

NUTORK[®]

Actuators & Valves

NTK Series Quarter Turn Electric Actuator



Approved By:
SIL3 Approval
Low Voltage Directive 2014/35/EU
Machinery Directive 2006/42/EC
Electromagnetic Compatibility Directive 2014/30/EU
IP67(standard),IP68(option,30M@24 hrs by TUV
ExdIICT6 explosion-proof(option)

NUTORK CORPORATION

NTK-02EX Electric Actuator

Only Available in ExdIIBT6 Explosion Proof

**The smallest
EX electric
actuator in the world**

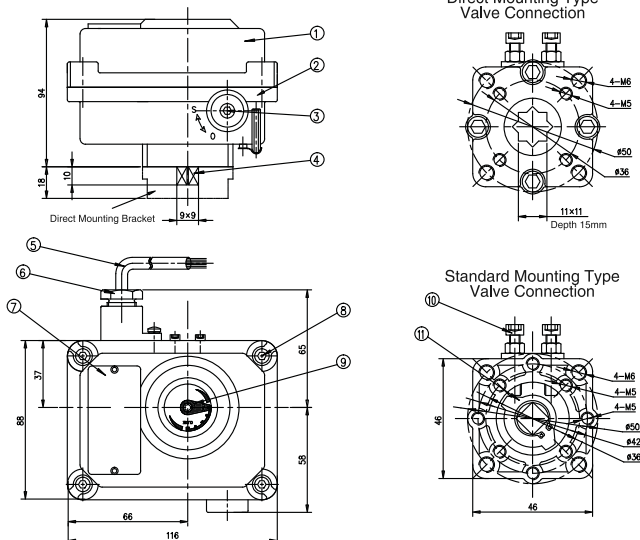


Product Description

NTK-02EX Explosion-proof electric actuator is our latest developed ultra-compact device, controlling the valve's open and close like butterfly valves, ball valves, plug valves and other valves with 90° rotation.

Widely used in production, transportation and storage where the places have explosion gas in coal, petroleum, metallurgy, chemical industry, food processing, military and other industrial production.

Dimension & Part List

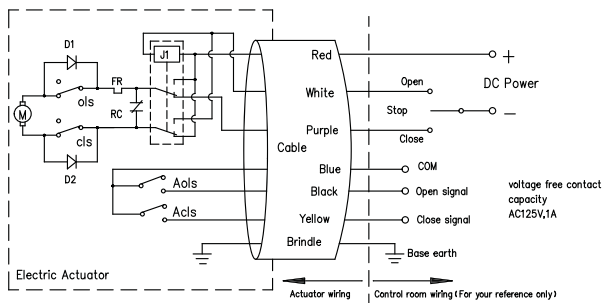


NO.	Name	Material/Specification
1	Top Cover	ADC12
2	Body	ADC12
3	Handle Lever Hole	4mm
4	Worm-wheel Shaft	303
5	Cable	0.3×7 Cable 1M
6	Cable Entry	45#
7	Nameplate	Stainless Steel
8	Hex Socket Screw	M5×18
9	Indicator	0-90°
10	Mechanical Limit Screw	M5×25
11	Mechanical Stopper	Alloy

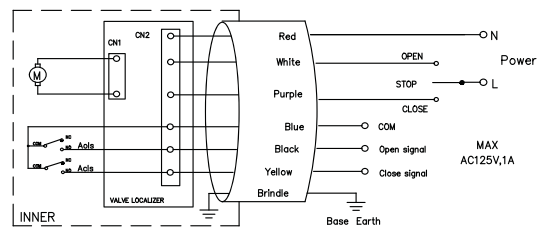


Model	NTK-02EX (On/off Type)		NTK-02EX (Modulating Type)
	Voltage	DC24V	AC100~240V
Output Torque	24Nm		
Working Time	20Sec.		
Motor Power	6.8W		
Rated Current	0.42A(24VDC/AC); 0.11A(AC100~240V)		
Current	≤25mA	≤20mA	≤25mA
Rated Angle	0-90°		
Control Method	Fully Open, Fully Closed	Fully Open, Fully Closed	4-20mA / 0-10VDC
Feedback Signal	Fully open passive contact signal, Fully closed passive contact signal,	Fully open passive contact signal, Fully closed passive contact signal,	4-20mA / 0-10VDC
Indicator	With Arrow	With Arrow Full Open Red LED Full Closed Green LED	With Arrow
Enclosure Protection	IP67		
Basic Error	1%		
Insulated Resistance	≥100MΩ		
Insulated Strength	500VAC/1min(12V, 24V); 1500VAC/1min(100~240V)		
Wiring	7×0.3mm ² , 1m cable		
Protection Device	Open and close mechanical limit stopper		
Installation Angle	360° directional		
Power Off Operation	With handle lever		
Color	Black, milk white (other colors customized)		
Body Material	ADC12		

NTK-02EX (On/off Type, 24VDC) Diagram Wiring



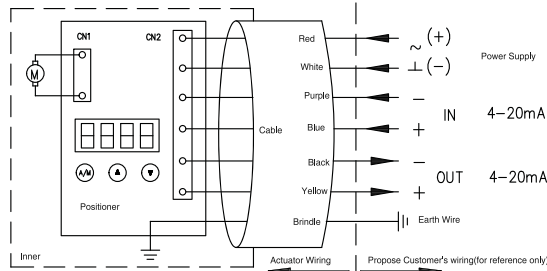
NTK-02EX (On/off Type, 100~240VAC) Diagram Wiring



- Wiring Instructions:**
- 1.Red wire and "N" wire connected
 - 2.White wire and "L" wire connected for "OPEN"
 - 3.Purple wire and "L" wire connected for "CLOSE"
 - 4.Blue wire is for common port
 - 5.When there is fully opened, black wire about "fully open" signal
 - 6.When there is fully closed, black wire about "fully closed" signal

Note: Two or several actuators in parallel connecting forbidden, also impossible to control the two or several actuators through one same contact in case of no action or out of control.

NTK-02EX (Modulating Type) Diagram Wiring



- Wiring Instructions:**
- 1.Red wire, White Wire with power supply connected
 - 2.Purple wire, Blue wire are for input signal of external control
 - 3.Black wire, Yellow wire are for output signal of feedback signal
 - 4.Brindle wire is for Earth



- ▶ For on/off and modulating operation.
- ▶ 18 sizes with torque from 50 to 3,000Nm without gearbox, up to 8,000Nm with gear box.
- ▶ Robust hard anodized aluminum housing with epoxy coated(RAL-5024 as standard color).
- ▶ Heavy duty squirrel caged induction motor gives high starting torque.
- ▶ The crank handle is designed as detachable to minimize the dimension of the actuator.
- ▶ Enclosure IP67 as standard and IP68 (30M@24hrs tested by TUV) and explosion- proof ExdIICT6 as optional.
- ▶ Anti-condensation space heater as optional.
- ▶ Auxiliary limit switches to protect actuator.
- ▶ Permanently lubricated for trouble free operation.
- ▶ Optional accessories are available on request.

NUTORK NTK series electric actuator are available from 50 to 3,000Nm(without gearbox) & up to 8,000(with gearbox) torque output. Due to robust design and construction, they can be used in most industrial environment. The housing is hard anodized treatment aluminium alloy and external epoxy coated(RAL-5024 as standard color) paint provides superior resistance for rigorous environment.

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 limit switches for remote indication.

Actuators are supplied standard with detachable crank handle allen-key that switches the actuator to manual mode when power off. The gear mechanism is self-locking to eliminate the possibility of reverse movement from the valve.

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)				Weight (Kg)
						1Ph 220VAC	1Ph 110VAC	3Ph 380VAC	24VDC	
NTK-05	≤◇17x31H-F05/F07	50	12	20/17	17	0.25	0.47	0.11	1.5A/12S	4
NTK-08		80	12	30/25	17	0.25	0.47	0.11	1.5A/18S	4
NTK-10		100	15	30/25	17	0.31	0.58	0.13	1.87A/18S	4
NTK-15		150	25	40/33	17	0.32	0.55	0.13	2.1A/22S	5
NTK-20		200	30	40/33	17	0.41	0.71	0.17	2.1A/22S	5
NTK-25	≤◇17x31H-F07/F10 or F10/F12	250	40	30/25	27	0.38	0.72	0.12	4.0A/18S	7
NTK-40		400	60	30/25	27	0.50	1.00	0.25	6.8A/18S	8
NTK-60		600	90	30/25	27	0.75	1.50	0.30	9.5A/18S	9
NTK-80	≤◇36x45H-F10/F14 or F12	800	90	35/30	36	0.75	1.50	0.38	9.5A/20S	18
NTK-100		1000	90	54/45	36	0.75	1.50	0.38	9.5A/30S	19
NTK-120		1200	120	54/45	36	1.10	2.30	0.55	12.2A/30S	19.5
NTK-150	≤◇36x74H-F14 or F16	1500	200	30/25	46	1.90	3.90	0.90	13.0A/35S	28
NTK-200		2000	200	40/33	46	1.90	3.90	0.90	18.0A/35S	28
NTK-250		2500	200	50/42	46	1.90	3.90	0.90	23.0A/35S	28
NTK-300		3000	200	60/50	46	1.90	3.90	0.90	30.0A/35S	28
NTK-400	◇50x120H-F14/F16 / F25	4000	90	140/117	50	0.75	1.50	0.38	9.5A/120S	52
NTK-600		6000	200	120/100	50	1.90	3.90	0.90	13.0A/120S	62
NTK-800		8000	200	160/133	50	1.90	3.90	0.90	18.0A/120S	62

Standard Specification

- 1.Main Power Supply: Standad: 1Ph/220VAC
Optional: 1Ph/110VAC,3ph 220/380/440/480VAC,24VDC/VAC
- 2.Control Power Supply: 110/220VAC or 24VDC
- 3.Duty Cycle(on/off & Modulating): On/Off Type,S2: 50%~ 60min., Modulating Type,S4: 50%~ 1200 Start/Hour
- 4.Motor: Squirrel Caged Induction Motor
- 5.Limit Switches: 2xSPST/NO mechanical switch,10A@250VAC at open & closed position.
- 6.Stall Protection / Set Temp.: Built-in thermal protection, open @ 150℃ & close @ 97℃
- 7.Position Indicator: Continous flat type mechanical indicator with arrow
Optional: Dome type indicator or dome type with GREEN/RED color LED indicator
- 8.Mechanical Stopper: 1 each for travel end(open & close),external & adjustable
- 9.Self-locking Gear Mechanism: Provided by double wormgear(no brake)
- 10.Manual Override: Detachable crank handle allen-key
- 11.Space Heater: Option, 5W(110/220VAC)for anti-condensation
- 12.Cable Entry: 2-M20x1.5(or 2x1/2"NPT)
- 13.Terminal Block: Screw & lever push type(spring loaded type)
- 14.Valve Connection: ISO5211,star(double square) connection
- 15.Amb. Temperature: -20℃~70℃
- 16.Amb. Humidity: 90%RH max.(no condensation)
- 17.Anti-Vibration: XYZ 10g,02~34Hz,30 minutes
- 18.External Coating: Dry powder(polyester RAL-5024 color as standard)
- 19.Enclosure: Weather-proof IP67,NEMA 4&6
Optional:IP68(50M@72hrs) or ExdIICT6

Additional Functions for NTK Series Electric Actuator

Code	Function
DI	1). Dome Indicator (available in IP67/68)
DP	2). Anti-Condensation Indicator (only available in IP67)
LED	3). The GREEN/RED LED dome type indicator
H	4). Heater
TS	5). Torque Switch(only for NTK-25~NTK-800)
OH	6). Over heat/thermal relay: 110°C(SPST/NO)
CT	7). On/Off Type with 4-20mADC output signal
HW	8). Detachable Handwheel
LCU	9). LCU - Local control unit(Power Voltage 24VDC up to 1000Nm)
IP68	10). IP68 Enclosure
EX	11). ExdIICT6 Ex-Proof Enclosure
LCD	12). LCD Display, Power voltage available in 220/380/440VAC and EExdIICT6 is not available
LCD+LCU	13). Smart Type,LCD Display +LCU(local Control Unit) Power voltage is available in 220/380/440VAC,24VDC up to 1000Nm and EExdIICT6 is available
LT	14). -40°C Low Temperature Application
FS	15). Back-Up Battery Failsafe, operation temperature: -20~+80Deg.C, The max output torque up to 600Nm
FS+LT	16). Back-Up Battery Failsafe, operation temperature: -40~+80Deg.C, The max output torque up to 400Nm

NTK-20EX
116mmLx88mmWx112mmH



ON/OFF Type



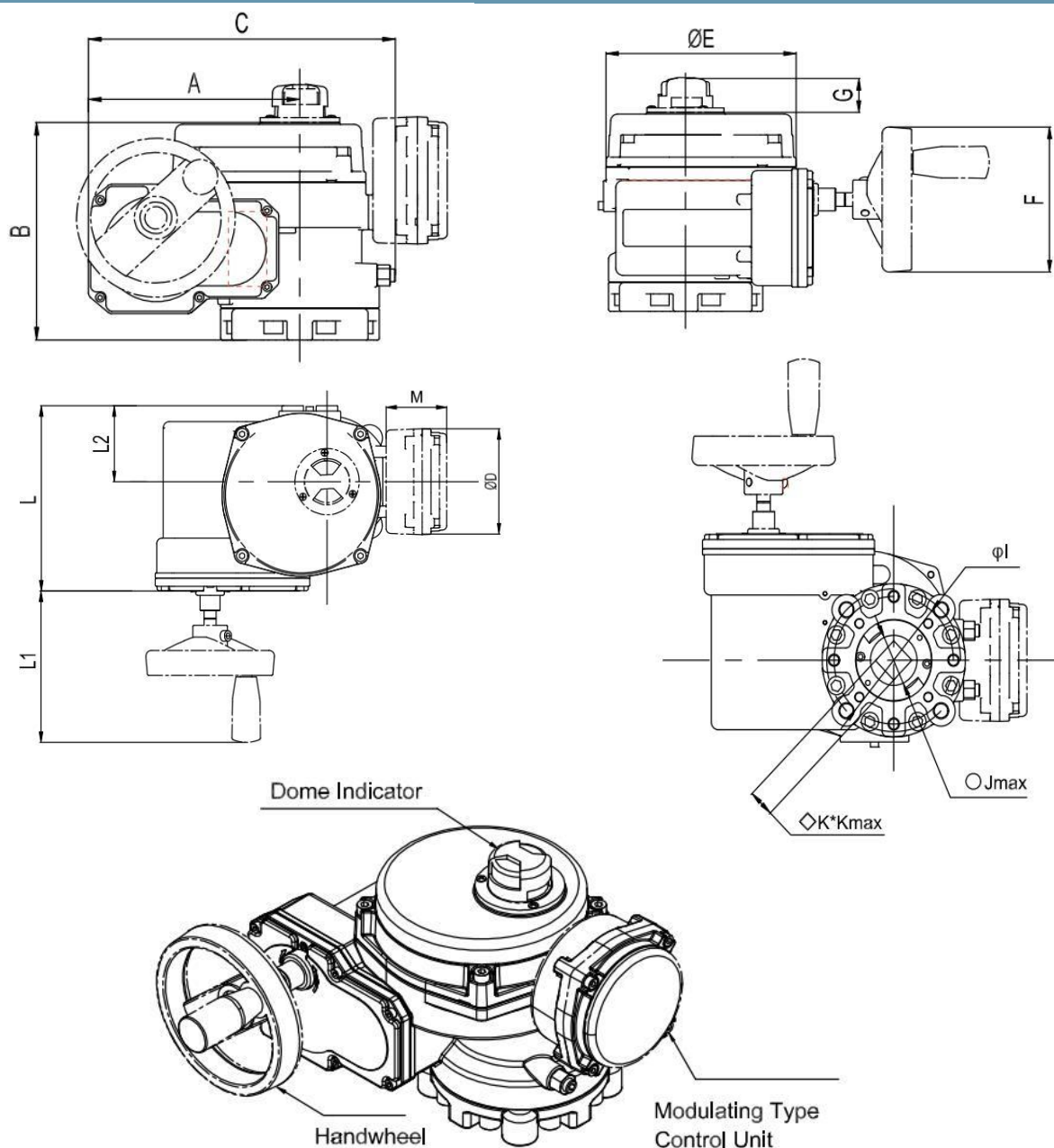
Modulating Type



LCD Display



Smart Type,
LCD Display+LCU (Local Control Unit)

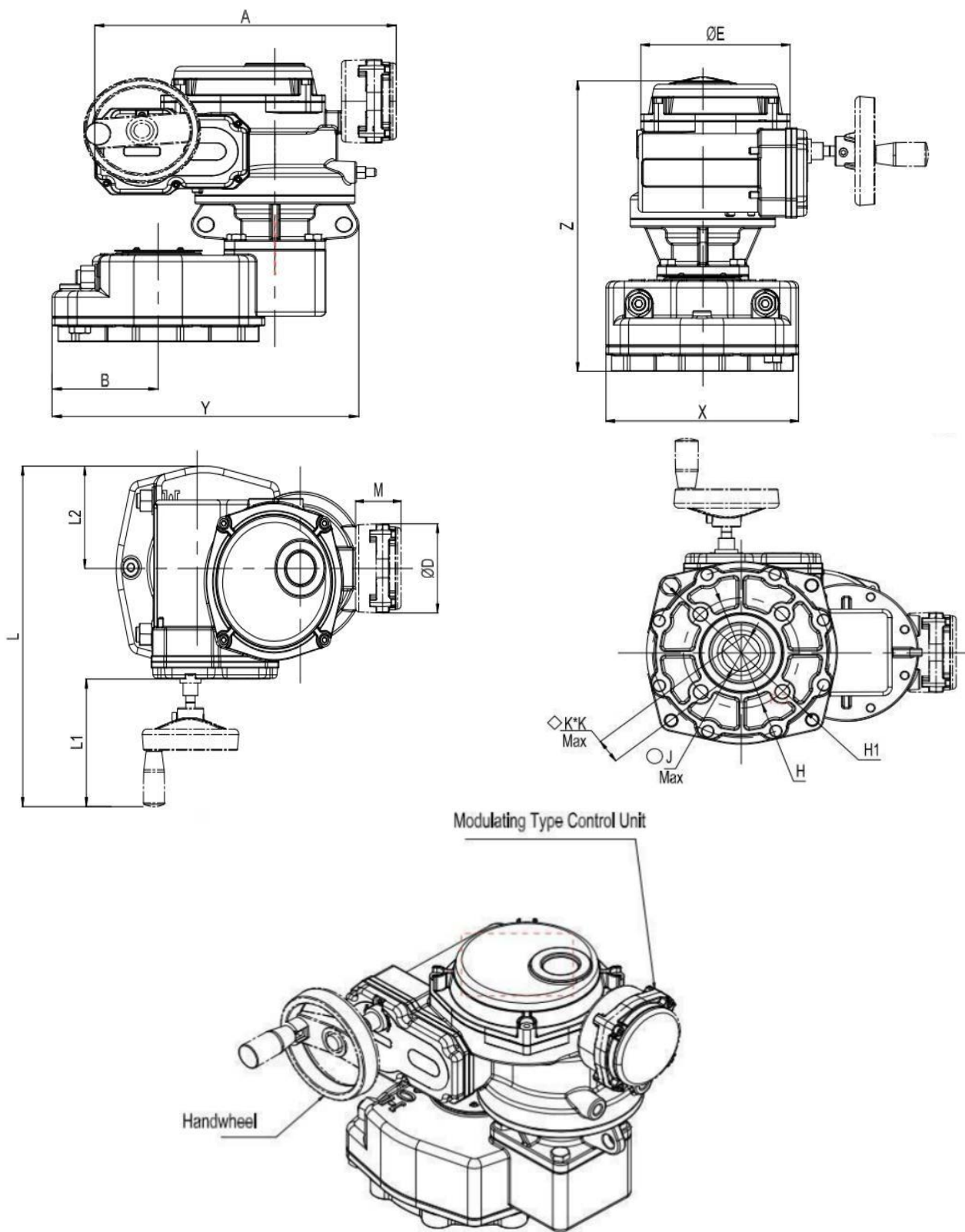


Dimension Table

unit: mm

Model	A	B	C	D	E	F	G	L	L1	L2	M	I	◇K*K	φJmax	◇Kmax	Depth
NTK-05	112	146	166	120	112	100	35	138	98	66	70	F05/F07	M11 M14	≤φ16	≤◇17	31
NTK-08																
NTK-10																
NTK-15	131	158	182	120	130	100	35	156	93	75	70	F05/F07	M14 M17	≤φ16	≤◇17	31
NTK-20																
NTK-25	171	180	255	120	170	100	35	201	98	82	70	F07/F10 F10/F12	M14 M17 M22 M27	≤φ32	≤◇27	45
NTK-40																
NTK-60																
NTK-80	200	205	230	120	185	150	35	214	141	86	70	F12 F10/F14	M27 M36	≤φ45	≤◇36	45
NTK-100																
NTK-120																
NTK-200	232	231	360	120	212	150	35	250	141	100	70	F14orF16	M36	≤φ52	≤◇36	74
NTK-250																
NTK-300																

Note: The modulating type need to add control unit, but the ON/OFF type don't need it.



Dimension Table

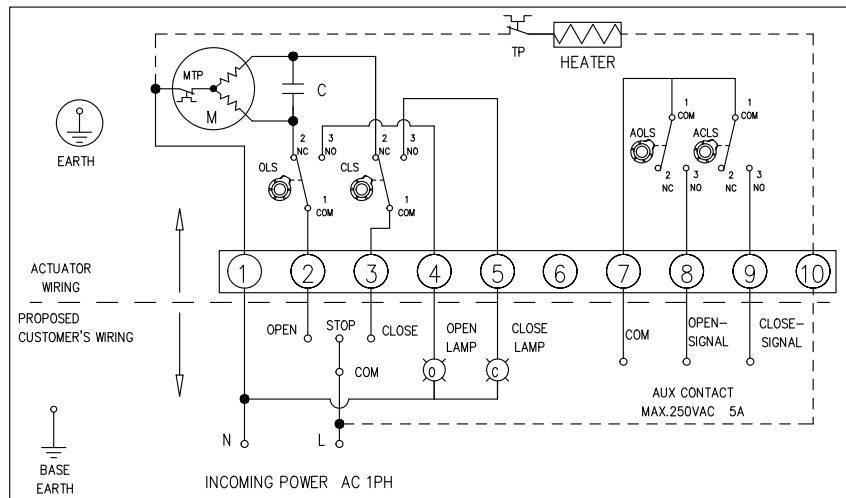
unit: mm

Model	A	B	C	D	E	X	Y	Z	L	L1	L2	M	H/H1	K*K(Max)		J(Max)	Depth
														S	A		
NTK-400	339	175	180	214	185	274	365	395	355	141	137	70	F14/F16/F25	50×50	35×35	φ60	120
NTK-600	388	189	198	249	212	274	392	405	391	141	137	70	F14/F16/F25	50×50	35×35	φ60	120
NTK-800	388	189	198	249	212	274	392	405	391	141	137	70	F14/F16/F25	50×50	35×35	φ60	120
NTK-1000	388	189	198	249	212	274	392	405	391	141	137	70	F14/F16/F25	50×50	35×35	φ60	120

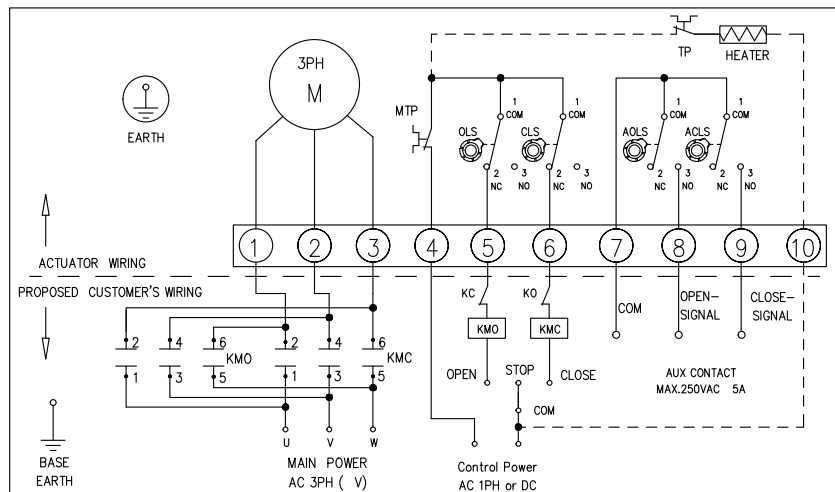
Note: The modulating type need to add control unit, but the ON/OFF type don't need it.

Wiring Diagram

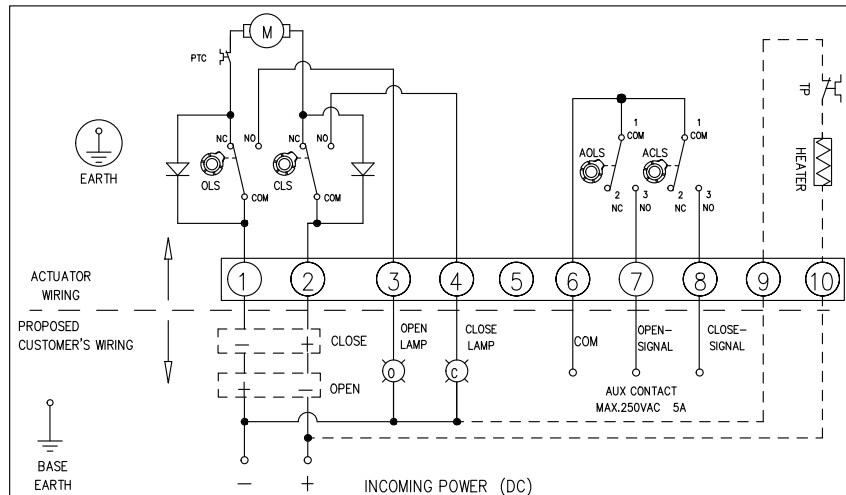
On/off Type
1PH, 110/220VAC



On/off Type
3PH, 380VAC

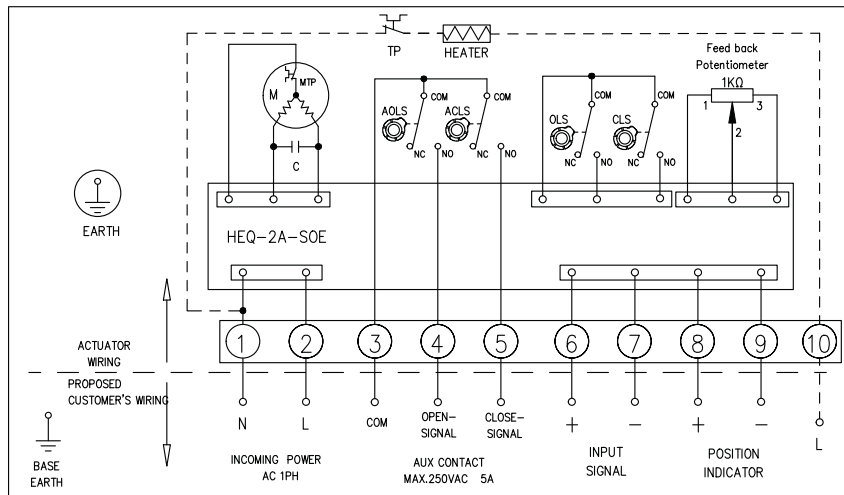


On/off Type
12/24VDC

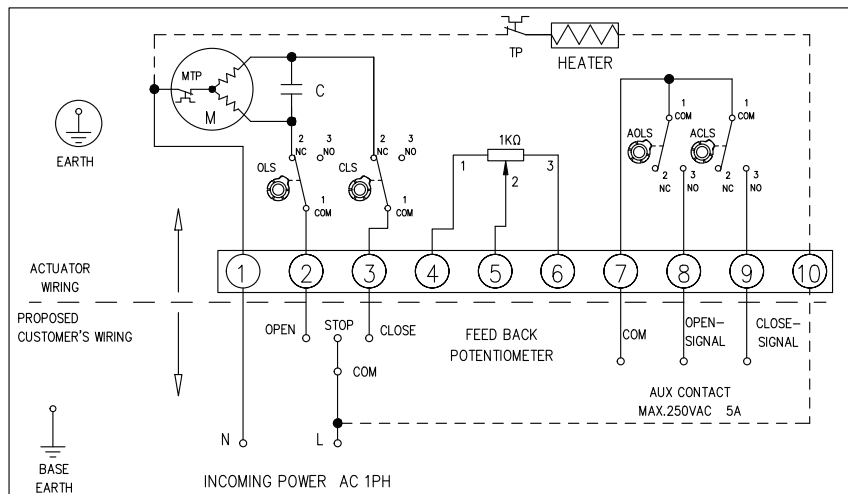


Wiring Diagram

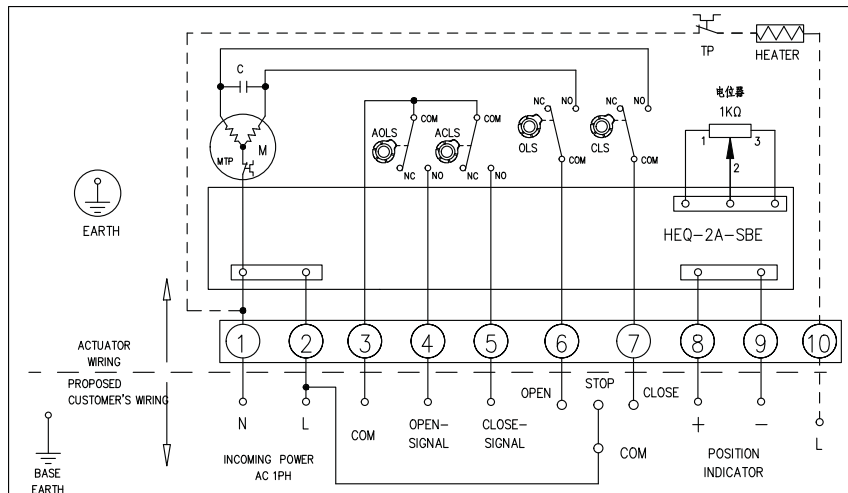
With 4–20mA Feedback
1PH, 110/220VAC



With 0–1KΩ Potentiometer Feedback
1PH, 110/220VAC



Modulating Type
1PH, 110/220VAC



Ordering Information



NTK	Output Torque	Control Type	Power	Extra Function	Enclosure	Valve Conn.
-----	---------------	--------------	-------	----------------	-----------	-------------

A. Output Torque / Operation Time

- | | |
|----------------------------|-------------------------------|
| 1.Code:02EX,(24Nm)-20 sec. | 11.Code:100,(1000Nm)-54 sec. |
| 2.Code:05,(50Nm)-20 sec. | 12.Code:120,(1200Nm)-54 sec. |
| 3.Code:08,(80Nm)-30 sec. | 13.Code:150,(1500Nm)-30 sec. |
| 4.Code:10,(100Nm)-30 sec. | 14.Code:200,(2000Nm)-40 sec. |
| 5.Code:15,(150Nm)-40 sec. | 15.Code:250,(2500Nm)-50 sec. |
| 6.Code:20,(200Nm)-40 sec. | 16.Code:300,(3000Nm)-60 sec. |
| 7.Code:25,(250Nm)-30 sec. | 17.Code:400,(4000Nm)-216 sec. |
| 8.Code:40,(400Nm)-30 sec. | 18.Code:600,(6000Nm)-120 sec. |
| 9.Code:60,(600Nm)-30 sec. | 19.Code:800,(8000Nm)-160 sec. |
| 10.Code:80,(800Nm)-35 sec. | |

Note: 1. The quick operation speed is available upon request.

B. Type(Control function)

- Code B: 1xSPST(NO) micro switch for each at open & close
- Code C: 1KΩ potentiometer
- Code D: 1xSPST,NO micro-switch+ 1KΩ potentiometer
- Code E: modulating control (input/output signal:4-20mADC)

Note: 02EX only available in code B & E control function

C. Power:

- | | |
|---------------------|------------------|
| 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 | |

Note: 02EX only available in 24VDC & 100~240VAC

D. Extra Function/Accessories

- Code DI : Dome Type Indicator
- Code DP: Anti-Condensation Device
- Code LED: The GREEN/RED LED dome type indicator(Pls contact Nutork)
- Code H : Heater
- Code TS: Torque Switch(**only for NTK-25~NTK-800**)
- Code OH:Over heat relay/Thermal relay,SPST/NO
- Code CT: On/Off Type with 4-20mADC output signal
- Code HW: Handwheel
- Code LCD-1: LCD Matrix Display +LCU(local Control Unit)
- Code LCD-2: Intelligent Type,LCD Display +LCU(local Control Unit)
- Code LT: -40°C low temperature application(-60°C is available)
- Code FS: Back-up battery failsafe,-20~+80Deg.C
- Code FS+LT: Back-up battery failsafe,-40~+80Deg.C

E. Enclosure

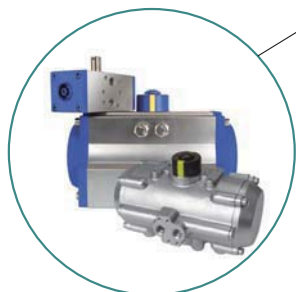
- Code:IP67, IP67 enclosure(standard)
- Code IP68: IP68 enclosure
- Code EX: Ex-proof type:ExdIICT6

Note: 02EX only available in IP67/ExdIICT6

F. ISO5211 mounting pad

- Code BS:Bare Shaft
- Blank: ISO5211 bracket as the standard

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)
EnclosureMax. Output Torque 6000Nm
Approved by SIL3/IP68/MD/LVD/EMC.



Limit Switchbox IP67/IP68(50M@72hrs)
Enclosure & EExdIIBT6/EExdII CT6/SIL3



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 7000Nm



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.