



VALVE ACTUATORS

HQ - Electric actuator

HP - Pneumatic actuator

HGO - Declutch gear

APL - Position monitor



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 service for our customers. And also, we have worked very hard to be a leading company that show how and what to do for the progress of the change of world industry through continuous management innovation, technical development, stable employment, etc.

HKC's unique know-how comes 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 potential energy and edge-technic.

HKC is very 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 of 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 perfect customer service.

Best Regards,

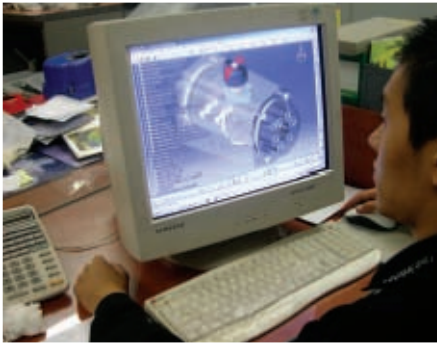
S. M. Han



President of HKC Co.,Ltd.



R&D



Die-Cast & Programmed Machining Center



Aluminum Die-Cast Foundry



Actuator Covers



Horizontal & Vertical
Machining Center

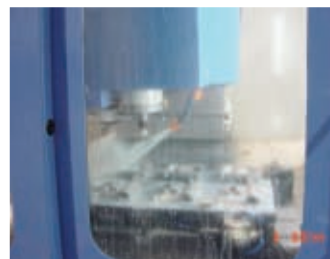
Machining & Assembly



HQ Series



HP Series



APL Series



Assembly



HKC Products Ranges



HQ Electric Actuator

- HQ-006 small & compact actuator with motor brake system
- HQ-series actuators with worm gear system
- Intelligent actuator with digital control unit or integral control unit
- Rechargeable battery backup actuator for emergency application



HP Pneumatic Actuator

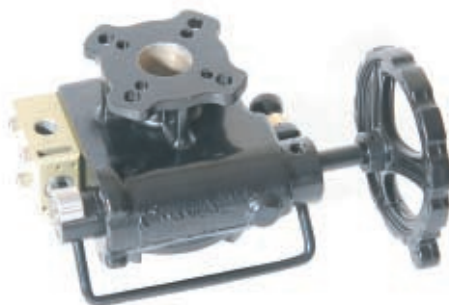
- Rack & pinion
- Double acting & single acting (spring return)
- International connection standard : ISO5211/DIN3337, VDI/VDE3845, NAMUR
- ※ Economical & Reliable application



APL series Valve Position Monitor

- APL-210 : Small & compact with standard operation
- APL-310 : Solid & flexible design for various application
- APL-410 : Explosion proof application(Exd IIB T4 / IP67)
- APL-510 : Explosion proof application(Exd IIC T6 / IP68)





HGO



HQ-006 Series

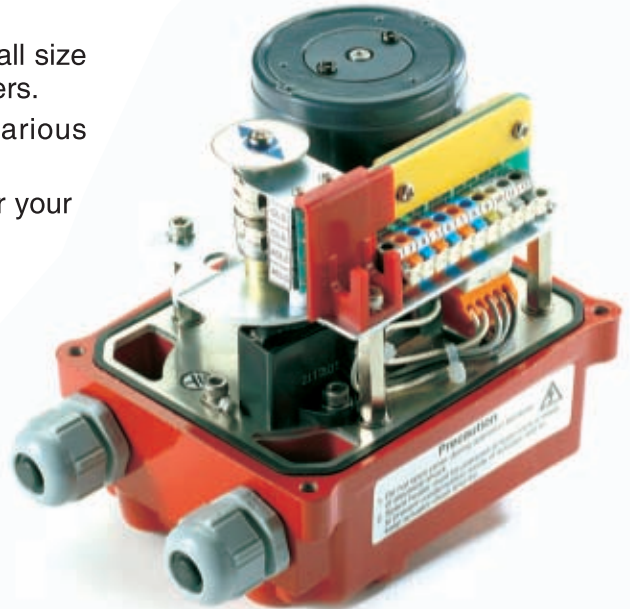
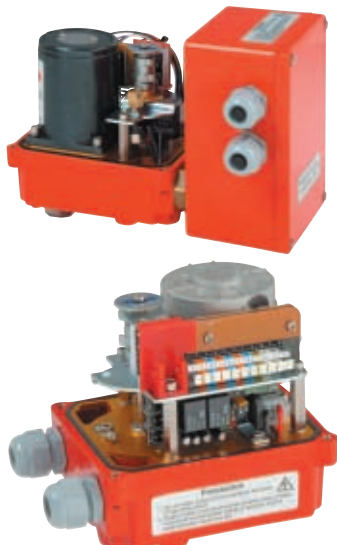
- HQ-006 Actuator is newly designed and invented for small size valve automation like ball, butterfly, plug and even dampers.
- Small, light and compact design, high torque and various control options will meet your specific requirements.
- HQ provides high technical service & quality products for your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

FEATURES

- Compact and light due to high grade aluminum alloy housing.
- High resistance for corrosion due to hard anodizing on inside & outside and polyester powder coating on external surface
- Output torque : 60Nm(6kg.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

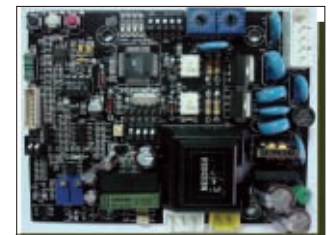


OPTION CONFIGURATION

- 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



- Proportional Control Unit (SSR - PCU)
-HQ PCU is a combination of 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)



- 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 60/50Hz	Mounting size	Motor class F Model & frame size	Rated current(A) 60Hz						Duty cycle IEC 34-1	Number of handle turn	Weight
						1 Phase				3 Phase				
	Kg.m	N.m	90 °	ISO 5211	M * F	110V	condenson (uF)	220V	condenson (uF)	380V	440V	S4(%)	N	Kg
HQ-006	6	58	12/14	F03/F05/F07	6 * 70	0.39/0.35	5.0	0.18/0.17	1.2	N/A	N/A	70	8	3

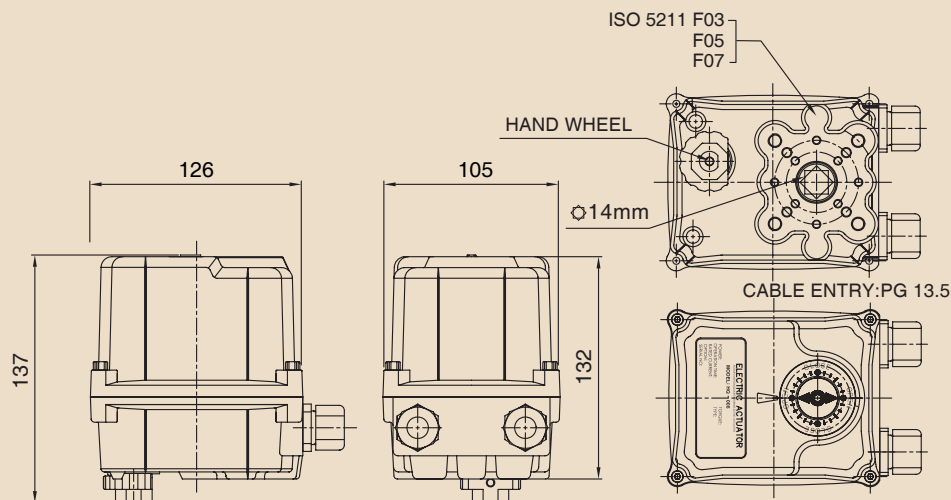
STANDARD SPECIFICATION

Enclosure	Weatherproof enclosure IP67
Power supply	110/220V AC 1PH, 50/60Hz, $\pm 10\%$
Duty cycle(on-off duty)	S2 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	$320^\circ \pm 10^\circ (0^\circ \sim 330^\circ)$
Ambient temperature	$-20^\circ\text{C} \sim 70^\circ\text{C}$
External coating	Polyester powder coating

OPTION SPECIFICATION

PIU	Potentiometer unit(0~1k Ω)
PCU	SSR type 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



BUTTERFLY VALVES
BALL VALVES
DAMPER VALVES
PLUG VALVES

VALVE AUTOMATION (ROTARY MOTION VALVES)

HQ Series



PERFORMANCE

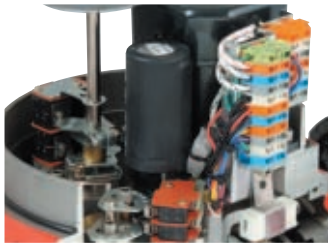
HQ (MODEL)	Maximum output torque	Operating time(sec.) 60/50Hz	Maximum bore size	Motor class F Model & frame size	Rated current(A) 60Hz/50Hz				Duty cycle IEC 34-1	Number of handle turn	Weight
					1 Phase		3 Phase				
	Kg-m	90°	mm	M * F	110V	220V	380V	440V	S4(%)	N	Kg
HQ-008	8	13/16	φ 20	15 * 70	1.00/0.97	0.45/0.45	N/A	N/A	70	10	7.4
HQ-010	10	16/20	φ 20	15 * 70	1.00/0.97	0.45/0.45	N/A	N/A	70	10	7.4
HQ-015	15	21/25	φ 22	40 * 80	1.70/1.50	0.84/0.73	0.28/0.37	0.36/0.59	70	11	16.6
HQ-020	20	21/25	φ 22	40 * 80	1.70/1.50	0.84/0.73	0.28/0.37	0.36/0.59	70	11	16.6
HQ-030	30	26/31	φ 35	40 * 90	1.67/1.37	0.81/0.68	0.27/0.33	0.34/0.55	70	13.5	22
HQ-050	50	26/31	φ 35	90 * 90	3.56/4.27	1.30/1.40	0.42/0.51	0.47/0.66	70	13.5	23
HQ-060	60	26/31	φ 35	90 * 90	3.56/4.27	1.30/1.40	0.42/0.51	0.47/0.66	70	13.5	23
HQ-080	80	31/37	φ 45	180 * 90	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	16.5	29
HQ-120	120	31/37	φ 45	180 * 90	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	16.5	29
HQ-200	200	93/112	φ 65	180 * 90	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	49.5	75
HQ-300	300	93/112	φ 65	180 * 90	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	49.5	75

STANDARD SPECIFICATION

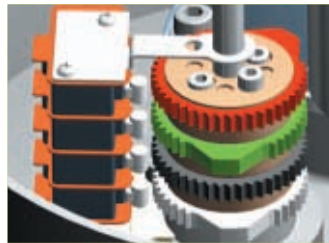
Enclosure	Weatherproof enclosure IP67, NEMA 4 and 6
Power supply	110 / 220V AC 1PH, 380 / 440V AC 3PH 50 / 60Hz, ±10%
Control power supply	110 / 220V AC 1PH, 50 / 60Hz, ±10%
Duty cycle(on-off)	S2, 100% Max 30Min
Duty cycle(modulating)	S4, 70% Max 300~1600 start/hour
Motor	Induction motor (Reversible motor)
Limit switches	Open / close, SPDT, 250V AC 16A rating
Additional limit switches	Open / close, SPDT, 250V AC 16A rating (Except HQ-008)
Torque switches	Open / close, SPDT, 250V AC 16A rating (Except HQ-008)
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	Three PF3/4" tap (standard type only)
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)
Ambient humidity	90% RH Max.(non-condensing)
Anti vibration	X Y Z 10g, 0.2~34Hz, 30minute
External coating	Anodizing treatment before dry powder, Polyester, Munsell no. 5R 3.5/12

OPTION SPECIFICATION

EXA	Explosionproof enclosure actuator (Eexd II B T4)	HQ-series
WTA	Watertight enclosure actuator (IP68 10M 72HR)	HQ-series
PIU	Potentiometer unit (0~1k Ω)	HQ-series
PCU	SSR type proportional control unit (input, output 0~10V DC, 4~20mA DC)	HQ-series
ATS	Additional torque switches (SPDT x 2EA 250V AC 10A Rating)	except HQ-008/010
SICU	Semi-Integral control unit (LCU + IMS + phase protect indicator)	except HQ-008/010
ICU	Intelligent digital control unit (LCU + IMS + auto phase discriminator)	except HQ-008/010
CPT	Current position transmitter (output 4~20mA DC)	HQ-series
EXT	Extension 120°, 180°, 270° turn	except HQ-200, 300
RBP	Rechargeable battery backup	HQ-008, 015, 020, 030
DCM	DC motor (24V DC)	HQ-008, 015, 020, 030
ADCM	Multi AC/DC 24V(integral)	HQ-008, 015, 020, 030
LPA	Lever plate actuator	except HQ-008/010
SLU	Signal lamp unit (white-power on, red-open, green-close, yellow-over torque)	except HQ-008/010
FPA1	Fire Proofing Actuator 1050 $\pm$ 5°C / 50min	Engineering consult in advance
FPA2	Fire Proofing Actuator 250 $\pm$ 5°C / 150min	Engineering consult in advance



(Standard cam)

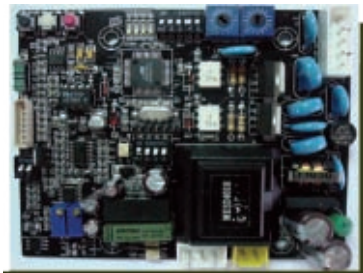


(Cam block)



(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 (SSR - 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 : $\pm 0.5 \sim 1.5\%$ (depends on installation)
- DA or RA without change of wires



Potentiometer Kit (PIU)

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

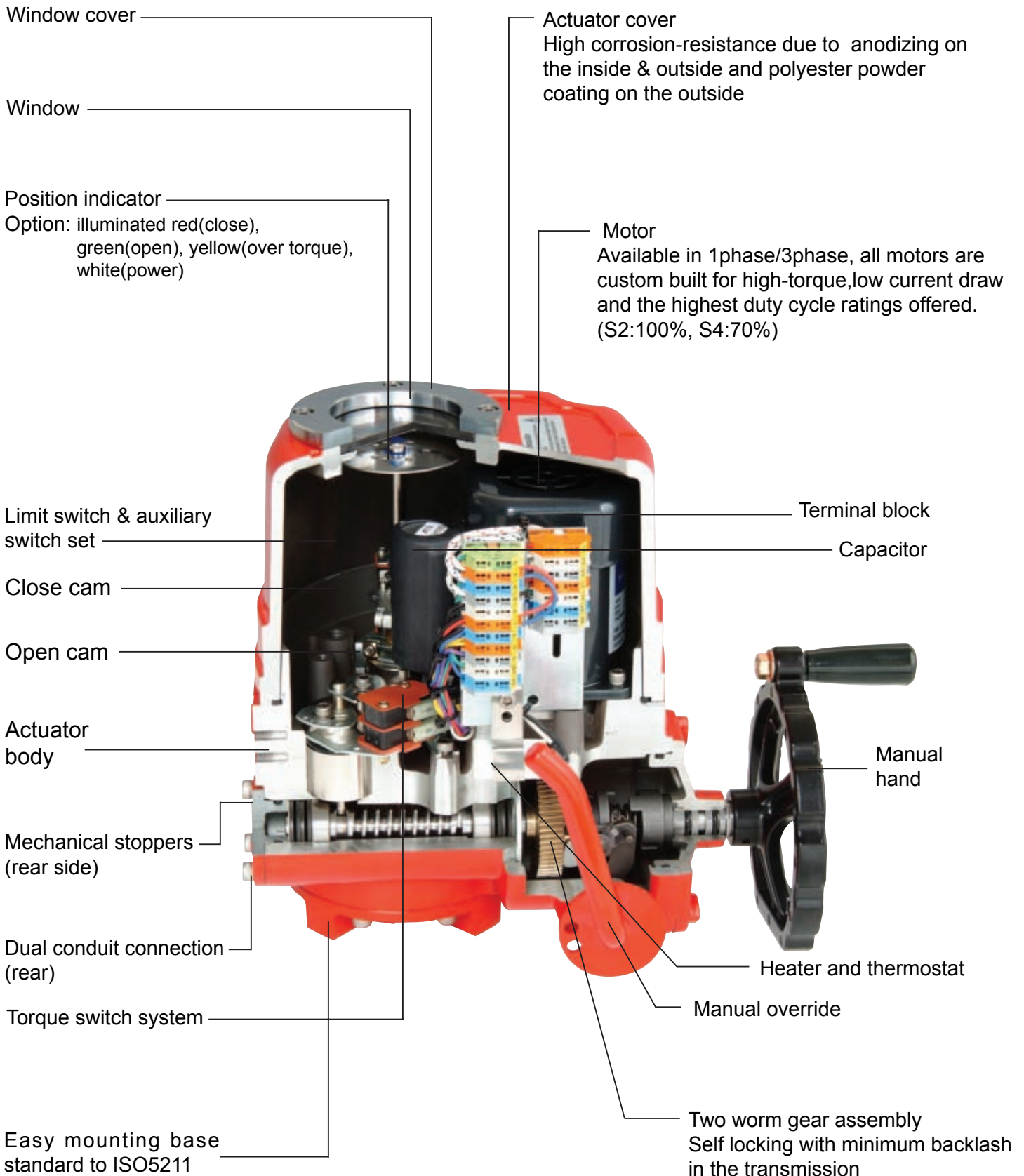


Fire Proofing Actuator (FPA)



Rechargeable Battery Backup

CONSTRUCTION



STANDARD CONFIGURATION



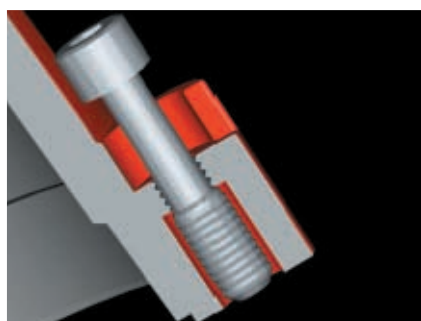
Terminal block

- Enough number of terminal strips for customer's convenience
- Proven reliability and tight wiring connection.
- Stripped length: 8-9 mm / 0.33 in (2.5mm²)
- Terminal dimensions: 10×22×32mm



Heater

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



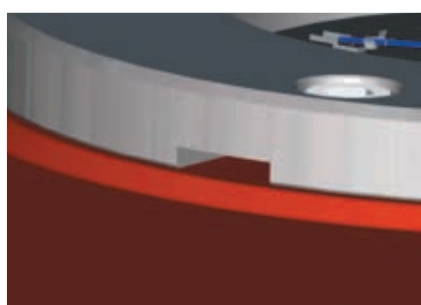
Captive cover bolt

- 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 !

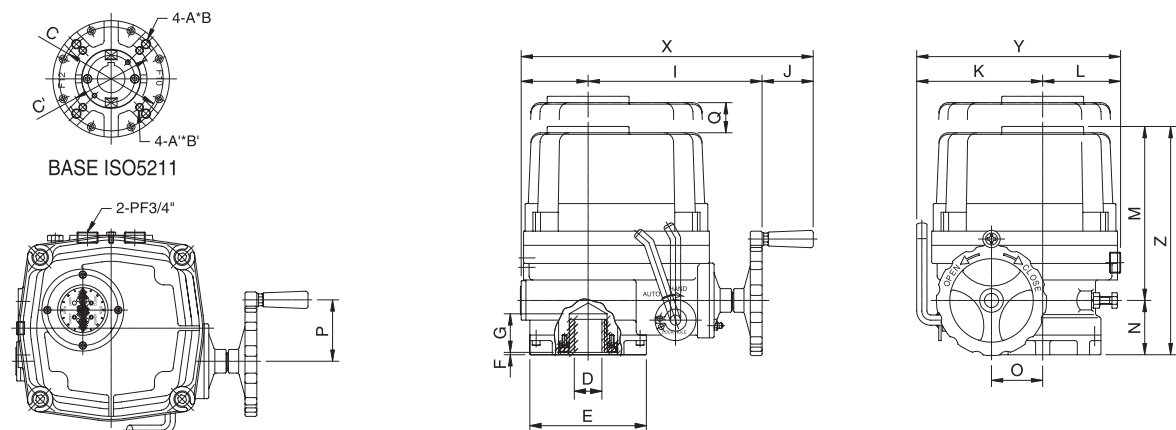


Slot on window cover for draining rainwater

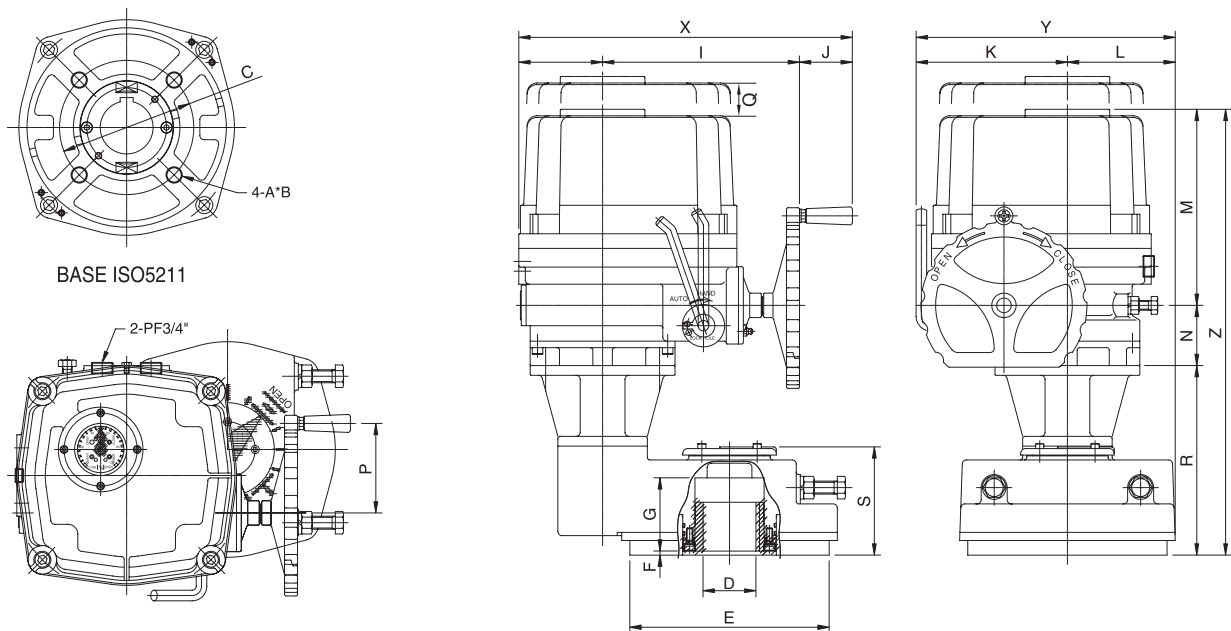
- Rainwater inside of window cover may affect the sealing of window.
- To prevent this, drain slot is useful to prevent this effect.

DIMENSIONAL DRAWING

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



HQ200, HQ300

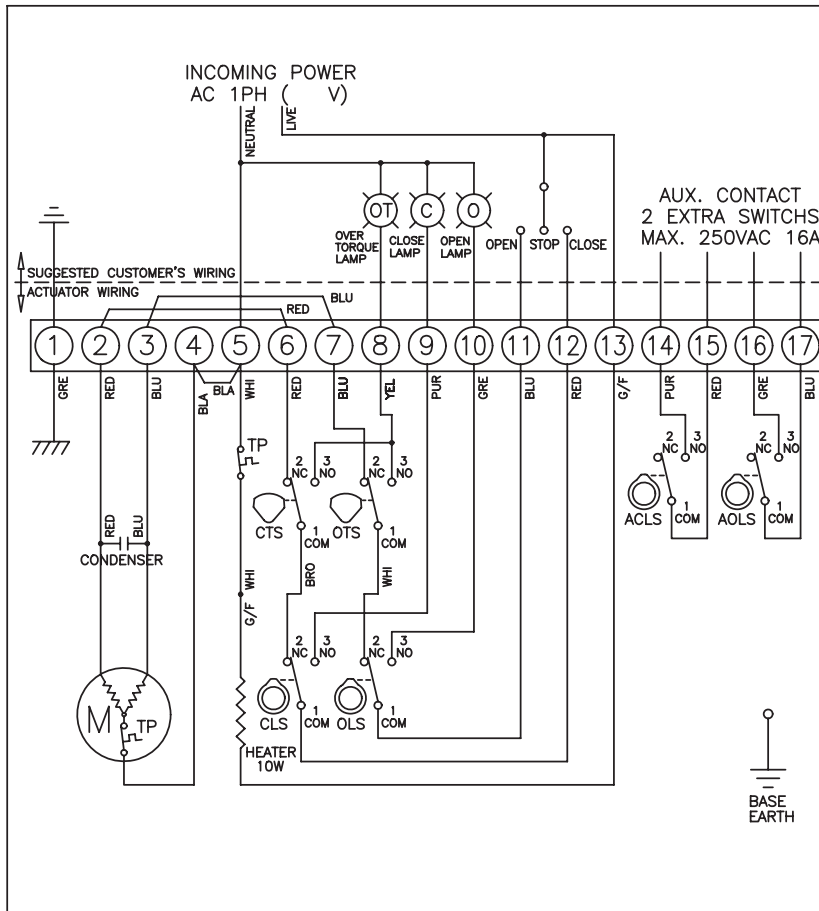


DIMENSION

unit(mm)

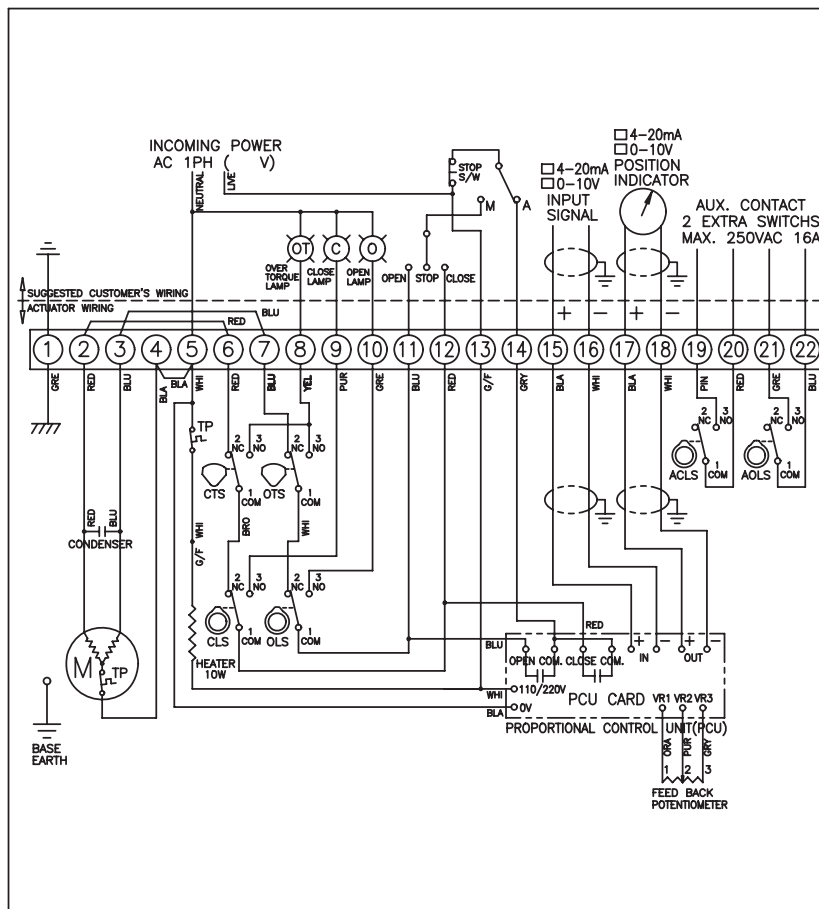
Model	Base ISO 5211	A	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
	ϕC	B	(max)																		
HQ008	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	$\phi 70$	12																			
HQ010	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	$\phi 70$	12																			
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	235	69	65	78	180	-	-	368	259	304
	$\phi 102 \phi 125$	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																			

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



TORQUE AND LIMIT SWITCH OPERATION		
SWITCH	CLOSE	INTERMEDIATE
CLS 1-2		
CLS 1-3		
OLS 1-2		
OLS 1-3		
ACLS1-2		
ACLS1-3		
AOLS1-2		
AOLS1-3		
CTS 1-3	* CLOSING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE	
OTS 1-3	* OPENING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE	
SYMBOL	DESCRIPTION	RATING
CLS	CLOSE LIMIT SWITCH	250VAC 10A
OLS	OPEN LIMIT SWITCH	250VAC 10A
CTS	CLOSE TORQUE SWITCH	250VAC 10A
OTS	OPEN TORQUE SWITCH	250VAC 10A
ACLS	AUX. CLOSE LIMIT SWITCH	250VAC 16A
AOLS	AUX. OPEN LIMIT SWITCH	250VAC 16A
TP	THERMAL PROTECTOR	250VAC 15A
*EACH ACTUATOR SHOULD BE POWERED THROUGH IT'S OWN INDIVIDUAL SWITCH OR RELAY CONTACTS TO PREVENT CROSS FEED BETWEEN TWO OR MORE ACTUATORS.		
DRAW	P.S. KIM	CHECK
DESIGN	S.M. HAN	APPR.
PART NAME 1PH WIRING DIAGRAM STANDARD		
HQ-200	DWG. NO HQ-11000-A	
HQ-080	ISSU. DEPT. HADR	DATE 2001.05.10
HQ-030	HKC	
HQ-015		
APPLICATION		

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



TORQUE AND LIMIT SWITCH OPERATION		
SWITCH	CLOSE	INTERMEDIATE
CLS 1-2		
CLS 1-3		
OLS 1-2		
OLS 1-3		
ACLS1-2		
ACLS1-3		
AOLS1-2		
AOLS1-3		
CTS 1-3	* CLOSING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE	
OTS 1-3	* OPENING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE	
SYMBOL	DESCRIPTION	RATING
CLS	CLOSE LIMIT SWITCH	250VAC 10A
OLS	OPEN LIMIT SWITCH	250VAC 10A
CTS	CLOSE TORQUE SWITCH	250VAC 10A
OTS	OPEN TORQUE SWITCH	250VAC 10A
ACLS	AUX. CLOSE LIMIT SWITCH	250VAC 16A
AOLS	AUX. OPEN LIMIT SWITCH	250VAC 16A
TP	THERMAL PROTECTOR	250VAC 15A
*EACH ACTUATOR SHOULD BE POWERED THROUGH IT'S OWN INDIVIDUAL SWITCH OR RELAY CONTACTS TO PREVENT CROSS FEED BETWEEN TWO OR MORE ACTUATORS.		
DRAW	P.S. KIM	CHECK
DESIGN	S.M. HAN	APPR.
PART NAME 1PH WIRING DIAGRAM PCU		
HQ-300	DWG. NO HQ-15000-A	
HQ-200	ISSU. DEPT. HADR	DATE 2001.05.10
HQ-080	HKC	
HQ-030		
HQ-015		
APPLICATION		

※ Wiring drawings are provided upon request.

RBP ACTUATOR FOR EMERGENCY APPLICATION

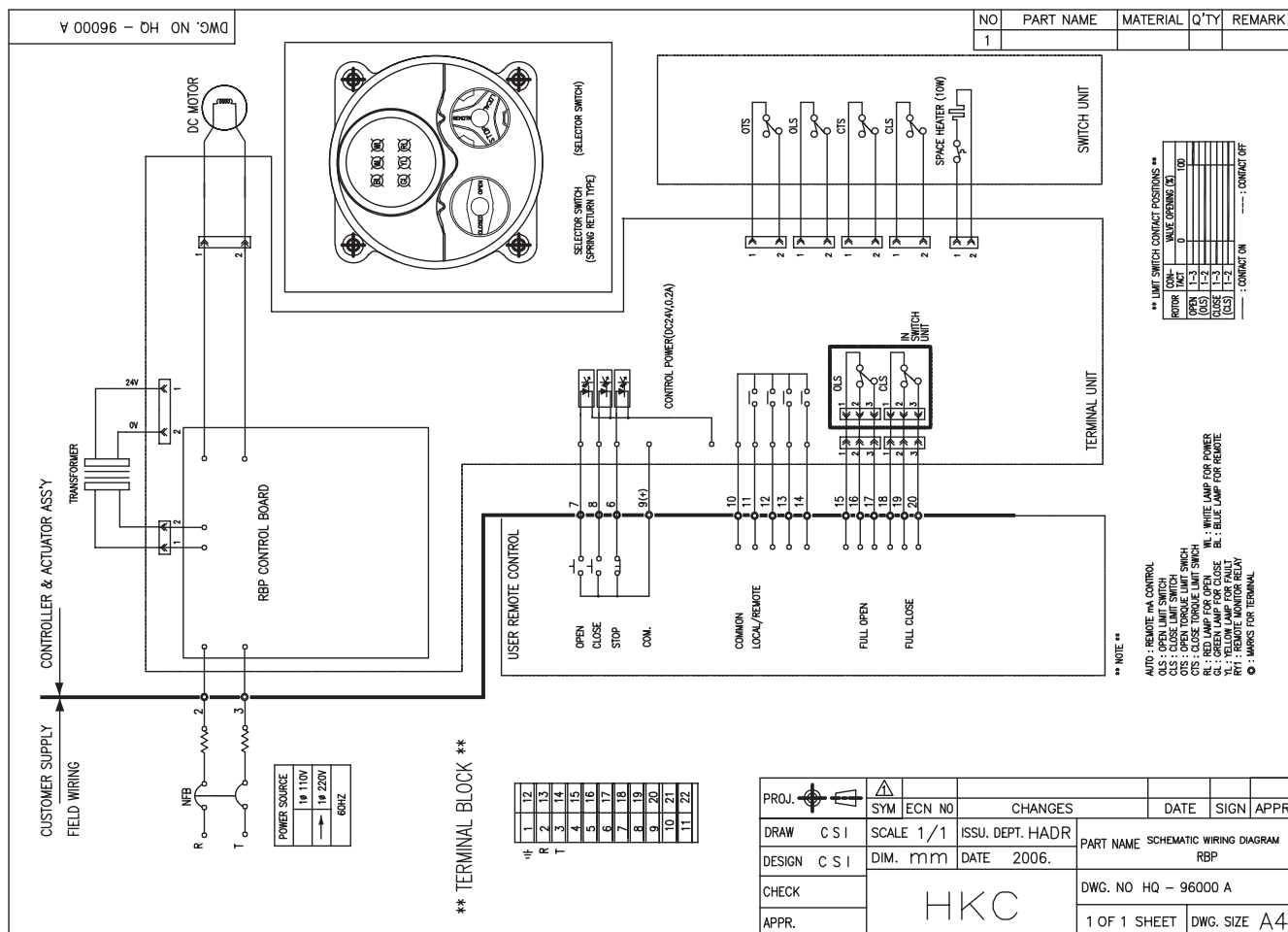
RBP : Rechargeable Battery Backup

- 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 standard)



INTELLIGENT & INTEGRAL CONTROL UNIT FOR SPECIAL APPLICATION

SICU : Semi-Integral Control Unit

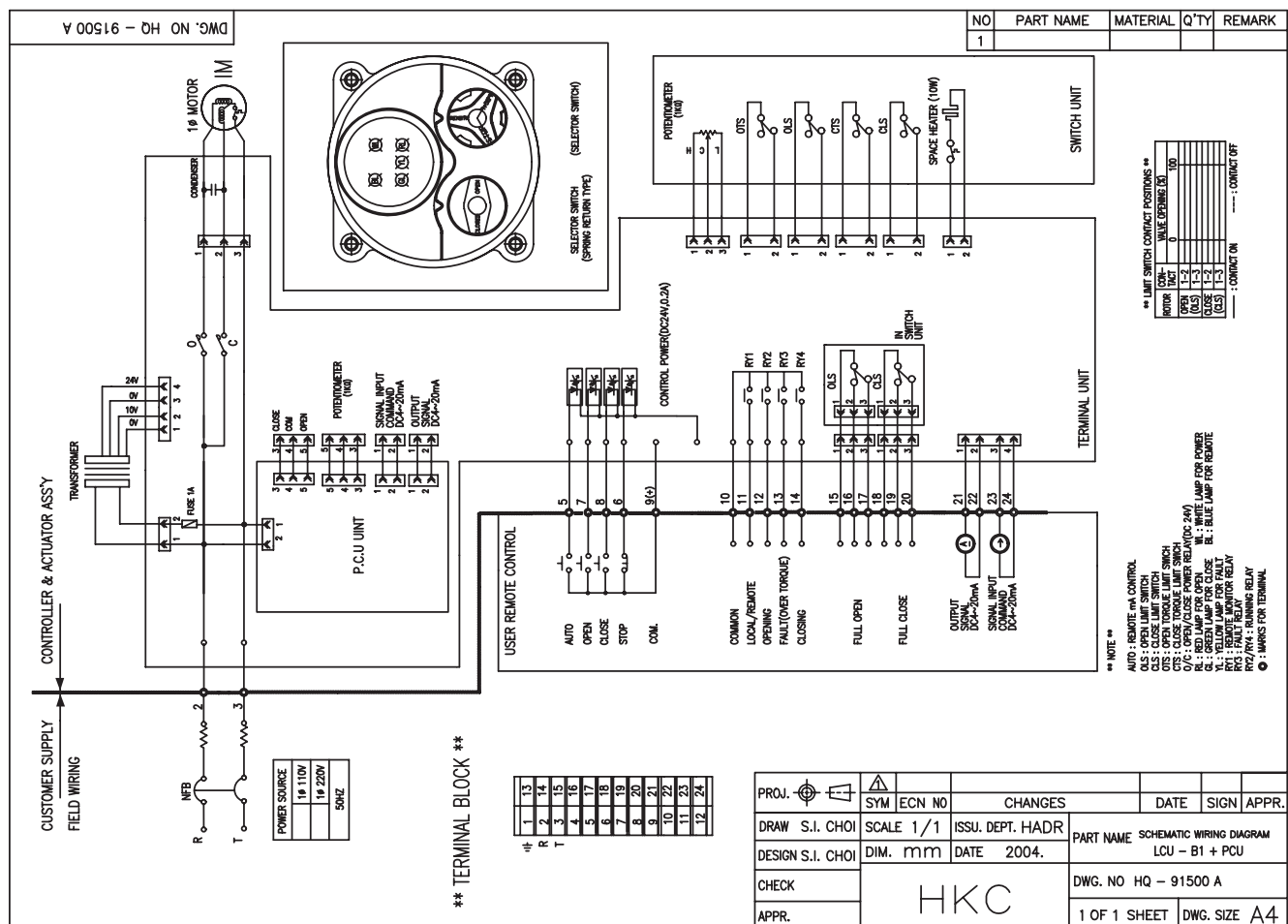
- Light, compact & Integrated design (IMS, Local/Remote control)
- Wide range of electric power application
- 1 ϕ AC 110~220V 50/60HZ
- 3 ϕ AC 220V~460V 50/60HZ
- Phase protect monitoring by LED in case of wrong wiring
- Easy application for HQ-series actuators
- Various option available (Duty cycle:70%)

LED lamp signal

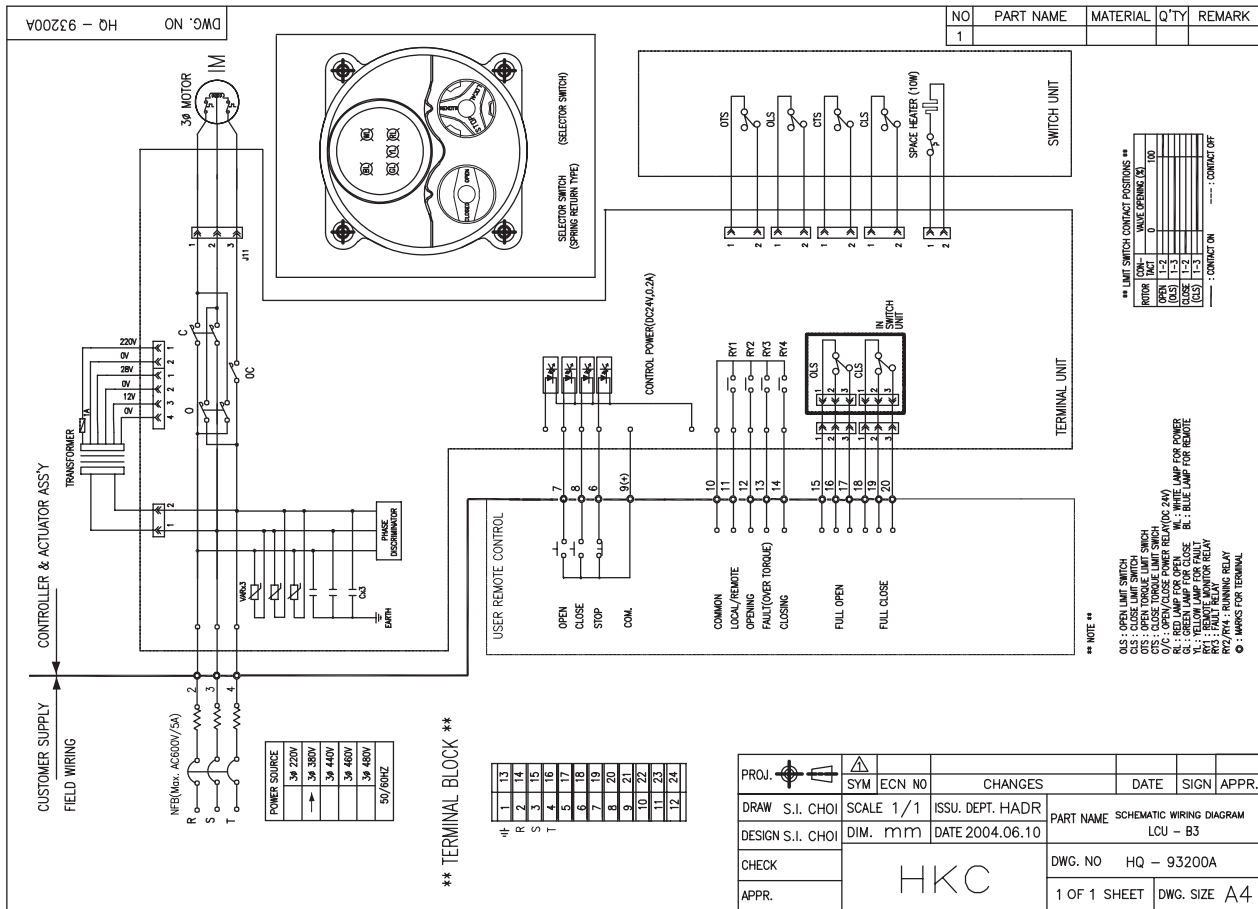
- White ○ : Power
 Blue ● : Remote
 Yellow ● : Fault
 Red ● : Open/
 Opening
 Green ● : Close/
 Closing



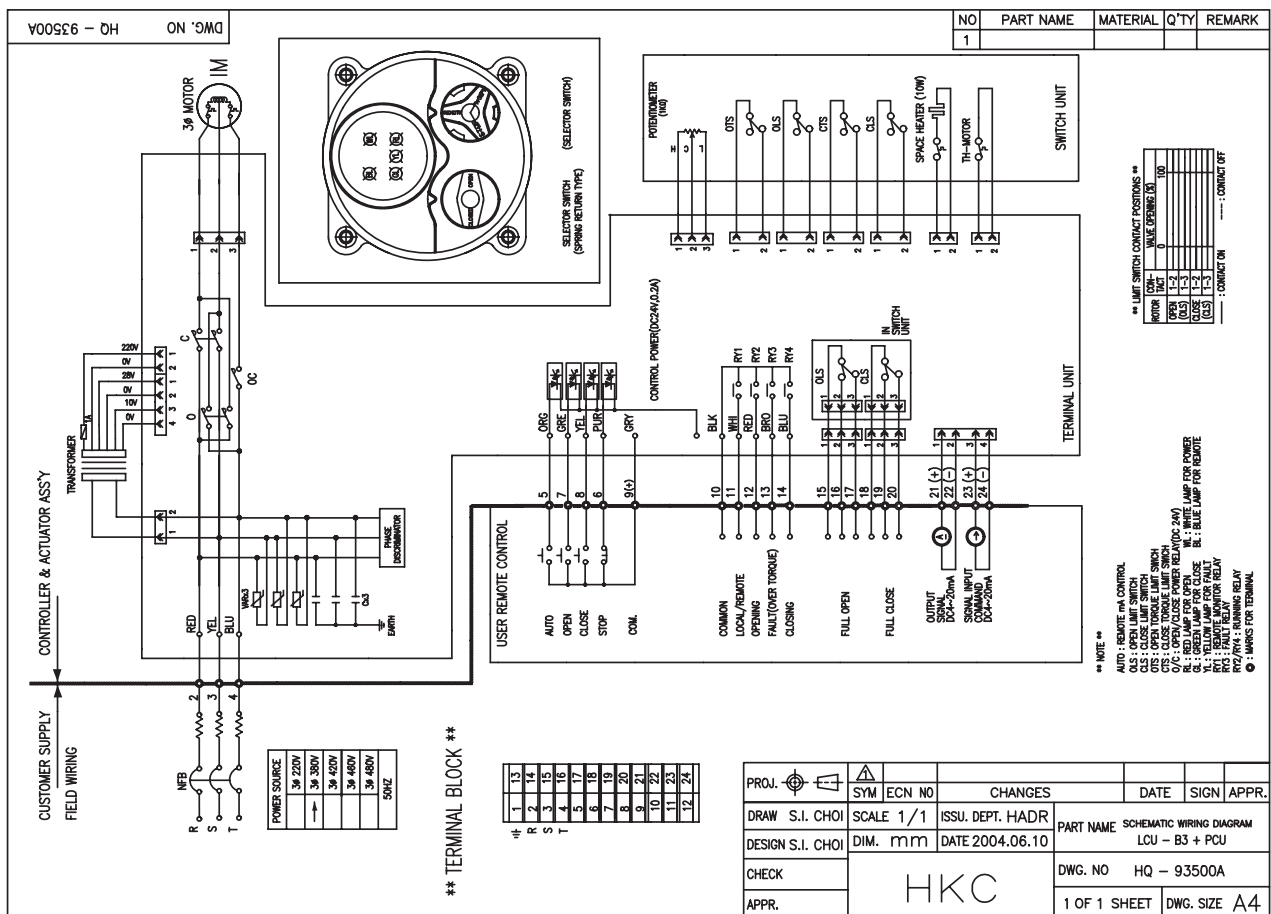
SICU Wiring (1-phase, 50/60Hz, proportional type)



SICU Wiring (3-phase, 50/60Hz, on-off, standard)

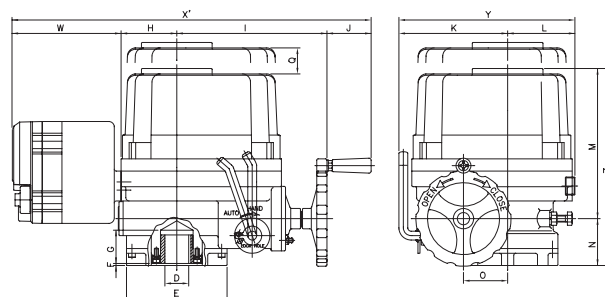
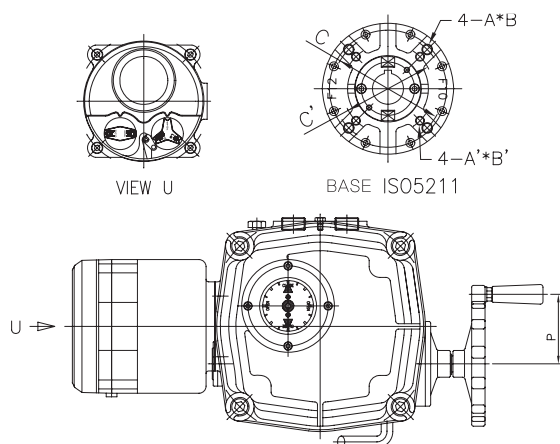


SICU Wiring (3-phase, 50/60Hz, Integral+PCU)

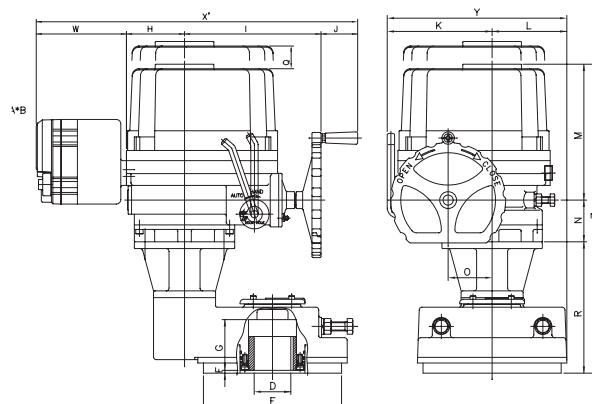
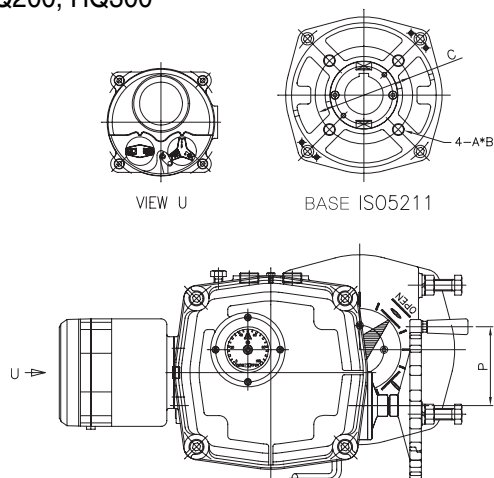


Dimensional Drawing (with SICU)

HQ015, HQ020, HQ030, HQ050, HQ080, HQ120



HQ200, HQ300



DIMENSION (with SICU)

unit(mm)

Model	Base ISO 5211	A	D (Max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	W	X'	Y	Z
	φ C	B																				
HQ015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	φ 70/ φ 102	12/15																				
HQ020	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	φ 70/ φ 102	12/15																				
HQ030	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	φ 102/ φ 125	15/18																				
HQ050	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	φ 102/ φ 125	15/18																				
HQ060	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	φ 102/ φ 125	15/18																				
HQ080	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	φ 125/ φ 140	18/24																				
HQ120	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	φ 125/ φ 140	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
	φ 140*/ φ 165	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
	φ 140*/ φ 165	24*/30																				

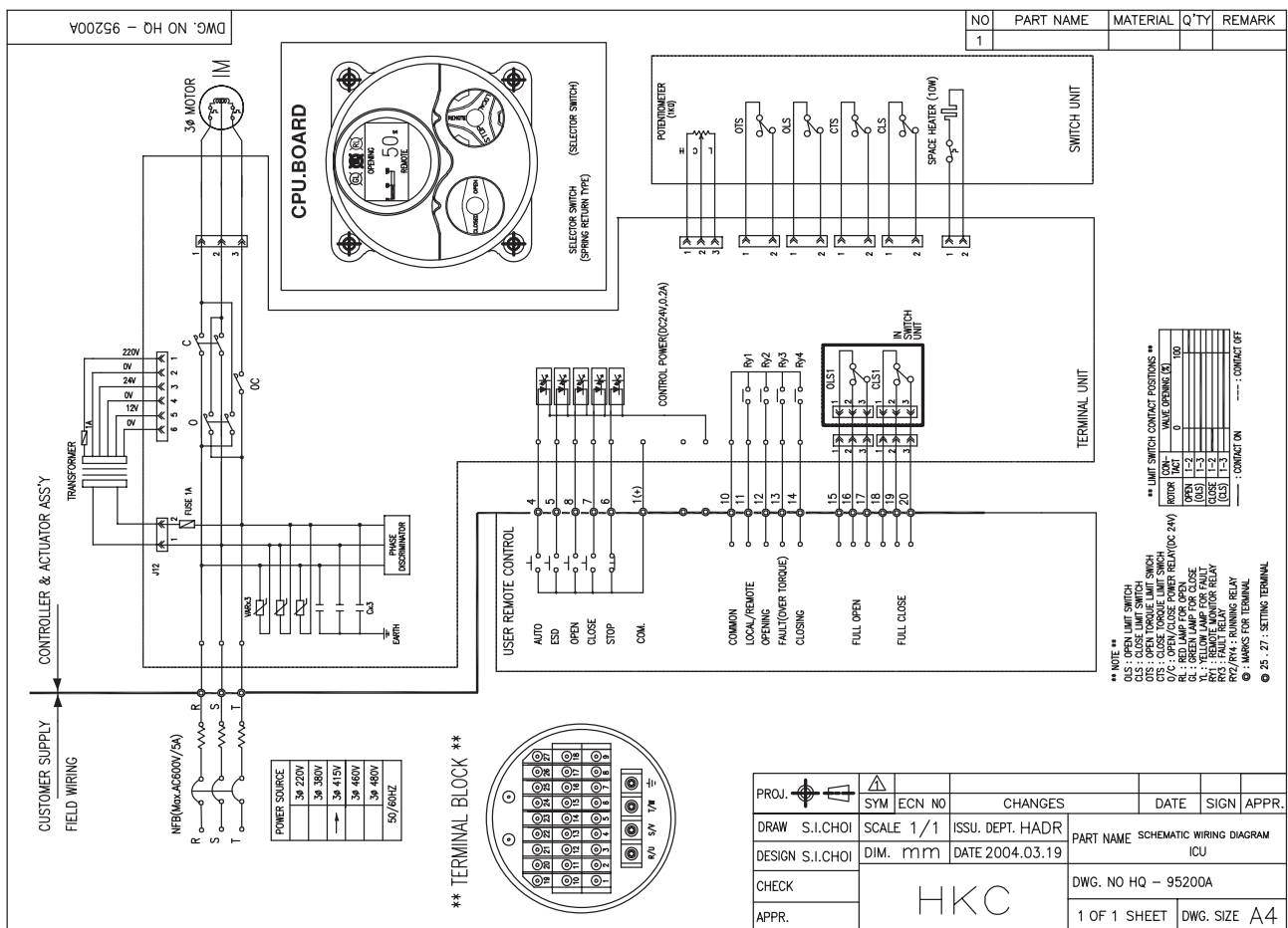
※ Wiring drawings are provided upon request.

ICU : Intelligent Digital Control Unit

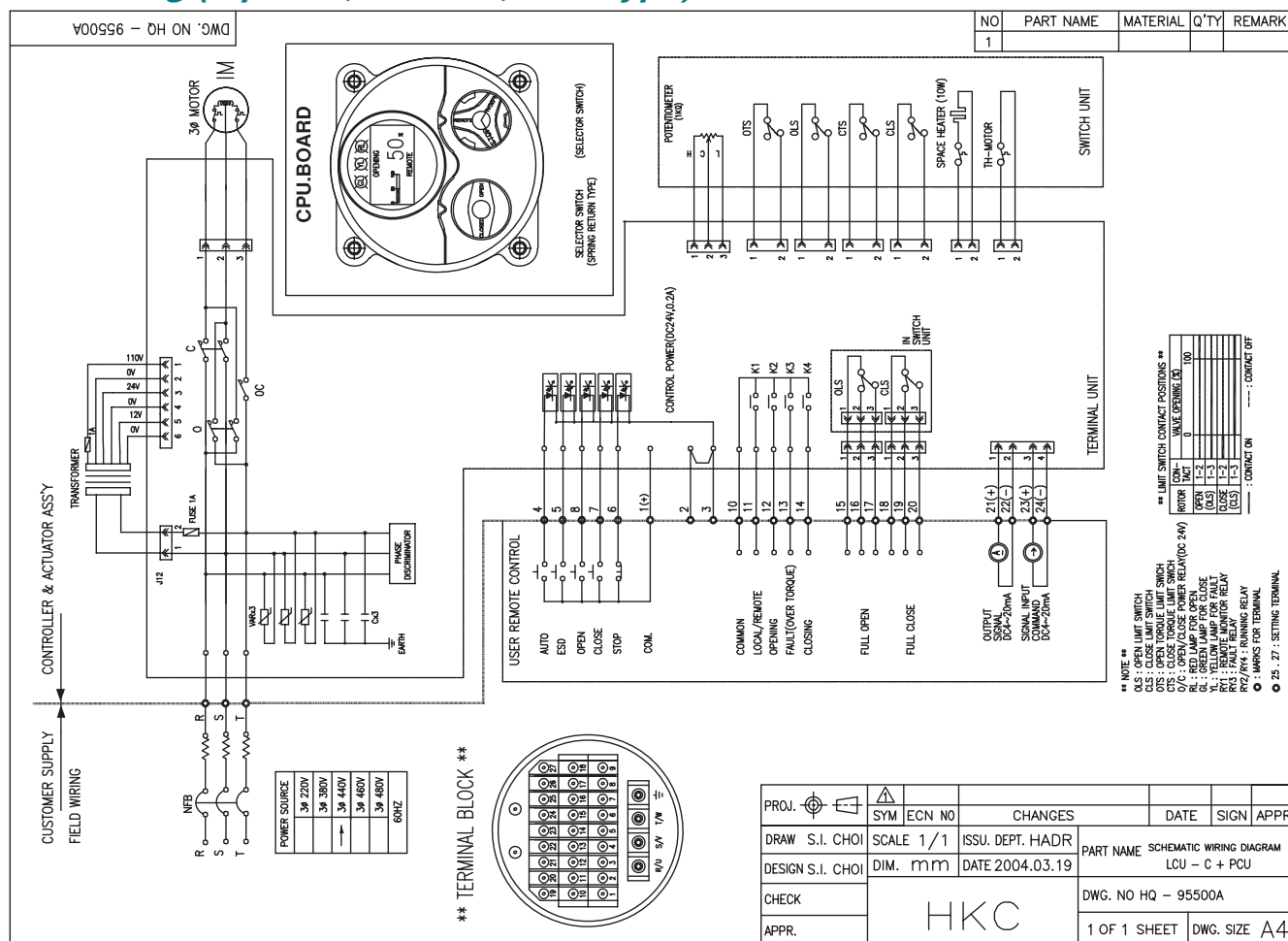
- Light, Compact & Intergrated design
- Wide range of electric power application
(AC 220V~AC460V/3-phase, No Fuse Break Max.AC600V/5A)
- Built-in auto phase discriminator (Easy & convenient wiring)
- Digital indicator with number, bar graph & literature
- Seperate terminal chamber
- (Reliable against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



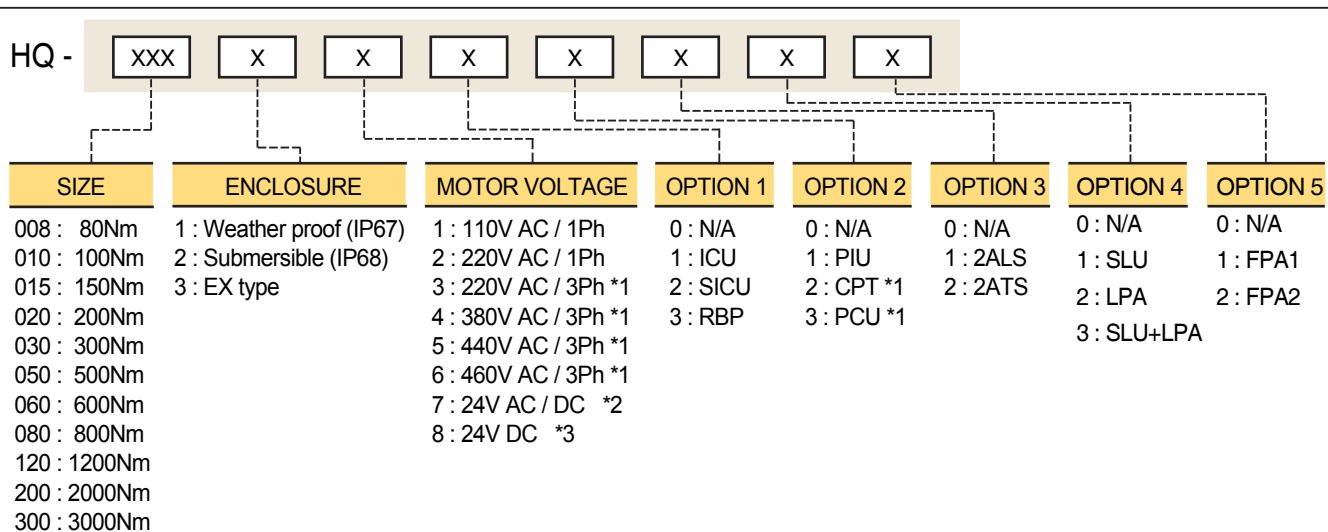
ICU Wiring (3-phase, 50/60Hz, on-off, standard)



ICU Wiring (3-phase, 50/60Hz, PCU type)



ELECTRIC ACTUATOR ORDER CODING SYSTEM (EXA : EEx d || B T4)



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.
- Asterisk*3 : HQ-080 through 300 actuators shall 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 SICU option applied, HQ-015 through 300 actuators shall be available on the full condition of motor voltages except DC 24v.
- When ICU 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, 015, 020, 030.
- More details should be advised to the manufacturer.



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KOSHA



KTL



Hologram shall be put on all products manufactured in the factory.