

ELECTRIC BALL VALVE

MODEL : MB-4000

HOW TO ORDER ?

MB -

MATERIAL

TYPE

OPTION

ACTION

SIZE

MATERIAL	TYPE	OPTION
1 SCS13 2 SCS14 3 SCS16	1 2WAY 2 3WAY-L 3 3WAY-T	s : standard (on-off) Exa : explosion proof (Eexd iib t4) Lcu-b : internal control Lcu-c : digital display control Pcu : proportional control unit(0 -10V dc , 4-20mA DC)
ACTION	SIZE	ORDER EXAMPLE
O : normal open C : normal close	15A TO 200A	SCS14 - 2way-t type , normal open end connection flange, size 65a 4-20mA control , Explosion proof order no. mb-4000-21ExaPcu-0-65



MB-4000 MODEL 은 ELECTRIC MOTOR ACTUATOR 를 이용하여 동작 하는 BALL VALVE 입니다.

ELECTRIC ACTUATOR를 이용하여 ON-OFF 제어와 비례제어가 가능하게 설계되어 있습니다.

액체 , 기체 , 가스 , 저압의 스팀에 사용 가능 하며 , SAET 교체 를 통해 300℃ 미만의 온도에서도 사용 가능합니다.

SPECIFICATION

TYPE : FLANGE BALL

NOMINAL SIZE : 1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2"
3", 4", 5", 6" 8"

PRESSURE RATING : JIS 10K , JIS 20K , ANSI 150# , ANSI 300#

END CONNECTION : FLANGE

MATERIAL BODY : SCPH2 ,SCS13, SCS14, SCS16

BALL : SUS304, SUS316, SUS316L

SEAT : PTFE, CARBON , PEEK , METAL (TC COAT)

GLAND PACKING : V-Teflon , CARBON , PEEK

GASKET : V-Teflon , CARBON , PEEK

ACTUATOR : ELECTRIC ACTUATOR

POWER SUPPLY : AC 110,220 1PH , AC380,440 3PH 50/60HZ

CONTROL POWER SUPPLY : AC 110,220 1PH , 50/60HZ

OPTIONAL ACCESSORISES (PROVIDE UPON REQUEST)

EXPLOSION PROOF - EEXD IIB T4

WATERTIGHT ENCLOSURE ACTUATOR (IP68 10M 72HR)

PROPORTIONAL CONTROL UNIT (INPUT,OUTPUT 0-10V DC , 4-

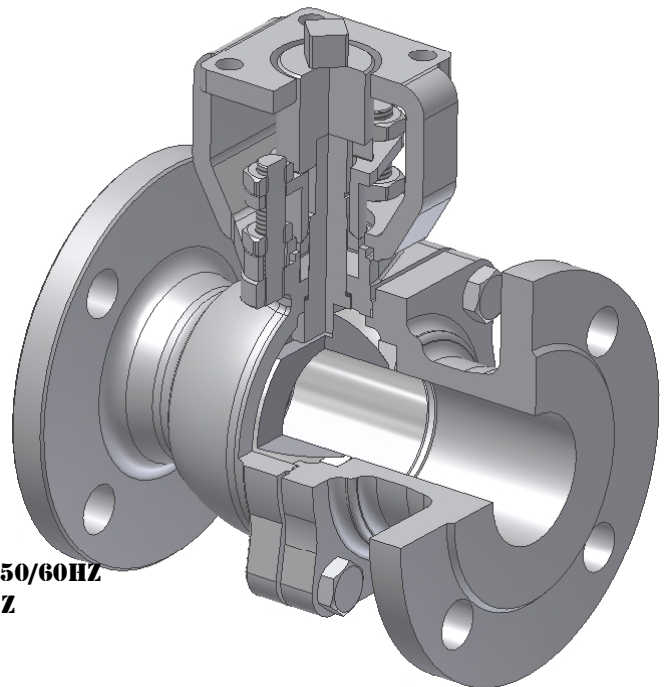
20MA DC)

INTEGRAL CONTROL

DIGITAL DISPLAY CONTROL

CURRENT POSITION TRANSMITTER (OUTPUT 4 - 20MA)

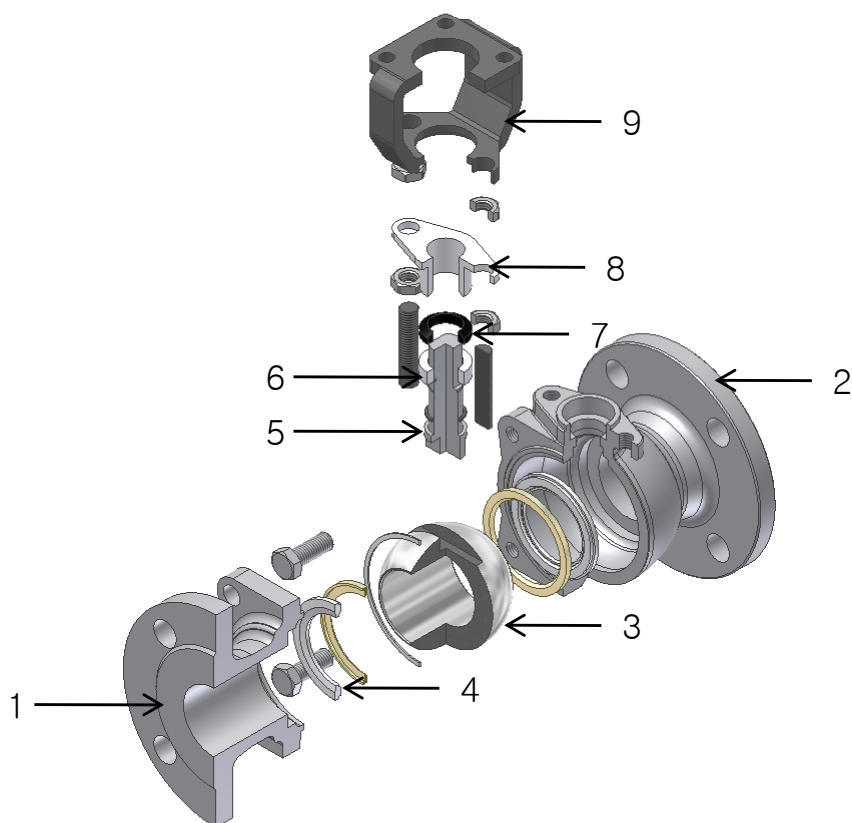
RECHARGEABLE BATTERY BACKUP



ELECTRIC BALL VALVE

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STRUCTURE



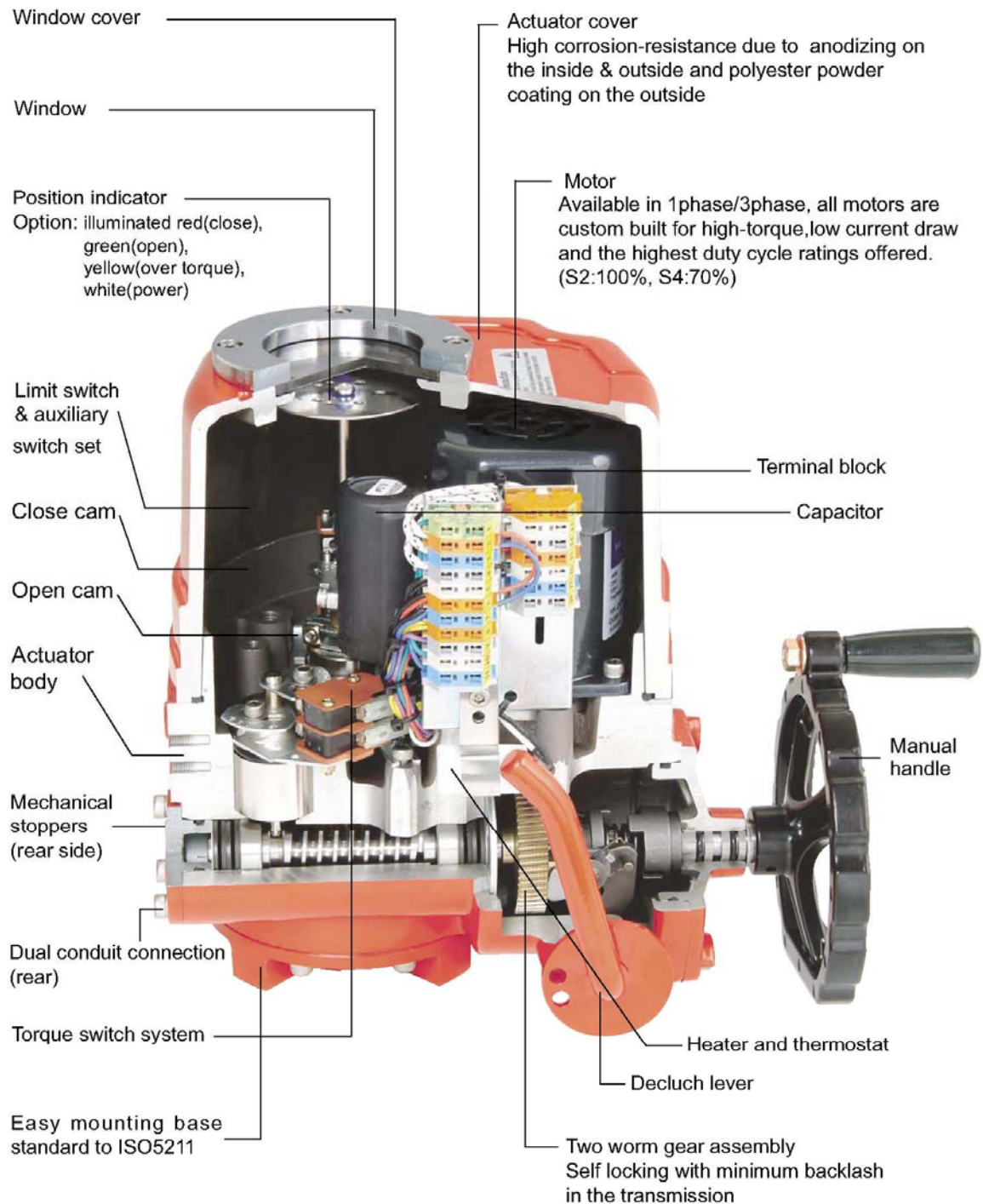
NO.	ITEM	MATERIAL			
1	CAP	SCPH2	SCS13	SCS14	SCS16
2	BODY	SCPH2	SCS13	SCS14	SCS16
3	BALL	SCS13	SCS13	SCS14	SCS16
4	SEAT	PTFE	CARBON	PEEK	METAL
5	SHAFT	S U S 3 0 4	S U S 3 0 4	S U S 3 1 6	S U S 3 1 6 L
6	GLAND PACKING	PTFE	CARBON	PEEK	
7	GLAND	S U S 3 0 4	S U S 3 0 4	S U S 3 1 6	S U S 3 1 6 L
8	PUSHER	SCS13	SCS13	SCS13	SCS13
9	BRAKET	SCS13	SCS13	SCS13	SCS13

ELECTRIC BALL VALVE

MODEL : MB-4000

ELECTRIC ACTUATOR

Construction



ELECTRIC BALL VALVE

MODEL : MB-4000

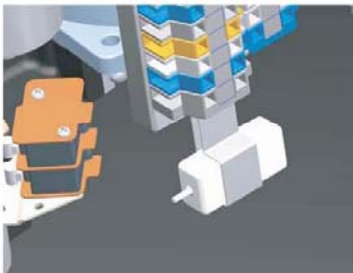
ELECTRIC ACTUATOR

■ Standard Configuration



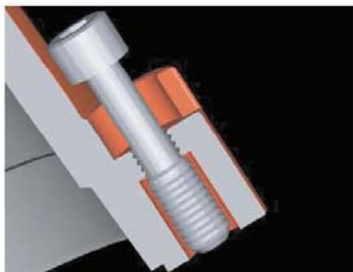
● Terminal block

- 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.



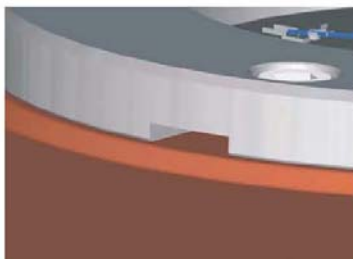
● Captive cover bolt

- 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.

ELECTRIC BALL VALVE

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ELECTRIC ACTUATOR



HQ Series



Performance

HQ (MODEL)	Maximum output torque	Operating time(sec.) 60/50Hz	Maximum bore size	Motor class F power(W) 60Hz/50Hz		Rated current(A) 60Hz/50Hz				Duty cycle IEC 34-1	Number of handle turn	Weight
	Kg-m	90	mm	1 Phase	3 Phase	1 Phase		3 Phase				
						110V	220V	380V	440V			
HQ-008	8	13/16	φ 20	106/103	N/A	1.00/0.97	0.45/0.45	N/A	N/A	70	10	7.4
HQ-010	10	16/20	φ 20	106/103	N/A	1.00/0.97	0.47/0.45	N/A	N/A	70	10	7.4
HQ-015	15	21/25	φ 22	185/166	112/216	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	185/166	112/216	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	177/148	130/171	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	390/410	184/236	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	390/410	184/236	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	483/389	312/427	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	483/389	312/427	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	483/389	312/427	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	483/389	312/427	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-008/010)
Torque switches	Open / close, SPDT, 250V AC 16A rating (except HQ-008/010)
Stall protection/operating temp	Built-in thermal protection, open 150 ±5 / close 97 ±15
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

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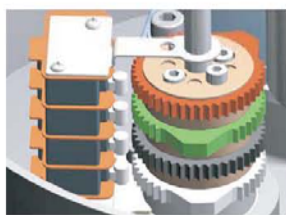
ELECTRIC ACTUATOR

Option Specification

EXA	Explosionproof enclosure actuator (Eexd II BT4)	HQ-series
WTA	Watertight enclosure actuator (IP68 10M 72HR)	HQ-series
PIU	Potentiometer unit (0~1K Ω)	HQ-series
PCU	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
LCU-B	Integral control (LCU + IMS + phase protect indicator)	except HQ-008/010
LCU-C	Digital display control (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-008/010, 015, 020, 030
DCM	DC motor (24V DC)	HQ-008/010, 015, 020, 030
ADCM	Multi AC/DC 24V(integral)	HQ-008/010, 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 (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)



Potentiometer Kit (PIU)

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



Fire Proofing Actuator (FPA)



Rechargeable Battery Backup

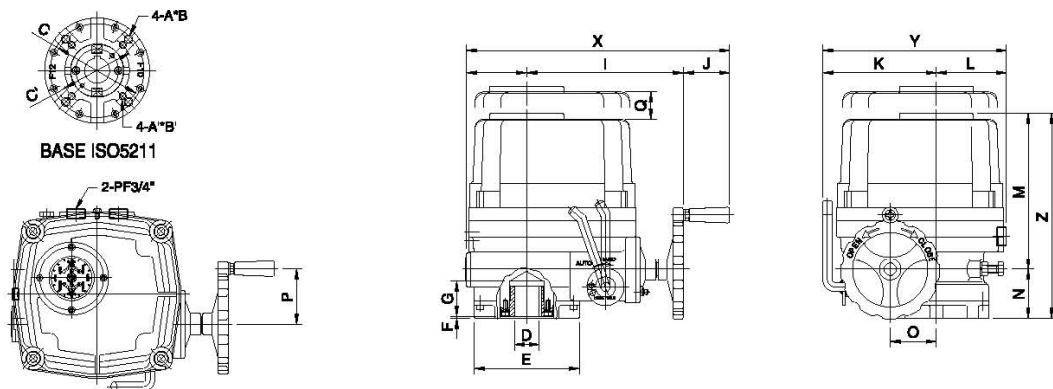
ELECTRIC BALL VALVE

MODEL : MB-4000

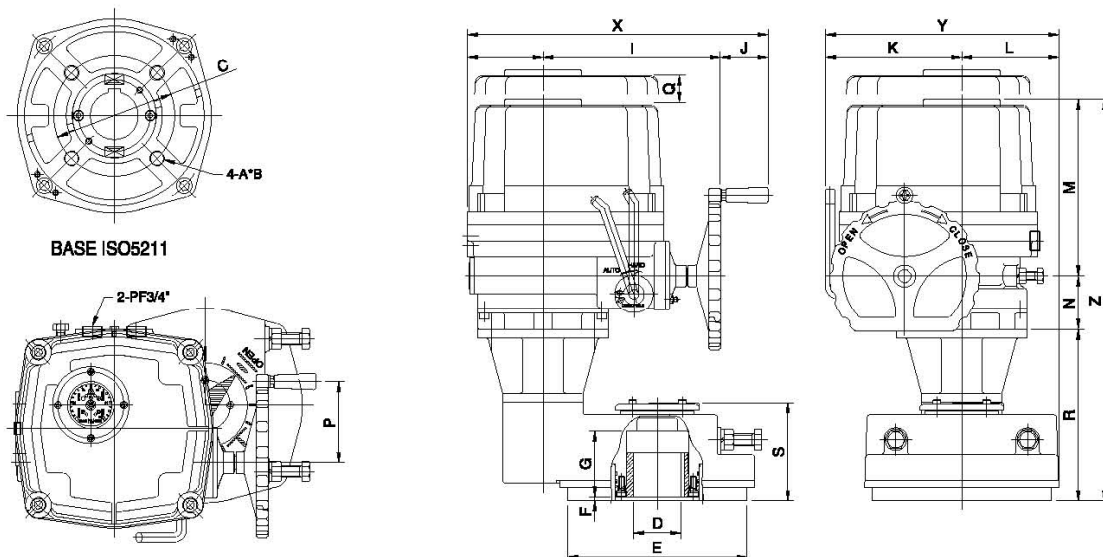
ELECTRIC ACTUATOR

Dimensional Drawing

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



HQ200, HQ300



Dimension

unit(mm)

Model	Base ISO 5211		D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
	φ C	B																			
HQ008	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	φ 70	12																			
HQ010	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	φ 70	12																			
HQ015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	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	-	-	338	229	268
	φ 70 / φ 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
	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	-	-	368	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	-	-	368	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	-	-	410	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	-	-	410	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	410	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	410	319	563
	φ 140* / φ 165	24* / 30																			

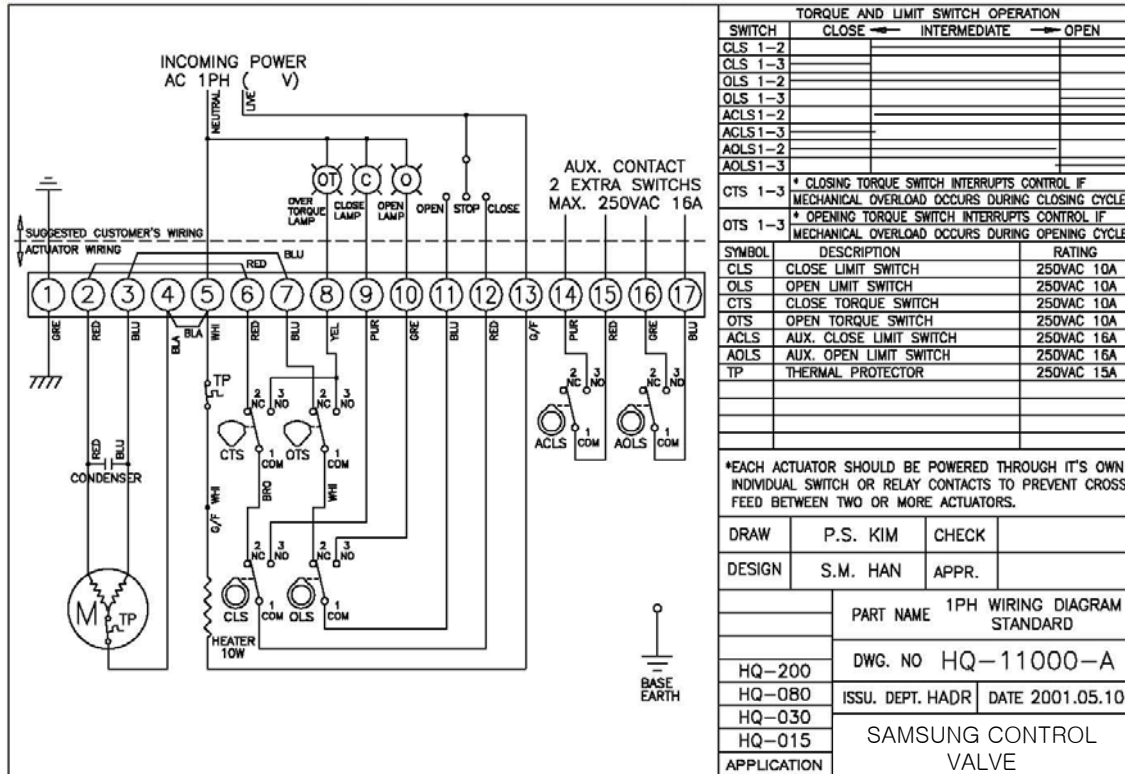
※ F14" is drilled by request.

ELECTRIC BALL VALVE

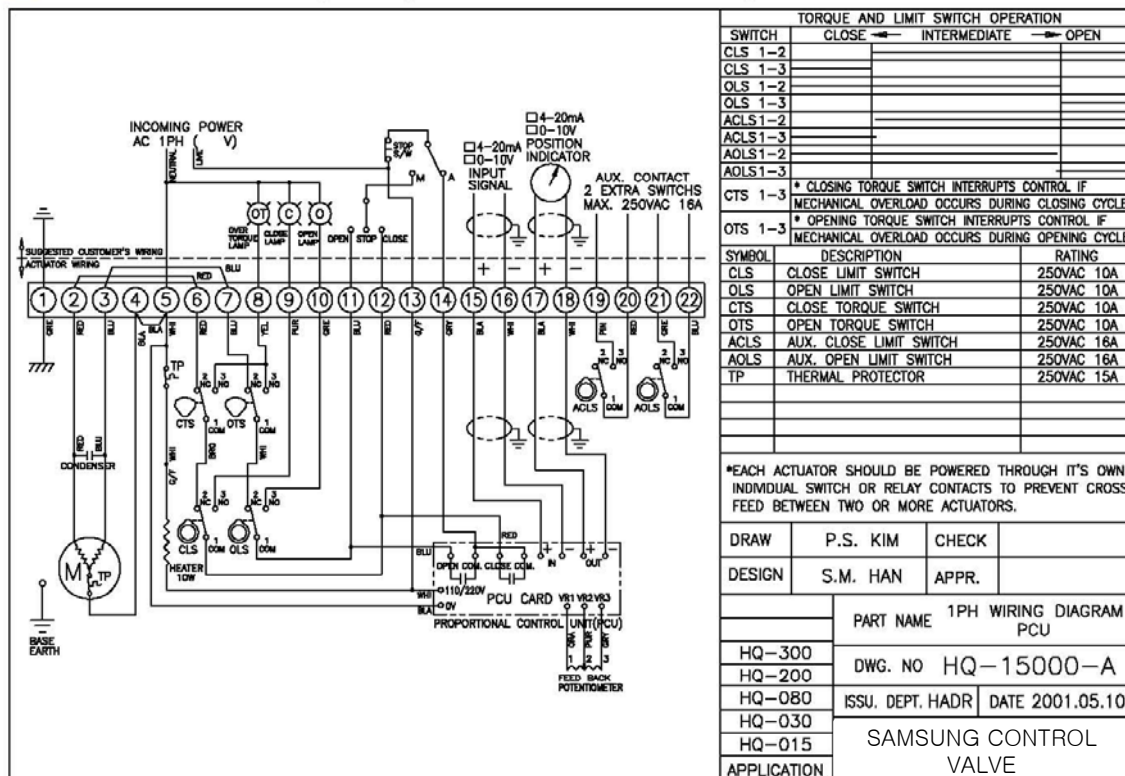
MODEL : MB-4000

ELECTRIC ACTUATOR

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

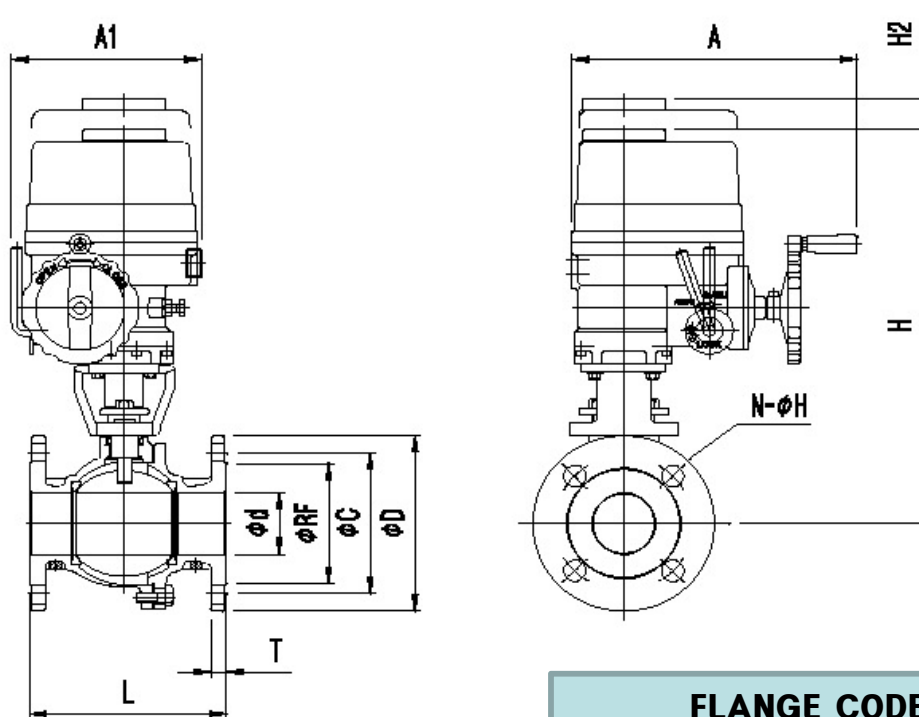


Proportional Type (1- phase, 50/60Hz)



※ Wiring drawings are provided upon request.

MB -4000 SRIES DIMENSION



FLANGE CODE : JIS 10 K

size	A	A1	H	H2	L	d	D	RF	C	N-h
15A	126	106	257		108	15	95	52	70	4-15
20A	126	106	263		117	20	100	58	75	4-15
25A	126	106	271		127	25	125	70	90	4-19
32A	258	170	340	120	140	32	135	80	100	4-19
40A	258	170	352	120	165	40	140	85	105	4-19
50A	258	170	365	120	178	50	155	100	120	4-19
65A	338	229	406	160	190	65	175	120	140	4-19
80A	338	229	482	160	203	80	185	130	150	8-19
100A	368	259	500	180	229	100	210	155	175	8-19
125A	368	259	550	180	356	125	250	185	210	8-23
150A	368	259	595	180	397	150	280	215	240	8-23
200A	410	297	720	210	457	200	330	265	290	12-23
250A	410	319	980	210	533	250	400	325	355	12-23
300A	410	319	1360	210	610	300	445	375	400	16-25
350A	410	319	1410	210	686	350	490	415	445	16-25