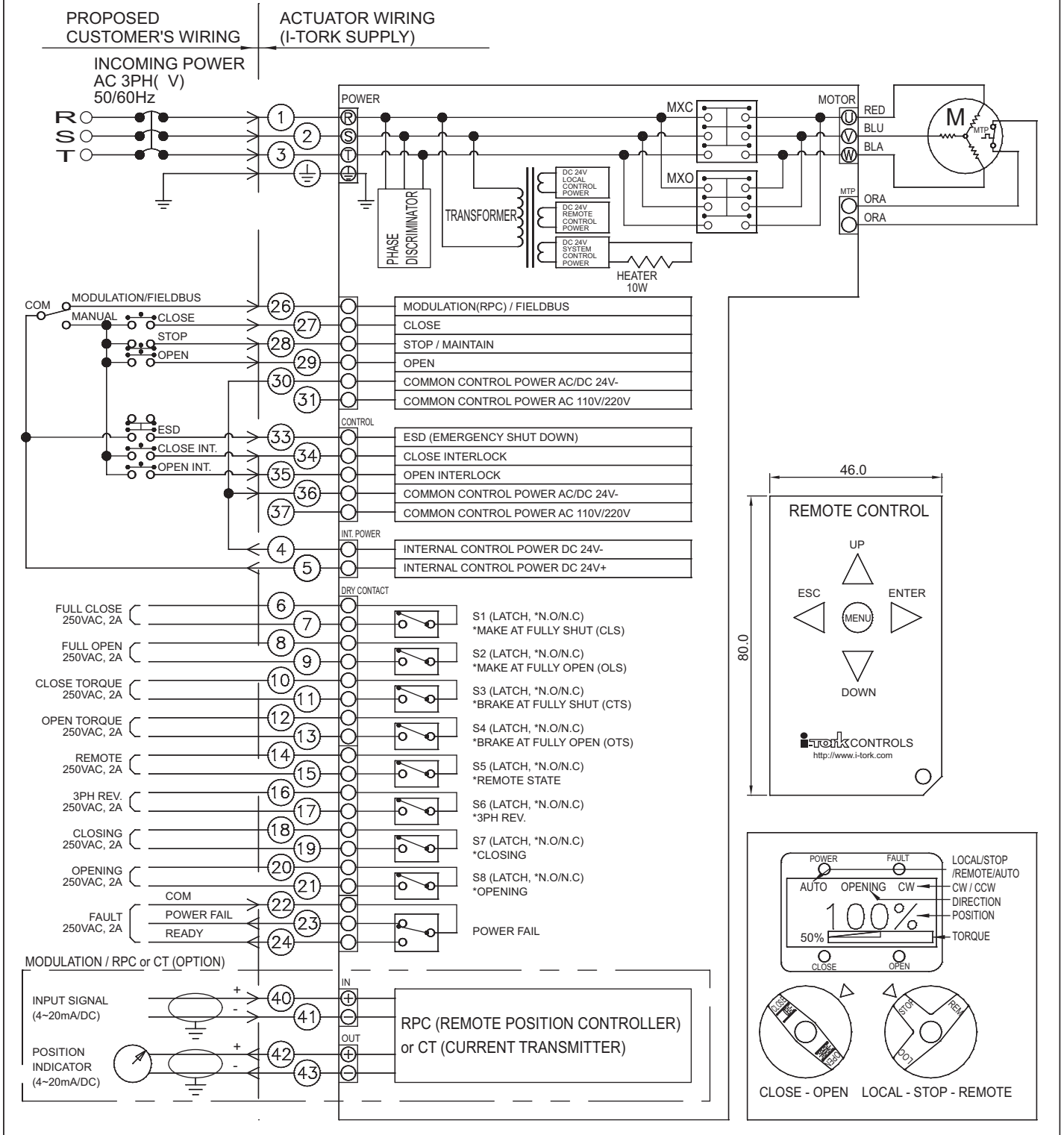
DIMENSIONS

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MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	SS	n-MT DP U	BORE AND KEY	THREAD
ITM0180	185	267	350	210	250	266	120	Ø185	Ø132	Ø199	192	159	Ø500	60	Ø70	Ø125	3	10	Ø102	F10	4-M10 DP18	Ø35(MAX)	Ø40(MAX)
ITM0450	195	300	364	210	275	286	120	Ø185	Ø162	Ø199	209	193	Ø550	80	Ø100	Ø175	4	13	Ø140	F14	4-M16 DP30	Ø50(MAX)	Ø60(MAX)
ITM0750	225	362	376	210	320	316	120	Ø185	Ø184	Ø199	232	209	Ø640	95	Ø130	Ø210	5	16	Ø165	F16	4-M20 DP36	Ø60(MAX)	Ø72(MAX)

FGND			
1 MAIN POWER "R"			
2 MAIN POWER "S"			
3 MAIN POWER "T"			
4 INTERNAL CONTROL POWER DC 24V-	16 S6	28 STOP / MAINTAIN	40 ANALOG INPUT SIGNAL +
5 INTERNAL CONTROL POWER DC 24V+	17 *3PH REV.	29 OPEN	41 ANALOG INPUT SIGNAL -
6 S1	18 S7	30 EXTERNAL CONTROL POWER AC/DC 24V-	42 ANALOG OUTPUT SIGNAL +
7 *MAKE AT FULLY SHUT (CLS)	19 *CLOSING	31 EXTERNAL CONTROL POWER AC 110V/220V	43 ANALOG OUTPUT SIGNAL -
8 S2	20 S8	32	44
9 *MAKE AT FULLY OPEN (OLS)	21 *OPENING	33 ESD	45
10 S3	22 COM	34 CLOSE INTERLOCK	46
11 *BRAKE AT FULLY SHUT (CTS)	23 FAULT	35 OPEN INTERLOCK	47
12 S4	24 READY	36 EXTERNAL CONTROL POWER AC/DC 24V-	48
13 *BRAKE AT FULLY OPEN (OTS)	25	37 EXTERNAL CONTROL POWER AC 110V/220V	49
14 S5	26 MODULATION(RPC) / FIELDBUS	38	50
15 *REMOTE STATE	27 CLOSE	39	51



MULTI-TURN ACTUATOR ITM SERIES



* The details of this catalog are subject to change without prior notification.

i-Tork[®] CONTROLS Co., Ltd.

Website : <http://www.i-tork.com>