

NUTORK[®]

Actuators & Valves



CE SIL3 Ex

NTM Series

MULTI-TURN ELECTRIC ACTUATOR

The max. output torque: 400,000Nm (with gearboxes)



NUTORK® | NTM Series Multi-Turn Electric Actuator

1.Body & Cover:

The housings of all NTM series of actuators are high grade aluminum alloy which are robust and light weight and epoxy-polyurethane coated as the standard on the outside. With rugged design construction, there are two types of enclosure: watertight(IP68 according to EN60529. The permissible immersion height of 15M head of water for 72 hours results) and flame proof enclosure(ExdIICT4)

Classified in corrosively categories C5-I and C5-M, NTM series multi-turn actuators and gearboxes meet the highest requirements and defined in EN ISO12944-2.

2.Motor

Available in 1 phase and 3 phase. All motors are custom built suited for valve automation(high torque,low current and low inertia). The thermostatic protection is ensured by the thermostat resistor inside the motor, which prevents the motor from its overheat (up to 135°C).

3.Side-Mounted Handwheel & Manual Override Push-Button Design

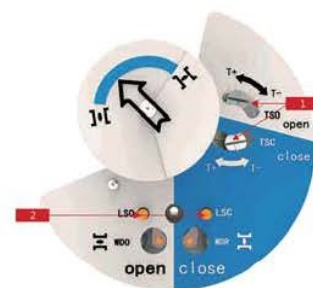
Handwheel drive can be activated when the manual override push-button is locked into the manual operation(push down), handwheel drive is independent of the motor drive thus it provides safe operation. The manual override push-button can be push down and locked regardless of the motor status(whether motor is running or not), this design makes possible an easy, high efficient and safe aerial work done.

4.Cable Entries:

2xNPT 3/4" as the standard, 1xNPT 3/4" as spare.The other various type are available.



Intelligent type LCD display with local control unit



**Basic type(on/off control only)
torque switch & travel switch is adjustable
by screw driver**



Planetary Gear Operator

5.Double-Sealed Structure:

NTM series of actuators have double-sealed water-tight metallic enclosure to IP68 standards(15 meters 72 hours).Explosion-proof BT4 and CT4 are optional. The terminal compartment are entirely separated.The internal electric control parts can be waterproof and dustproof even when the terminal compartment cover is removed for site wiring.

6.High-Definition LCD Display:

NUTORK NTM series of actuators incorporate a unique high-definition LCD. Large display window with backlight enables users to see valve position, torque and functional status at a long distance.

7.Non-Intrusive Local Control Switches:

non-intrusive hall switch(open/close/stop) and lockable operation selector(local/stop/remote) switches that do not penetrate the control cover. This ensures isolation of the internal circuits and enhances the actuator protection from the environment.

8.Worm Gear System:

The NTM series of mechanical worm gear system provides a necessary self-locking effect which prevents displacement of valve position when an external force acts upon the closing element.

9.Mounting Base:

All thrust(ISO5210) and non-thrust type(ISO5211 or MSS SP102) bases can be separated for easy installation. Meanwhile the actuator is still protected by the remaining bottom cover. If the actuator should be removed for maintenance purpose, the valve position can be maintained by leaving the base on the valve where the bottom cover still protects the actuator during maintenance.

Basic Type



◇Description:

NUTORK NTM series of electric multi-turn actuators is specially designed for all multi-turn valve applications (linear motion valves), such as globe valve, gate valve, diaphragm valve and etc. Moreover, by attaching a worm-gearbox, it can also be used for a large sized quarter turn valve applications, such as butterfly valve, ball valve and plug valve.

Smart & Intelligent Type



◇Wide application range of torque output

NTM series electric actuator provides wide range of torque output to meet specific customer's torque requirements. Direct torque outputs range is from 40Nm to 800Nm. When combined with a worm gearbox, the max. torque output up to 400,000Nm can be achieved.

◇High enclosure protection

The housings of all NTM series of actuators are high grade aluminum alloy which are robust and light weight, and epoxy-polyurethane coated as the standard on the outside. With rugged design construction, there are two types of enclosure: watertight(IP68 according to EN60529. The permissible immersion height of 15M head of water for 72 hours results) and flame proof enclosure (ExdIICT4).

External Control Unit



Classified in corrosively categories C5-I and C5-M, NTM series multi-turn actuators and gearboxes meet the highest requirements and defined in EN ISO12944-2.

◇User friendly controls and indications

For setting NTM series actuator, there is no need to remove the cover(non-intrusive setting). All settings can be done via either local control switches or infrared wireless communicator. The simple user interface supports English and Chinese languages.

Standard Specification:

Torque		60-800Nm(direct output)
Speed(RPM)	50Hz	18/24/36/48/72/96/144
	60Hz	21/29/43/57/86/115/173
Voltage		3 phase:380VAC(+10%),3phase/4wire
		1 phase:220VAC(+10%)
		The other voltages are available on requested
Noise		Less than 75dB within 1M
Temperature		-30℃~+70℃
Manual Operation		Manual clutch and handwheel
Enclosure	WTA	Weatherproof enclosure IP67(standard)
	EXD	Option:Waterproof enclosure(IP68,15M/72hours)
		Option:Explosion-proof enclosure EExdIIBT4 &CT4
Coating		Epoxy polyurethane coating
Mounting		JB2920(standard)
		Optional: (T type(trust type) or Z type(rotary type) ISO5210 standard
Cable Entry		2xNPT3/4"(standard,can upgrade to 2xNPT1")
		Optional:3xNPT3/4"(standard,can upgrade to 3xNPT1")

Basic Type Specification(on/off type only):

Motor		Class F,with thermal protector up to 135℃
Duty Cycle(on/off)		1ph:S2-15min,3ph:S2-30min(average load of 50% of max. torque)
On/Off Type	Monitoring Switches	4 switches,16A@250VAC as standard(Option: 8 switches)
	Output Signal	Position feedback potentiometer(Option)
Position Display		Mechanical Indicator
The Other Function		1.Heater(anti-humidity resistor)
		2.Over-torque
		3.Motor over-heating(setting at 135℃)
		4.Infrared Controller(optional)

Note:The input/output signal, please refer wiring diagram

Intelligent Type Specification(on/off & modulating type):

Motor		Class F,with thermal protector up to 135℃
Duty Cycle(on/off)		1ph:S2-15min,3ph:S2-30min(average load of 50% of max. torque)
Duty Cycle(modulating)		S4-50%(600 starts/hour(option 1200 starts/hour),average load of 50% of max. torque)
On/Off Type	Monitoring Switches	6 switches,16A@250VAC as standard
	Output Signal	◇Position feedback potentiometer ◇4-20mADC(0-10VDC/2-10VDC as option)
Modulating Type	Monitoring Switches	6 switches,16A@250VAC as standard
	Input/Output Signal	4-20mADC(0-10VDC/2-10VDC as option)
	Dead Zone	Full travel is adjustable,0.3~9.9%
Position Display		LCD display with open/close/remote/fault LED
Local Control Switches		non-intrusive hall switch(open/close/stop) and lockable operation selector(local/stop/remote)switches
The Othe Function(as standard):		
◇Automatic phase correction and adjustment		◇Space heater(anti-humidity resistor)
◇Over torque protection		◇Intelligent Aalarm ◇Motor over-heating(setting at 135℃)
◇ESD can be settled at open/close/last position		◇Auto inspetion ◇Phase lost protection
◇Intelligent protection during valve jams		◇Instantaneous reversal protection
◇Better record:user can observe actuator production date/code, recent commands/error, max. open&close torque, contactor operation times —etc.		
The Othe Function(as optional):		
◇Infrared Controller	◇Modbus	◇Profibus ◇External Control Unit
◇Watertight enclosure(IP68,15M@72hrs)		◇Fire proofing actuator up to 1050+5℃/50min.

Note:The input/output signal, please refer wiring diagram

NUTORK® | NTM Series Multi-Turn Electric Actuator

Performance Data

3 phase 380VAC/60Hz, on/off & modulating type
(available for starting frequency < 600 times/hours)

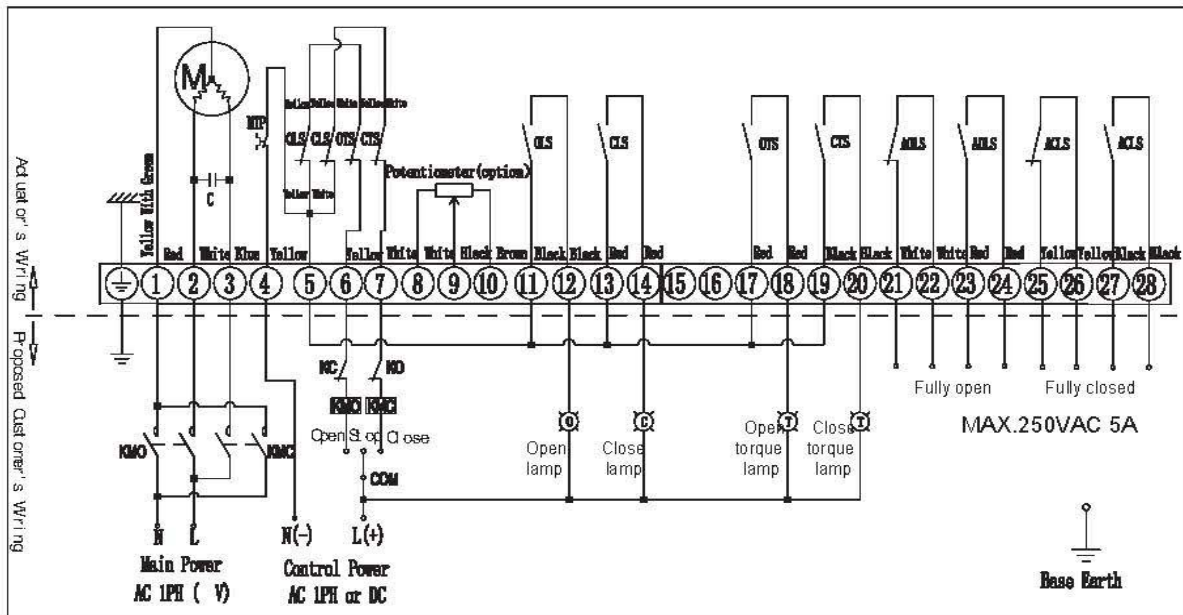
Actuator				Motor		
Series	Model	RPM	Torque	Rated Power KW	Rated Current A	Stall Current A
		r/min	N.m			
NTM10	NTM10-18	18	100	0.42	1.57	3.45
	NTM10-24	24	100			
	NTM10-36	36	100			
	NTM10-48	48	100	0.5	1.88	4.15
	NTM10-72	72	70			
	NTM10-96	96	50	0.71	2.67	5.87
	NTM10-144	144	40			
NTM15	NTM15-18	18	150	0.5	1.88	4.15
	NTM15-24	24	150			
	NTM15-36	36	150			
	NTM15-48	48	150	0.84	3.14	6.91
	NTM15-72	72	100			
	NTM15-96	96	75	0.84	3.14	6.91
	NTM15-144	144	60			
NTM20	NTM20-18	18	200	0.89	3.34	7.34
	NTM20-24	24	200			
	NTM20-36	36	200			
	NTM20-48	48	200	1.49	5.57	12.26
	NTM20-72	72	170			
	NTM20-96	96	150	2.14	8.01	17.62
	NTM20-144	144	100			
NTM30	NTM30-18	18	300	0.89	3.34	7.34
	NTM30-24	24	300			
	NTM30-36	36	300			
	NTM30-48	48	300	1.49	5.57	12.26
	NTM30-72	72	200			
	NTM30-96	96	170	2.14	8.01	17.62
	NTM30-144	144	120			
NTM40	NTM40-18	18	400	1.49	5.57	12.26
	NTM40-24	24	400			
	NTM40-36	36	350			
	NTM40-48	48	300	1.78	6.67	14.68
	NTM40-72	72	250			
	NTM40-96	96	230	2.68	10.05	22.11
	NTM40-144	144	150			
NTM50	NTM50-18	18	500	2.3	8.64	19
	NTM50-24	24	500			
	NTM50-36	36	500			
	NTM50-48	48	500	2.85	10.68	23.49
	NTM50-72	72	400			
	NTM50-96	96	300	3.35	12.56	27.63
	NTM50-144	144	200			
NTM60	NTM60-18	18	600	2.85	10.68	23.49
	NTM60-24	24	600			
	NTM60-36	36	600			
	NTM60-48	48	600	3.25	12.17	26.77
	NTM60-72	72	500			
	NTM60-96	96	400	4.77	17.9	39.38
	NTM60-144	144	260			
NTM90	NTM90-18	18	900	2.85	10.68	23.49
	NTM90-24	24	900			
	NTM90-36	36	750			
	NTM90-48	48	600	3.25	12.17	26.77
	NTM90-72	72	600			
	NTM90-96	96	480	4.77	17.9	39.38
	NTM90-144	144	350			

1 phase 220VAC/50Hz, on/off type

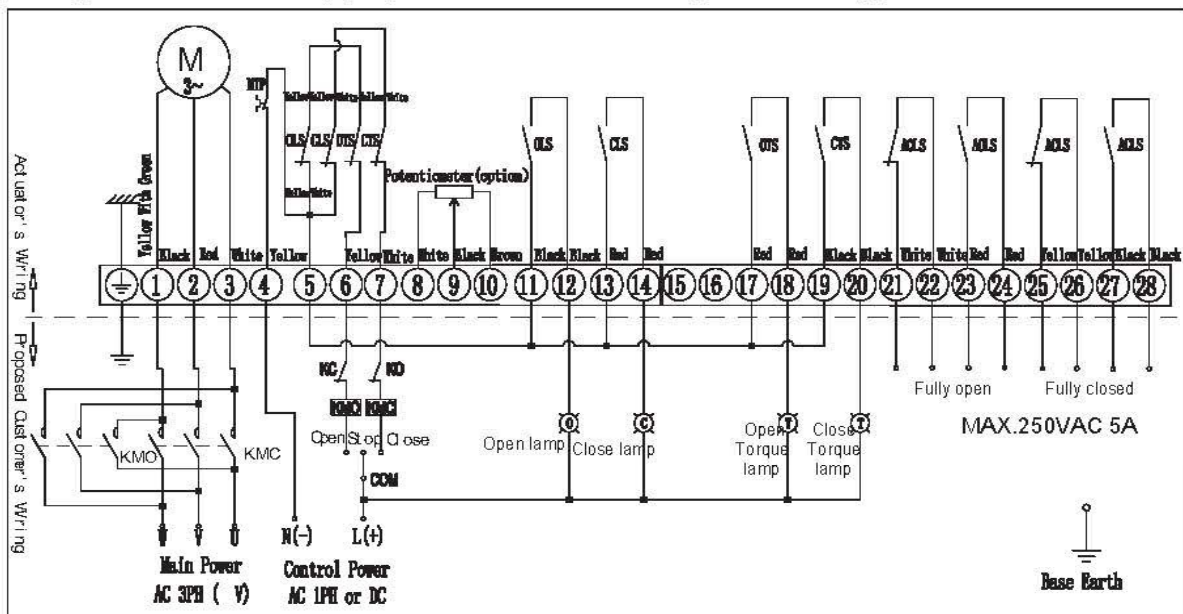
Actuator				Motor		
Series	Model	RPM	Torque	Rated Power KW	Rated Current A	Stall Current A
		r/min	N.m			
NTM10	NTM10-18	18	60	0.19	1.22	2.68
	NTM10-24	24	60			
	NTM10-36	36	50	0.31	2.03	4.47
	NTM10-48	48	50			
	NTM10-72	72	35	0.31	2.03	4.47
NTM40	NTM40-18	18	150	0.48	3.12	6.86
	NTM40-24	24	150			
	NTM40-36	36	130	0.6	3.86	8.5
	NTM40-48	48	100			
NTM60	NTM60-18	18	250	0.81	5.22	11.49
	NTM60-24	24	250			
	NTM60-36	36	200	0.97	6.31	13.87
	NTM60-48	48	170			
	NTM60-72	72	130	0.97	6.31	13.87
NTM90	NTM90-18	18	300	1.8	9.6	23.8
	NTM90-24	24	300	1.8	9.6	23.8



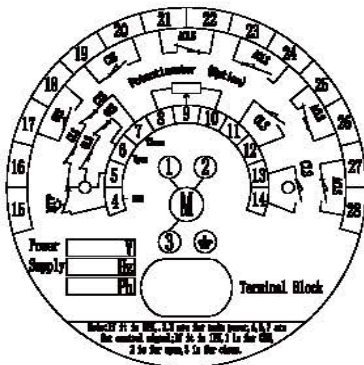
Wiring Diagram of Basic Type(1PH/220VAC/60Hz), On/Off Type



Wiring Diagram of Basic Type(3PH/380VAC/60Hz), On/Off Type



Terminal Block Chart

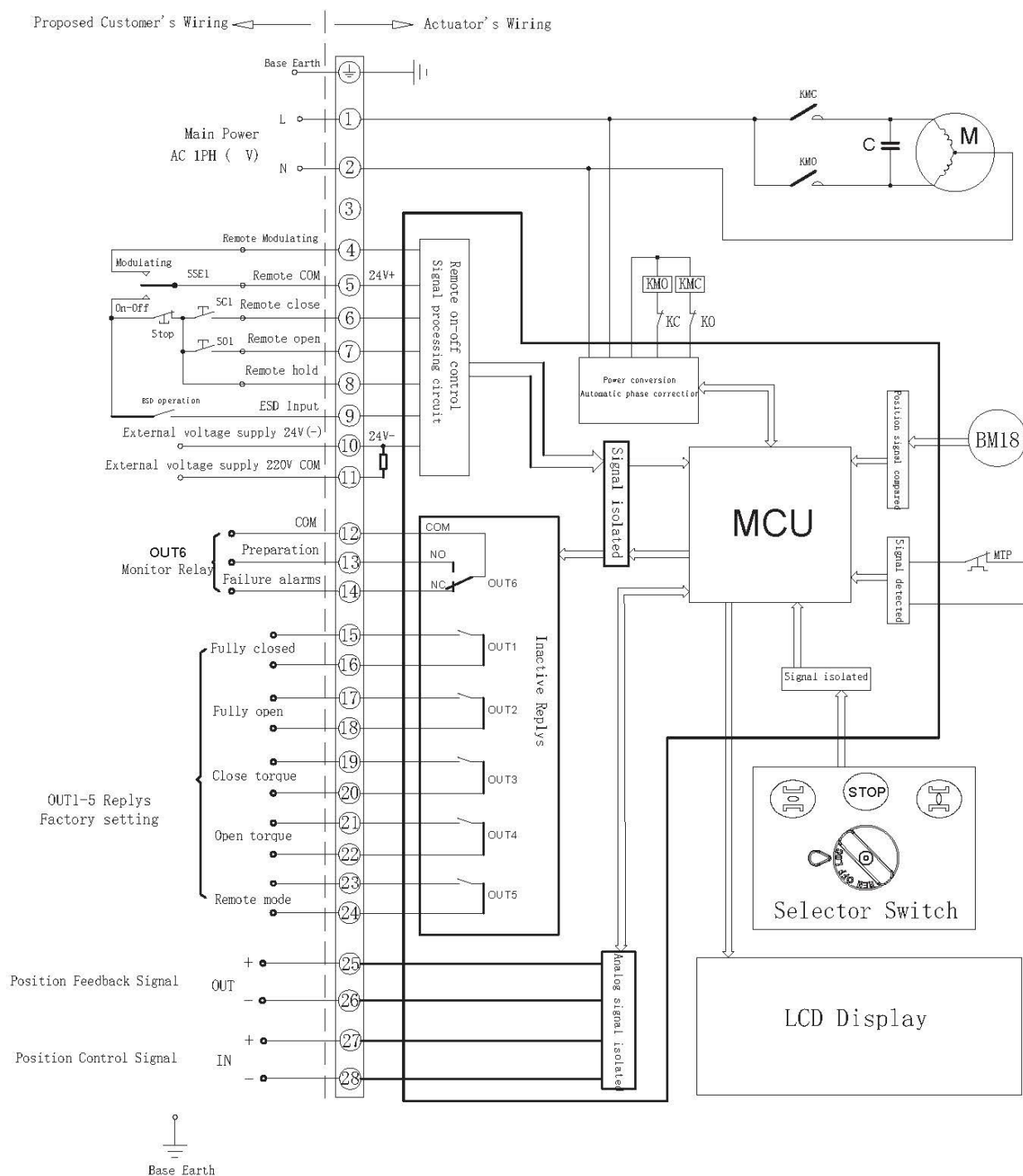


Note:

- (1) If it is 3PH, 2, 3 are for main power supply, 4, 6, 7 are for control signal;
(2) If it is 1PH, 1 is for COM, 2 is for open, 3 is for close.

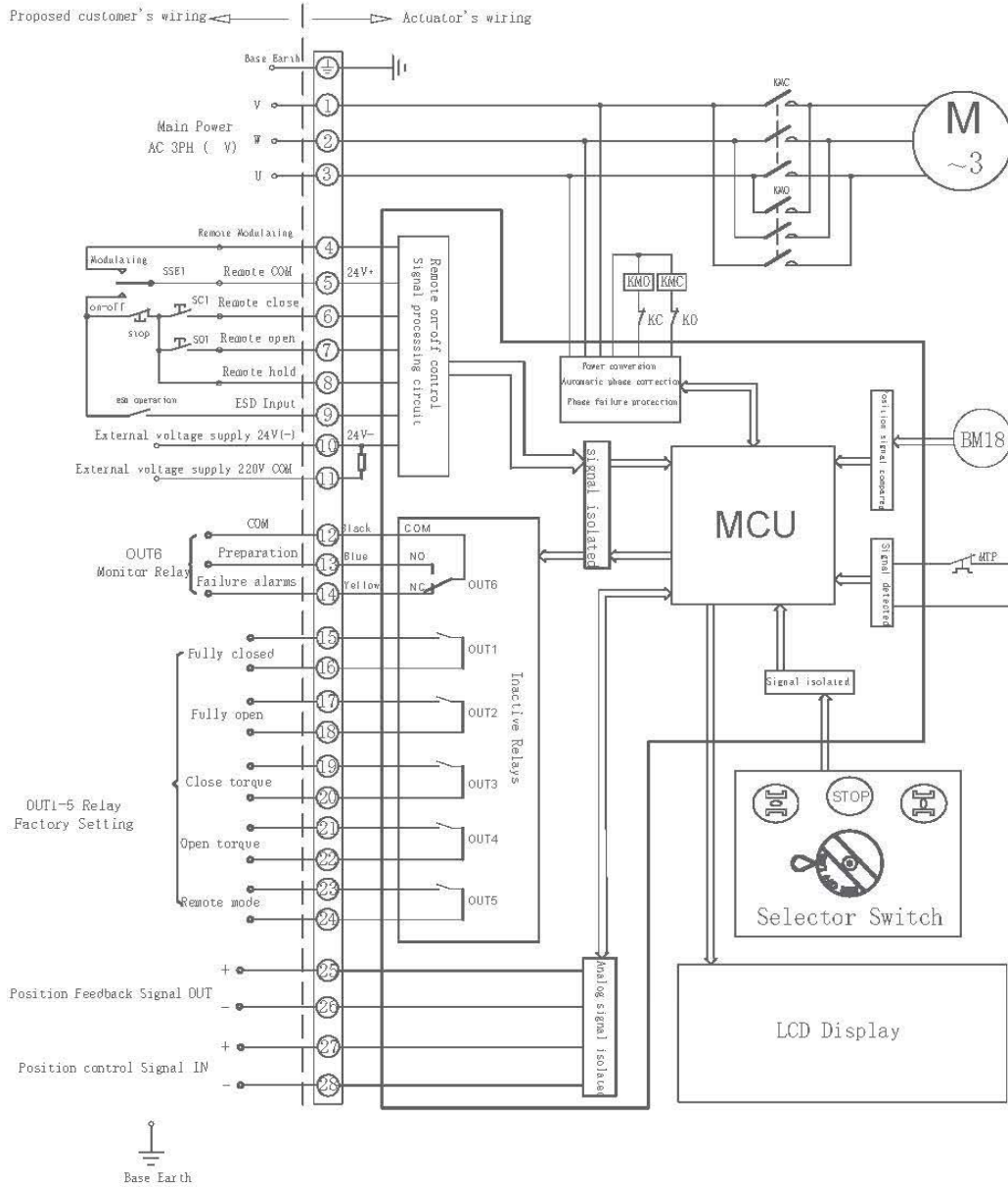
Wiring Diagram of Intelligent Type(On/Off Type & Modulating Type) (1PH/220VAC/50Hz)

Intelligent type (1PH)



Wiring Diagram of Intelligent Type(On/Off Type & Modulating Type) (3PH/380VAC/60Hz)

Intelligent Type (3PH)



Terminal Block Chart



The different wiring table for on/off & modulating control

Remote On-Off (Manual) Control

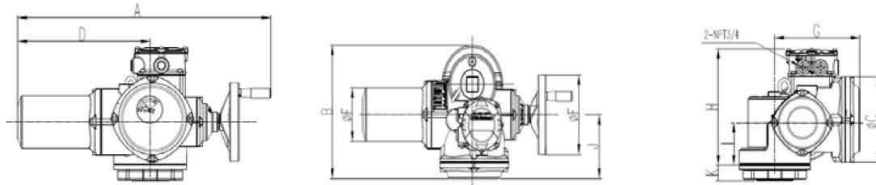
Remote On-Off (Manual) Control (Note: terminal 4 has no wire.)				
Dry contact control				
DC24V external voltage supply				
AC220V external voltage supply				
ESD Control				

Remote Modulating (Auto) Control

Remote Modulating control	Switch remote On-Off and remote modulating	Switch remote On-Off and remote modulating	Switch remote On-Off and remote modulating
	DC24V Internal voltage supply	DC24V External voltage supply	AC220V External voltage supply

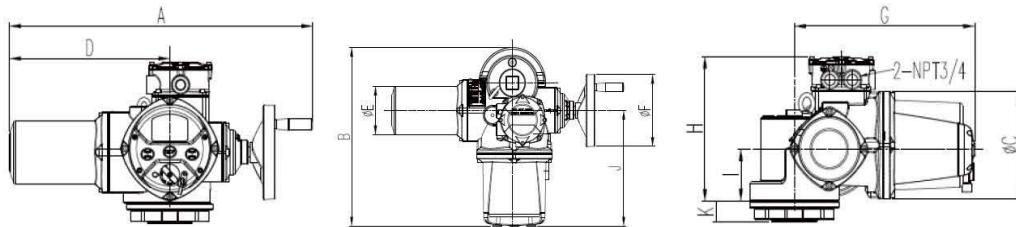
NUTORK® | NTM Series Multi-Turn Electric Actuator

Outline Dimension Table (Basic Type)



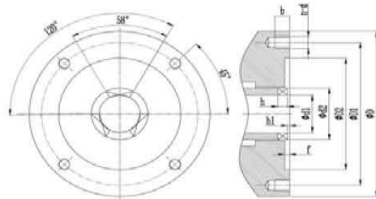
Model	A	B	ΦC	D	ΦE	Φf	G	H	I	J	K		Weight (kg)
											Z type flange	T type flange	
NTM10	629	229	222	308	105	200	394	300	102	317	41	60	31
NTM15	629	229	222	308	105	200	394	300	102	317	41	60	31
NTM20	682	332	222	360	135	200	394	300	108	317	41	60	42
NTM30	682	332	222	360	135	200	394	300	108	317	41	60	42
NTM40	682	332	222	360	135	200	394	300	108	317	41	60	42
NTM50	732	387	222	404	155	200	404	300	108	324	41	62	56
NTM60	732	387	222	404	155	200	404	300	108	324	41	62	56
NTM80	732	387	222	404	155	200	404	300	108	324	41	62	56

Outline Dimension Table (Intelligent Type)

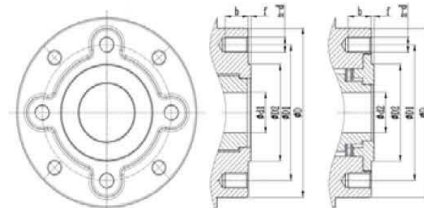


Model	A	B	ΦC	D	ΦE	Φf	G	H	I	J	K		Weight (kg)
											Z type flange	T type flange	
NTM10	629	387	222	308	105	200	415	300	108	338	41	60	31
NTM15	629	387	222	308	105	200	415	300	108	338	41	60	31
NTM20	682	490	222	360	135	200	394	300	108	317	41	60	42
NTM30	682	490	222	360	135	200	394	300	108	317	41	60	42
NTM40	682	490	222	360	135	200	394	300	108	317	41	60	42
NTM50	732	545	222	404	155	200	410	300	114	333	41	62	56
NTM60	732	545	222	404	155	200	410	300	114	333	41	62	56
NTM80	732	545	222	404	155	200	410	300	114	333	41	62	56

Y: Three jaw coupling - rotary type



T: Thrust type/Z: Rotary Type - ISO5210 standard



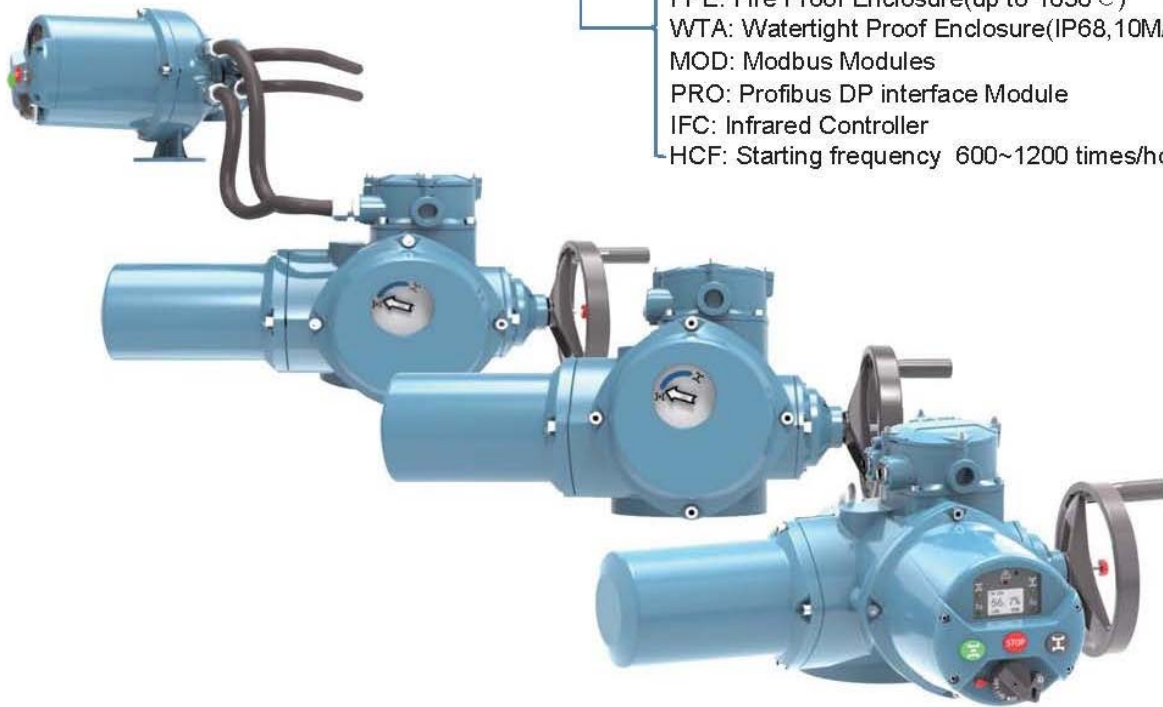
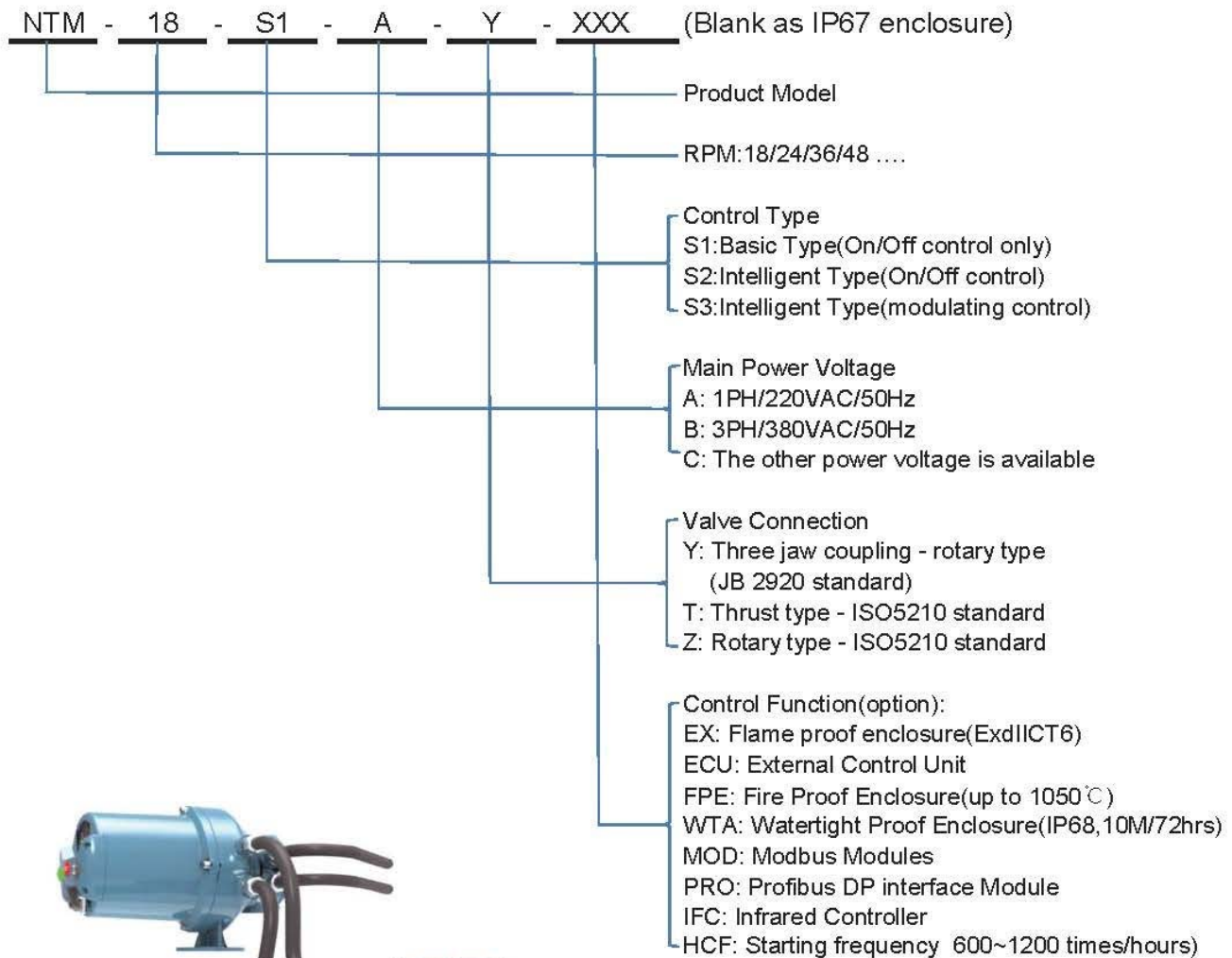
Y: Three jaw coupling - rotary type

Product No.:	Base No.	ΦD	ΦD1	ΦD2	Φd1	Φd2	f	n-d	b
NTM-10	JB2	145	120	90	30	45	5	4-M10	20
NTM-20/30/40	JB3	185	160	125	43	58	5	4-M12	20
MTM-50/60/80	JB4	225	195	150	50	72	5	4-M16	25

T: Thrust type/Z: Rotary Type - ISO5210 standard

	PCD	ΦD	ΦD1	ΦD2	Φd1	Φd2	f	n-d	b
NTM-10	F10	120	102	70	32	Tr32	4	4-M10	15
NTM-20/30/40	F14	175	140	100	48	Tr48	4	4-M16	24
MTM-50/60/80	F16	205	165	130	62	Tr62	5	4-M20	30

Ordering Information_(NTM Series multi-turn electric actuator)



NUTORK CORP. manufactures a wide range of pneumatic actuators, electric actuators and the accessories of pneumatic actuator (limit switchbox, solenoid valve, manual override ---etc.) for quarter turn valves



Rack & Pinion Type Pneumatic Actuator.
(Certificated by CE-ATEX/SIL3)
Max. Output Torque: 9340Nm

Scotch Yoke Type Pneumatic & Hydraulic Actuator.
(Certificated by CE-ATEX/SIL3)
Max. Output Torque 293800Nm



NTQ Series Electric Actuator
IP67/IP68(30M@24hrs)Enclosure &
EExdIICT6Max. Output Torque 6000Nm
Approved by SIL3/IP68/MD/LVD/EMC.

NTE Series Electric Actuator
IP67/IP68(30M@24hrs)
EnclosureMax. Output Torque 6000Nm
Approved by SIL3/IP68/MD/LVD/EMC.



Limit Switchbox IP67/IP68(50M@72hrs)
Enclosure & EExdIICT6

Solenoid Valve 3/2NC & 5/2 Way, Static O-ring Sealing Design.
Aluminum & 316SS Body
IP67 & EExdIICT6



Air Filter Regulator Aluminum Body with Vinyl Paint & 316SS Body.
Size: 1/4" ~ 1"

Manual Override Aluminum & Cast Iron & Ductile Iron Body
Max Output Torque 70000Nm



Ball valve (Floating ball design),
We can provide different pressure rating/
connection type/ operation mode.

Concentric Soft Seated Butterfly Valve
High Performance Double Eccentric Butterfly Valve
High Performance Triple Offset Metal Seated Butterfly Valve
We can provide different pressure rating/ connection type/ operation mode.



NUTORK Corp.

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