

NTM Series

MULTI-TURN ELECTRIC ACTUATOR

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



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

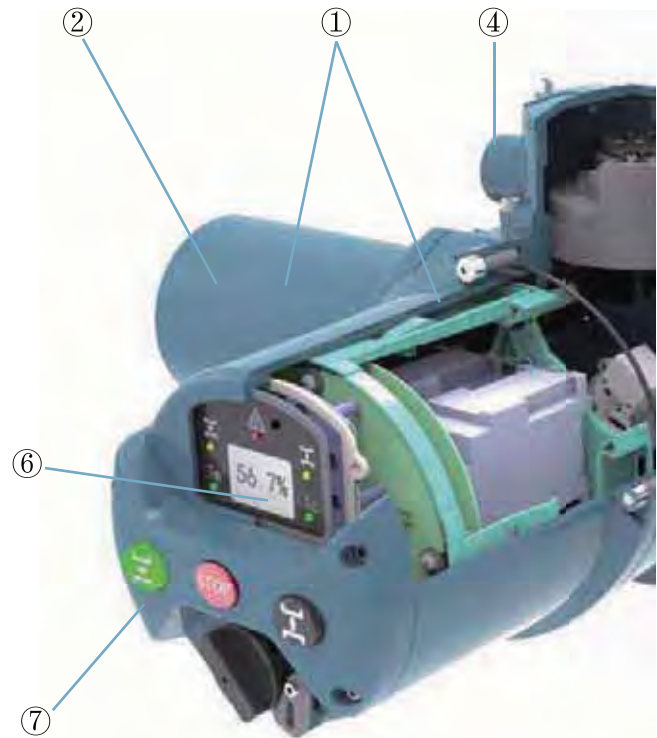
Available in 1 phase and 3 phase. All motors are custom built suited for valve automation(high torque,low current and low inertia). The thermostatic protection is ensured by the thermostat resistor inside the motor, which prevents the motor from its overheat (up to 135 °C).

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:

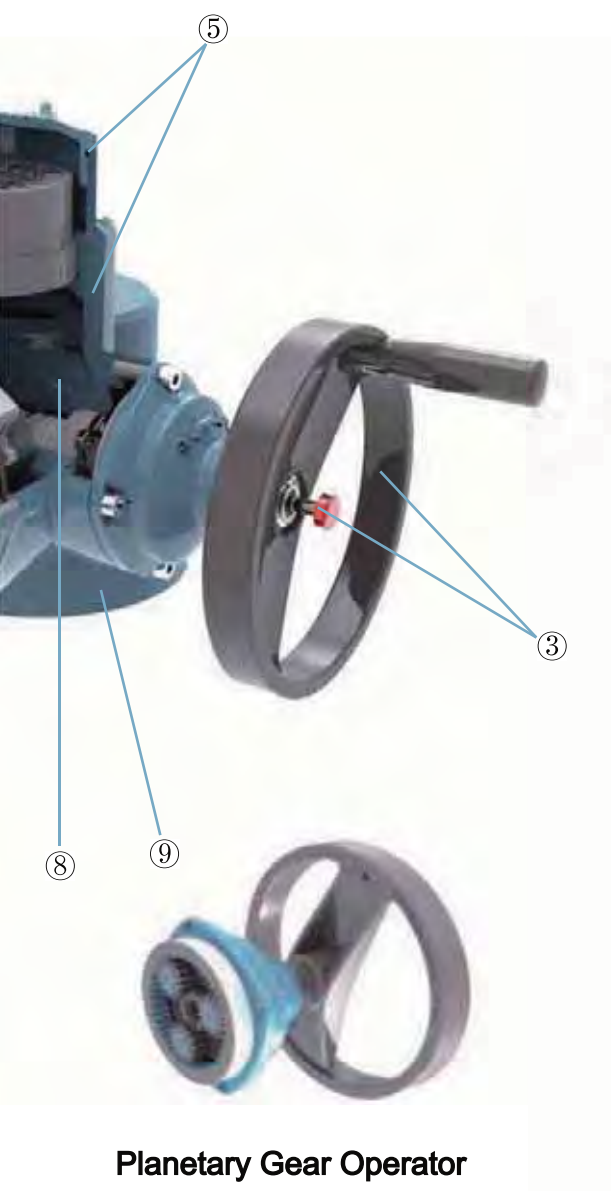
2xNPT 3/4" as the standard, 1xNPT 3/4" as spare.The other various type are available.



Intelligent type LCD display with local control unit



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



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.

◇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).

Smart & Intelligent Type



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		50-3000Nm(direct output)
Speed(RPM)		18/24/36/48/72/96/144
Voltage		3 phase: 380VAC(±10%), 3 phase/4 wire
		1 phase: 220VAC(±10%)
		The other voltages are available on requested
Noise degree		Less than 75dB within 1 meter
Vibration resistance		Comply with JB/T8219
Temperature		-30°C ~ +70°C
Manual Operation		Side Mounted Declutchable Manual Override
Enclosure	Standard	Waterproof enclosure IP67
	WTA	Option:Waterproof enclosure (IP68, 10M/72hours)
	EXD	Option:Explosion-proof enclosure EExdIICT6
Coating		Epoxy polyurethane coating
Mounting		JB2920 (standard)
		Optional: T type (thrust 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°C
Duty Cycle (on/off)		S2: 25%~15min.
On/Off Type	Control signal	4 switches, built-in contact with 16A@250VAC as standard(Option: 8 switches)
	Feedback signal	Dry contact for fully open / fully close Dry contact for open torque switch / close torque switch 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°C)

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°C	
Duty Cycle (on/off)		S2: 25%~15min.	
Duty Cycle (modulating)		S4: 30%~1200 Start/Hour	
On/Off Type	Control signal	6 switches, dry contact with 16A@250VAC, exchange between inching and keep	
	Feedback signal	6 x relay contacts (5 x status relay + 1 x fault relay) 1 x analogue feedback: 4-20mA, output impedance ≤750Ω Option: 0-10V, 2-10V	
Modulating Type	Control signal	6 switches, dry contact with 16A@250VAC, analogue signal: 4-20mA Input impedance≤100Ω, Option:0-10V, 2-10V	
	Feedback signal	1 x analogue feedback: 4-20mA, output impedance≤750Ω, Option:0-10V, 2-10V	
	Dead Zone	0.3 ~ 9.9% adjust within full stroke	
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 (3ph only)		◇Space heater(anti-humidity resistor)	
◇Over torque protection		◇Intelligent Aalarm ◇Motor over-heating(setting at 135°C)	
◇ESD can be setted 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(IP68,10M@72hrs)		◇Fire proofing actuator up to 1050±5°C/50min.	

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

Performance Data

3 phase 380VAC/50Hz,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	2.60	5.46
	NTM10-24	24	100			
	NTM10-36	36	90			
	NTM10-48	48	80	0.5	2.88	5.92
	NTM10-72	72	70			
	NTM10-96	96	50	0.71	3.25	6.83
	NTM10-144	144	40			
NTM15	NTM15-18	18	150	0.5	3.00	5.80
	NTM15-24	24	150			
	NTM15-36	36	130			
	NTM15-48	48	120	0.84	3.20	6.72
	NTM15-72	72	100			
	NTM15-96	96	75	0.84	3.50	7.35
	NTM15-144	144	60			
NTM20	NTM20-18	18	200	0.89	4.82	14.47
	NTM20-24	24	200			
	NTM20-36	36	190	1.49	4.99	14.98
	NTM20-48	48	180			
	NTM20-72	72	170			
	NTM20-96	96	150	2.14	6.20	18.60
	NTM20-144	144	100			
NTM30	NTM30-18	18	300	0.89	4.82	14.47
	NTM30-24	24	300			
	NTM30-36	36	280			
	NTM30-48	48	250	1.49	4.99	14.98
	NTM30-72	72	200			
	NTM30-96	96	170	2.14	6.20	18.60
	NTM30-144	144	120			
NTM40	NTM40-18	18	400	1.49	4.99	14.98
	NTM40-24	24	400			
	NTM40-36	36	350			
	NTM40-48	48	300	1.78	5.17	15.50
	NTM40-72	72	250			
	NTM40-96	96	230	2.68	7.58	22.73
	NTM40-144	144	150			
NTM50	NTM50-18	18	500	2.30	9.64	27.00
	NTM50-24	24	500			
	NTM50-36	36	450			
	NTM50-48	48	400	2.85	9.82	27.49
	NTM50-72	72	350			
	NTM50-96	96	300	3.35	12.40	34.72
	NTM50-144	144	200			
NTM60	NTM60-18	18	600	2.85	9.82	27.49
	NTM60-24	24	600			
	NTM60-36	36	550			
	NTM60-48	48	500	3.25	10.68	29.90
	NTM60-72	72	450			
	NTM60-96	96	400	4.77	13.78	38.58
	NTM60-144	144	260			
NTM90	NTM90-18	18	900	3.25	12.18	26.80
	NTM90-24	24	900			
	NTM90-36	36	800			
	NTM90-48	48	730	3.50	13.12	28.86
	NTM90-72	72	630			
	NTM90-96	96	550	5.50	20.62	45.36
	NTM90-144	144	420			

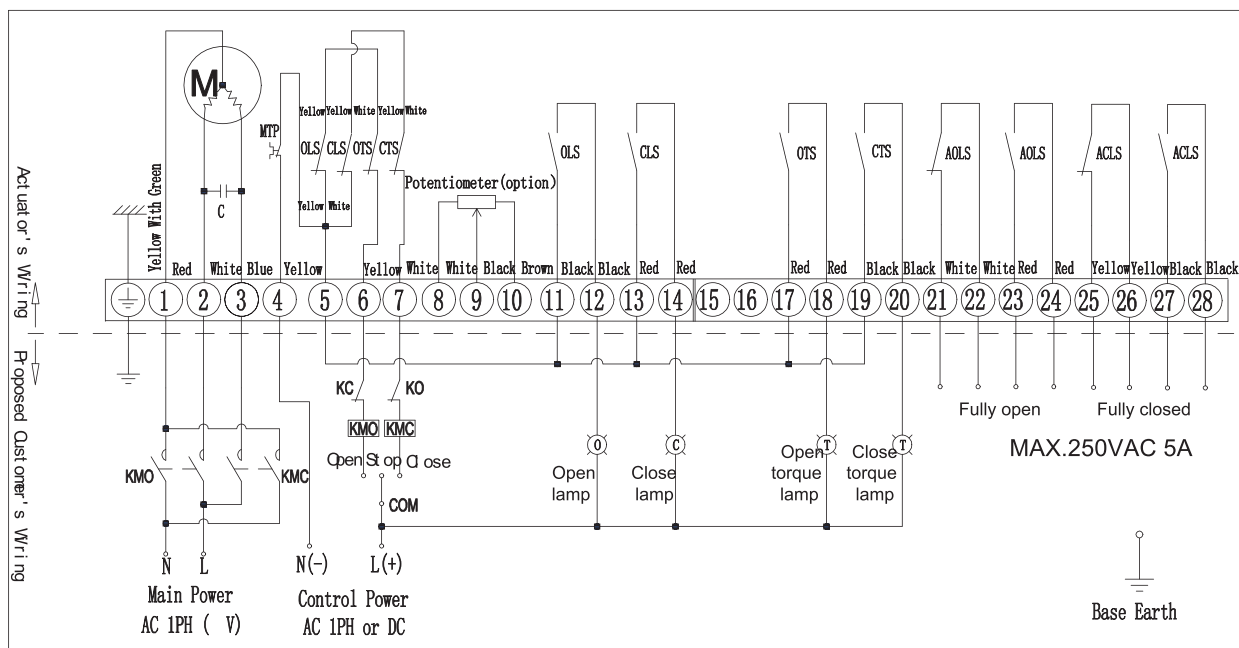
3 phase 380VAC/50Hz,on/off & modulating type
(available for starting frequency < 600 times/hours)

Actuator				Motor		
Series	Model	RPM	Torque	Rated Power KW	Rated Current A	Stall Current A
		r/min	N.m			
NTM100	NTM100-18	18	1000	3.89	11.37	88.0
	NTM100-24	24	1000			
	NTM100-36	36	850			
	NTM100-48	48	700	4.50	13.78	88.0
	NTM100-72	72	650			
	NTM100-96	96	530			
	NTM100-144	144	380	6.91	24.11	90.0
NTM150	NTM150-18	18	1500	5.89	17.22	90.0
	NTM150-24	24	1500			
	NTM150-36	36	1300			
	NTM150-48	48	1000	7.77	22.73	90.93
	NTM150-72	72	900			
	NTM150-96	96	750			
	NTM150-144	144	650	9.42	27.56	99.2
NTM200	NTM200-18	18	2000	7.77	22.73	90.93
	NTM200-24	24	2000			
	NTM200-36	36	1700			
	NTM200-48	48	1400	8.90	29.28	105.4
	NTM200-72	72	1200			
	NTM200-96	96	1000			
	NTM200-144	144	850	12.57	37.89	136.4
NTM300	NTM300-18	18	3000	9.42	29.28	105.4
	NTM300-24	24	3000			
	NTM300-36	36	2000			
	NTM300-48	48	1800	10.47	30.31	109.12
	NTM300-72	72	1600			
	NTM300-96	96	1450			
	NTM300-144	144	1350	16.75	48.22	173.6

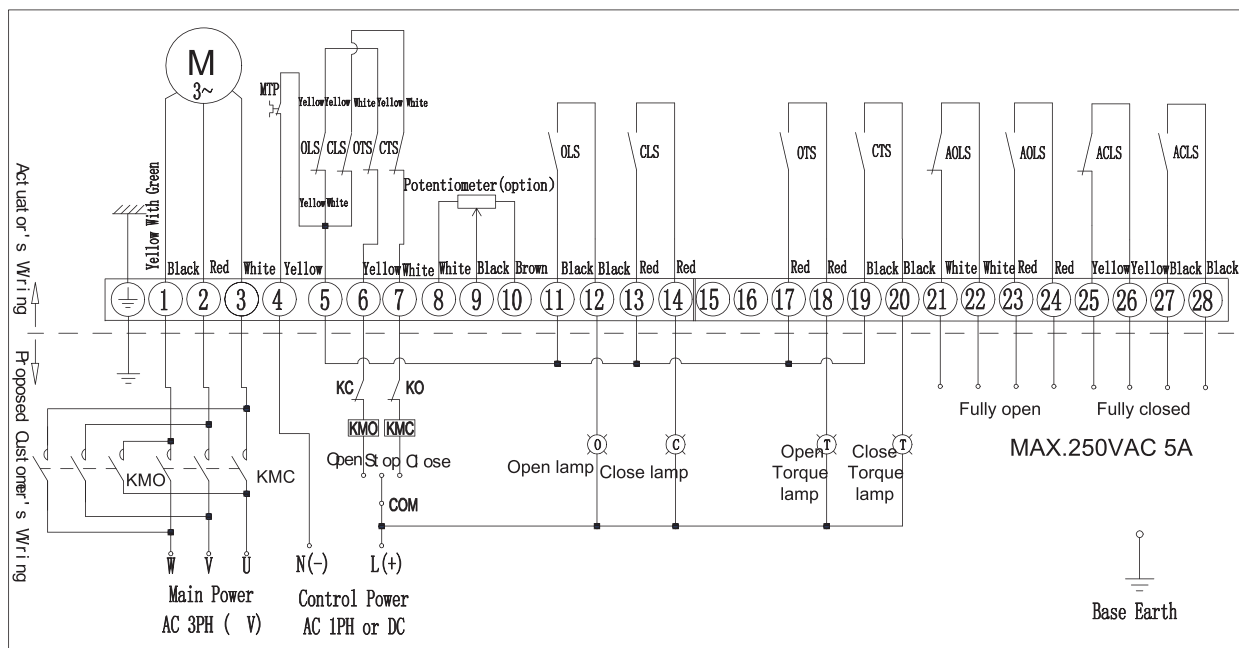
1 phase 220VAC/50Hz,on/off type

Actuator					Motor		
Series	Model	RPM	On/off Type	Modulating Type	Rated Power	Rated Current	Stall Current
		r/min	Torque(Nm)		KW	A	A
NTM10	NTM10-18	18	88	70	0.35	3.16	6.55
	NTM10-24	24	88	70			
	NTM10-36	36	60	48			
	NTM10-48	48	45	35	0.40	3.56	7.12
	NTM10-72	72	30	24			
	NTM10-96	96	22	18			
	NTM10-144	144	15	12			
NTM40	NTM40-18	18	190	150	0.48	5.35	10.71
	NTM40-24	24	190	150			
	NTM40-36	36	125	100			
	NTM40-48	48	95	75	0.60	5.9	11.9
	NTM40-72	72	65	50			
	NTM40-96	96	48	40			
	NTM40-144	144	32	25			
NTM60	NTM60-18	18	440	350	0.81	14.28	28.56
	NTM60-24	24	440	350			
	NTM60-36	36	300	235			
	NTM60-48	48	220	175	1.10	14.87	29.75
	NTM60-72	72	150	118			
	NTM60-96	96	110	90			
	NTM60-144	144	75	60			
					1.10	15.47	30.94

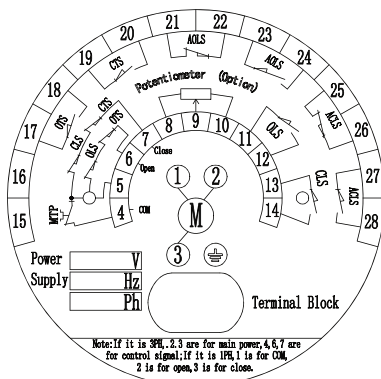
Wiring Diagram of Basic Type(1PH/220VAC/50Hz),On/Off Type



Wiring Diagram of Basic Type(3PH/380VAC/50Hz),On/Off Type



Terminal Block Chart

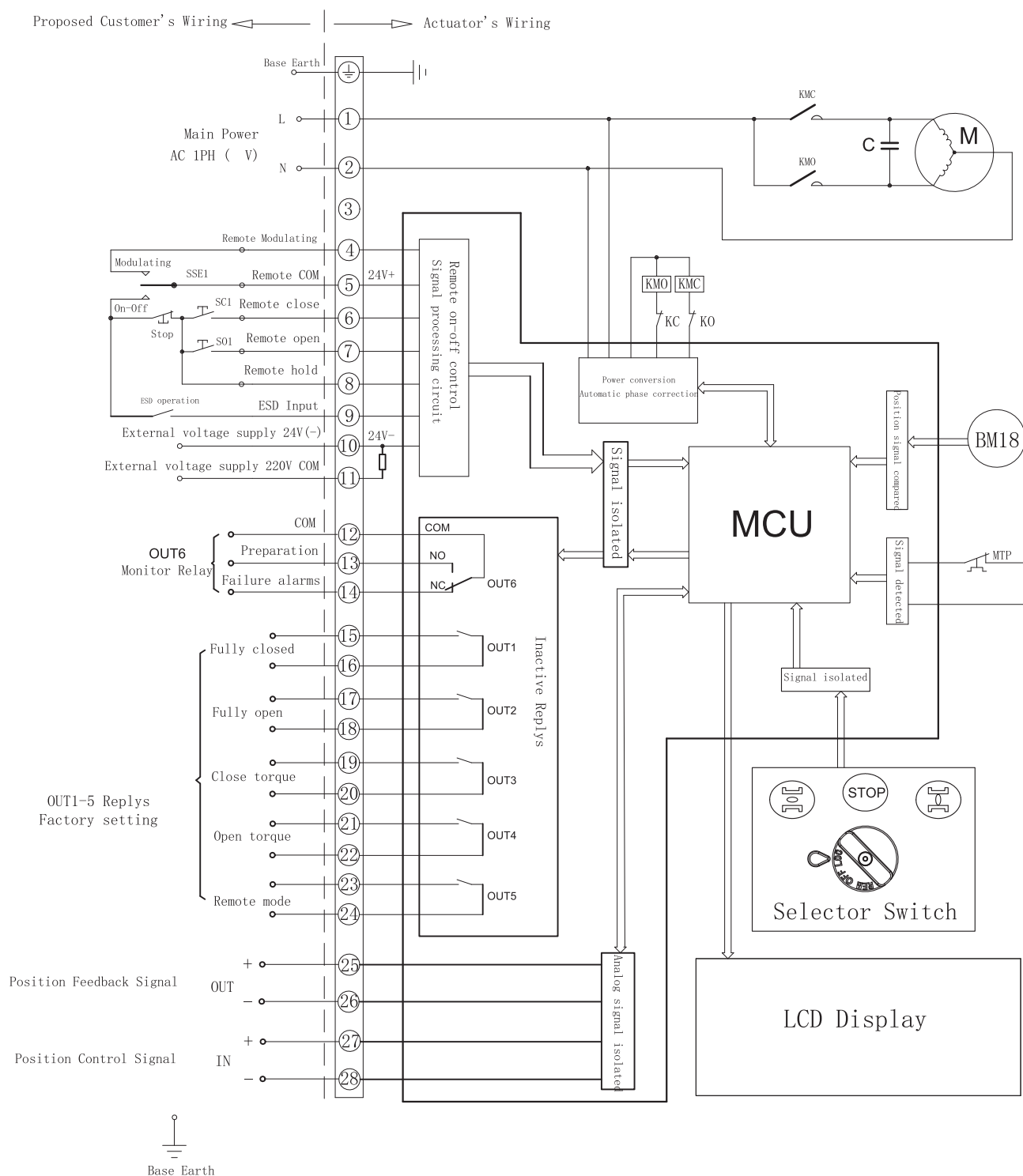


Note:

- (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.

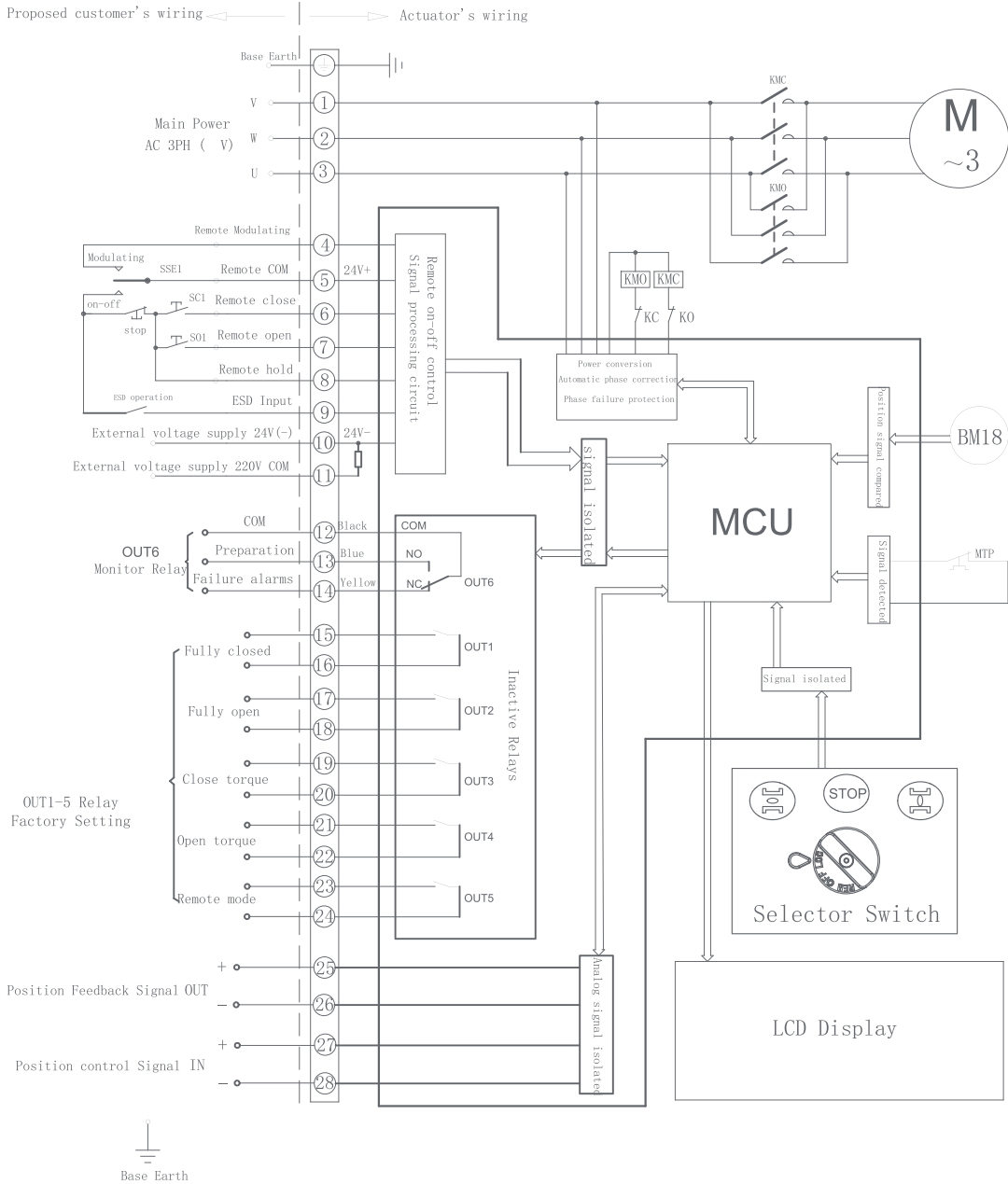
Wiring Diagram of Intelligent Type(On/Off Type & Modulating Type) (1PH/220VAC/50Hz)

Intelligent type (1PH)

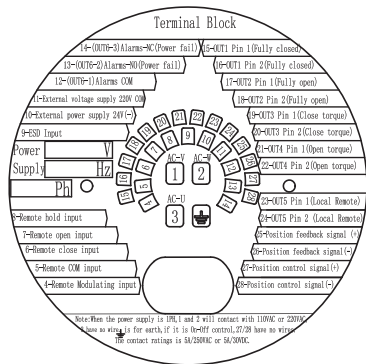


Wiring Diagram of Intelligent Type(On/Off Type & Modulating Type) (3PH/380VAC/50Hz)

Intelligent Type (3PH)



Terminal Block Chart



The different wiring table for on/off & modulating control

Remote On-Off (Manual) Control

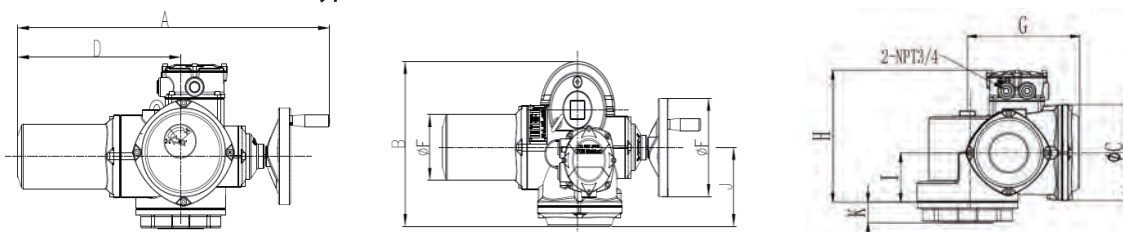
Remote On-Off (Manual) Control (Note: terminal 4 has no wire.)				
Dry contact control				
	Inching open/close control	Maintain open/close control, possible to retrograde the travel, but impossible to stop at intermediate position	Maintain open/close/stop control	Two-wire control, close first
DC 24V external voltage supply				
	Inching open/close control	Maintain open/close control, possible to retrograde the travel, but impossible to stop at intermediate position	Maintain open/close/stop control	Two-wire control, close first. (Default value: Disable)
AC 220V external voltage supply				
	Inching open/close control	Maintain open/close control, possible to retrograde the travel, but impossible to stop at intermediate position	Maintain open/close/stop control	Two-wire control, close first. (Default value: Disable)
ESD Control				
	Dry contact	DC 24V External voltage supply		AC 220V External voltage supply

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
	DC 24V Internal voltage supply	DC 24V External voltage supply	AC 220V External voltage supply

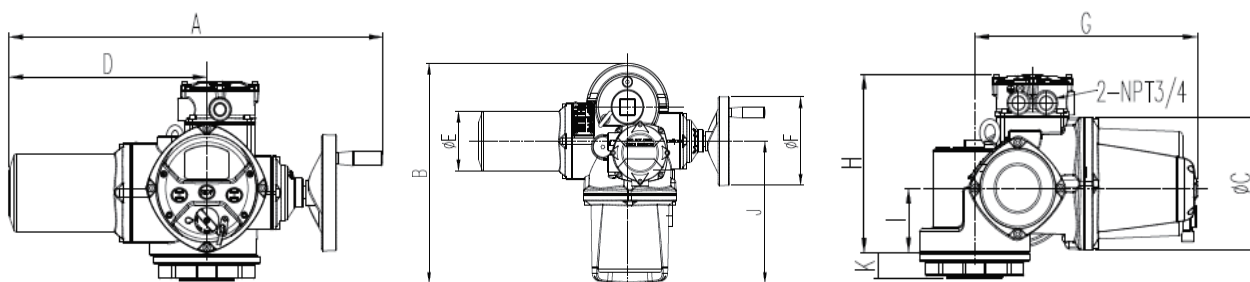
NUTORK® | NTM Series Multi-Turn Electric Actuator

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	569	294	222	293	105	125	219	262	81	160	0	60	26
NTM15	569	294	222	293	105	125	219	262	81	160	0	60	26
NTM20	682	332	222	360	135	200	394	300	108	160	41	60	42
NTM30	682	332	222	360	135	200	394	300	108	160	41	60	42
NTM40	682	332	222	360	135	200	394	300	108	160	41	60	42
NTM50	732	387	222	404	155	200	404	300	108	165	41	62	56
NTM60	732	387	222	404	155	200	404	300	108	165	41	62	56
NTM90	732	387	222	404	155	200	404	300	108	165	41	62	56
NTM100	855	445	222	512	226	247	287	304	115	165	0	125	165
NTM150	855	445	222	512	226	247	287	304	115	165	0	125	165
NTM200	855	445	222	512	226	247	287	304	115	165	0	125	165
NTM300	855	445	222	512	226	247	287	304	115	165	0	125	165

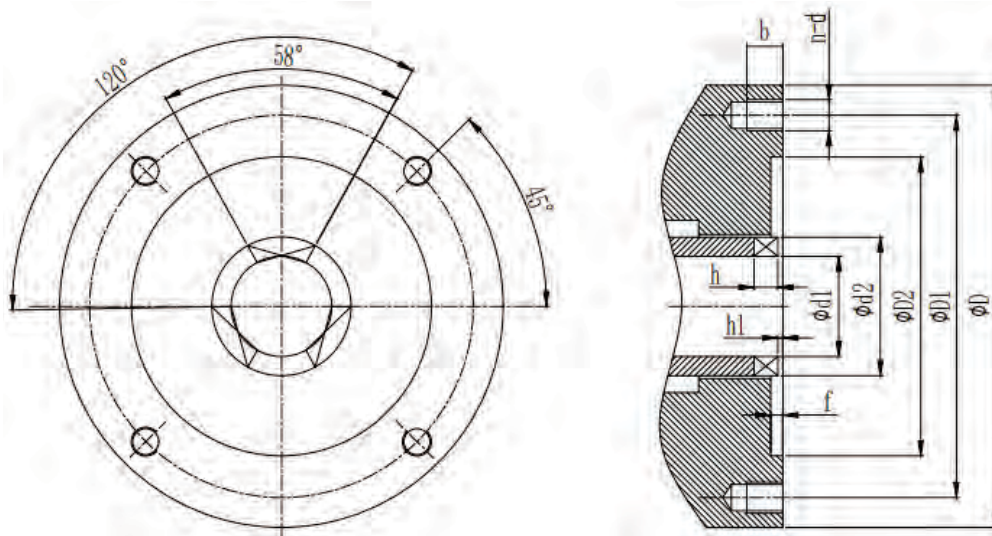
Outline Dimension Table (Intelligent Type)



Model	A	B	ΦC	D	ΦE	Φf	G	H	I	J	K		Weight (kg)
											Z type flange	T type flange	
NTM10	569	452	222	293	105	125	378	262	81	318	0	60	26
NTM15	569	452	222	293	105	125	378	262	81	318	0	60	26
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
NTM90	732	545	222	404	155	200	410	300	114	333	41	62	56
NTM100	853	602	222	519	226	247	445	300	114	323	0	125	165
NTM150	853	602	222	519	226	247	445	300	114	323	0	125	165
NTM200	853	602	222	519	226	247	445	300	114	323	0	125	165
NTM300	853	602	222	519	226	247	445	300	114	323	0	125	165

Bottom connection dimension

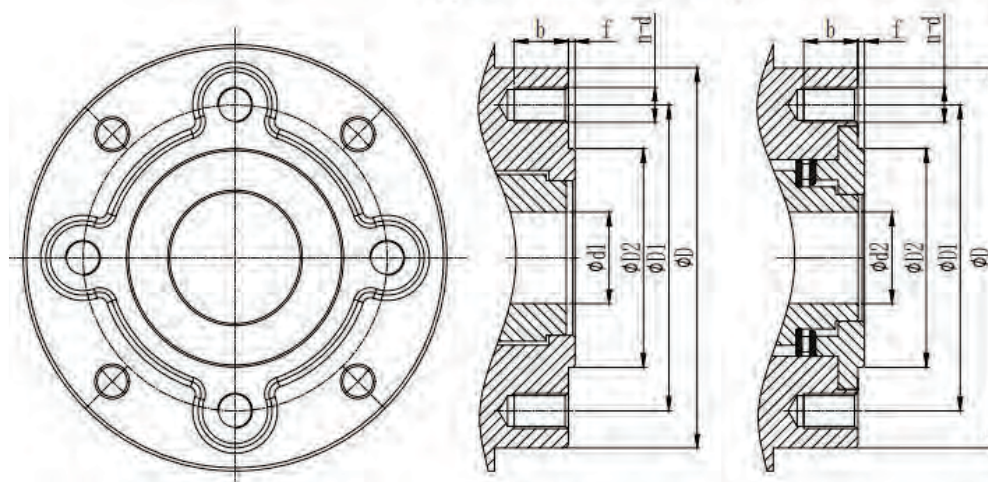
Y: Three jaw coupling - rotary type (JB 2920 standard)



Product No.:	Base No.	ØD	ØD1	ØD2	Ød1	Ød2	f	h	h1	n-d	b
NTM-10	JB2	145	120	90	30	45	5	8	2	4-M10	15
NTM-20/30/40	JB3	185	160	125	43	58	5	10	2	4-M12	15
MTM-50/60/90	JB4	225	195	150	50	72	5	12	2	4-M16	30
NTM-100/150	JB7	338	254	215	82	108	5	16	2	8-M16	25
NTM-200/300	JB7	338	298	215	82	108	5	16	2	8-M20	30

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

Type Z (Bore and keyway) Type T (Thrust)



Product No.:	PCD	ØD	ØD1	ØD2	Ød1(max.)	Ød2(max.)	f	n-d	b
NTM-10	F10	138	102	-	22	Tr26	-	4-M10	15
NTM-20/30/40	F14	175	140	100	48	Tr48	4	4-M16	24
MTM-50/60/90	F16	205	165	130	62	Tr62	5	4-M20	30
NTM-100/150	F25	338	254	-	62	Tr80	-	8-M16	25
NTM-200/300	F30	338	298	-	62	Tr80	-	8-M20	30

Ordering Information_(NTM Series multi-turn electric actuator)

NTM	-	18	-	S1	-	A	-	Y	-	XXX	(Blank as IP67 enclosure)
											Product Model
											RPM:18/24/36/48
											Control Type S1:Basic Type(On/Off control only) S2:Intelligent Type(On/Off control) S3:Intelligent Type(modulating control)
											Main Power Voltage A: 1PH/220VAC/50Hz B: 3PH/380VAC/50Hz C: The other power voltage is available
											Valve Connection Y: Three jaw coupling - rotary type (JB 2920 standard) T: Thrust type - ISO5210 standard Z: Rotary type - ISO5210 standard
											Control Function(option): EX: Flame proof enclosure(ExdIICT6) ECU: External Control Unit FPE: Fire Proof Enclosure(up to 1050℃) WTA: Watertight Proof Enclosure(IP68,10M/72hrs) MOD: Modbus Modules PRO: Profibus DP interface Module IFC: Infrared Controller HCF: Starting frequency 600~1200 times/hours)



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



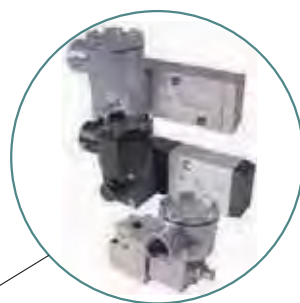
NTQ Series Electric Actuator
IP67/IP68(30M@24hrs)Enclosure &
EExdIIBT6Max. Output Torque 6000Nm
Approved by SIL3/IP68/MD/LVD/EMC.



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 & EExdIIBT6/EExdIICT6



Solenoid Valve 3/2NC & 5/2 Way, Static
O-ring Sealing Design.
Aluminum & 316SS Body
IP67 & EExdIIBT6/EExdIICT6



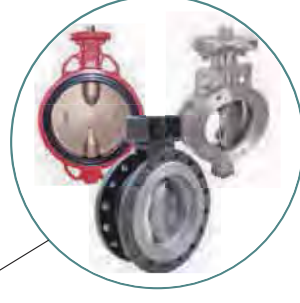
Air Filter Regulator Aluminum
Body with Vinyl Paint & 316SS Body.
Size: 1/4" ~ 1"



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.