



PASCO

Actuator & Controls

NTQ Series Quarter Turn Electric Actuator



Approved by:
NEPSI & ATEX EExdIIBT6
Low Voltage Directive 2006/95/EC
Machinery Directive 2006/42/EC
Electromagnetic Compatibility Directive 2004/108/EC



- ▶ 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.

PASCO 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 Aluminum 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)	Duty Cycle IEC34 - 1 S2 - %	Operating Time(Sec.) 50/60Hz	Max.Bore Square ◇	Max.Bore Key Ø	Rated Current (A)					No. of Handle Turn	Weight Kg.
							1Ph 230VAC	1Ph 110VAC	3Ph 380VAC	3Ph 440VAC	24VDC		
NTQ-060	F05/F07	60	35%	21 / 18	20	22	0.45	-	-	-	-	9	8
NTQ-100	F05/F07	100	35%	26 / 22	20	22	0.5	1.0	0.22	0.26	1.7	10	8
NTQ-160	F07/F10	160	35%	28 / 23	25	32	0.6	1.45	0.25	0.30	2.0	12	14
NTQ-240	F07/F10	240	35%	28 / 23	25	32	0.7	1.6	0.35	0.39	2.8	12	14
NTQ-350	F10/F12	350	35%	32 / 27	25	32	0.9	1.8	0.38	0.42	4.0	13	18
NTQ-500	F10/F12	500	35%	32 / 27	25	32	1.3	3.2	0.8	0.86	6.9	13	19
NTQ-800	F12/F14	800	35%	36 / 30	38	42	1.5	3.9	1.1	1.2	9.8	15	24
NTQ-1100	F12/F14	1100	35%	36 / 30	38	42	2.2	4.2	1.5	1.6	12.5	15	26
NTQ-1500	F14/F16	1500	35%	55 / 46	50	60	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2000	F14/F16	2000	35%	55 / 46	50	60	1.5	3.9	1.1	1.2	9.8	46	50
NTQ-2500	F14/F16	2500	35%	55 / 46	50	60	2.2	4.2	1.5	1.6	12.5	46	52
NTQ-4000	F16/F25/F30	4000	35%	90 / 75	50	60	1.5	3.9	1.1	1.2	9.8	73	200
NTQ-6000	F16/F25/F30	6000	35%	90 / 75	60	70	2.2	4.2	1.5	1.6	12.5	73	202

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

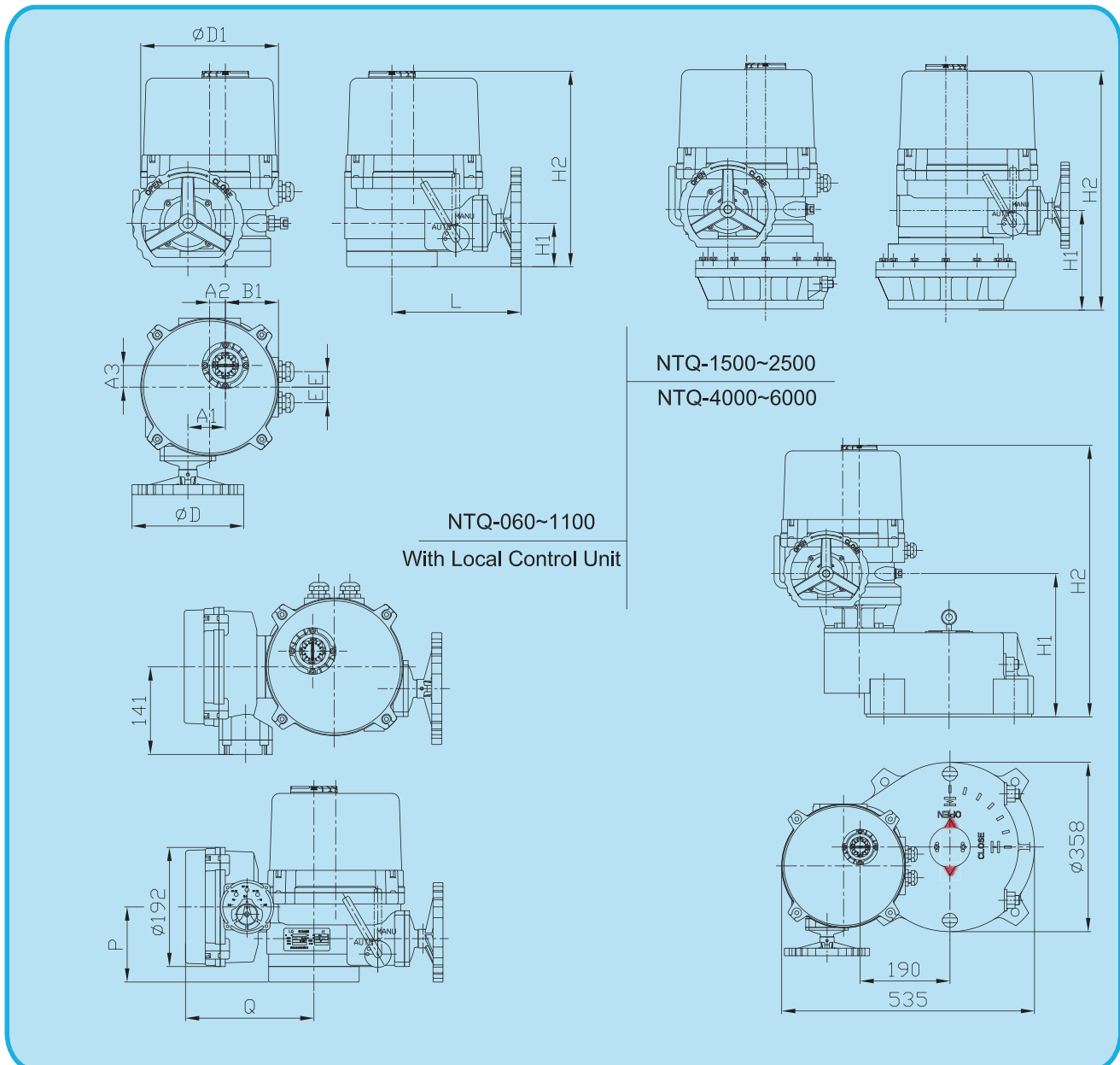
Standard Specification

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. Duty Cycle(on/Off) : S2 : 10min ~ 30min / S4 : 20 ~ 50%
4. Duty Cycle(Modulating) : S4 : 30 ~ 50%, 300 ~ 1200 start/hour
5. Motor : Squirrel Caged Induction Motor
6. Limit Switches : 2 x SPDT, 10A@250VAC at open & closed position
Except NTQ-060/100: 1 x SPDT, 10A@250VAC at open & closed position
7. Torque Switches : 1 x SPDT, 10A@250VAC at open/closed position(Except NTQ-060/100)
8. Stall Protection / Set Temp. : Built - in thermal protection , Open : 150℃ & Close : 97℃
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 PF3/4"
15. Lubrication : EP type grease
16. Terminal block : Screw & lever push type(spring loaded)
17. Amb. Temperature: Standard: -20 ~ 70℃
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)

Dimension

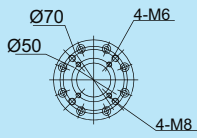
(mm)

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								185	456	230	236	222
NTQ-2500/4000/6000								303	574	/	/	/

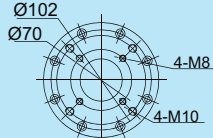


Mounting Dimension

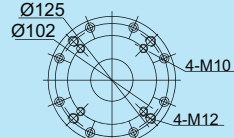
Mounting base according to ISO5211 standard



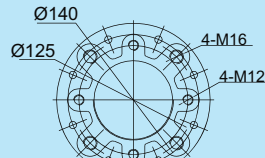
NTQ-060/100



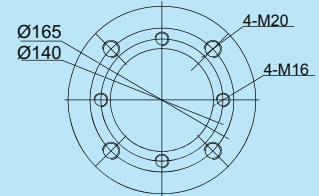
NTQ-160/240



NTQ-350/500



NTQ-800/1100



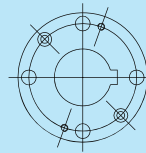
NTQ-1500/2000/2500



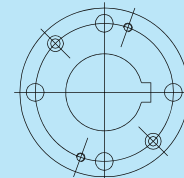
NTQ-060/100



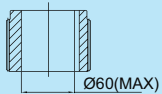
NTQ-160/240/350/500



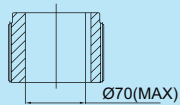
NTQ-800/1100



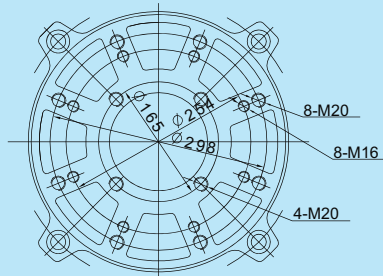
NTQ-1500/2000/2500



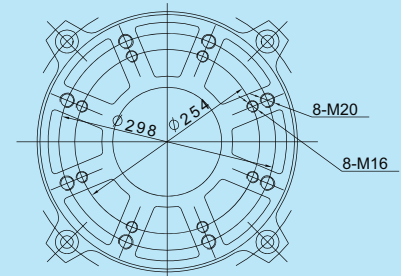
NTQ-4000



NTQ-6000



NTQ-4000



NTQ-6000



Instantaneous reversal protection

When actuators are rotating in one direction, such as opening, if the closing signal is commanded, the internal control circuit will stop for a while before executing closing. This technology decreases the over-current damage to the motor, prolongs the contactor's service life and prevents the mechanical driving devices, such as valve stem, gearboxes damaged by shock.

Phase Lost Protection

To prevent overheating of three-phase motor when losing phase, the phase lost protection circuit will monitor the three-phase power continuously. If one or more phases are lost, the actuator will block the control from control circuit to motor and alarm.

Intelligent protection during valve jams

When actuators are rotating in one direction, such as opening, if the torque in this direction is larger than the set torque, the jam protection will be implemented. Jam protection has two modes. One is the general stop mode, that is when it jams, actuator stops working and displays alarm signals. At the meantime, the indication contacts movement may also be triggered. The other one is the intelligent jam protection, that is when it jams, the actuator will close the valve for a set distance, and then continue to implement the open valve order. If it still jams, the mentioned process will repeat until achieving set times. If the valve overtorques all the same, the actuator will stop working and displays alarm signals. At the meantime, the indication contacts movement may also be triggered. Intelligent jam protection can open and close the sticky valves efficiently.

Motor overheating protection

PASCO actuator motors are designed with F class insulation, which can work in extreme environments. The thermal switches embedded in the motor windings of actuators will disconnect the relevant contacts, stop actuators and display alarm signals once the winding temperature is over presetting (132C). Motor overheating protection can be shielded via setting program.

Better record

PASCO actuator has integrated with intelligent function which can record various commands and operation of actuator, through RECORD menu, user can observe actuator production date, production code, recent commands, recent error, max open&close torque, contactor operation times and so on, it will help user understand actuator status easily, detailed information please refer to P41~P42 of operation manual.



Electric 3PC Ball Valve



Electric Butterfly Valve



Electric Flanged Ball Valve

Automatic phase correction and adjustment

With phase sequence discrimination function for power supply, PASCO actuator will rotate correctly, regardless how the three phase sequence is. It avoids the damaging of valve and actuator result from wrong wiring.

Over Torque Protection

When load torque exceeds actuator setting torque, the actuator will stop and alarm, the indication contact will action.

Anti-condensation heater (Option)

The actuators will be fitted with an anti-condensation heater preventing condensation of water vapour.

Intermittent timer (Option)

It's used to increase operation time of actuator, and reduce/prevent impact of water or fluids in pipeline .

Auto Inspection

It's used to check actuator always in good condition for emergency operation, users can set actuator auto operate for certain distance in certain interval time(in days), to make sure actuator is available to operate after a long time no operation.

Changeable Indication lamp (Option)

The default indication lamp is red/green/yellow to open/close/mid-position, users can change the lamp of actuator in program by infra-red setting tool, to satisfy different use habit.

Safe and reliable protection

The actuator has powerful self-protection function. When there is any improper or wrong operation from user, the actuator will proceed self-protection and self-correcting.

Vibration

Standard range actuator is suitable for the environment where the vibration does not exceed the following standard.

Equipment induction: The cumulated vibration in 10-1000MHz frequency range is less than 1 grms.

Impact: Maximum acceleration is 5g.

Seism: If it is to operate during and after the event, frequency range is 150Hz and acceleration is 2g. If it is only required to maintain structural integrity, it is 5g.

Isolation control should be used or the actuator should be mounted far away from valve and driven by an extension shaft with vibration absorbing couplings in the place where it is excessive equipment induced vibration.

Intelligent Alarm

The alarm will displayed at lower right corner of actuator with English words, like phase lost alarm(PhaseLst), Motor over temperature alarm(TempErr), CPU over temperature(CPUTemp), pressure sensor error(SensorErr) and so on, these words will help users understand the alarm of actuator easily, meanwhile, when there is two or more alarms, these alarms will display alternately, until all of them is solved.

Intelligent Electric Valve Actuator Good security, perfect protection

PASCO 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

PASCO supplies the following product range:

	<p>NK series rack & pinion type (CE-ATEX certified and PED compliant) 14 models, the output torque from 9Nm(80in.lbs) to 3,920Nm(34,660in.lbs) at 6 bar air supply. ISO5211/DIN3337 for valve connection, VDI/VDE 3845(Namur) standard connection for solenoid valve and shaft top end(limit switchbox or E/P positioner), +/-5 degree stroke adjustment. 25~30um standard hard anodized treatment on actuator body and over 120um epoxy coated on end caps which meet ASTM B117 qualification(salt spread test over 1,000 hours and no corrosion).</p> <p>PTFE, Polyester, Nickel, Ceramic and Epoxy coated are available on request.</p>
	<p>NSF series scotch yoke type pneumatic and hydraulic actuators (CE-ATEX certified and PED compliant) The output torque from 978Nm(8,656in.lbs) to 226,200Nm (2,001,870in.lbs) at 6 bar air supply. Anti-corrosion painting on outer body and cylinder as standard. VDI/VDE 3845(Namur) standard connection for shaft top end(limit switchbox or E/P positioner), +/-10 degree stroke adjustment. ISO5211 standard for valve connection. PTFE coated on inner cylinder surface. Hydraulic manual override is available for big size actuator.</p>
	<p>NTE series electric actuator, CE approval 13 models and the output torque from 18Nm(159in.lbs) to 6000Nm(53,106in.lbs), compact design, die-casting aluminum alloy housing, alloy steel with heat treatment gear driving unit, integral wormgear & drive shaft, 30% duty rating, detachable crank handle, ISO5211(option), IP67 enclosure.IP68 for option.</p>
	<p>NTE-02L Quarter Turn Electric Actuator Output torque 25Nm(222in.lbs),operation time 10Sec;voltage 24VAC,110VAC & 220VAC for option,ABS housing, 30% duty rating,IP65 enclosure.</p>
	<p>NTQ electric actuator, CE approval(IP67 & EExdIIBT4 enclosure) 11 models, the output torque from 60Nm(531in.lbs) to 2500Nm(22125in.lbs), de-clutchable manual override, 2xSPDT each for open & close, torque switch: 1xSPDT each for open & close. space heater, self-lock, IP67 & EExdIIBT6 enclosure, IP68 for option.</p>
	<p>The fully range accessories(Limit Switchbox, Solenoid Valve, Declutchable Manual Override, Air Filter regulator, E/P Positioner ---etc).</p>