

NUTORK[®]

Actuators & Valves

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	Vavle Conn. ISO5211	Output Torque (Nm)	Power Consumption (W)	Operation Time(S) 50/60Hz	Max. Bore Square◇	Rated Current(A)					No. of Handle Turn	Weight (Kg)
						1Ph 220VAC	1Ph 110VAC	3Ph 380VAC	3Ph 440VAC	24VDC		
NTQ-060	F05/F07	60	20	26/22	20	0.45	1.0	0.22	0.26	1.7	10	8
NTQ-100	F05/F07	100	20	26/22	20	0.5	1.0	0.22	0.26	1.7	10	8
NTQ-160	F07/F10	160	40	28/23	25	0.6	1.45	0.25	0.30	2.0	12	14
NTQ-200	F07/F10	200	40	28/23	25	0.6	1.5	0.30	0.35	2.2	12	14
NTQ-240	F07/F10	240	45	28/23	25	0.7	1.6	0.35	0.39	2.8	12	14
NTQ-350	F10/F12	350	60	32/27	25	0.9	1.8	0.38	0.42	4.0	13	18
NTQ-500	F10/F12	500	90	32/27	25	1.3	3.2	0.8	0.86	6.9	13	19
NTQ-800	F12/F14	800	120	36/30	38	1.5	3.9	1.1	1.2	9.8	14.5	24
NTQ-1100	F12/F14	1100	180	36/30	38	2.2	4.2	1.5	1.6	12.5	14.5	26
NTQ-1500	F14/F16	1500	120	110/92	50	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2000	F14/F16	2000	120	110/92	50	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2500	F14/F16	2500	180	110/92	50	2.2	4.2	1.5	1.6	12.5	46	52
NTQ-4000	F16/F25/F30	4000	120	180/150	50	1.5	3.9	1.1	1.2	9.8	73	104
NTQ-6000	F16/F25/F30	6000	180	180/150	60	2.2	4.2	1.5	1.6	12.5	73	106

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. Duty Cycle(on/Off) : S2: 40%~10min
4. Duty Cycle(Modulating) : S4: 25%~600 Start/Hour
5. Motor : Squirrel Caged Induction Motor
6. Limit Switches : 2 x SPST,10A@250VAC at open & closed position
Except NTQ-060/100: 1 x SPST,10A@250VAC at open & closed position
7. Torque Switches : 1 x SPST,10A@250VAC at open/closed position(Except NTQ-060/100)
8. Stall Protection / Set Temp. : Built - in thermal protection , Open : 150°C & Close : 97°C
9. Position Indicator : Continous mechanical indicator with arrow
10. Mechanical stopper : 1 each for each travel end (open & closed), external & adjustable
11. Self-Locking : Provided by double worm gear (no brake)
12. Manual Override : De-Clutchable
13. Space heater : 5W(110/220VAC) for anti-condensation
14. Cable Entry : 2 x 3/4"NPT
15. Lubrication : EP type grease
16. Terminal block : Screw & lever push type(spring loaded)
17. Amb. Temperature: Standard: -20 ~ 70°C
18. Amb. Humidity : 90%RH Max(No - Condensing)
19. Anti Vibration : XYZ 10g, 02 ~ 34Hz,30 minutes
20. External Coating : Dry Powder(Polyester)
21. Enclosure : Weather-Proof IP67, NEMA 4 & 6.
IP68(option) or EExdIIBT6(option)

Additional Functions for NTQ Series Electric Actuator

Code	Function
DI	1). Dome Indicator(NTQ-050 is not available)
DP	2). Anti-Condensation Indicator (only available in IP67)
LT	3). -40°C Low Temperature Application
LED	4). GREEN/RED LED Dome Indicator, only available in on/off control type
EX	5). ATEX-Explosion Proof (ExdIIBT6, But ExdIICT6 only available in NTQ-1=060/100/160/200/240)
IP68	6). Water Tight (IP68), not available for LCU function
PCU	7). Modulating control(4-20mADC input/output signal)
CT	8). ON/OFF control with 4-20mADC output signal
LCU	9). Local Control Unit LED indicator(24VDC up to 1000Nm)
LCD	10). The intelligent type with LCD display & Local Control Unit(24VDC up to 1000Nm),IP67/Exd enclosure
FS	11). Battery pack for battery back-up for fail safe
SR	12). Spring Return type for fail safe(4 models output torque:50/100/150/300Nm)
Canbus	13). Canbus protocol communication, with LCD display, only available in 220/380VAC
Mobus	14). Mobus protocol communication,with LCD display,only available in 220/380VAC
Profibus	15). Profibus DP protocol communication,with LCD display, only available in 220/380VAC
Hart	16). Hart protocol communication, with LCD display, only available in 220/380VAC
Blank	17). Option for various voltage motor in 24VAC/24VDC/110VAC/440VAC/220VAC/380VAC

1.With LED Dome Indicator
IP67 enclosure only



2. IP67 enclosure with Local
Control Unit & LED indicator



3. Eexd enclosure with Local
Control Unit & LED indicator



4.With Fail Safe Function
Battery Pack



5. With different Protocol Function
Canbus/Profibus/Mobus



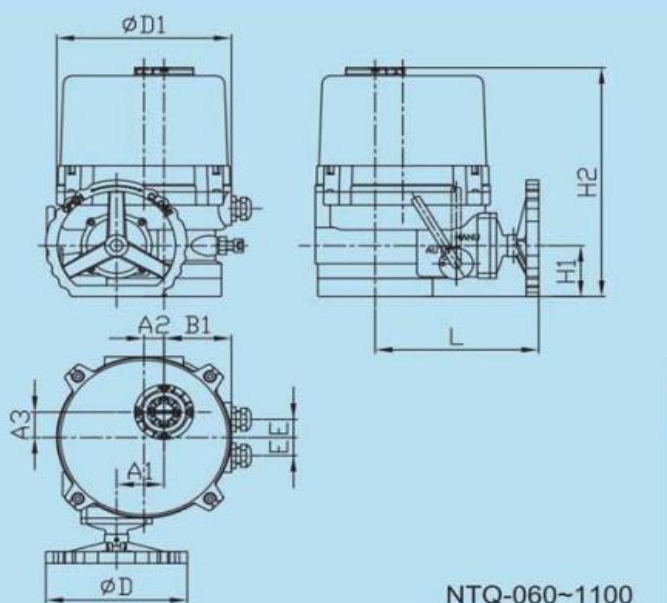
6.Intelligent type, IP67/Exd enclosure.
Local Control Unit & LCD display



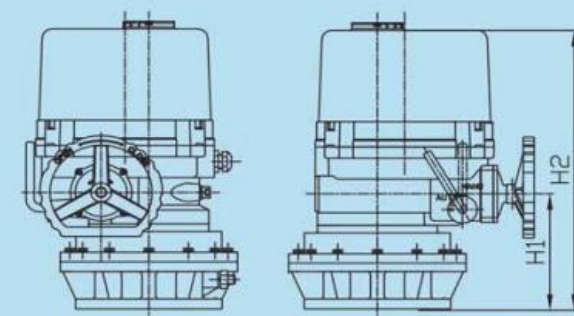
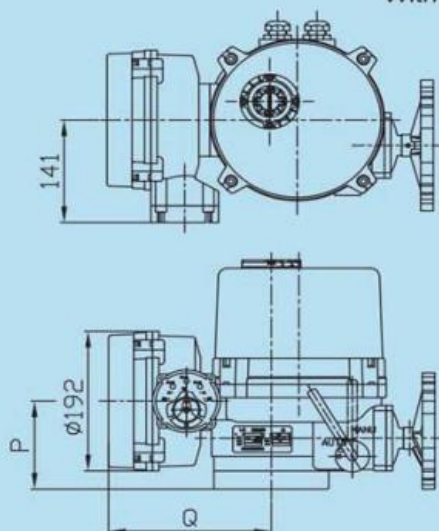
Dimension

(mm)

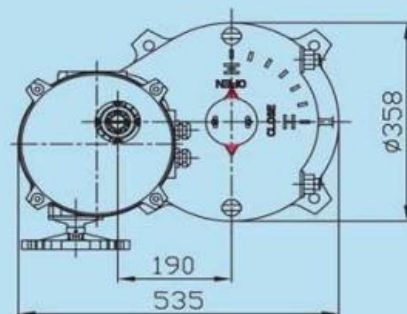
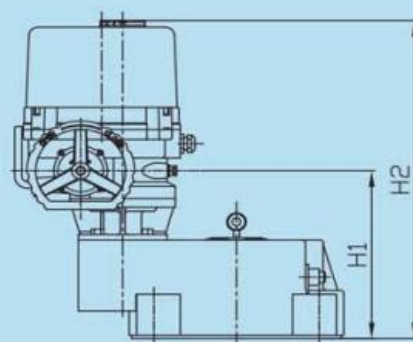
Model	A1	A2	A3	B1	D	D1	E	H1	H2	L	P	Q
NTQ-060/100	41	12	31	67	100	157	23	55	223	167	96	179
NTQ-160/200/240	57.5	23.5	27	80.5	180	206	25	67	261	197	112	207
NTQ-350/500	60.5	25.5	35	85.5		222		70	315	208	121	207
NTQ-800/1100	70	35	40	96		262		81	352	230	132	222
NTQ-1500/2000								185	456	230	236	222
NTQ-2500/4000/6000								303	574	/	/	/



NTQ-060~1100
With Local Control Unit

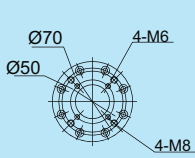


NTQ-1500~2500
NTQ-4000~6000

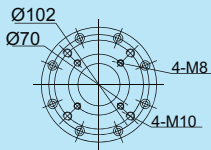


Mounting Dimension

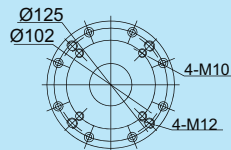
Mounting base according to ISO5211 standard



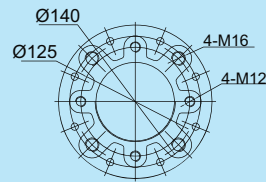
NTQ-060/100



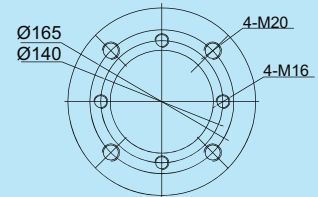
NTQ-160/240



NTQ-350/500



NTQ-800/1100



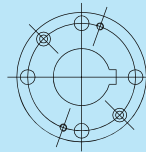
NTQ-1500/2000/2500



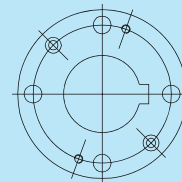
NTQ-060/100



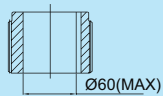
NTQ-160/240/350/500



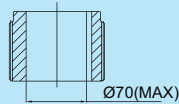
NTQ-800/1100



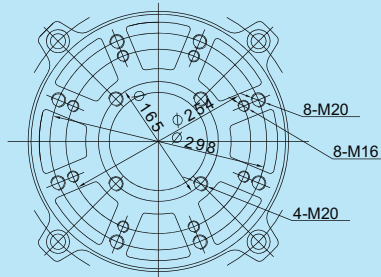
NTQ-1500/2000/2500



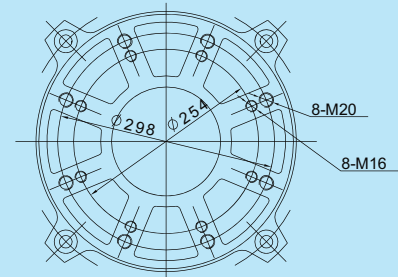
NTQ-4000



NTQ-6000

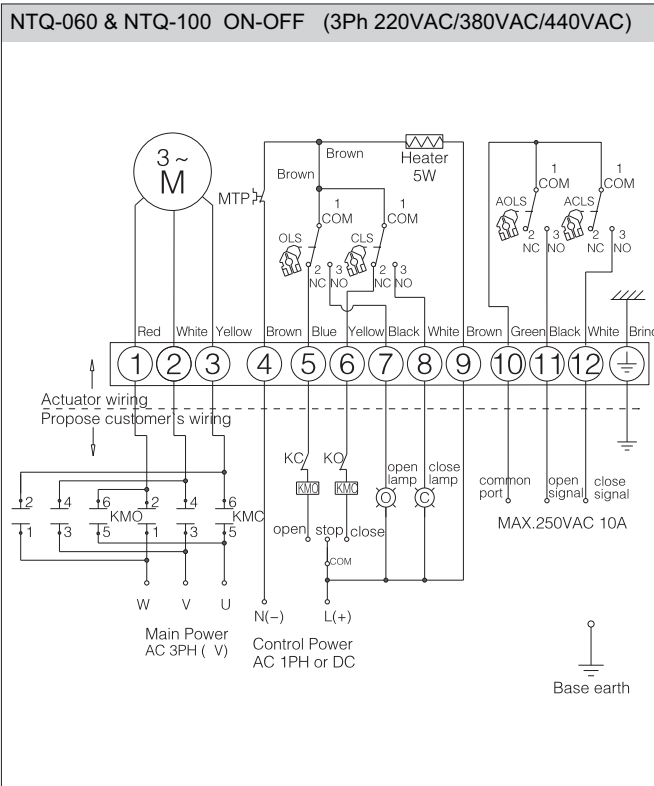
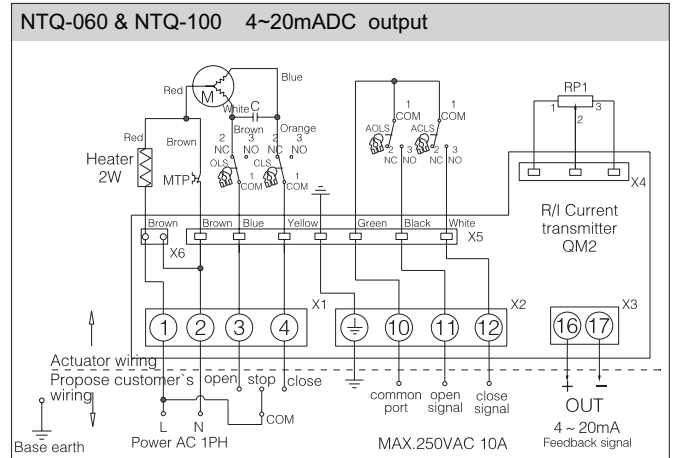
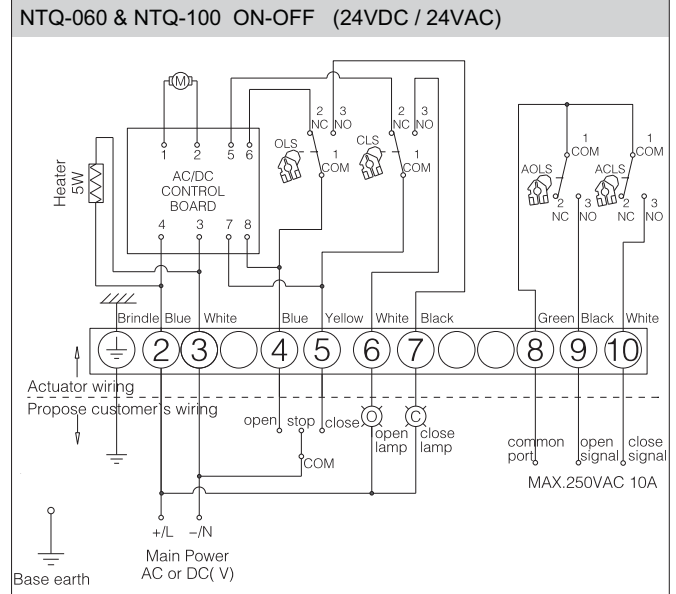
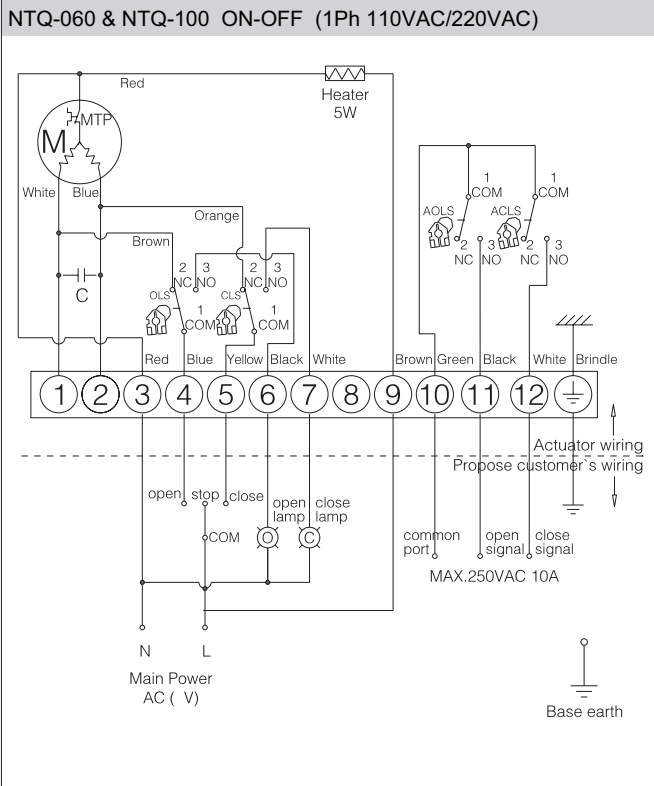


NTQ-4000



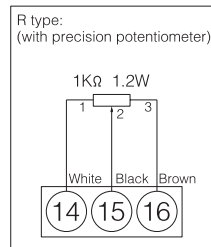
NTQ-6000

Wiring drawing of NTQ-060 & NTQ-100 ON-OFF type



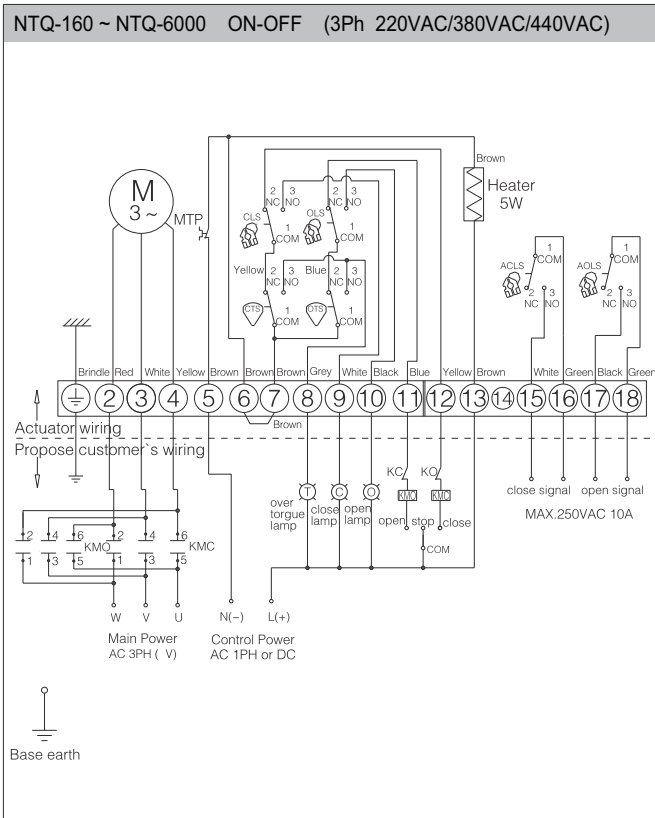
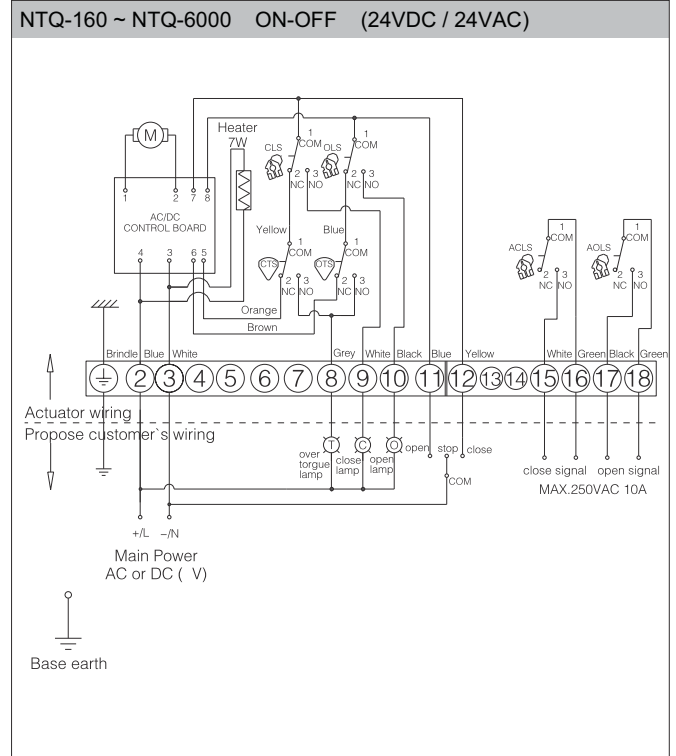
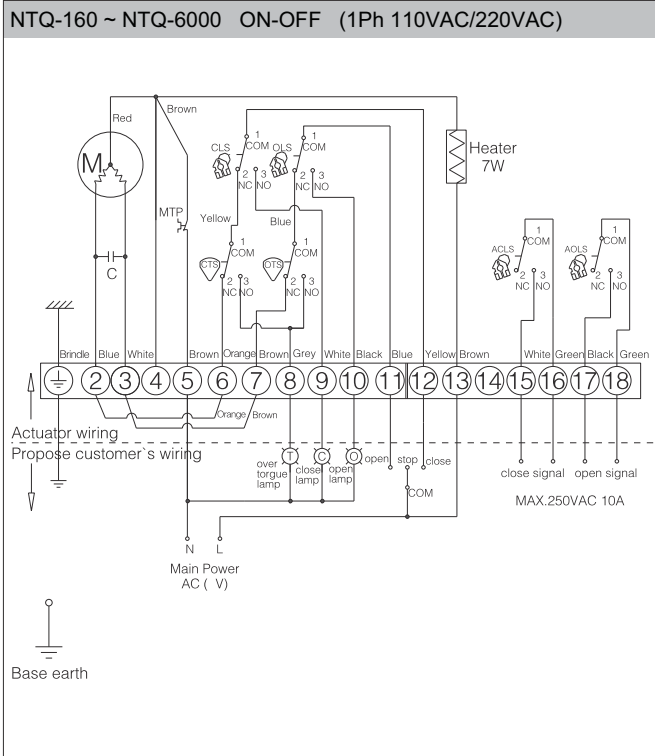
The working state of the limit switch and auxiliary switch

Switch	Full Close ←	Middle Position	→ Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-3			
AOLS 1-3			



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

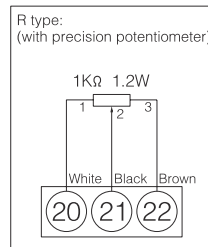
Wiring drawing of NTQ-160 ~ NTQ-6000 ON-OFF type



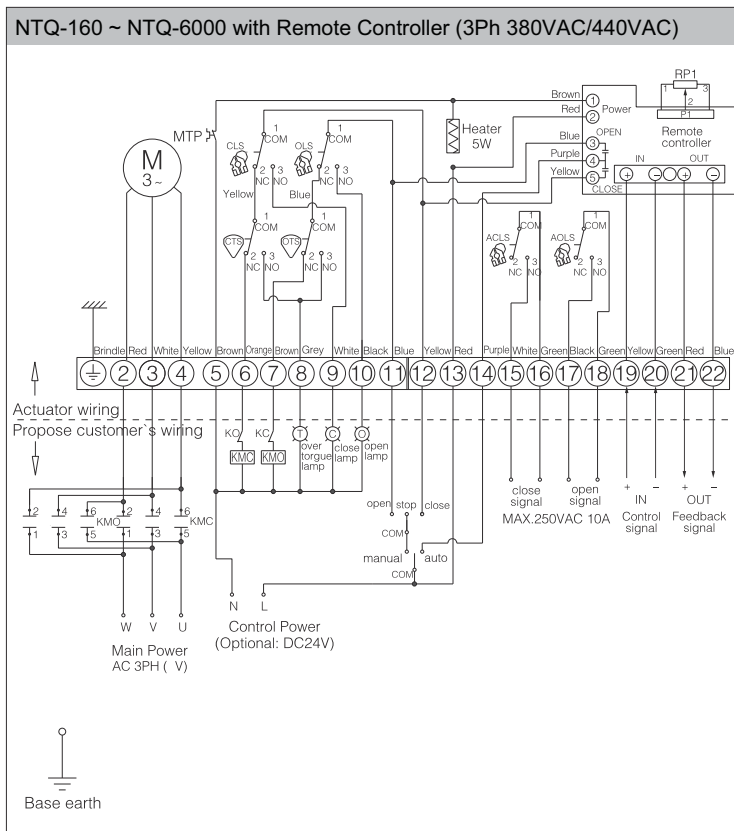
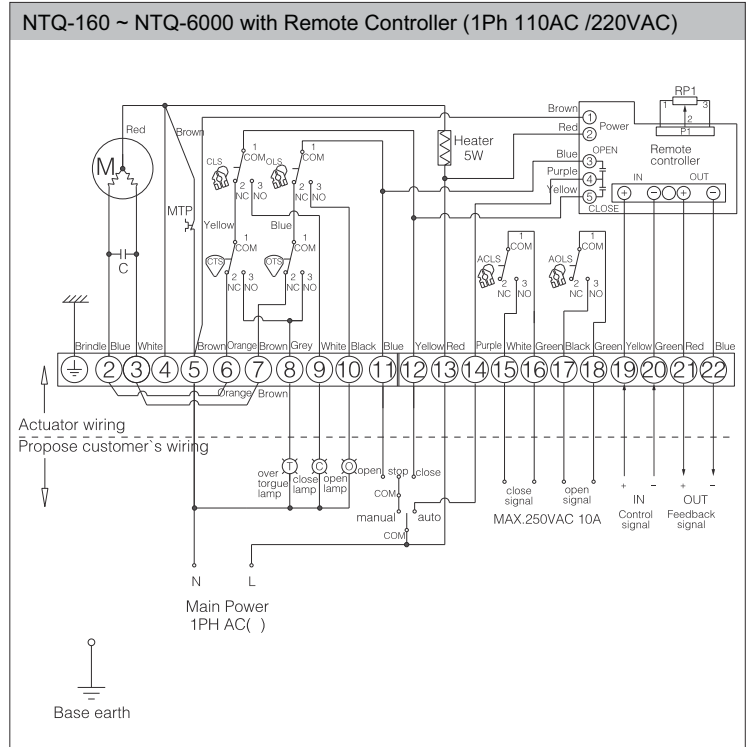
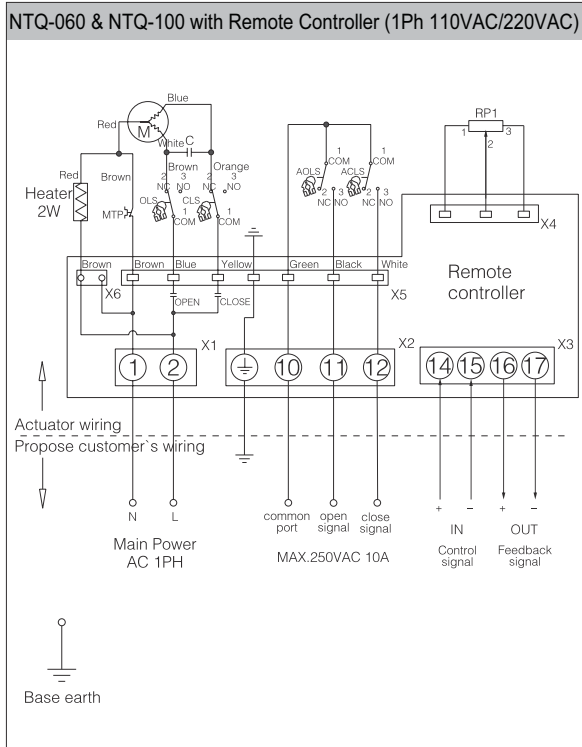
The working state of the limit switch and torque switch

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



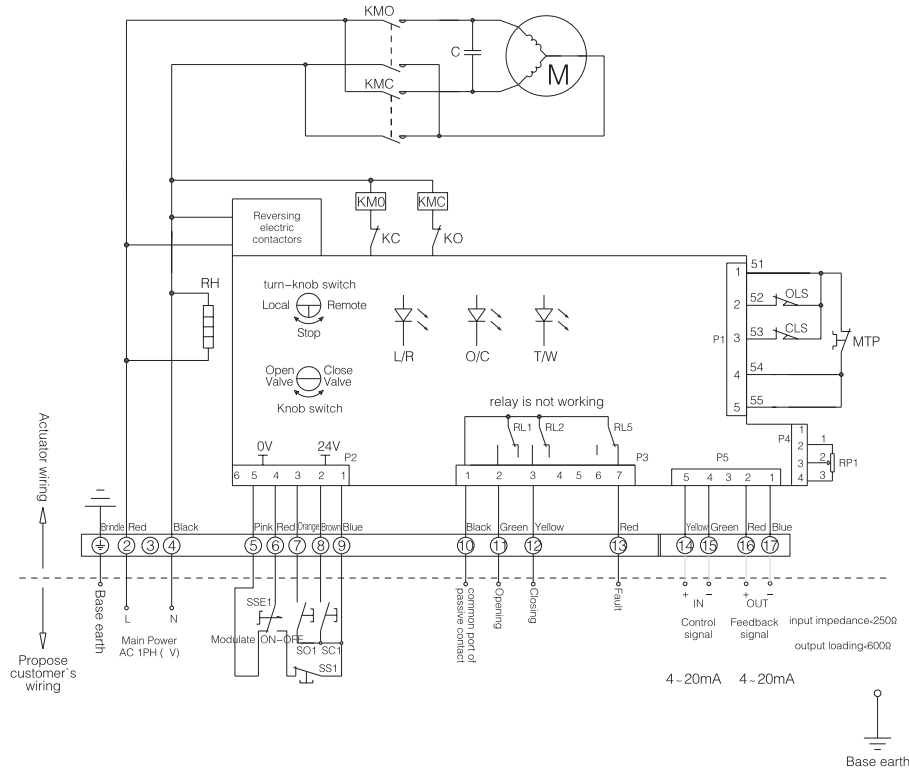
The working state of the limit switch and torque switch

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 Ω

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

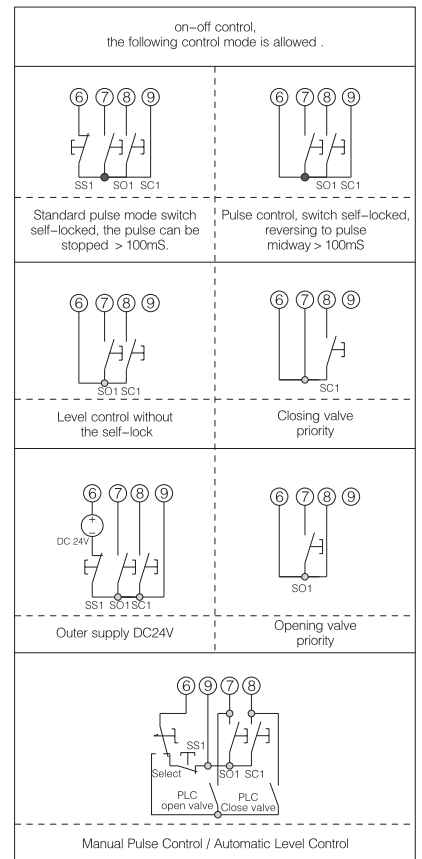
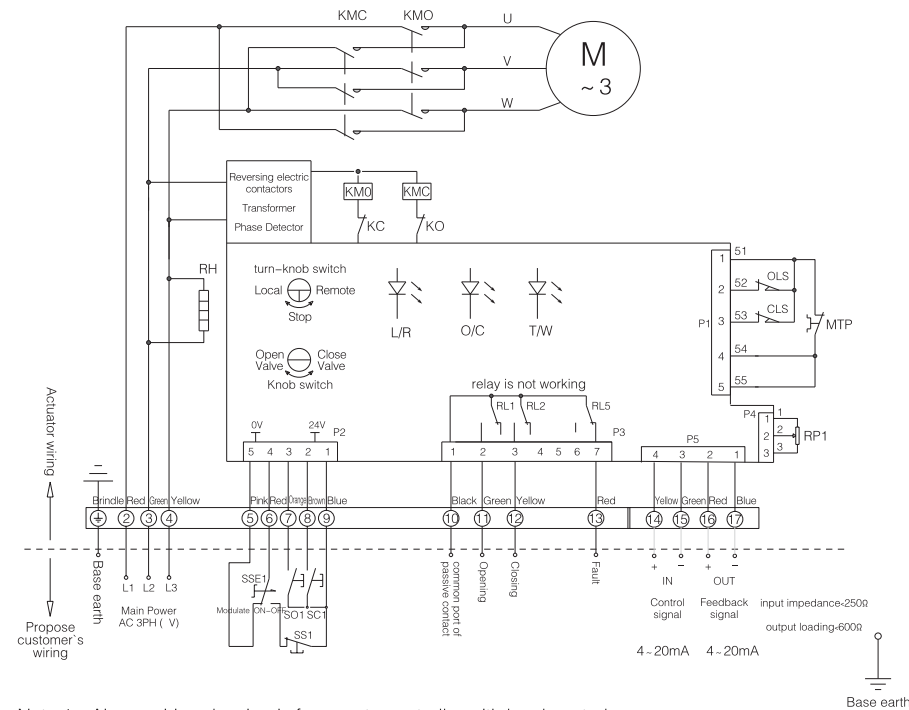
KMC: Closing contactor coils

KMO: Opening contactor coils

M: Motor

MTP: Motor Thermal Protector

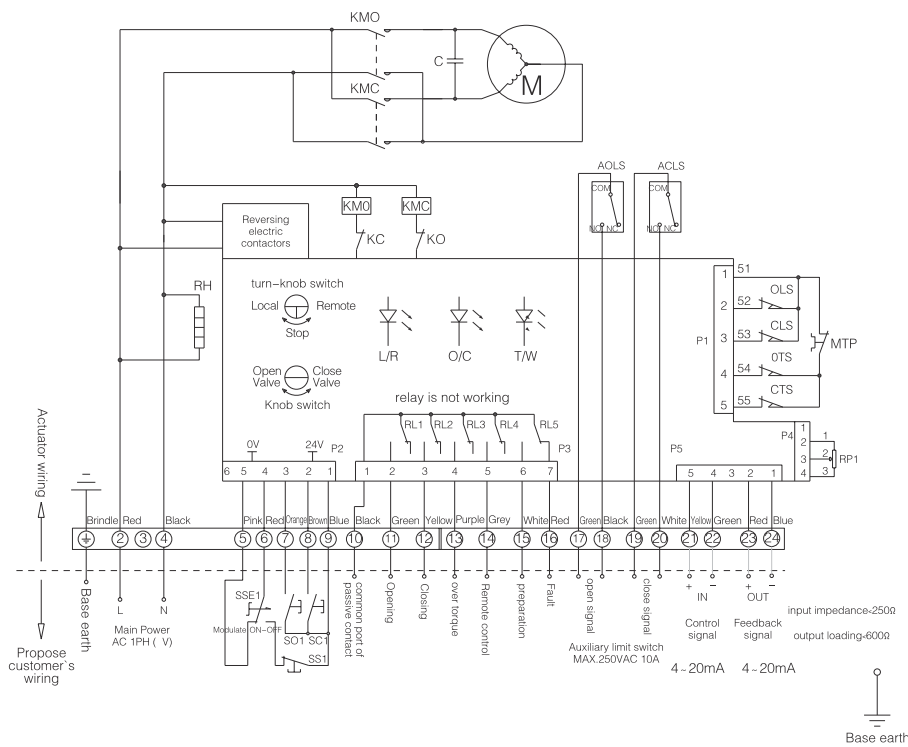
NTQ-060 & NTQ-100 with Local Control Unit (3Ph 380VAC/440VAC)



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、 1KΩ

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

CTS: closing torque switch

OTS: opening torque switch

AOLS: Aux.Open Limit Switch

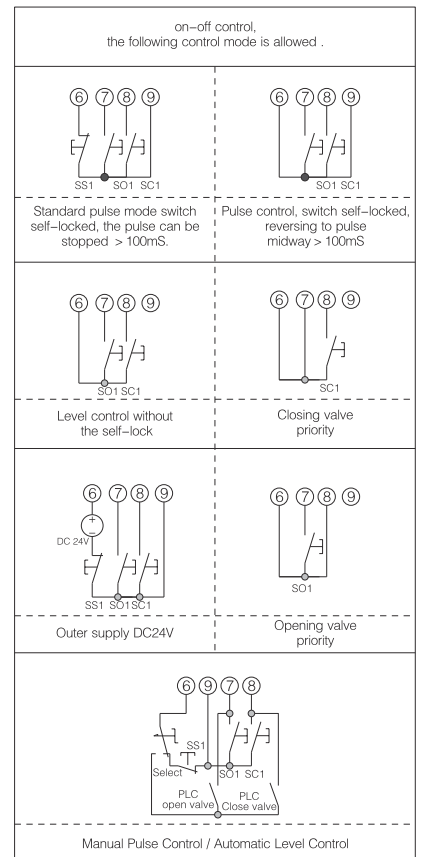
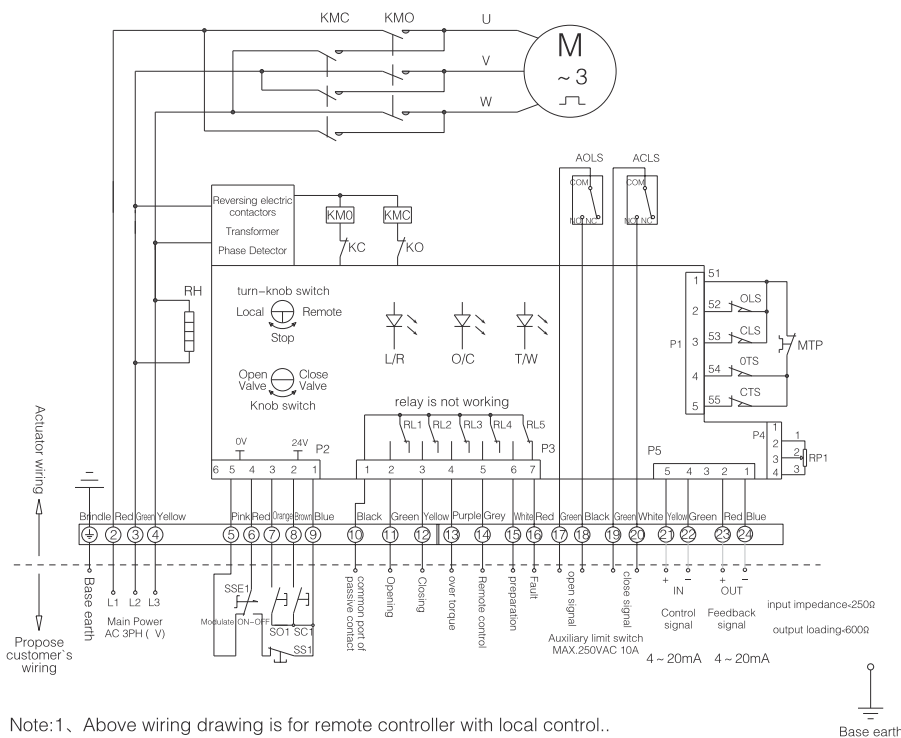
ACLS: Aux.Close Limit Switch

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.

Ordering Information

NTQ	Output Torque	Control Type	Power	Extra Function	Enclosure																								
					<p>A. Output Torque / Operation Time @50Hz</p> <table border="0"> <tr> <td>1.Code:050(50Nm)-21 sec.</td> <td>9.Code:800(800Nm)-36 sec.</td> </tr> <tr> <td>2.Code:060(60Nm)-26 sec.</td> <td>12.Code:1100(1100Nm)-36 sec.</td> </tr> <tr> <td>3.Code:100(100Nm)-26 sec.</td> <td>13.Code:1500(1500Nm)-55 sec.</td> </tr> <tr> <td>4.Code:160(160Nm)-28 sec.</td> <td>14.Code:2000(2000Nm)-55 sec.</td> </tr> <tr> <td>5.Code:200(200Nm)-28 sec.</td> <td>15.Code:2500(2500Nm)-55 sec.</td> </tr> <tr> <td>6.Code:240(240Nm)-28 sec.</td> <td>16.Code:4000(4000Nm)-90 sec.</td> </tr> <tr> <td>7.Code:350(350Nm)-32 sec.</td> <td>17.Code:6000(6000Nm)-90 sec.</td> </tr> <tr> <td>8.Code:500(500Nm)-32 sec.</td> <td>18.Code:XXXX</td> </tr> </table> <p>Note:The other output torque & operation time is available upon request.</p> <p>B. Type(Control function)</p> <ol style="list-style-type: none"> Blank: On/Off Type as standard Code PCU: Modulating Type Code LCU: On/Off type with Local Control Unit Code PCU+LCU: Modulating type with Local Control Unit <p>Note: NTQ-050 is not available in LCU</p> <p>C. Power:</p> <table border="0"> <tr> <td>1.Code A:24VDC</td> <td>5.Code E:380VAC</td> </tr> <tr> <td>2.Code B:24VAC</td> <td>6.Code F:440VAC</td> </tr> <tr> <td>3.Code C:110~120VAC</td> <td>7.Code X: Others</td> </tr> <tr> <td>4.Code D:220~240VAC</td> <td></td> </tr> </table> <p>Note: NTQ-050 is not available in 380/440VAC</p> <p>D. Extra Function/Accessories</p> <ol style="list-style-type: none"> Code DI: Dome Indicator(NTQ-050 is not available) Code LED: The GREEN/RED LED dome type indicator Code DP: Anti-Condensation Device(only available in IP67) Code LT: -40°C Low Temp. Application(-60°C is available) Code CT: on/off type with 4-20mADC output signal Code FS: Battery pack for battery back-up for fail safe Code LCD-1,LCD Matrix Display +LCU(local Control Unit) Code LCD-2,Intelligent Type,LCD Display +LCU(local Control Unit) Code SR: Spring Return type for fail safe (4 models output torque:50/100/150/300Nm) HART,Mobus,Profibus --- etc. The different protocol is avialble <p>Please contact Nutork</p> <p>E. Enclosure</p> <ol style="list-style-type: none"> Code:IP67, IP67 enclosure(standard) Code IP68 : Water-Tight(30M@24hours tested by TUV) Code EX : EExdIIBT6 Explosion-Proof Enclosure (NTQ-060~240 is EExdIICT6) 	1.Code:050(50Nm)-21 sec.	9.Code:800(800Nm)-36 sec.	2.Code:060(60Nm)-26 sec.	12.Code:1100(1100Nm)-36 sec.	3.Code:100(100Nm)-26 sec.	13.Code:1500(1500Nm)-55 sec.	4.Code:160(160Nm)-28 sec.	14.Code:2000(2000Nm)-55 sec.	5.Code:200(200Nm)-28 sec.	15.Code:2500(2500Nm)-55 sec.	6.Code:240(240Nm)-28 sec.	16.Code:4000(4000Nm)-90 sec.	7.Code:350(350Nm)-32 sec.	17.Code:6000(6000Nm)-90 sec.	8.Code:500(500Nm)-32 sec.	18.Code:XXXX	1.Code A:24VDC	5.Code E:380VAC	2.Code B:24VAC	6.Code F:440VAC	3.Code C:110~120VAC	7.Code X: Others	4.Code D:220~240VAC	
1.Code:050(50Nm)-21 sec.	9.Code:800(800Nm)-36 sec.																												
2.Code:060(60Nm)-26 sec.	12.Code:1100(1100Nm)-36 sec.																												
3.Code:100(100Nm)-26 sec.	13.Code:1500(1500Nm)-55 sec.																												
4.Code:160(160Nm)-28 sec.	14.Code:2000(2000Nm)-55 sec.																												
5.Code:200(200Nm)-28 sec.	15.Code:2500(2500Nm)-55 sec.																												
6.Code:240(240Nm)-28 sec.	16.Code:4000(4000Nm)-90 sec.																												
7.Code:350(350Nm)-32 sec.	17.Code:6000(6000Nm)-90 sec.																												
8.Code:500(500Nm)-32 sec.	18.Code:XXXX																												
1.Code A:24VDC	5.Code E:380VAC																												
2.Code B:24VAC	6.Code F:440VAC																												
3.Code C:110~120VAC	7.Code X: Others																												
4.Code D:220~240VAC																													

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 & EExdIIBT6
Max. Output Torque 6000Nm
Approved by SIL3/IP68/MD/LVD/EMC.



NTE Series Electric Actuator
IP67/IP68(30M@24hrs)
Enclosure
Max. 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



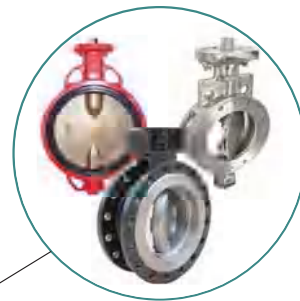
Air Filter Regulator Aluminum Body with Vinyl Paint & 316SS Body.
Size: 1/4" ~ 1"



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.