



ISO 9001



ISO 14001



# ELECTRIC ACTUATOR HQ - SERIES

**Weather proof  
Explosion proof  
Special options**



세계일류상품



**Valve automation leader HKC**

HCAG-HQ-15 Rev.0

***HKC CO.,LTD***



# ***Valve automation leader HKC***

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## ***Dear Customers and Partners,***

We, HKC, thank all of you for giving us endless support and heartfelt advice for the progress of the company.

Since 1991, We have done our best to make the best quality products and services for our customers. And also, we have worked very hard to be a leading company that shows how and what to do for the progress and change of world industry through continuous management innovation, technical development, stable employment, etc.

HKC's unique know-how coming from technical theory and experience is basic power of development and production of all products, and HKC is growing into a first class corporation that leads valve automation industry with edge-technologies.

HKC is responsible for social community and culture. So, we always share a lot of chances with partners and customers for mutual progress. And, our management system was transferred to meet customer's satisfaction.

We will keep our best efforts to be a global leading corporation for valve automation industry in 21st century by creating a great contribution towards the future of the world with the best quality products, endless development of technical know-how, and continuous customer service.

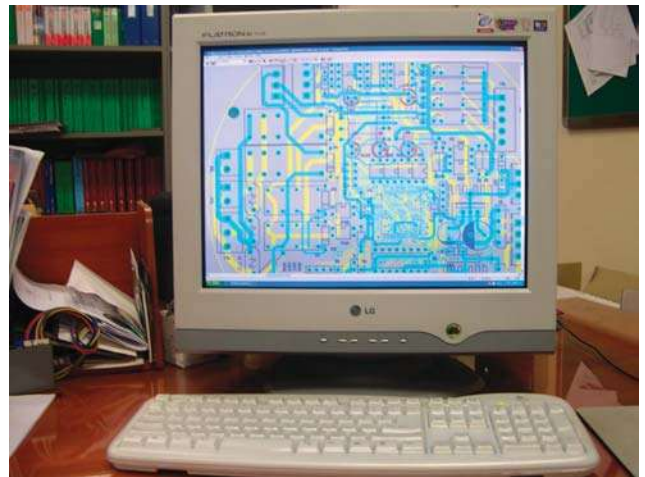
Best Regards,

S. M. Han

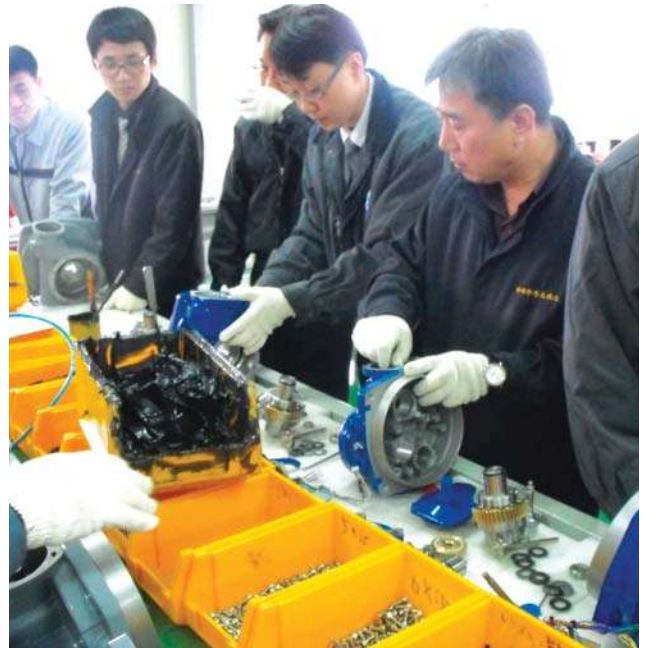
President of HKC.Co.,Ltd.



## *Research and Development Center*



## *Training & Education Center*



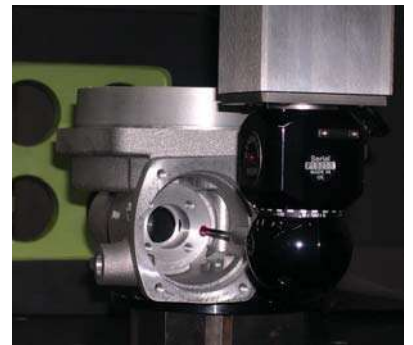
## *Test Equipment*



## Aluminum Die-Cast Foundry



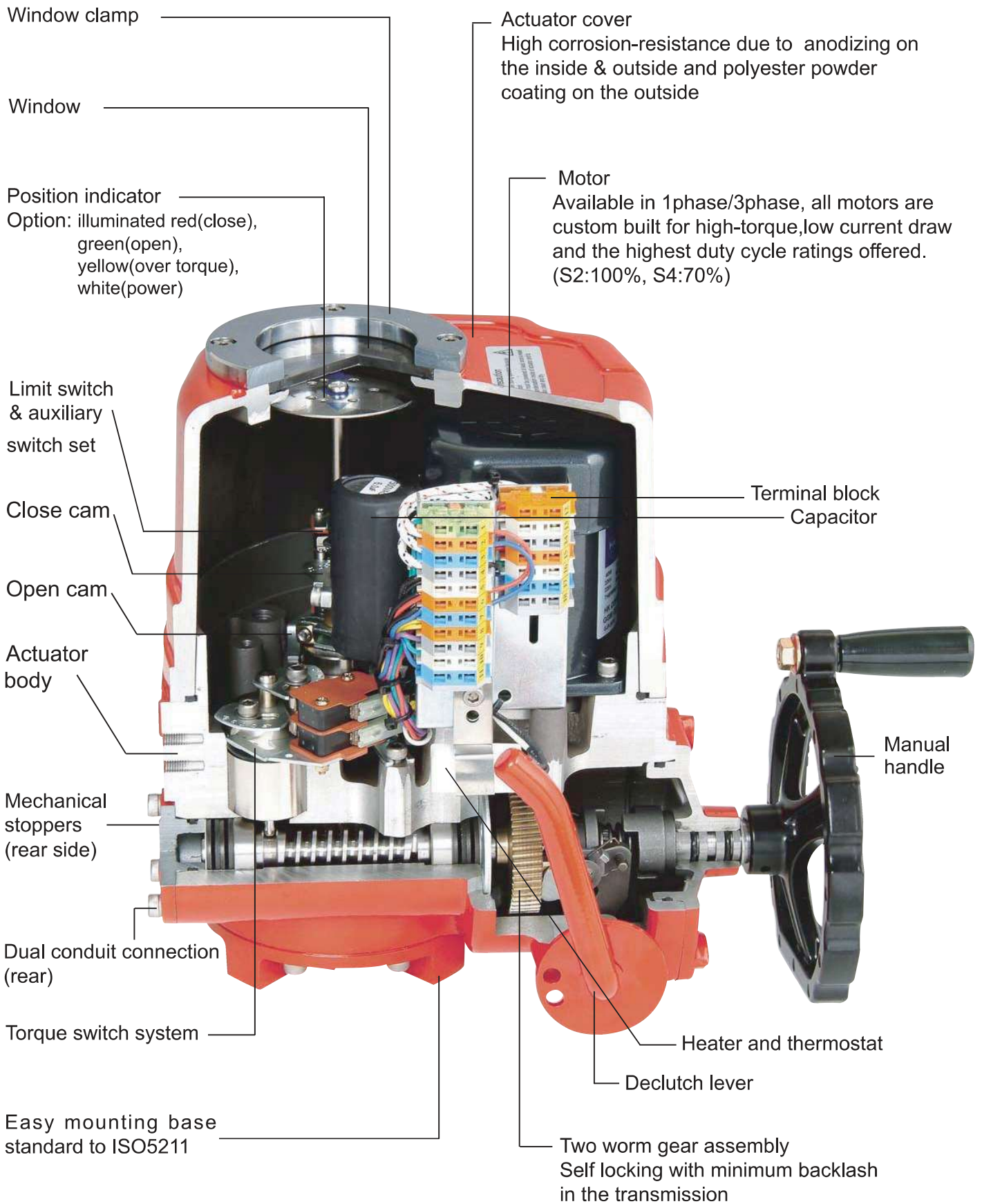
## Programmable Machining Center



## Assembly



## Construction



## ■ Standard Configuration



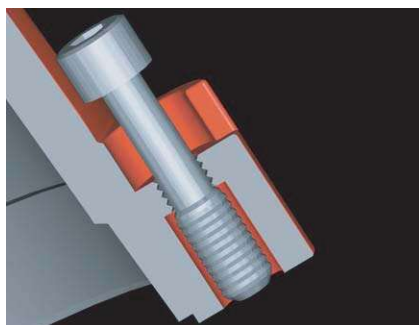
### ● Terminal block

- Enough number of terminal strips for customer's convenience
- Proven reliability and tight wiring connection.
- Stripped length: 8-9 mm / 0.33 in(2.5mm<sup>2</sup>)
- Terminal dimensions: 10 × 22 × 32mm



### ● Heater

- Ceramic housing with thermostat to prevent over heat comparing with set temperature.
- No risk of electricity leakage.



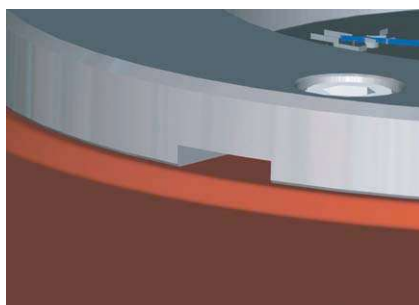
### ● Captive cover bolt

- Cover bolts are specially designed to prevent losing it during maintenance or installation.
- All external bolts are stainless steel for rust prevention.



### ● Indicator sustained by spring

- Direction of visual indicator is set by factory.
- In case of changing it's direction, just grip the indicator plate and change the position.
- Spring beneath indicator plate sustains the set position unchanged.
- No need to loose screw and tight it again at all !



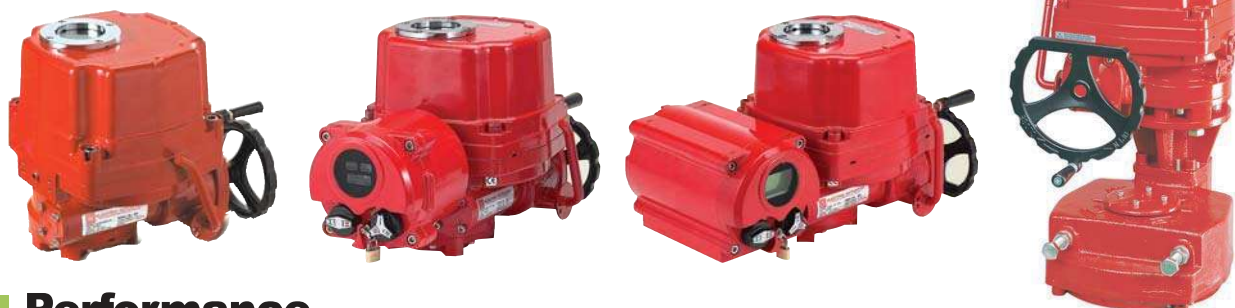
### ● Slot on window cover for draining rainwater

- Rainwater inside of window cover may affect the sealing of window.
- To prevent this, drain slot is useful to prevent this effect.



# Electric Actuator HQ Series

## HQ Series



## Performance

HQ (MODEL)	Max. output torque kgf.m	Operating time(sec.) 50/60Hz	Mounting bore size Ømm	Rated current (A), (50/60Hz)								Duty rate S4(%)	No. of handle turn N	Weight Kg
				DC	AC, 1 phase, 50/60 Hz				AC, 3 phase, 50/60 Hz					
					24	100	110	200	220	380	440			
HQ-008	8	16/13	20	3.7	1.3/1.3	1.2/1.1	0.7/0.6	0.6/0.6	0.2/0.3	0.6/0.4	NA	70	10	7
HQ-010	10	20/17	20	4.0	1.3/1.3	1.2/1.1	0.7/0.7	0.7/0.6	0.2/0.3	0.6/0.4	NA	70	10	7
HQ-015	15	25/21	22	5.3	2.4/2.2	2.1/2.0	1.1/1.1	1.0/1.0	0.6/0.4	0.6/0.4	0.6/0.4	70	11	17
HQ-020	20	25/21	22	6.5	2.5/2.3	2.2/2.1	1.2/1.2	1.1/1.1	0.7/0.5	0.6/0.4	0.6/0.4	70	11	17
HQ-030	30	31/26	35	8.6	2.3/2.7	2.1/2.4	1.1/1.4	1.0/1.3	0.6/0.5	0.4/0.3	0.4/0.3	70	13.5	22
HQ-050	50	31/26	35	12.8	3.6/4.6	3.3/4.2	1.9/2.1	1.7/1.9	0.9/0.8	0.8/0.5	0.7/0.5	70	13.5	23
HQ-060	60	31/26	35	NA	3.8/4.9	3.4/4.4	2.1/2.3	1.9/2.0	1.0/0.9	1.4/0.9	1.3/0.9	70	13.5	23
HQ-080	80	37/31	45	NA	6.0/6.3	5.4/5.7	2.9/3.1	2.6/2.8	1.3/1.0	1.7/0.9	1.6/0.9	70	16.5	29
HQ-120	120	37/31	45	NA	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	1.5/1.1	1.8/1.0	1.7/0.9	70	16.5	29
HQ-200	200	37/31 <sup>(1)</sup>	65	NA	6.0/6.3	5.4/5.7	3.4/3.3	3.1/3.0	1.4/1.0	1.7/1.0	1.6/0.9	50	49.5	75
HQ-300	300	112/93	65	NA	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	1.5/1.1	1.8/1.0	1.7/0.9	50	49.5	75

Note (1) Operating times at 100 & 110 Vac 1 phase of HQ-200 are 112/93 (50/60 Hz) (2) Option Speed & Torque are able to change from standard

## Standard Specification

Enclosure	Weatherproof enclosure IP67, NEMA 4, 4X and 6
Power supply	110 / 220V ac 1ph, 380 / 440V ac 3ph 50 / 60Hz, ± 10%
Control power supply	110 / 220V ac 1ph, 50 / 60Hz, ± 10%
Duty cycle(on-off)	S2, 100% Max 30Min
Duty cycle(modulating)	S4, 40~70% Max 300~1600 start/hour (Option :100%)
Motor	Induction motor (Reversible motor)
Limit switches	Open / close, SPDT, 250V ac 16A rating
Additional limit switches	Open / close, SPDT, 250V ac 16A rating (except HQ-008/010)
Torque switches	Open / close, SPDT, 250V ac 16A rating (except HQ-008/010)
Stall protection/operating temp	Built-in thermal protection, open 150°C±5°C / close 97°C±15°C
Travel angle	90° ± 10° (0~110°)
Indicator	Continuous position indicator
Manual override	Declutching mechanism
Self locking	Provided by double worm gearing
Mechanical stopper	2 × external adjustable screws
Space heater	10W(110/220V ac) Anti-condensation
Cable entries	General- PF3/4" x2 Explosion proof : NPT 3/4" x2 or M25x2
Lubrication	Grease moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Steel, Aluminium alloy, Al bronze, Polycarbonate
Ambient temperature	-20°C~+70°C (except option electronic board) (Option :-40°C), Explosion proof : -20~+60°C
Ambient humidity	90% Max RH.(non-condensing)
Anti vibration	X Y Z 10g, 0.2~34Hz, 30minute
External coating	Anodizing treatment before dry powder, Polyester coating

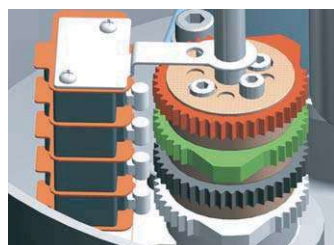


## Option Specification

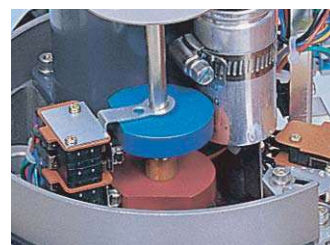
<b>EXTB</b>	Dust ignition proof -20~60°C (Ex tb IIIc 135°C Db)	HQ-series
<b>EXD</b>	Explosion proof enclosure actuator -20°C ~ +60°C (Ex d IIB T4 Gb)	HQ-series
<b>WTA</b>	Watertight enclosure actuator (IP68 10m 72hr)	HQ-series
<b>PIU</b>	Potentiometer unit (0~1k $\Omega$ )	HQ-series
<b>PCU</b>	Proportional control unit (input, output 0~10V DC, 4~20mA DC)	HQ-series
<b>ATS</b>	Additional torque switches (SPDT x 2ea 250V AC 10A rating)	except HQ-008/010
<b>LCU-B</b>	Integral control (LCU + IMS + phase protect indicator)	except HQ-008/010
<b>LCU-C</b>	Digital display control (LCU + IMS + auto phase discriminator)	except HQ-008/010
<b>CPT</b>	Current position transmitter (output 4~20mA DC)	HQ-series
<b>EXT</b>	Extension angle 120°, 180°, 270° turn	except HQ-200, 300
<b>RBP</b>	Rechargeable battery backup	HQ-008/010, 015, 020, 030
<b>DCM</b>	DC motor (24V DC)	HQ-008/010, 015, 020, 030
<b>ADCM</b>	Multi AC/DC 24V(integral)	HQ-008/010, 015, 020, 030
<b>LPA</b>	Lever plate actuator	except HQ-008/010
<b>SLU</b>	Signal lamp unit (white-power on, red-open, green-close, yellow-over torque)	except HQ-008/010
<b>FPA1</b>	Fire proofing actuator 1050 $\pm$ 5°C / 50min	Engineering consult in advance
<b>FPA2</b>	Fire proofing actuator 250 $\pm$ 5°C / 150min	Engineering consult in advance
<b>SPD</b>	Surge protection device (Max1.5kW)	



(Standard cam)

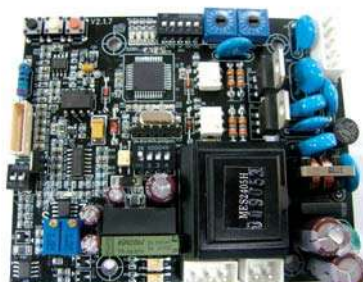


(Cam block)



(D-type cam)

- 2 travel limit switches for operation
- 2 auxiliary limit switches as dry contact for customer usage
- Easy setting from upside by two screws for tight lockup
- Each cam be set independently



### Proportional Control Unit (PCU)

- Input signal range : 0~10VDC, 1~5VDC, 4~20mA, 20~4mA
- Output signal range : 4~20mA, 0~10VDC
- Adjustable range : Zero 8mA, Open 16mA
- Position conversion accuracy :  $\pm$  0.5~1.5%(depends on installation)



### Potentiometer Kit (PIU)

- 0~1k ohm( $\pm$  0.5%), high resolution



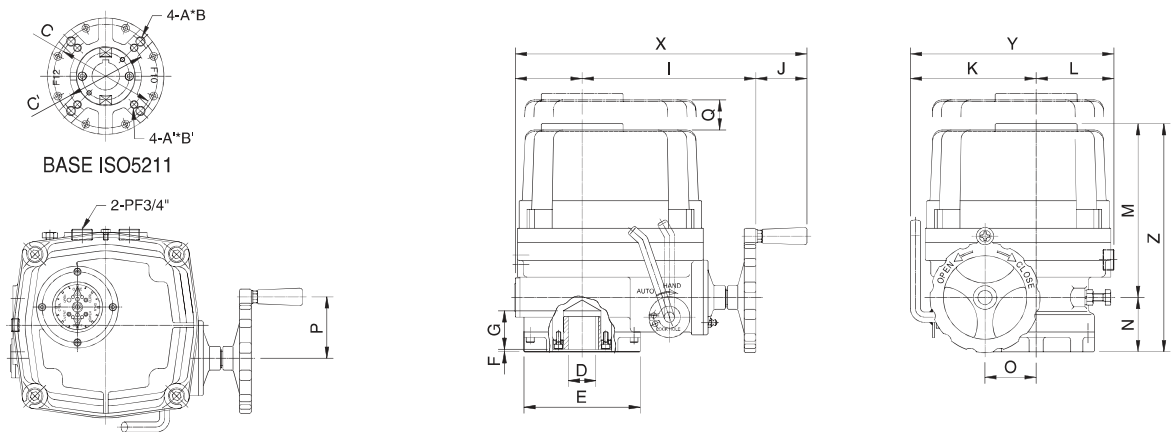
Fire Proofing Actuator (FPA)



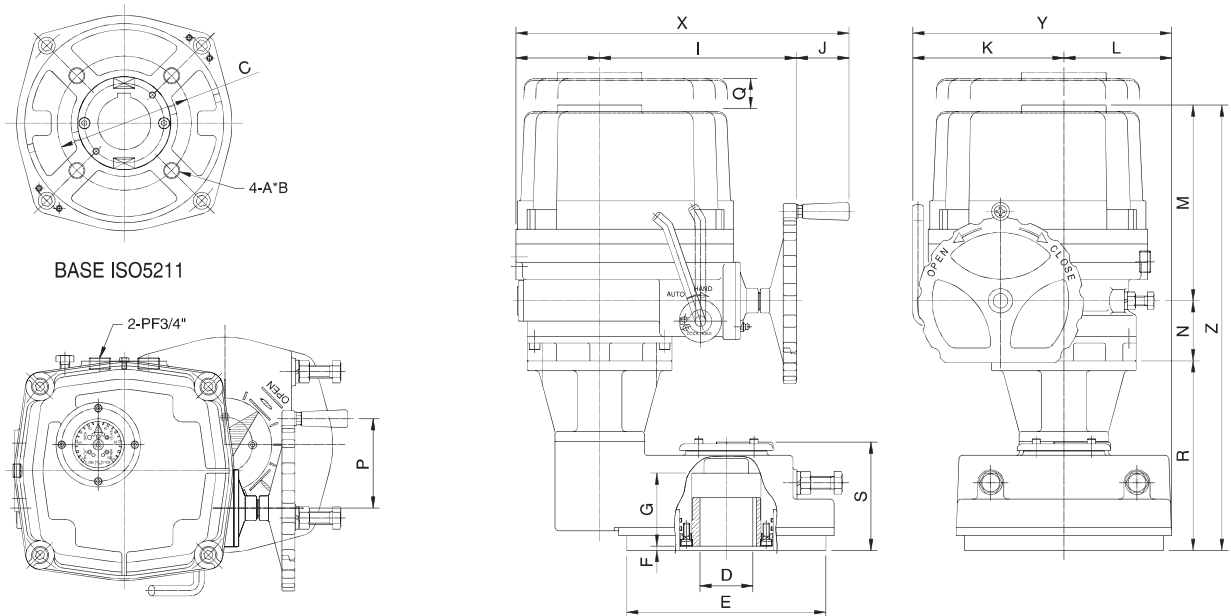
Rechargeable Battery Backup

# Dimensional Drawing

HQ008, HQ010, HQ015, HQ020, HQ030, HQ050, HQ060, HQ080, HQ120



HQ200, HQ300



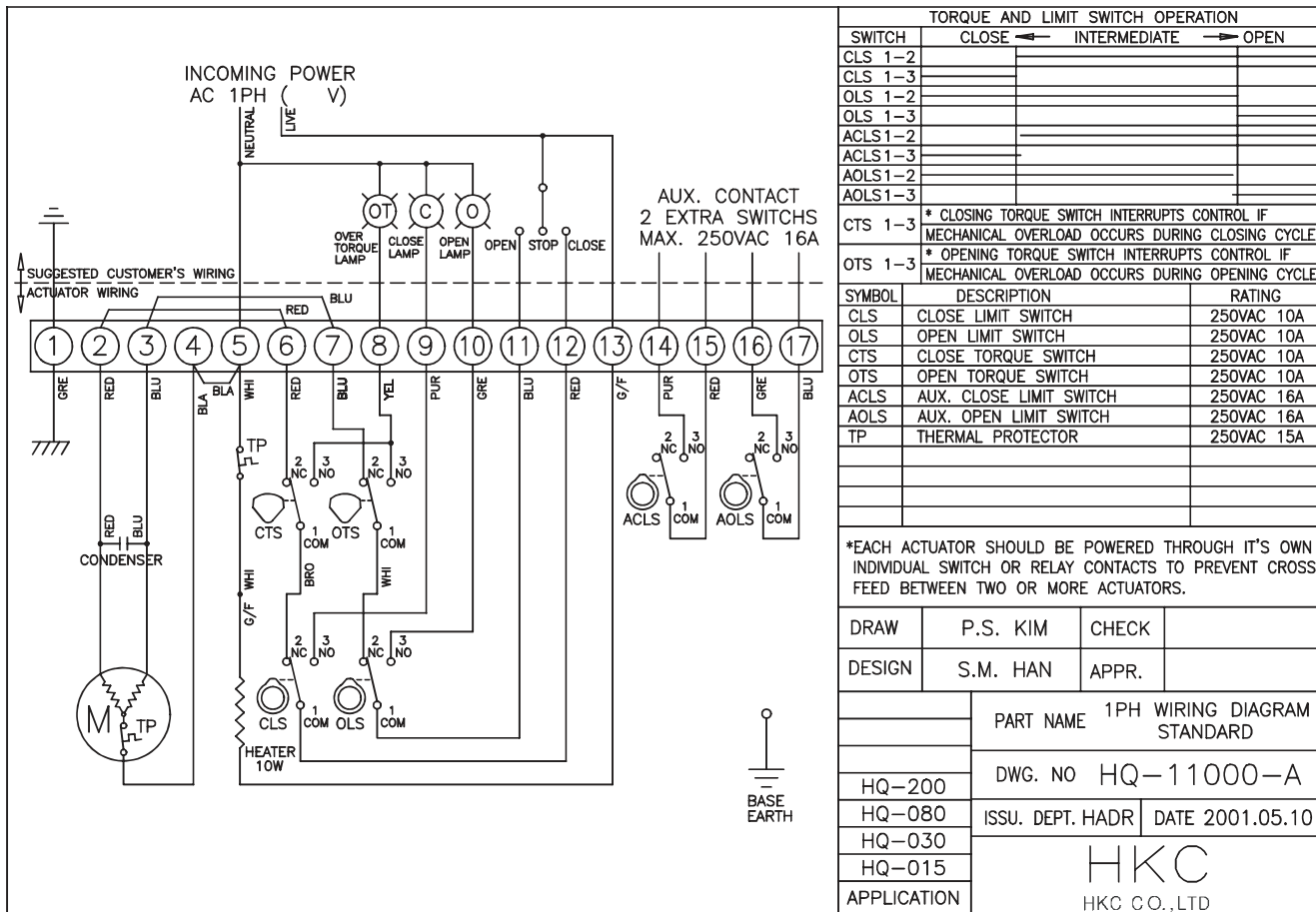
# Dimension

unit(mm)

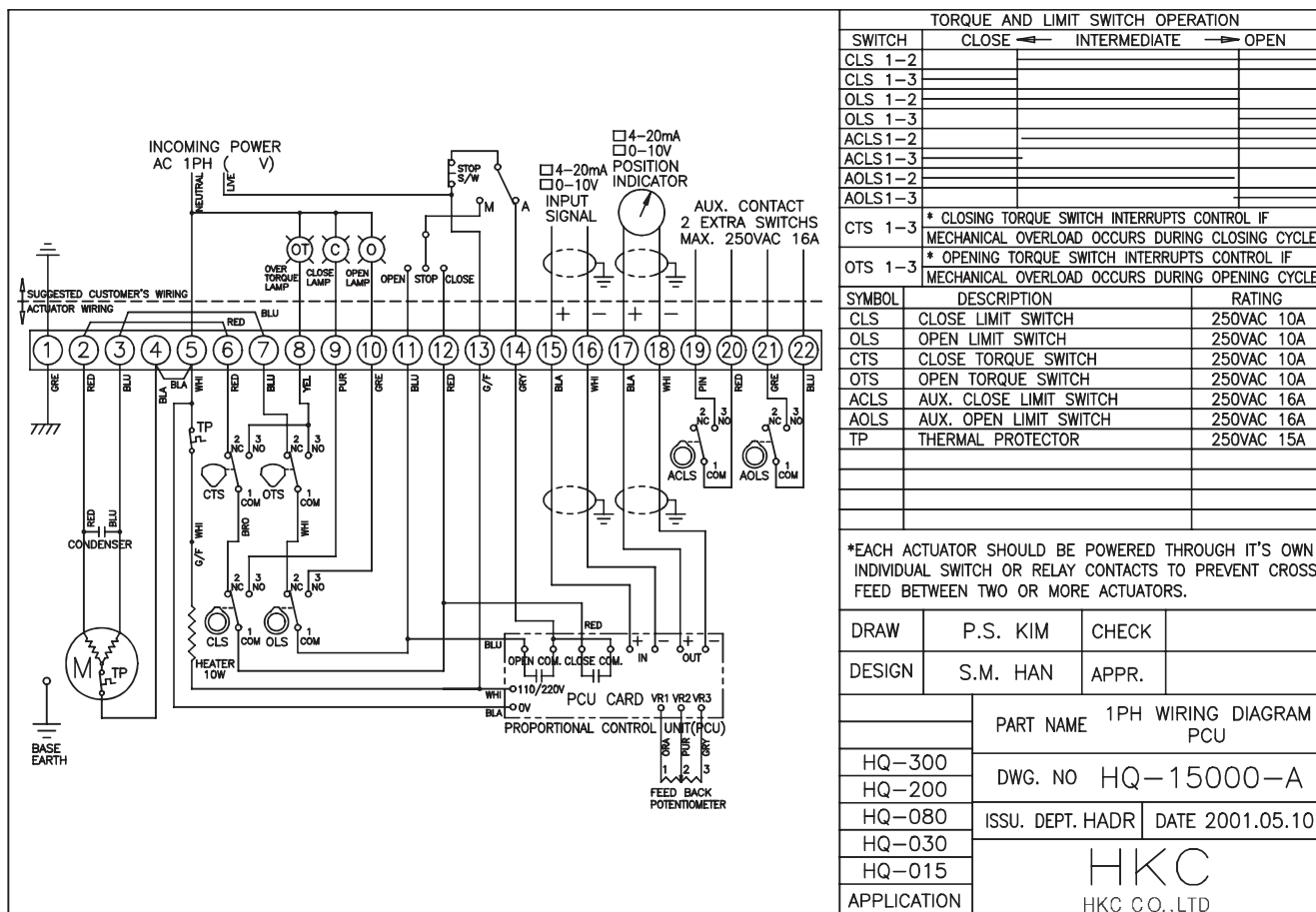
Model	Base ISO 5211	A	D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
HQ008	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	$\phi$ 70	12																			
HQ010	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	$\phi$ 70	12																			
HQ015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
	$\phi$ 70 $\phi$ 102	12/15																			
HQ020	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
	$\phi$ 70 $\phi$ 102	12/15																			
HQ030	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	368	259	290
	$\phi$ 102 $\phi$ 125	15/18																			
HQ050	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
	$\phi$ 102 / $\phi$ 125	15/18																			
HQ060	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
	$\phi$ 102 / $\phi$ 125	15/18																			
HQ080	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
	$\phi$ 125* / $\phi$ 140	18/24																			
HQ120	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
	$\phi$ 125 / $\phi$ 140	18/24																			
HQ200	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	$\phi$ 140* / $\phi$ 165	24*/30																			
HQ300	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	$\phi$ 140* / $\phi$ 165	24*/30																			

※F14” is drilled by request.

## Standard Type (1- phase, 50/60Hz)



## Proportional Type (1- phase, 50/60Hz)



※ Wiring drawings are provided upon request.

# LCU-B : Integral Control

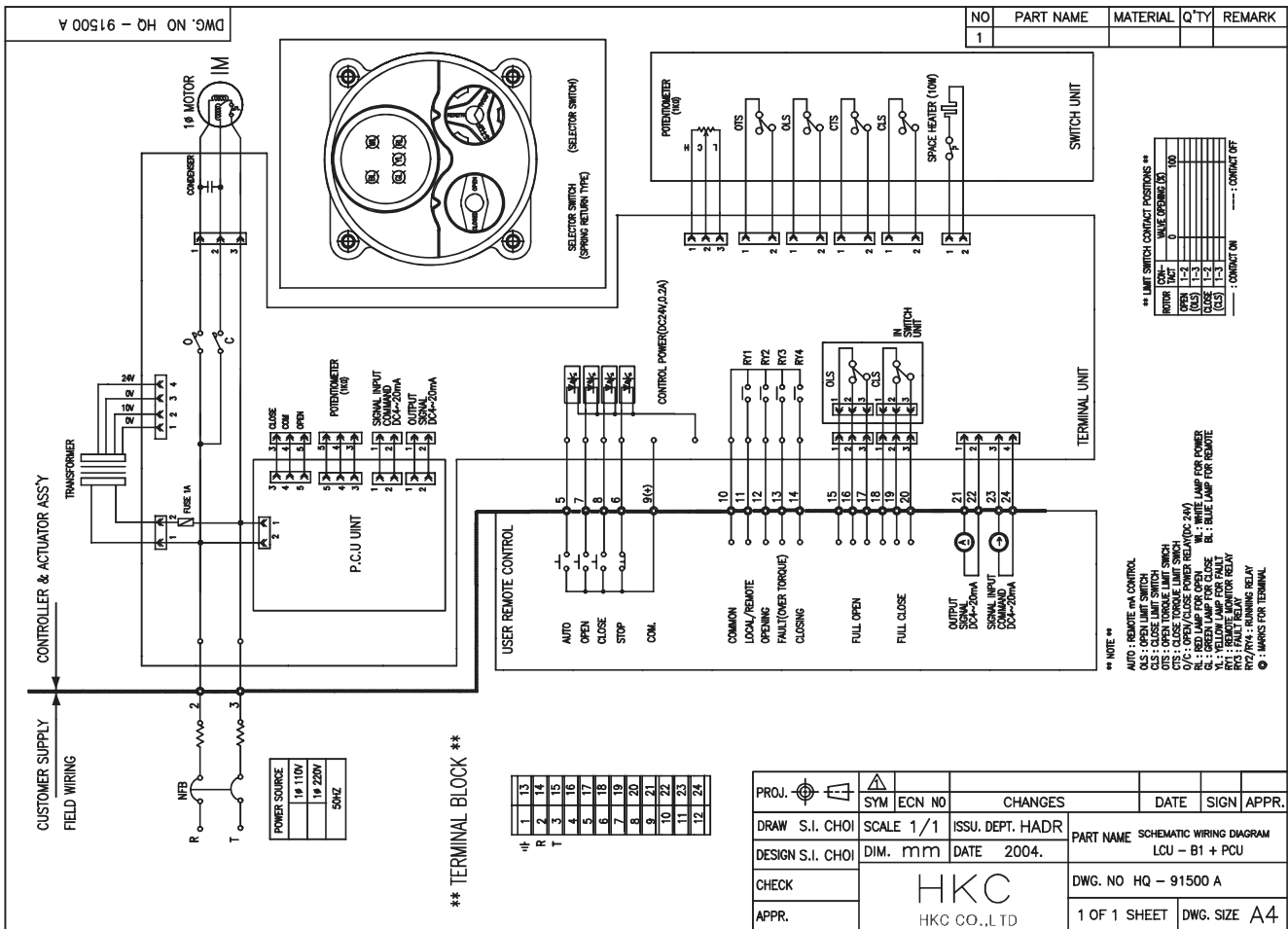
- Light, compact & Integrated design (IMS, Local/Remote control)
- Wide range of electric power application
- 1  $\phi$  AC 110~220V 50/60Hz
- 3  $\phi$  AC 220V~460V 50/60Hz
- Phase protect monitoring by LED in case of wrong wiring
- Easy application for HQ-series actuators
- Various option available (Duty cycle:70%)



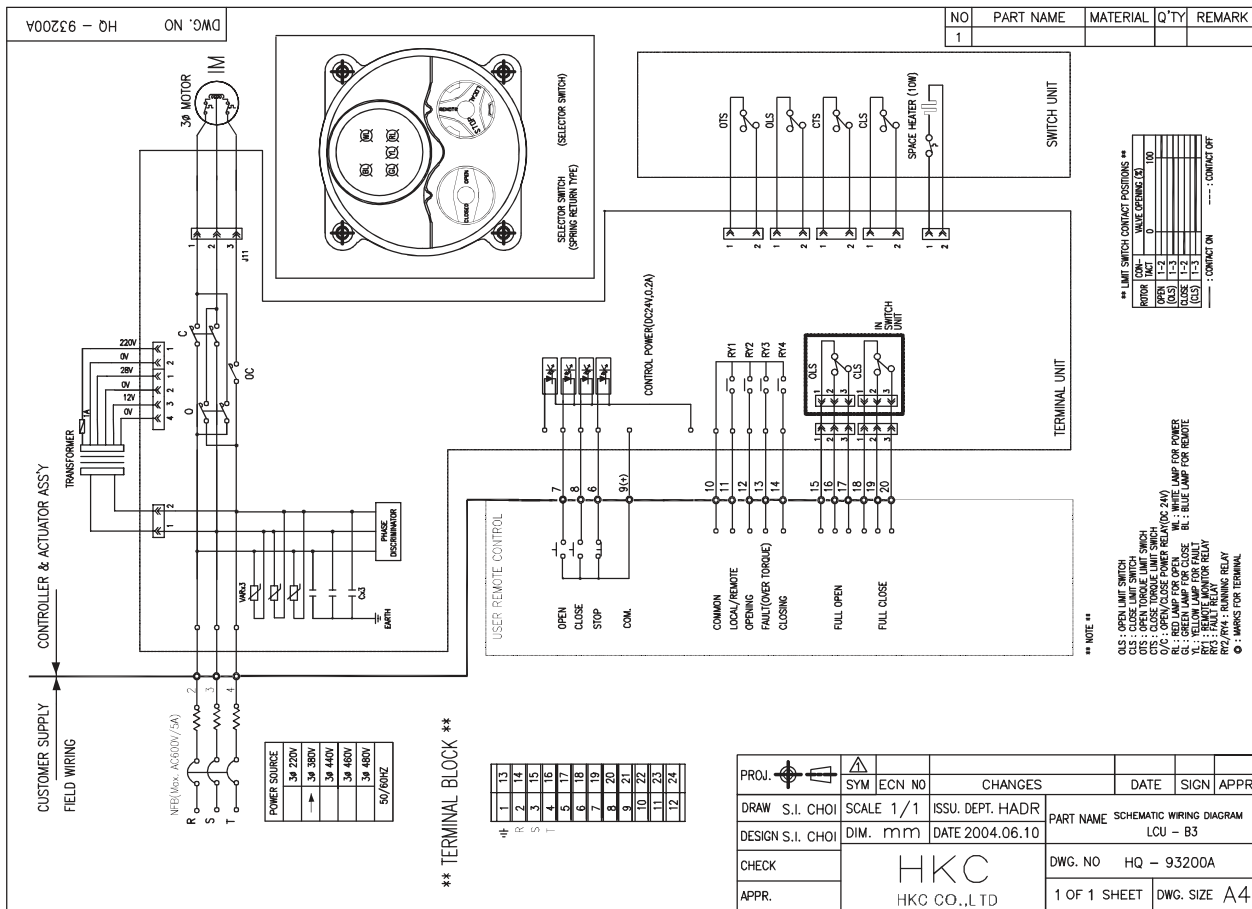
LED lamp signal	
White ○	: Power
Blue ●	: Remote
Yellow ●	: Fault
Red ●	: Open/ Opening
Green ●	: Close/ Closing



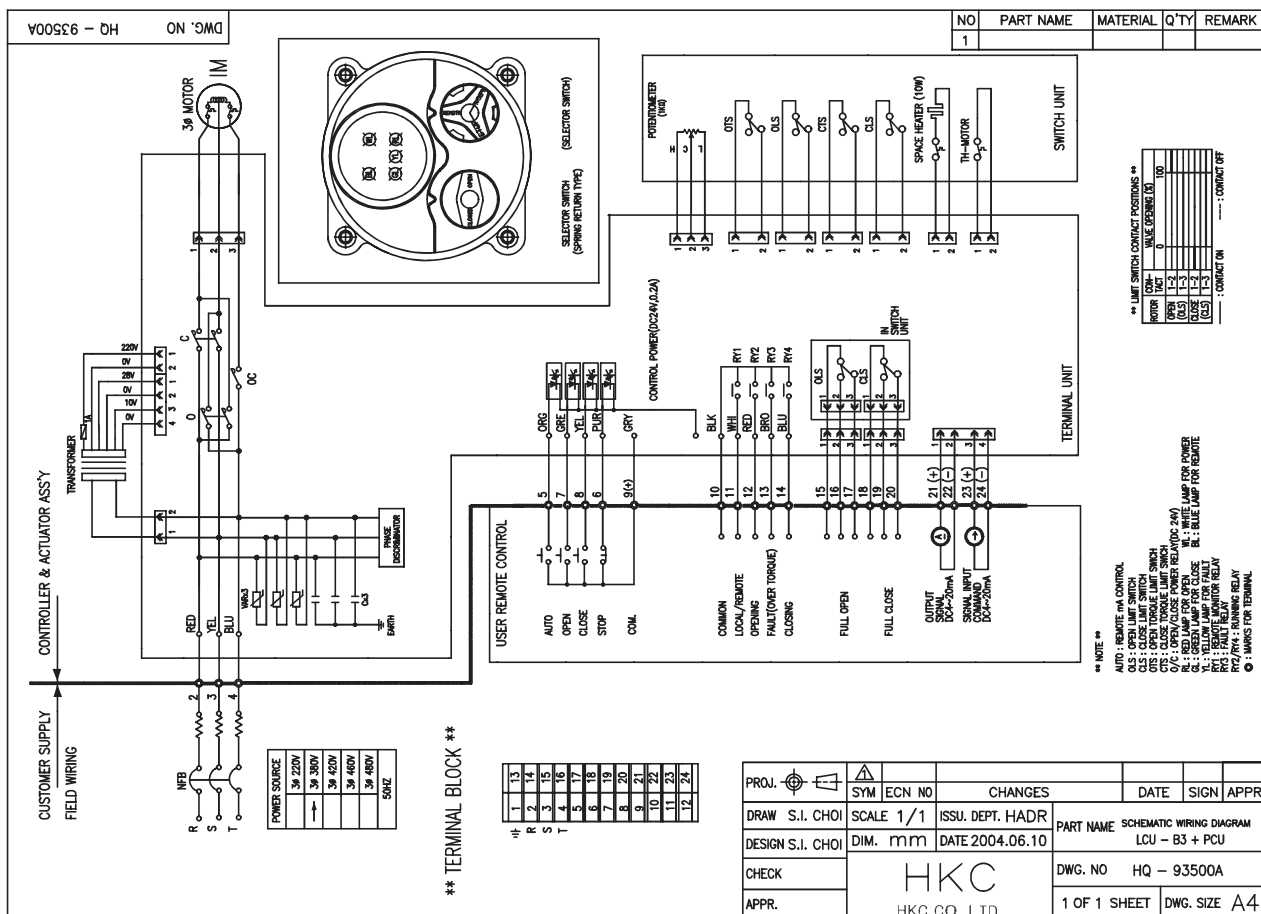
# LCU-B Wiring (1-phase, 50/60Hz, proportional type)



## LCU-B Wiring (3-phase, 50/60Hz, on-off type)

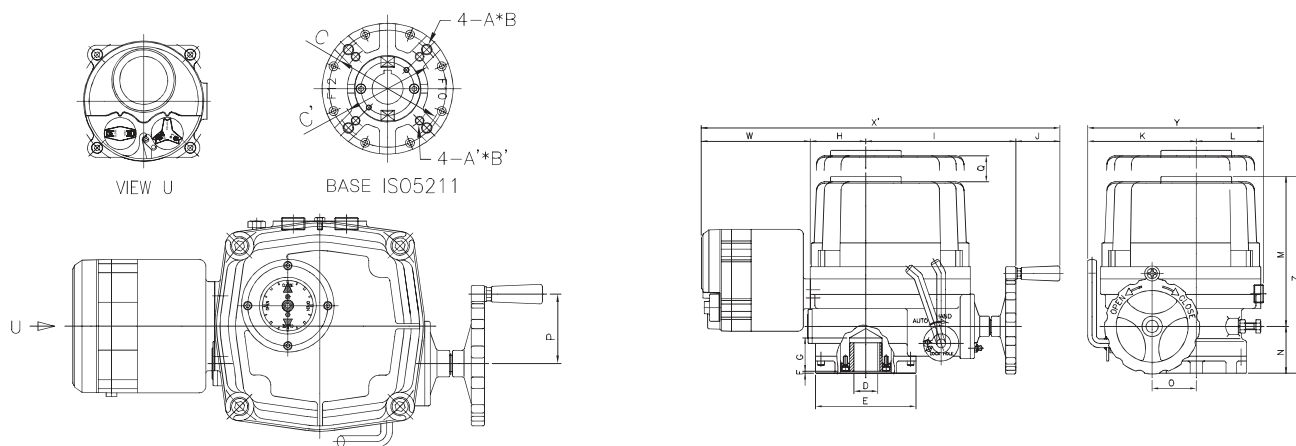


## LCU-B Wiring (3-phase, 50/60Hz, proportional type)

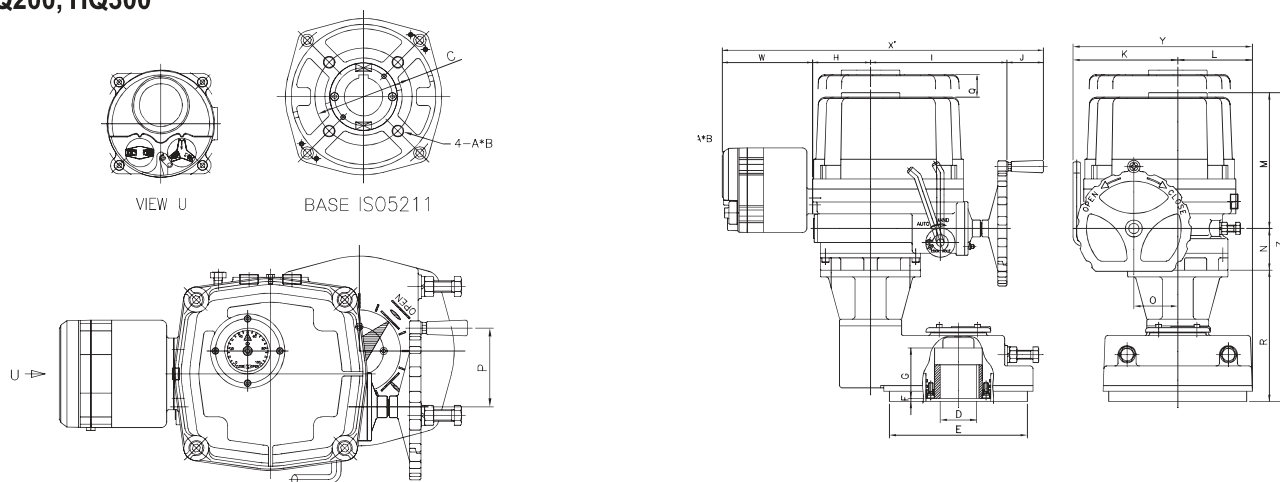


## Dimensional Drawing (with LCU-B)

HQ015, HQ020, HQ030, HQ050, HQ080, HQ120



HQ200, HQ300



## Dimension (with LCU-B)

unit(mm)

Model	Base ISO5211		D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	W	X	Y	Z
	ØC	B																				
HQ015	F07/F10	MBM10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	Ø70/Ø102	12/15																				
HQ020	F07/F10	MBM10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	Ø70/Ø102	12/15																				
HQ030	F10/F12	M10M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	160	528	259	290
	Ø102/Ø125	15/18																				
HQ050	F10/F12	M10M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	Ø102/Ø125	15/18																				
HQ060	F10/F12	M10M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	Ø102/Ø125	15/18																				
HQ080	F12/F14	M12M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	Ø125/Ø140	18/24																				
HQ120	F12/F14	M12M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	Ø125/Ø140	18/24																				
HQ200	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	570	319	563
	Ø140*/Ø165	24*/30																				
HQ300	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	570	319	563
	Ø140*/Ø165	24*/30																				

※ Wiring drawings are provided upon request.

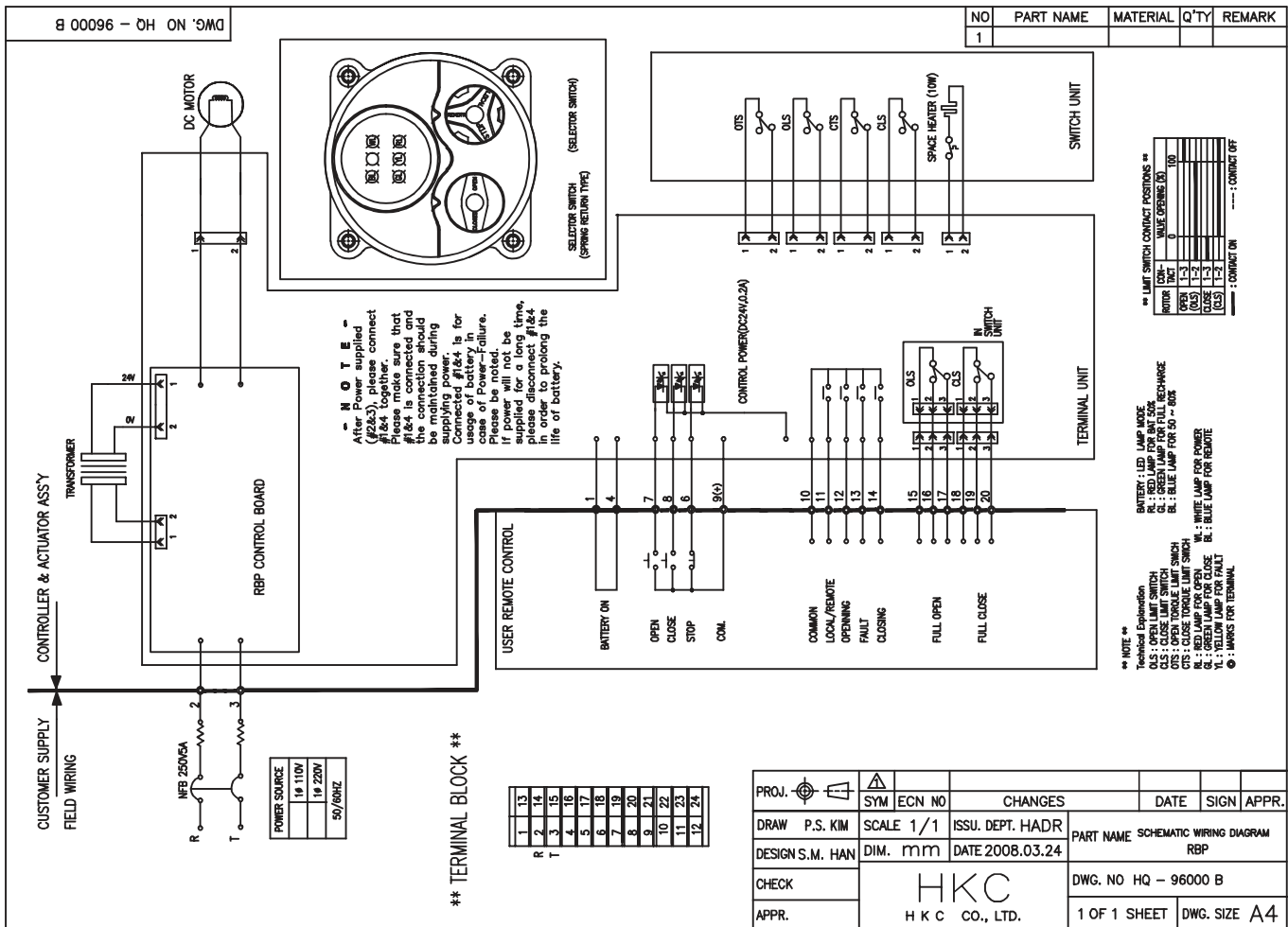
## RBP : Rechargeable Battery Backup

- Emergency application when power failed at site
- 1 phase power
- Litium battery
- Indication of battery level
- Automatic recharge
- 5 times operation per hour



LED lamp signal	
White ○	: Power
GBR ●	: Battery level
Blue ●	: Remote
Yellow ●	: Fault
Red ●	: Open/ Opening
Green ●	: Close/ Closing

## RBP wiring (1-phase, 50/60Hz, on-off type)

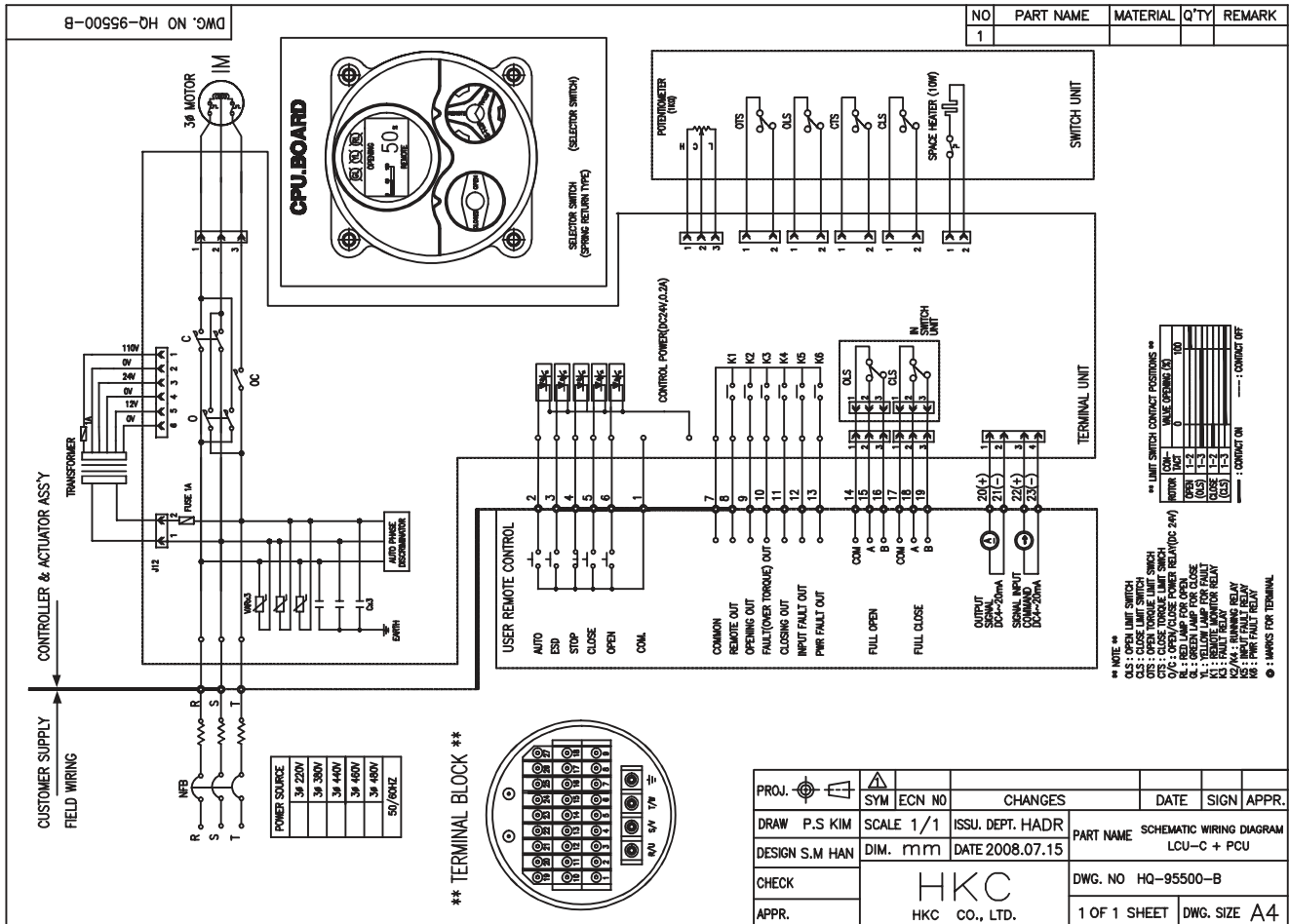


## LCU-C : Digital Display Control

- Light, Compact & Integrated design
- Wide range of electric power application  
(AC 220V~AC460V/3-phase, No Fuse Break Max.AC600V/5A)
- Built-in auto phase discriminator (Easy & convenient wiring)
- Digital indicator with number, bar graph & literature  
(Reliable against water, vibration, temp, etc)
- Seperate terminal chamber
- Easy application for HQ-series actuators
- Various option available

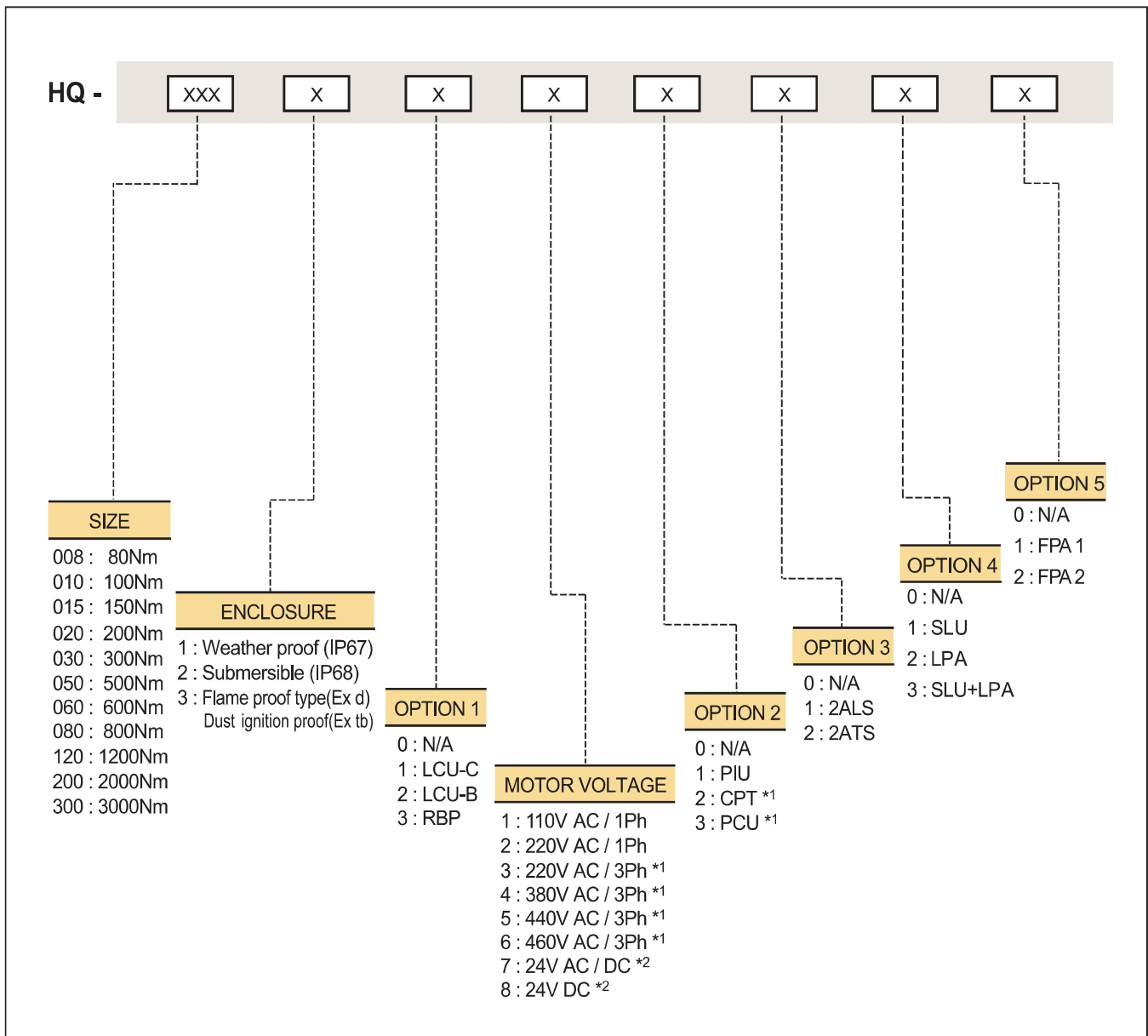


## LCU-C Wiring (3-phase, 50/60Hz, proportional type)





## Electric Actuator Order Code



### Remarks)

- Asterisk\*1 : HQ-008 through 010 actuators shall not be applied to the above condition.
- Asterisk\*2 : HQ-050 through 300 actuators shall not be applied to the above condition.
- 2ATS/2ALS shall not be available for HQ-008 and for HQ-015 through 020 actuators with PCU.
- When LCU-B option applied, HQ-015 through 300 actuators shall be available on the full condition of motor voltages except DC 24V.
- When LCU-C option applied, HQ-015 through 300 actuators shall be available on the condition of 220V through 460V 3 phase of voltages and shall not be available with PIU/CPT.
- Option RBP is available only for HQ-008, 010, 015, 020, 030.
- More details should be advised to the manufacturer.



## Electric Actuator HQ-006 Series

### HQ-006 Series

- HQ-006 Actuator is newly designed and developed for small size valve automation like ball, butterfly, plug and even dampers.
- Small, light and compact design, high torque and various control options will meet your specific requirements.
- HQ provides high technical service & quality products for your automation system.

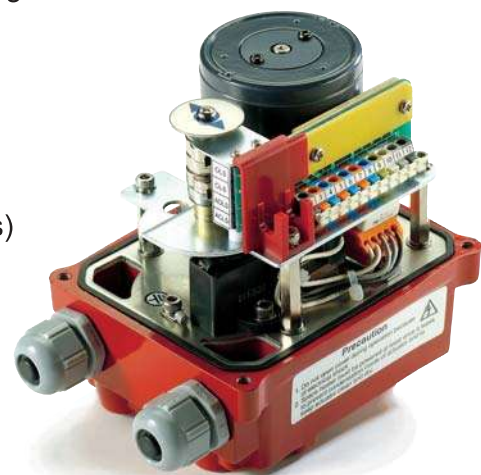
### Features

- Compact and light due to high grade aluminum alloy housing.
- High resistance from corrosion due to hard anodizing on inside & outside and polyester powder coating on external surface
- Output torque : 60Nm(6 kgf.m)
- The actuator motor is reversible, high torque and low current design.
- Solid with O-ring system giving weatherproof (IP67)



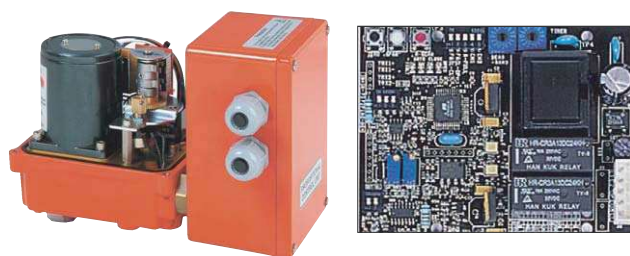
### Standard Configuration

- Manual handwheel
- Wide, easy mounting base standard to ISO5211(F03/F05/F07)
- Standard 4 limit switches. 2 for operation, 2 for extra(dry contacts)
- Captive cover bolt.
- Space heater.
- Limit switches for easy and tight setting.
- Terminal block. (11P)
- Standard color : Red or Blue



### Option Configuration

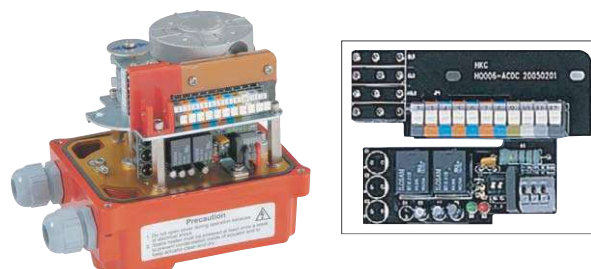
- Proportional Control Unit (PCU)



- HQ PCU is combined with an electronic positioner.
- Input signal range : 4~20mA, or 0~10VDC
- Output signal range : 4~20mA, or 0~10VDC
- Adjustable range : zero 8mA, open 16mA
- Position conversion accuracy : 0.5~1.5% (depends on installation)

- Position Indication Unit (Potentiometer kit, PIU)  
High resolution potentiometer with precisely machined gearing directly engaged with driving shaft provides continuous monitoring of position of valve and actuator

- AC-DC 24V Control Unit



- AC or DC power input (2-wire) only by user
- Control function built inside



## Performance

HQ (MODEL)	Maximum output torque		Operating time(sec.) 50/60Hz	Mounting		Rated current(A)			Duty cycle IEC 34-1	Number of handle turn	Weight
	Kgf.m	Nm		Drilling	Bore	DC	AC, 1 Phase(50/60Hz)				
			90°	ISO 5211	Ømm	24V	110V	220V	S4(%)	n	kg
HQ-006	6	60	14 / 12	F03 / F05 / F07	14	1.7	0.4/0.4	0.2/0.2	35	8	3

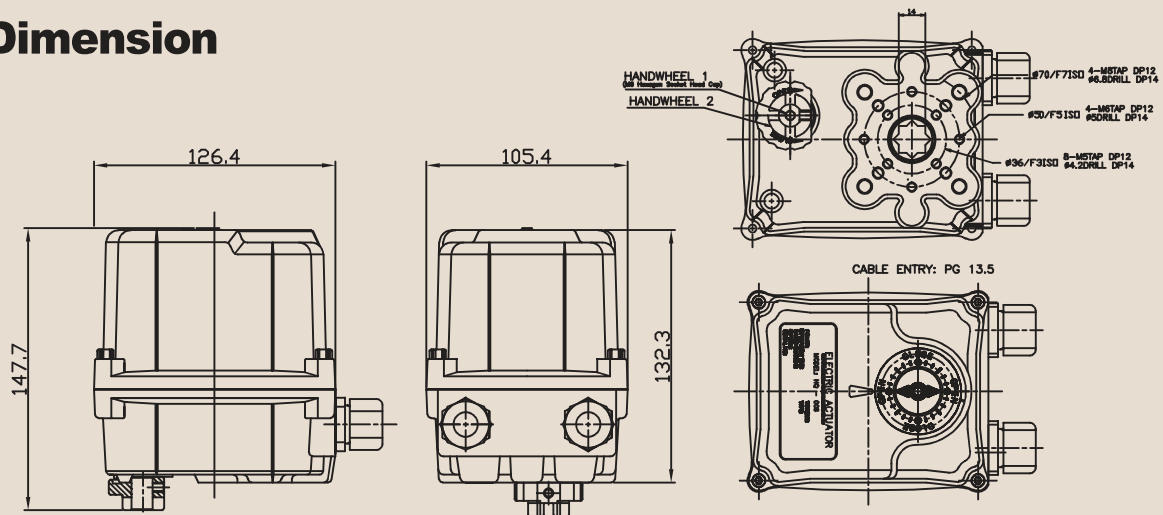
## Standard Specification

Enclosure	Weatherproof enclosure IP67
Power supply	110/220V ac 1PH, 50/60Hz, ±10%
Duty cycle(on-off duty)	S4 35%
Motor	Reversible motor
Limit switches	Open/close, SPDT, 250V ac 10A rating
Additional limit switches	Open/ close, SPDT, 250V ac 10A rating
Space heater	2W (110/220V ac)Anti-condensation
Manual override	Handwheel (hexagon design)
Cable entries	Two PG 13.5 tap(Option : NPT1/2", PT1/2", PF 1/2")
Movement angle	320° ± 10° (0° ~330°)
Ambient temperature	-20°C ~+70°C (Ex d : -20~60°C)
External coating	Polyester powder coating

## Option Specification

PIU	Potentiometer unit(0~1kΩ)
PCU	Proportional control unit (In/out:0~10V, 4~20mA DC)
CPT	Current position transmitter (Output 4~20mA DC)
ADCM	Multi(24VAC/DC)
DCM	DC motor (24VDC)
LCU	Local control unit -remote/local -open/stop/close

## Dimension



## Application



with Butterfly Valves  
Ball Valves  
Plug Valves  
Damper

Valve Automation (Rotary Motion Valves)