

# NUTORK<sup>®</sup>

## Actuator & Valves



CE SIL3 Ex

## NTQ Series Quarter Turn Electric Actuator



Approved By:  
SIL3 Approval  
ATEX EExdIICT6 & EExdIICT6  
Low Voltage Directive 2014/35/EU  
Machinery Directive 2006/42/EC  
Electromagnetic Compatibility Directive 2014/30/EU

**NUTORK CORPORATION**



- ▶ For On-Off and modulation operation
- ▶ 13 sizes with torque from 60Nm to 6000Nm
- ▶ Robust hard anodized aluminium housing epoxy coated
- ▶ Heavy duty squirrel caged induction motor gives high starting torque
- ▶ Dome type easy visibility position indicator
- ▶ Manual override auto declutch mechanism
- ▶ Enclosure IP67 and optional explosion proof Exd IIB T6
- ▶ Anti condensation space heater
- ▶ Auxiliary limit & over torque switches to protect actuator
- ▶ Permanently lubricated for trouble free operation
- ▶ Optional accessories available on request
- ▶ Sales support and back up by our team.

NUTORK NTQ series electric actuator are available from 60 to 6000 Nm torque output. Due to robust design and construction they can be used in most industrial environments. The housing is hard anodized Aluminium Alloy and external epoxy coating paint provides superior resistance for rigorous environments.

The actuator is fitted with a specially designed squirrel cage induction motor to generate high starting torque and is fitted with thermal overload protection to prevent damage from overheating. Included internally are both torque and limit switches for remote indication.

Actuators are supplied standard with manual override and external operating lever that switches the actuator to manual mode. This is automatically disengaged when switched to electrical operation. The gear mechanism is self locking to eliminate the possibility of reverse movement from the valve.

Removable drive bushing allows easy adaption to suit most valve requirements.

Available with a range of optional accessories including extra limit switches, potentiometer, process control unit, local control and signal indication.

Actuator Model	Valve Conn. ISO5211	Output Torque (Nm)	Power Consumption (W)	Duty Cycle S2-%	Operating Time(S) 50/60Hz	Max.Bore Square◇	Max.Bore Key ø	Rated Current (A)					No.of Handle Tum	Weight Kg.
								1Ph 230VAC	1Ph 110VAC	3Ph 380VAC	3Ph 440VAC	24VDC		
NTQ-060	F05/F07	60	20	35%	21/18	20	22	0.45	-	-	-	-	10	8
NTQ-100	F05/F07	100	20	35%	26/22	20	22	0.5	1.0	0.22	0.26	1.7	10	8
NTQ-160	F07/F10	160	40	35%	28/23	25	32	0.6	1.45	0.25	0.30	2.0	12	14
NTQ-200	F07/F10	200	40	35%	28/23	25	32	0.6	1.5	0.30	0.35	2.2	12	14
NTQ-240	F07/F10	240	45	35%	28/23	25	32	0.7	1.6	0.35	0.39	2.8	12	14
NTQ-350	F10/F12	350	60	35%	32/27	25	32	0.9	1.8	0.38	0.42	4.0	13	18
NTQ-500	F10/F12	500	90	35%	32/27	25	32	1.3	3.2	0.8	0.86	6.9	13	19
NTQ-800	F12/F14	800	120	35%	36/30	38	42	1.5	3.9	1.1	1.2	9.8	14.5	24
NTQ-1100	F12/F14	1100	180	35%	36/30	38	42	2.2	4.2	1.5	1.6	12.5	14.5	26
NTQ-1500	F14/F16	1500	120	35%	55/46	50	60	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2000	F14/F16	2000	120	35%	55/46	50	60	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2500	F14/F16	2500	180	35%	55/46	50	60	2.2	4.2	1.5	1.6	12.5	46	52
NTQ-4000	F16/F25/F30	4000	120	35%	90/75	50	60	1.5	3.9	1.1	1.2	9.8	73	104
NTQ-6000	F16/F25/F30	6000	180	35%	90/75	60	70	2.2	4.2	1.5	1.6	12.5	73	106

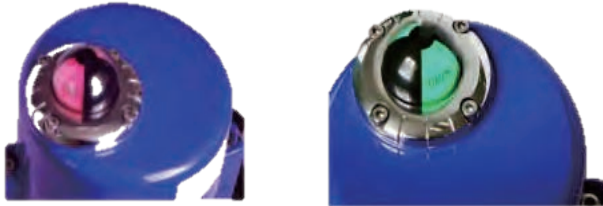
Accessories	Descripton	Accessories	Descripton
EX	Explosion-Proof ExdIIBT6	CT	Current Transmitter (Output Signal 4-20mA)
WT	Water-Proof IP68 30M/24hrs	PCU	Process Control Unit (4-20mA input & output signal)
ALS	Auxiliary Limit Switches	LCU	Local Control Unit. LCU1:1Ph , LCU3:3Ph
ATS	Auxiliary Torque Switches	LCD	LCD Signal Indication
SV	Variation in Torque and Operating Speed	FS	Fail safe function(with battery pack, 5 times operation)
PK	Potentiometer Kit(0~1K/5K ohm)	DI	Dome Type Indicator

## Standard Specification

1. Main Power Supply : Standard: 1Ph/220VAC & 3Ph/380VAC  
Optional: 1Ph/110VAC, 3Ph 220VAC or 440VAC, 24VAC/24VDC
2. Control Power Supply : 110/220VAC or 24VDC
3. Resolution/Deadband: ±5%
4. Duty Cycle(on/Off) : S2 : 10min ~ 30min / S4 : 20 ~ 50%
5. Duty Cycle(Modulating) : S4 : 30 ~ 50%, 300 ~ 1200 start/hour
6. Motor : Squirrel Caged Induction Motor
7. Limit Switches : 2 x SPDT,10A@250VAC at open & closed position  
Except NTQ-060/100: 1 x SPDT,10A@250VAC at open & closed position
8. Torque Switches : 1 x SPDT,10A@250VAC at open/closed position(Except NTQ-060/100)
9. Stall Protection / Set Temp. : Built - in thermal protection , Open : 150°C & Close : 97°C
10. Position Indicator : Continous mechanical indicator with arrow
11. Mechanical stopper : 1 each for each travel end ( open & closed), externa & adjustable
12. Self-Locking : Provided by double worm gear (no brake)
13. Manual Override : De-Clutchable
14. Space heater : 5W(110/220VAC) for anti-condensation
15. Cable Entry : 2 x 3/4"NPT
16. Lubrication : EP type grease
17. Terminal block : Screw & lever push type(spring loaded)
18. Amb. Temperature: Standard: -20 ~ 70°C
19. Amb. Humidity : 90%RH Max(No - Condensing)
20. Anti Vibration : XYZ 10g, 02 ~ 34Hz,30 minutes
21. External Coating : Dry Powder(Polyester)
22. Enclosure : Weather-Proof IP67, NEMA 4 & 6.  
IP68(option) or EExdIIBT6(option)

### Different Function for NTQ Series Electric Actuator:

1. With GREEN/RED LED Dome Indicator



2. Local Control Unit with LED indicator



3. Local Control Unit with LCD Display



4. With Fail Safe Function (Battery Pack), only available in 110/220VAC & 24VDC voltage.



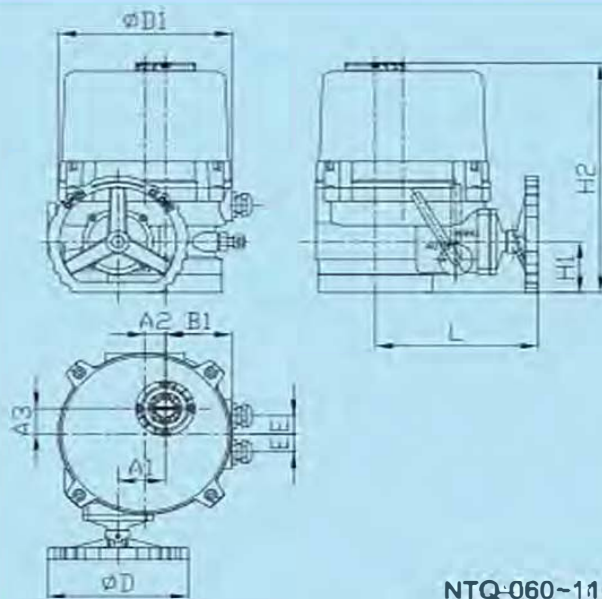
5. With Profibus / Modbus / Canbus Function, only available in 220VAC voltage.



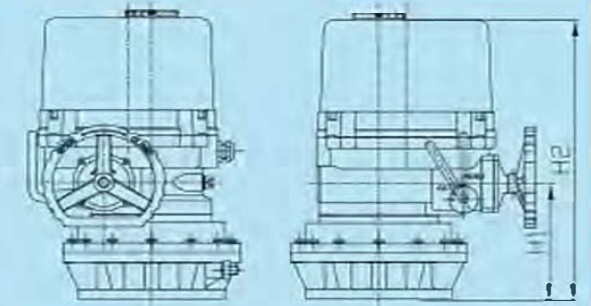
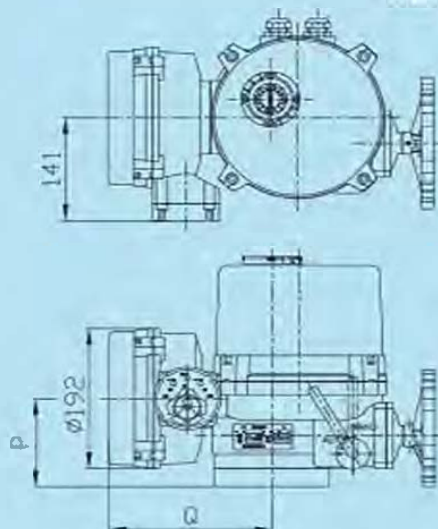
## Dimension

(mm)

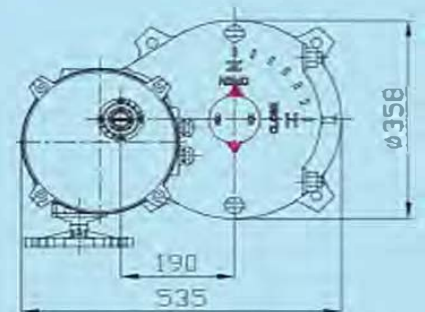
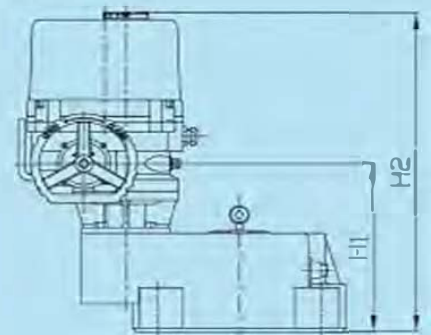
Model	A1	A2	A3	B1	D	D1	E	H1	H2	L	P	Q
NTQ-060/100	41	12	31	67	100	157	23	55	223	167	96	179
NTQ-160/240	57.5	23.5	27	80.5	180	206	25	67	261	197	112	207
NTQ-350/500	60.5	25.5	35	85.5		222		70	315	208	121	207
NTQ-800/1100	70	35	40	96		262		81	352	230	132	222
NTQ-1500/2000/2500								185	456	230	236	222
NTQ-4000/6000								303	574	/	/	/



NTQ-060~1100  
With Local Control Unit

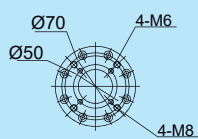


NTQ-1500~2500  
NTQ-4000~6000

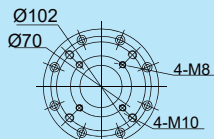


## Mounting Dimension

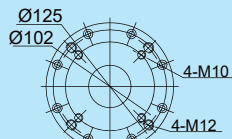
Mounting base according to ISO5211 standard



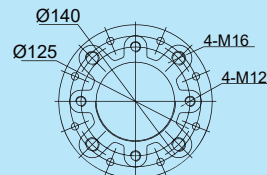
NTQ-060/100



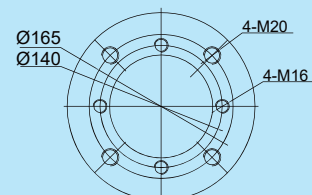
NTQ-160/240



NTQ-350/500



NTQ-800/1100



NTQ-1500/2000/2500



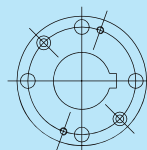
Ø22(MAX)

NTQ-060/100



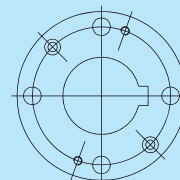
Ø32(MAX)

NTQ-160/240/350/500



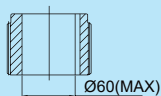
Ø42(MAX)

NTQ-800/1100



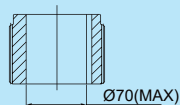
Ø60(MAX)

NTQ-1500/2000/2500



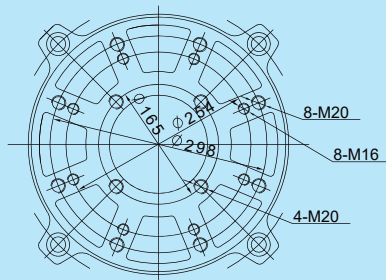
Ø60(MAX)

NTQ-4000

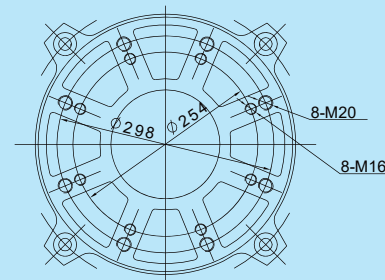


Ø70(MAX)

NTQ-6000



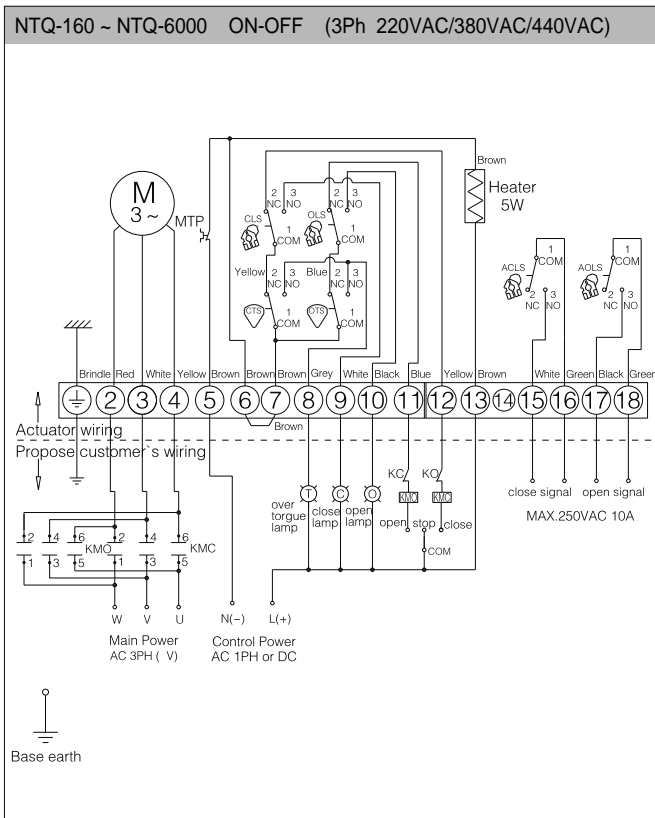
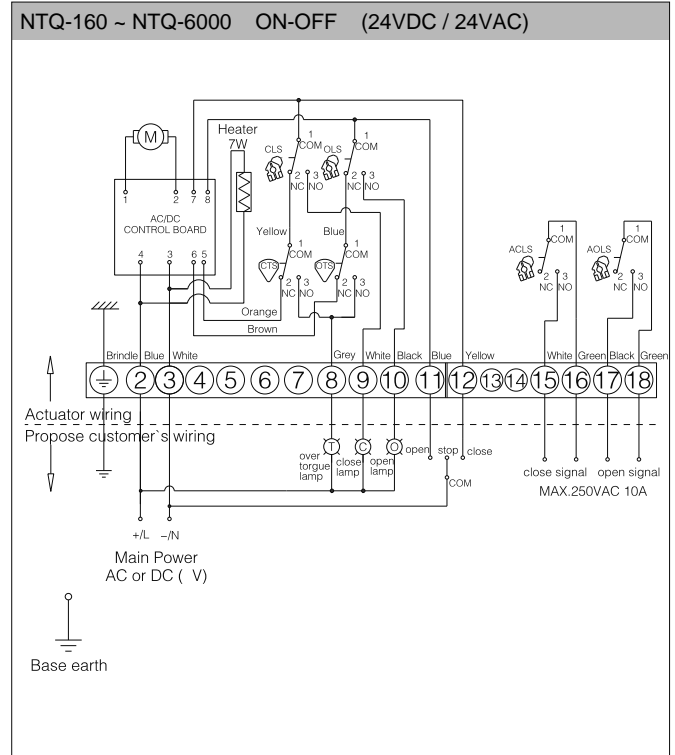
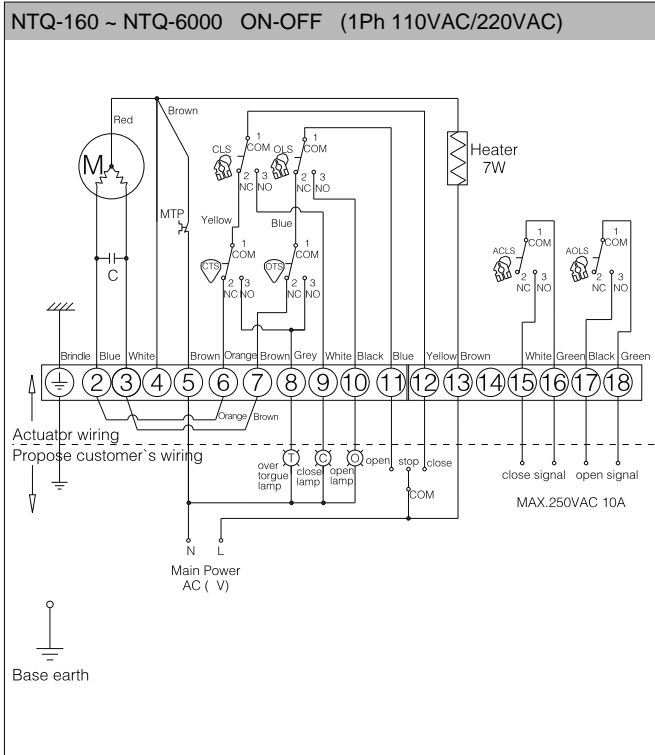
NTQ-4000



NTQ-6000

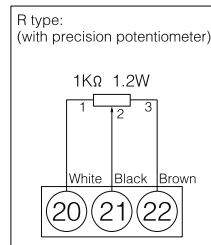


## Wiring drawing of NTQ-160 ~ NTQ-6000 ON-OFF type



### The working state of the limit switch and torque switch

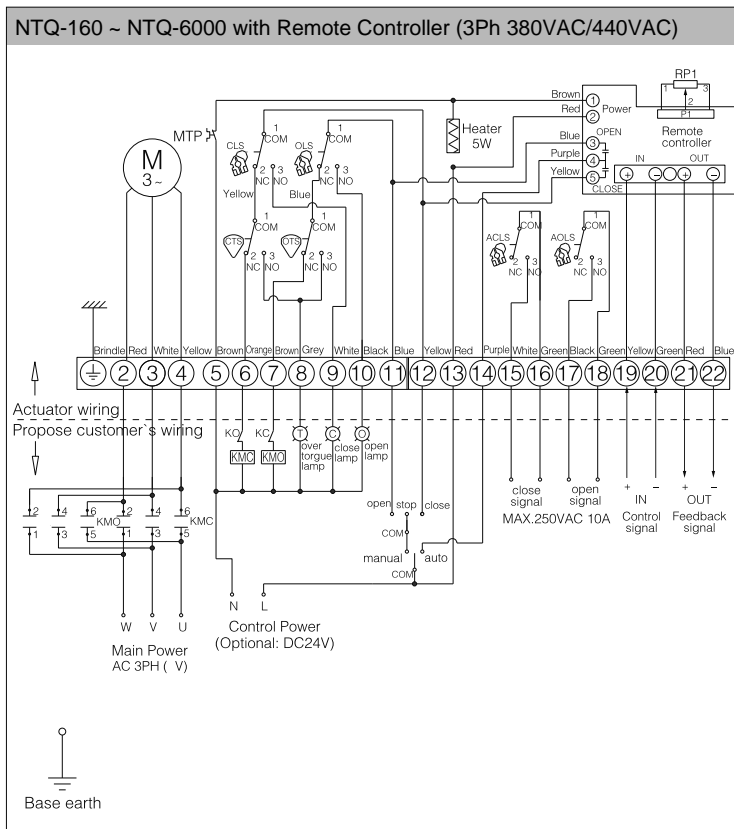
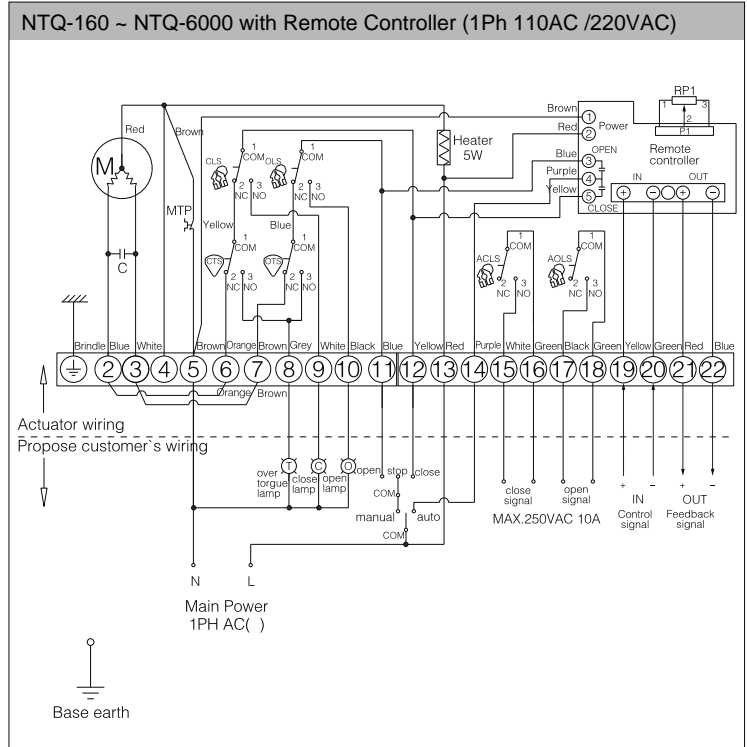
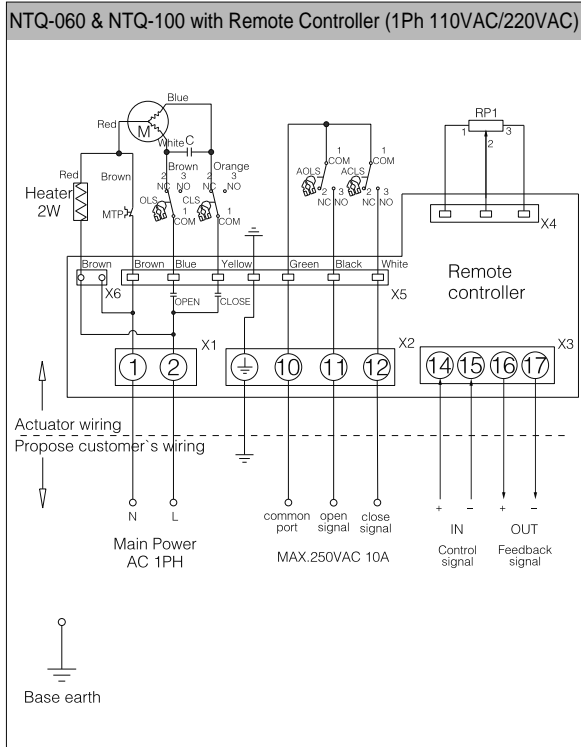
Switch	Full Close ←	Middle Position	→ Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
ACLS 1-3			
AOLS 1-2			
AOLS 1-3			
CTS 1-3	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS 1-3	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		



- AOLS: Aux.Open Limit Switch
- ACLS: Aux.Close Limit Switch
- O: Open lamp
- C: Close lamp
- T: Over torque lamp
- CLS: Closing limit switch
- OLS: Opening limit switch
- CTS: closing torque switch
- OTS: opening torque switch
- KMC: Closing contactor coils
- KMO: Opening contactor coils
- MTP: Motor Thermal Protector
- M: Motor



## Wiring drawing for modulating control type



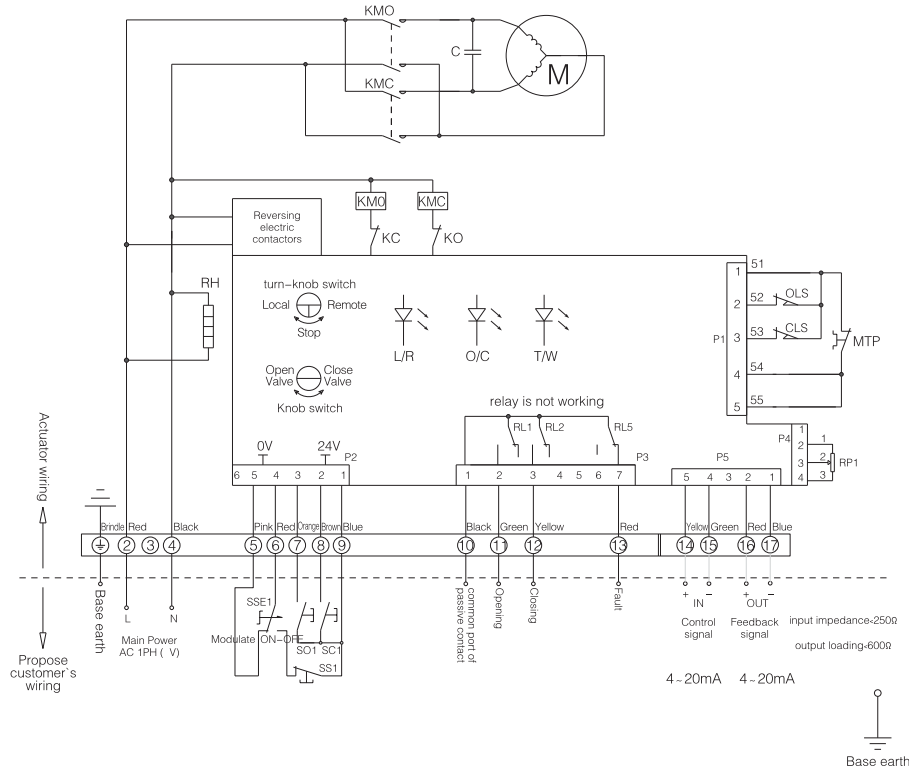
### The working state of the limit switch and torque switch

Switch	Full Close ←	Middle Position	→ Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
ACLS 1-3			
AOLS 1-2			
AOLS 1-3			
CTS 1-3	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS 1-3	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		

- AOLS: Aux.Open Limit Switch
- ACLS: Aux.Close Limit Switch
- O: Open lamp
- C: Close lamp
- T: Over torque lamp
- CLS: Closing limit switch
- OLS: Opening limit switch
- CTS: closing torque switch
- OTS: opening torque switch
- RP1: potentiometer feedback、1KΩ
- KMC: Closing contactor coils
- KMO: Opening contactor coils
- MTP: Motor Thermal Protector
- M: Motor

## Wiring drawing for local control unit

NTQ-060 & NTQ-100 with Local Control Unit (1PH 110VAC/220VAC)



The working state of the limit switch

Switch	Full Close	Middle Position	Full Open
OLS			
CLS			

Illustration:

1、 This chart means the electric actuator is in middle position.

L/R: Local/Remote working lamp.

O/C: Valve open/valve close lamp.

T/W: Failure/Power lamp.

RP1: potentiometer feedback、 1K $\Omega$

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

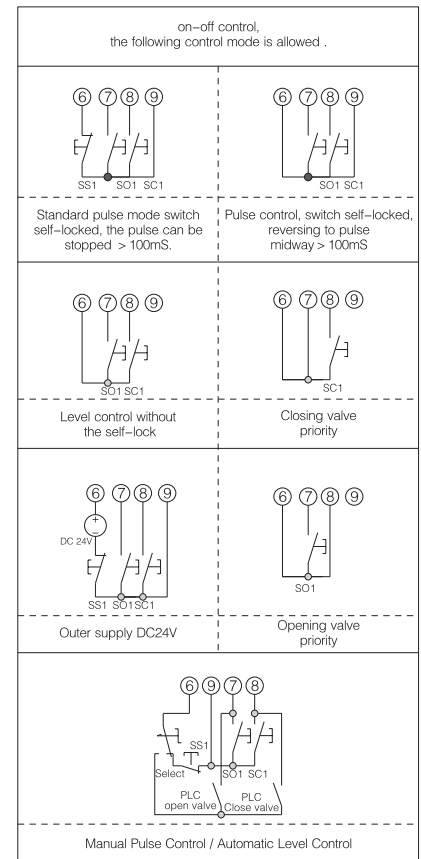
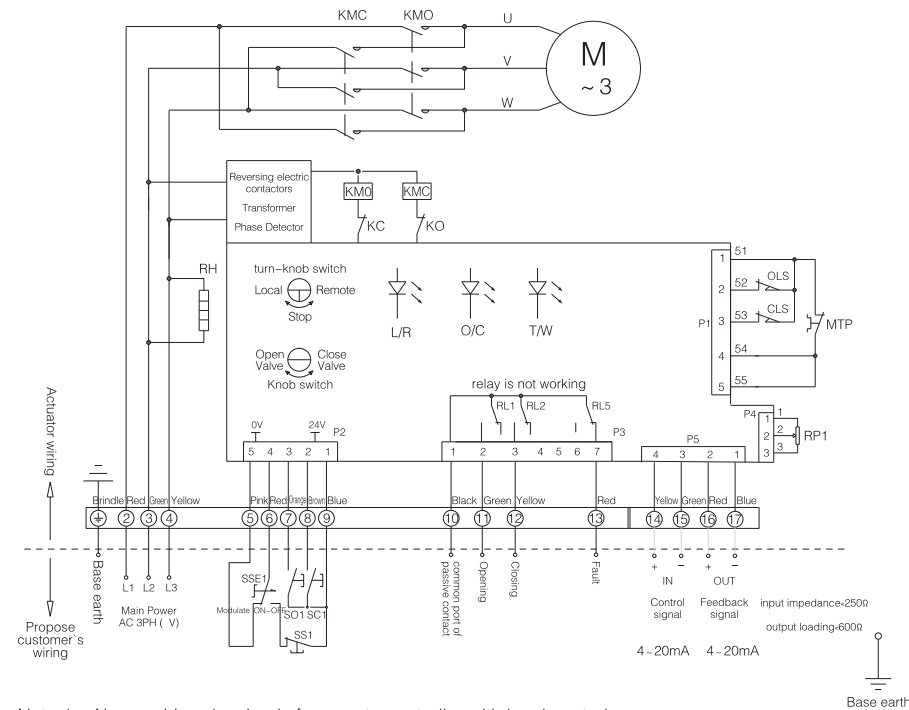
KMC: Closing contactor coils

KMO: Opening contactor coils

M: Motor

MTP: Motor Thermal Protector

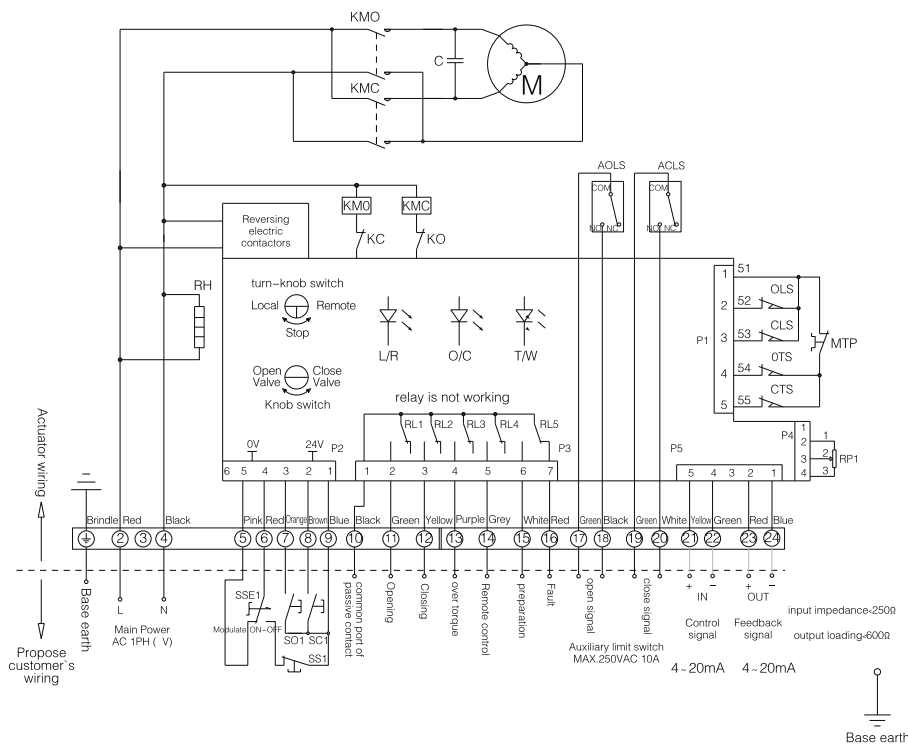
NTQ-060 & NTQ-100 with Local Control Unit (3Ph 380VAC/440VAC)



Note: 1、 Above wiring drawing is for remote controller with local control..

2、 When electric actuator is for ON-OFF type with local control, it is without remote control function also without potentiometer feedback and input/output signals for modulating.

## NTQ-160 ~ NTQ-6000 with Local Control Unit (1PH 110VAC/220VAC)



The working state of the limit switch and torque switch

Switch	Full Close	Middle Position	Full Open
OLS			
CLS			
AOLS			
ACLS			
CTS	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		

Illustration:

1、 This chart means the electric actuator is in middle position.

L/R: Local/Remote working lamp.

O/C: Valve open/valve close lamp.

T/W: Failure/Power lamp.

RP1: potentiometer feedback、 1K $\Omega$

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

CTS: closing torque switch

OTS: opening torque switch

AOLS: Aux.Open Limit Switch

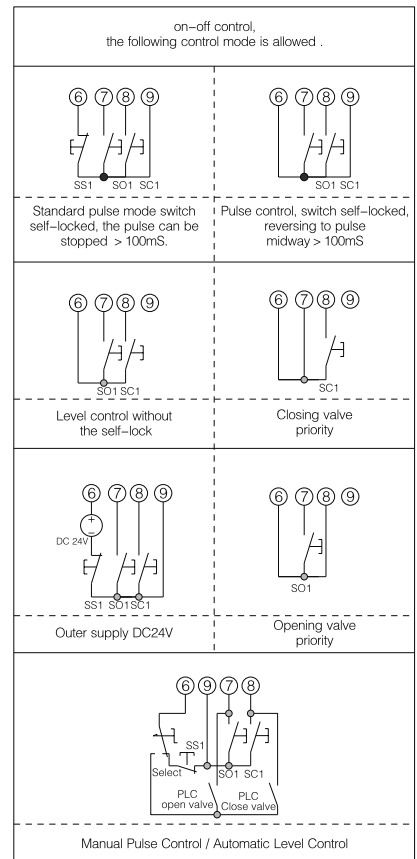
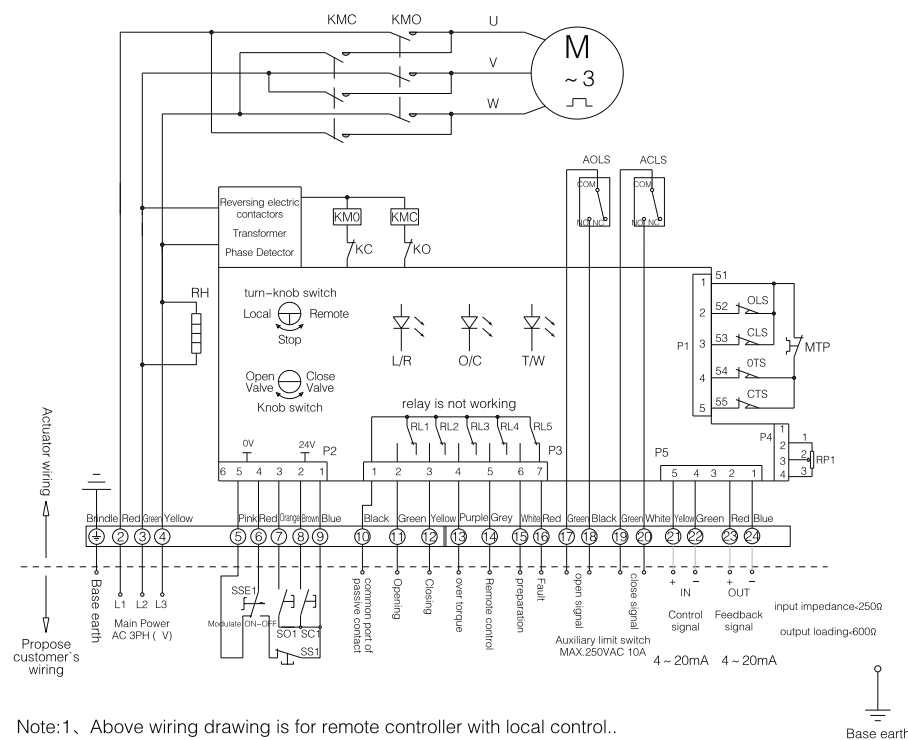
ACLS: Aux.Close Limit Switch

KMC: Opening contactor coils

M: Motor

MTP: Motor Thermal Protector

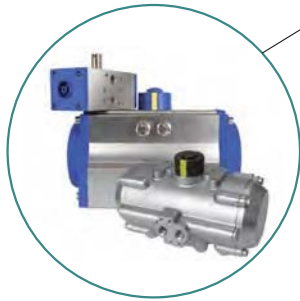
## NTQ-160 ~ NTQ-6000 with Local Control Unit (3PH 380VAC/440VAC)



Note: 1、 Above wiring drawing is for remote controller with local control..

2、 When electric actuator is for ON-OFF type with local control, it is without remote control function also without potentiometer feedback and input/output signals for modulating.

**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/EEExdIICT6



Solenoid Valve 3/2NC & 5/2 Way, Static O-ring Sealing Design.  
Aluminum & 316SS Body  
IP67 & EExdIIBT6/EEExdIICT6



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.