

Application



AOM multiturn actuators are suitable for automate valves of various size and pressure levels within any plant. The application is guaranteed by the following factor:

1. Big torque range, torque range
2. Combination with different AOM gear box
3. Many kind of subfamilies, ON/OFF, modulating, explosion-proof etc.



Combination with multi-turn gearbox

Automation of gate valve, globe valve, sluice valve.



Combination with linear thrust unit

Automation of 3-way control valve, single-seat control valve, double-seat control valve.



Combination with quarter-turn gearbox

Automation of ball valve, butterfly valve.



Combination with lever gearbox

Automation of butterfly valve with lever arrangement

AOM SERIES

Intelligent Electric Actuator



AOM Multiturn Electric Actuator
SERIES

Multiple Applications

Junction box

Junction box, which is double sealing and separate enclosure protection, to assure the sealing integrity of the electronic component if open the box cover to make the on-site wiring. The motor and the controls are connected by 29 contacts.

Infrared setting

The setting and diagnostic of the actuator can be processed via sealing display screen, without to open the housing. The valid distance between the setting tools and display screen is about 1-1.5m, and the operation via infrared connection using mobile/PDA/laptop via software.

Local control

Local control switches and locking type selector switch local/stop/remote are magnetic switches, controlled by magnetic reed, thus assure the damp proof sealing inside of the actuator.

Motor

3ph AC, 1ph AC and DC motor with high starting torque, developed especially for valve automation.

Manual operation

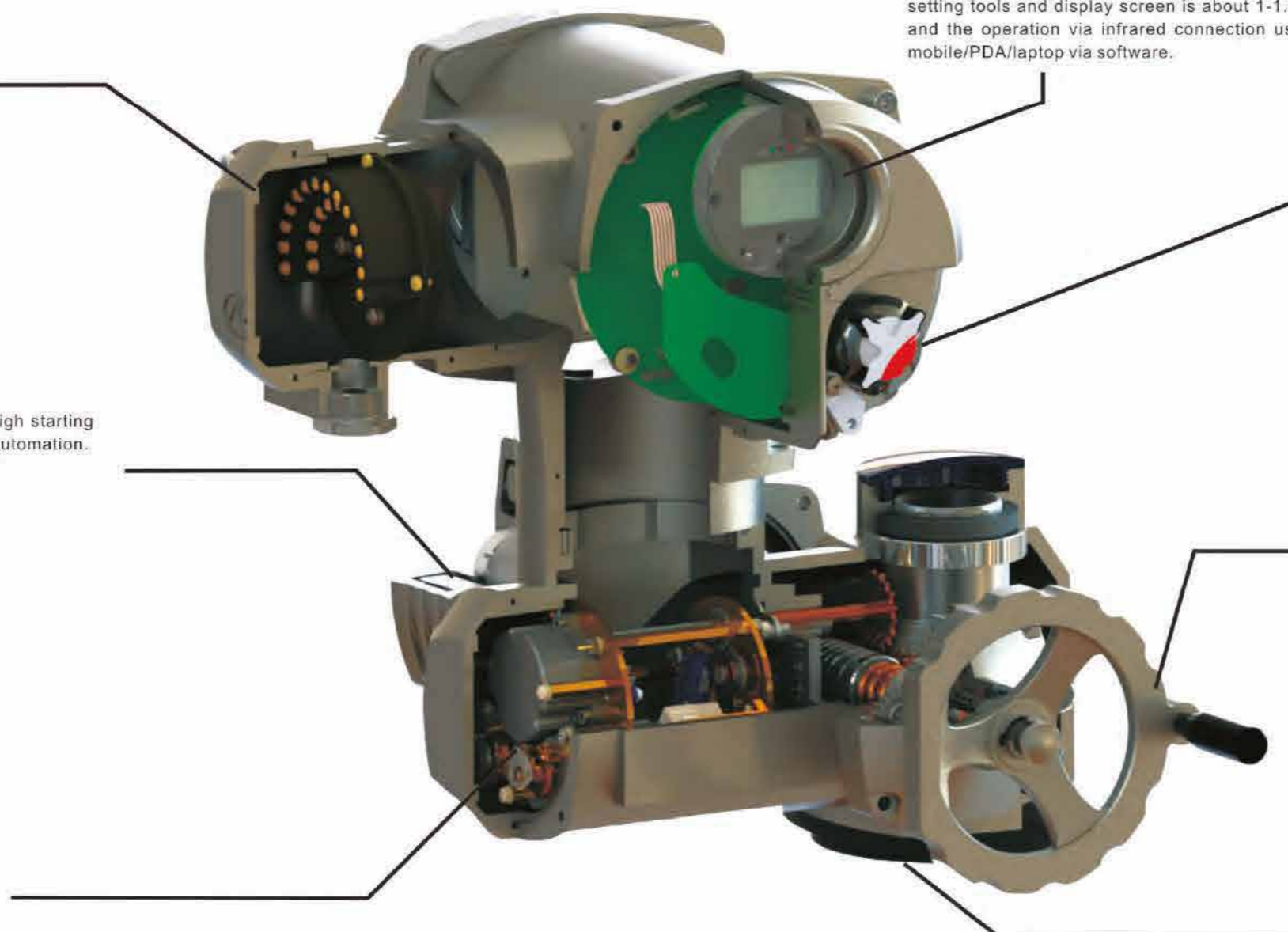
Handwheel, for emergency operation in the event of power failure. Declutch by pushing red button to start the manual operation. The self-locking effect is maintained even during manual operation. Handwheel activation and handwheel operation require minimal effort. Switching on the motor deactivates manual operation, the handwheel does not work during the motor operation.

Valve control

Traditional potentiometer eliminated, adopt absolute encoder to provide position accuracy. The absolute encoder can record the precise valve position and no need battery if power off.

Valve mounting standard

The mounting flange is comply with ISO 5210 or 3210 standard. Many types of drive shaft is optional, and allows flexible adaptation to the valve.



AOM Multiturn Electric Actuator
SERIES

Design principle



RICHARD
MANUFACTURING INC.



 **RICHARD**
MANUFACTURING INC.
57 Wynden Oaks Drive Houston, Tx 77056

SUMMARY



"AOX" series electric actuator is used for controlling 0°~270° rotation valves and other similar products, such as butterfly valve, ball valve, damper, flapper valve, cock valve etc. It widely applies to petroleum, chemical, water treatment, shipping, paper making, power plant, heating, light industry and other industries. Driven by 380V/220V/110VAC or 24V/110VDC power, inputs 4-20mA or 0-10VDC control signal, moves valve to the right position, and achieves to automatic control, the maximum output torque is 6000N.M

PERFORMANCE PARAMETER

Model	Max output torque(N·M)	Operating time 90°(S)	Drive shaft(mm)				Motor (W)	Rated current(A) 220VAC/1ph	Weight (kg)
			Square	Deep	Round	Deep			
AOX-003	30	10	9×9 11×11	13.5 15.5	Φ12.6	26	8	0.15	2.1
AOX-005	50	30	11×11 14×14	15.5 18	Φ12.6	26	10	0.25	3.6
AOX-008	80	30	11×11 14×14	15.5 18	Φ15.78	26	10	0.25	3.6
AOX-010	100	30	14×14 17×17	18 22.5	Φ15.78 Φ18.95	28	15	0.35	4.6
AOX-015	150	30	14×14 17×17	18 22.5	Φ18.95	28	15	0.37	4.6
AOX-020	2 0 0	30	22×22	26	Φ22.13	45	45	0.3	13
AOX-030	3 0 0	30	22×22	26	Φ28.48	45	45	0.31	13.4
AOX-040	4 0 0	30	22×22	26	Φ28.48	45	60	0.33	13.8
AOX-060	6 0 0	30	27×27	32.5	Φ31.65	45	90	0.33	14
AOX-080	8 0 0	40	27×27	32.5	Φ31.65	45	180	0.47	14.3
AOX-100	1000	40	27×27	32.5	Φ31.65	45	180	0.47	14.5
AOX-160	1600	120	MaxΦ45		Deep 65		180	0.85	68
AOX-200	2000	120	MaxΦ45		Deep 65		180	0.85	68
AOX-300	3000	120	MaxΦ45		Deep 65		180	0.85	68
AOX-400	4000	200	MaxΦ45		Deep 65		180	0.85	68
AOX-500	5000	200	MaxΦ45		Deep 65		180	0.85	68
AOX-600	6000	200	MaxΦ45		Deep 65		180	0.85	68

STANDARD TECHNICAL PARAMETER

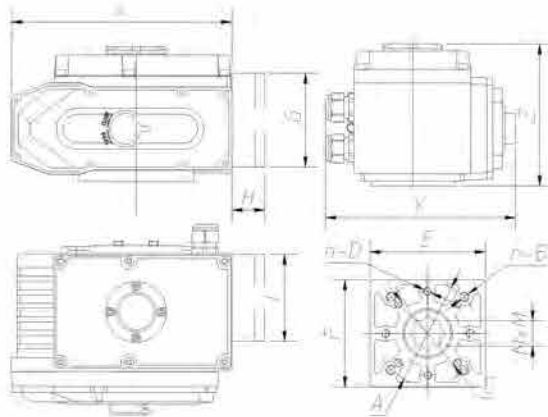
Shell	Aluminium alloy Shell, Enclosure:IP67,IP68 is optional	
Power	Standard:220VAC/1ph Optional:110VAC/1ph, 380V/440V/3ph,50/60HZ, ±10% 24VDC/110VDC/220VDC	
Controlling power	110/220V AC 1Phase,50/60 Hz, ±10%	
Motor	Squirrel-cage Asynchronous Motor	
Limit switch	2×Open/ Close,SPDT,250V AC 10A	
Auxiliary limit switch	2×Open/ Close,SPDT,250V AC 10A	
Travel	90° ~270°±10°(Please specify in advance if over 90°)	
Fail safe/ Operating temperature	Internal-placed thermal protection, On 120°C ±5°C/Off 97°C ± 5°C	
Indicator	Continuous situation indication	
Manul operation	Mechanical handle (Handwheel is optional)	
Self-locking device	Self-locking by worm and worm gear	
Mechanical Limit	2 x external adjustable stopper	
Space heater	7-10W (110/220V AC) Anti-condensation	
Conduit entries	2 Pieces M18	
Ambient temperature	-20°C~+70°C	
Lubrication	Grease moly(EP tyte)	
Material	Steel, Aluminium alloy, Aluminium bronze, Polycarbonate	
Ambient humidity	Max 90% RH	
Anti-vibration	X Y Z 10g,0.2~34 Hz,30 minutes	
External coating	Dry powder, Epoxy polyester	

AOX Electric Actuator Series

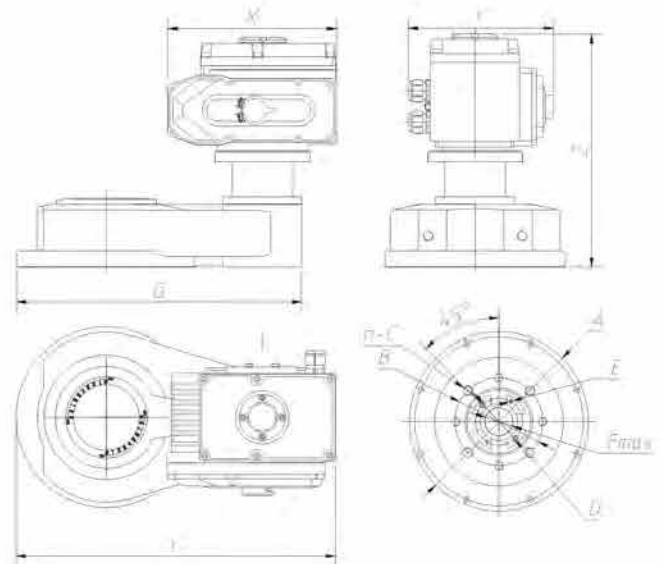
QUICK OPENING SERIES

GENERAL DRAWING

AOX-003~AOX-100



AOX-160~AOX-600



Model	X	Y	Z	A	B	C	N-D	E	F	G	H	I	M-M
AOX-003	121	100	111	Φ50	4-M6	Φ50/Φ58	4-M6	50	30	114	40	150	11x11
AOX-005	160	121	121	Φ70	4-M8	Φ50	4-M6	66	66	114	40	150	14x14
AOX-008	160	121	121	Φ70	4-M8	Φ50	4-M6	66	66	114	40	150	14x14
AOX-010	189	145	129	Φ70	4-M8	Φ50	4-M6	100	90	114	40	150	17x17
AOX-015	189	145	129	Φ70	4-M8	Φ50	4-M6	100	90	114	40	150	17x17
AOX-020	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-030	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-040	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-060	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-080	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-100	266	255	164	Φ125	4-M12	Φ102	8-M10	140	130	114	40	150	27x27
AOX-160	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/
AOX-200	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/
AOX-300	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/
AOX-400	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/
AOX-500	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/
AOX-600	266	255	349	Φ285	Φ140/165	4-M16/M20	Φ75	2-M6	Φ45	454	/	/	/

AOX Electric Actuator Series

QUICK OPENING SERIES

OPTION SPECIFICATION

No.	Option scheme	Remark
1	Heater	Except AOX-003
2	Water-proof actuator (IP68, 10M, 250HR)	AOX series
3	Potentiometer unit (1K-10K)	Except AOX-003
4	Proportion control unit (control signal 4-20mA DC/1-5V/1-10V)	Except AOX-003
5	Local control units (local control open/stop/close optional switch, local/remote switch)	Except AOX-003
6	Travel 120°, 180°, 270°	AOX series
7	Direct current motor (24VDC)	Except AOX-003
8	Electric current position sensor (output 4-20mA DC)	Except AOX-003
9	Self-reset when power failure	AOX series
10	Quick opening (2.8S, 5S, 10S, 15S)	AOX series





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Precaution

1. Do not open cover unless approved service personnel are present. Do not attempt to repair or modify the actuator unless you are qualified to do so.
2. Do not attempt to repair or modify the actuator unless you are qualified to do so.

WARNING

When installing actuators in the field, ensure that each actuator has its own independent control contact such as a single non-double throw switch. Actuators wired in parallel with single switching contact will not operate properly and may significantly degrade the useful life of the actuator. The damaging effect of water in the actuator can be extensive. In an assembled actuator, the only entrance path for water is the entrance connector. To prevent voiding the actuator warranty, it is recommended that a potting box filled with the appropriate compound, be installed adjacent to the conduit entry.



RICHARD

MANUFACTURING INC.

57 Wynden Oaks Drive Houston, Tx 77056

SUMMARY



"CHQ" series electric actuator is used for controlling 0°~270° rotation of the valves and other similar products, such as butterfly valve, ball valve, damper, flapper valve, cock valve etc. It widely applies to petroleum, chemical, water treatment, shipping, paper making, power plant, heating, light industry and other industries. Drived by 380V/220V/110VAC power or 24V/110VDC power, inputs 4-20mA or 0-10VDC control signal, moves valve to the right position, and achieves to automatic control, maximum output torque is 5000N.M.

PERFORMANCE PARAMETER

Model	Max Output Torque	Operating Time 60/50Hz	Max Drive Shaft Size	F-class Motor	Rated Current(A)				Handwheel Revolution	Weight
					Single Phase		Three Phases			
	N·M	90°(S)	mm	W	110V	220V	380V	440V	N	(kg)
CHQ-005	50	18/22	φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
CHQ-008	80	18/22	φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
CHQ-010	100	18/22	φ20	20	1.10/0.95	0.55/0.54	0.3/0.3	N/A	10	7.5
CHQ-015	150	21/25	φ22	40	1.65/1.67	0.88/0.84	0.31/0.31	0.30/0.31	11	17.3
CHQ-020	200	21/25	φ22	40	1.67/1.67	0.89/0.85	0.31/0.31	0.30/0.31	11	17.3
CHQ-030	300	26/31	φ35	90	1.85/1.86	0.92/0.92	0.35/0.35	0.34/0.34	13.5	22
CHQ-050	500	26/31	φ35	90	3.60/3.62	1.55/1.58	0.59/0.59	0.58/0.58	13.5	23
CHQ-060	600	26/31	φ35	120	3.65/3.62	1.60/2.20	0.60/0.59	0.59/0.58	13.5	23
CHQ-080	800	31/37	φ45	180	4.10/4.10	2.15/2.20	0.85/0.85	0.79/0.79	16.5	29
CHQ-120	1200	31/37	φ45	180	4.20/4.10	2.35/2.30	0.87/0.87	0.81/0.81	16.5	29
CHQ-150	1500	78/93	φ45	180	4.20/4.10	2.15/2.20	0.85/0.85	0.79/0.79	49.5	83
CHQ-200	2000	93/112	φ45	180	4.10/4.10	2.15/2.20	0.85/0.85	0.79/0.79	49.5	83
CHQ-300	3000	93/112	φ45	180	4.20/4.10	2.35/2.30	0.87/0.87	0.81/0.81	49.5	83
CHQ-400	4000	155/185	φ45	180	4.20/4.10	2.35/2.30	0.87/0.87	0.81/0.81	82.5	83
CHQ-500	5000	155/185	φ45	180	4.20/4.10	2.35/2.30	0.87/0.87	0.81/0.81	82.5	83

TECHNICAL PARAMETER

Shell	Enclosure :IP67,NEMA4, Exd II CT5	
Power	Standard:220VAC/1ph Optional:110VAC/1ph, 380V/440V/3ph,50/60HZ, ±10% 24VDC/110VDC/220VDC	
Motor	Asynchronous motor	
Limit switch	2×Open/ Close, SPDT,250VAC 10A	
Auxiliary limit switch	2×Open/ Close, SPDT,250VAC 10A	
Torque switch	Close/Open, each 1, SPDT,250VAC 10A	Except CHQ-005/008/010
Travel	90°±10°	0°~270°
Fail safe/ Operating temperature	Internal-placed thermal protection, Open 115℃ ±5℃/Close 97℃ ± 5℃	
Indicator	Continuous position indicator	
Manual operate	Decutching mechanism, operate by handwheel	
Self-locking device	Self-locking by worm and worm gear	
Mechanical limit	2 × external adjustable stopper	
Space heater	7-10W(110V/220VAC)	
Conduit entry	2xPF 3/4"	
Ambient temperature	-20℃~+70℃	
Lubrication	Grease moly(EP type)	
Material	Steel, Aluminium alloy, Aluminium bronze,Polycarbonate	
Ambient humidity	Max 90% RH	Non-Condensing
Anti-vibration	XYZ 10g,0.2~34 Hz,30 minutes	
External coating	Dry powder, Epoxy polyester,high anti-corrosion	

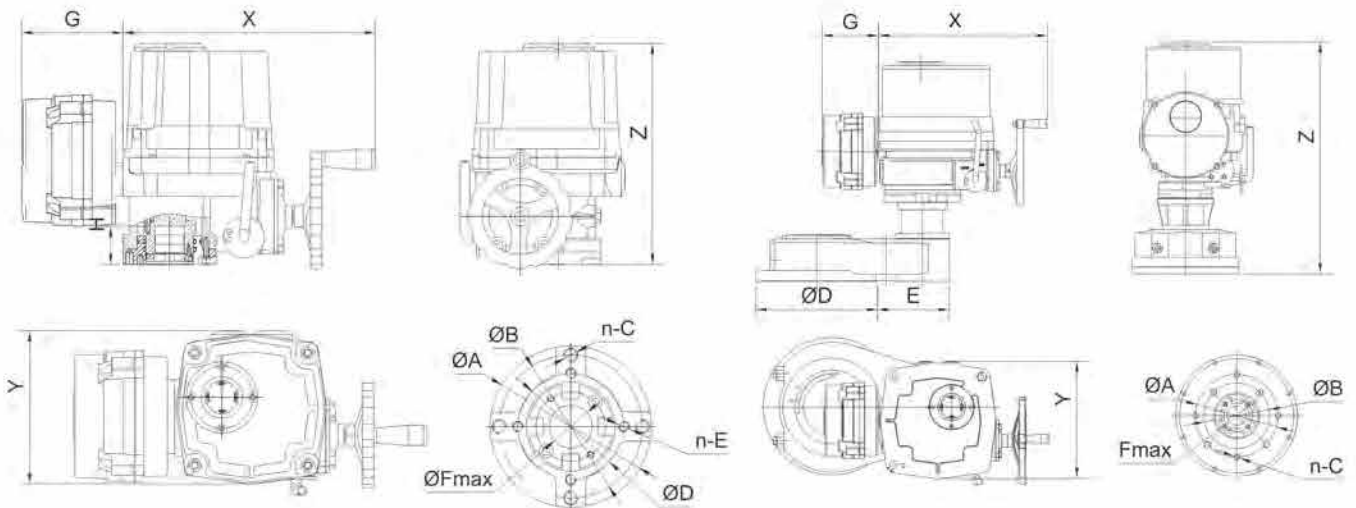
CHQ Electric Actuator Series

EXPLOSION-PROOF SERIES

GENERAL DRAWING

CHQ-005 CHQ-080

CHQ-120 CHQ-500



Model	X	Y	Z	A	B	N-C	D	N-E	F	G	H
CHQ-005	270	161	233.5	Φ90	Φ70	4-M8	/	/	Φ20	140	40
CHQ-008	270	161	233.5	Φ90	Φ70	4-M8	/	/	Φ20	140	40
CHQ-010	270	161	233.5	Φ90	Φ70	4-M8	/	/	Φ20	140	40
CHQ-015	351	226	270	Φ125	Φ102	4-M10	Φ70	4-M8	Φ22	140	45
CHQ-020	351	226	270	Φ125	Φ102	4-M10	Φ70	4-M8	Φ22	140	45
CHQ-030	358	240	290	Φ150	Φ125	8-M12	Φ102	4-M10	Φ35	140	55
CHQ-050	358	240	290	Φ150	Φ125	8-M12	Φ102	4-M10	Φ35	140	55
CHQ-060	410	240	290	Φ150	Φ125	8-M12	Φ102	4-M10	Φ35	140	55
CHQ-080	410	276	335	Φ180	Φ140	8-M16	Φ125	4-M12	Φ45	140	65
CHQ-120	410	276	335	Φ180	Φ140	8-M16	Φ125	4-M12	Φ45	140	65
CHQ-150	410	276	335	Φ165	Φ140	8-M16	Φ285	147	Φ45	/	/
CHQ-200	410	276	335	Φ165	Φ140	4-M16-M20	Φ285	147	Φ45	/	/
CHQ-300	410	276	335	Φ165	Φ140	4-M16-M20	Φ285	147	Φ45	/	/
CHQ-400	410	276	335	Φ165	Φ140	4-M16-M20	Φ285	147	Φ45	/	/
CHQ-500	410	276	335	Φ165	Φ140	4-M16-M20	Φ285	147	Φ45	/	/

CHQ Electric Actuator Series

EXPLOSION-PROOF SERIES

OPTION SPECIFICATION

No.	Option scheme	Remark
1	Explosion-proof actuator(Exd II CT5)	CHQ series
2	Water-proof actuator (IP68,10M,250HR)	CHQ series
3	Potentiometer unit(1K-10K)	CHQ series
4	Proportion control unit (control signal 4-20mA DC/1-5V/1-10V)	CHQ series
5	Local control units (local control open/stop/close optional switch, local/remote switch)	CHQ series
6	Travel 120°, 180°,270°	CHQ series
7	Direct current motor (24VDC)	CHQ series
8	Torque switch (SPDT× 2 250VAC 10A)	Except CHQ-005/008/010
9	Electric current position transfer (output 4-20mA DC)	CHQ series
10	Self-reset when power failure	CHQ series
11	High temperature resistance actuator (-10°C~+100°C)	CHQ series
12	Low temperature resistance actuator (-40°C~+70°C)	CHQ series
13	Low speed actuator	CHQ series

