HKC
VALVE AUTOMATION

HCAG-EL-24E R1

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HKC

ELECTRIC ACTUATORS

Electric Multi-turn Actuator
Electric Part-turn Actuator
Electric Linear Actuator





Company Introduction

Since 1991, HKC has been dedicated to delivering the highest quality products and services to our customers. Furthermore, we have made significant efforts to lead and advance the rapidly changing industry through continuous innovation management, technical development, human resource management, and more.

With a strong foundation in technical theory and diverse experience, HKC possesses unique know-how that serves as the driving force behind the development and scientific production of all our products. As a result, HKC is evolving into a first-class corporation that leads the valve automation industry with cutting-edge technologies.



HKC places great importance on corporate social responsibility.
We actively seek opportunities for mutual progress, sharing, and development with our partners and customers. Moreover, our customer-focused management approach ensures that all our services prioritize customer satisfaction above all else.

HKC will continue to strive to become a global leading corporation in the valve automation industry of the 21st century. We aim to achieve this by making significant contributions to the future through the provision of the highest quality products, continuous development of new technologies, and unwavering customer service.


N3104
N3104
ICL
10K300
ICL
10K300

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HM Series

Features

※ Constructed with high-quality aluminum alloy for durability and excellent corrosion resistance.
※ The wide LCD display provides various useful information, such as valve position and torque.
※ Features partial stroke function for valve diagnostics and water hammer prevention function.
※ Easy setup using a remote control.
※ Precise modulation control option available (with a ratio of 500:1 based on 1-minute operating time)
※ Flameproof (Ex db IIC T4) option available.
※ IP68 rating (up to 10 meters, 72 hours) option available.
※ Communication options include PROFIBUS and MODBUS.

Description

Engineered for safe and dependable operation, the HM Series electric multi-turn actuator is ideal of valve applications, including globe and gate valves. Addtionaly when combined with a gearbox, it expands its utility to accomodate larger quarter-turn valves such as ball and butterfly valves.



◆ Wide range of application

With reliable and stable operation, the HM Series is used in many industries:

※ Oil & gas
※ Powerplant
※ Chemical & petrochemical
※ Water
※ Marine & shipbuilding

◆ High corrosion protection

The housings of all HM Series actuators are constructed from high-grade aluminum alloys, ensuring both durability and lightweight design. To enhance corrosion resistance, the housings undergo hard-anodization both internally and externally, with an additional epoxy-polyurethane coating applied to the exterior surface. For applications in particularly harsh or corrosive environments, anti-corrosive coating can be optionally applied to the HM Series to further augment corrosion protection.

◆ Wide range of torque

The direct torque of HM Series ranges from 35 to 3,000 Nm, and upto 500,000 Nm when combined with a worm gearbox.

◆ User friendly interface

To configure the HM Series actuator, the cover does not need to be removed, allowing for non-intrusive setting adjustments. Settings can be easily adjusted using either the local control switches or remotely through the LCD window using a remote. The user interface supports both English and Korean languages, providing the following information

※ Current status display (open/ close/ stop)
※ Current valve position & valve torque
※ LED signal lamp indicating status
(Red: open/Green: close/Yellow: fault)
※ Temperature readings
※ Fault messages
※ System backup rechargeable battery level

◆ Certificates and approvals

※ IECEx (Ex db IIC T4 Gb)
※ ATEX (II 2G Ex db IIC T4 Gb)
※ KCs (Ex d IIB +H2 T4)
※ EAC (1 Ex d IIB T4 Gb X, Ex tb IIIC T135°C Db)
※ CCC (Ex db IIB +H2 T4 Gb)
※ SIL 2/3
※ ABS type approval
※ RMRS type approval

◆ Smart and intelligent control

Motor overheat protection: the thermostat resistor inside the motor senses the temperature and stops the actuator in case of a motor overheat.

Precise modulation control: solid state design HM series actuators provide more accurate modulation control (500:1 based on 1 minute operating time).

Reversal protection: an auto time delay is added when the actuator is commanded to suddenly reverse its direction to prevent the valve from receiving a shock load.

Water hammer protection: adjustable pulsed operation is applied to any portion of the open/ closing valve stroke to reduce the speed and to prevent the valve from receiving a hydrualic shock.

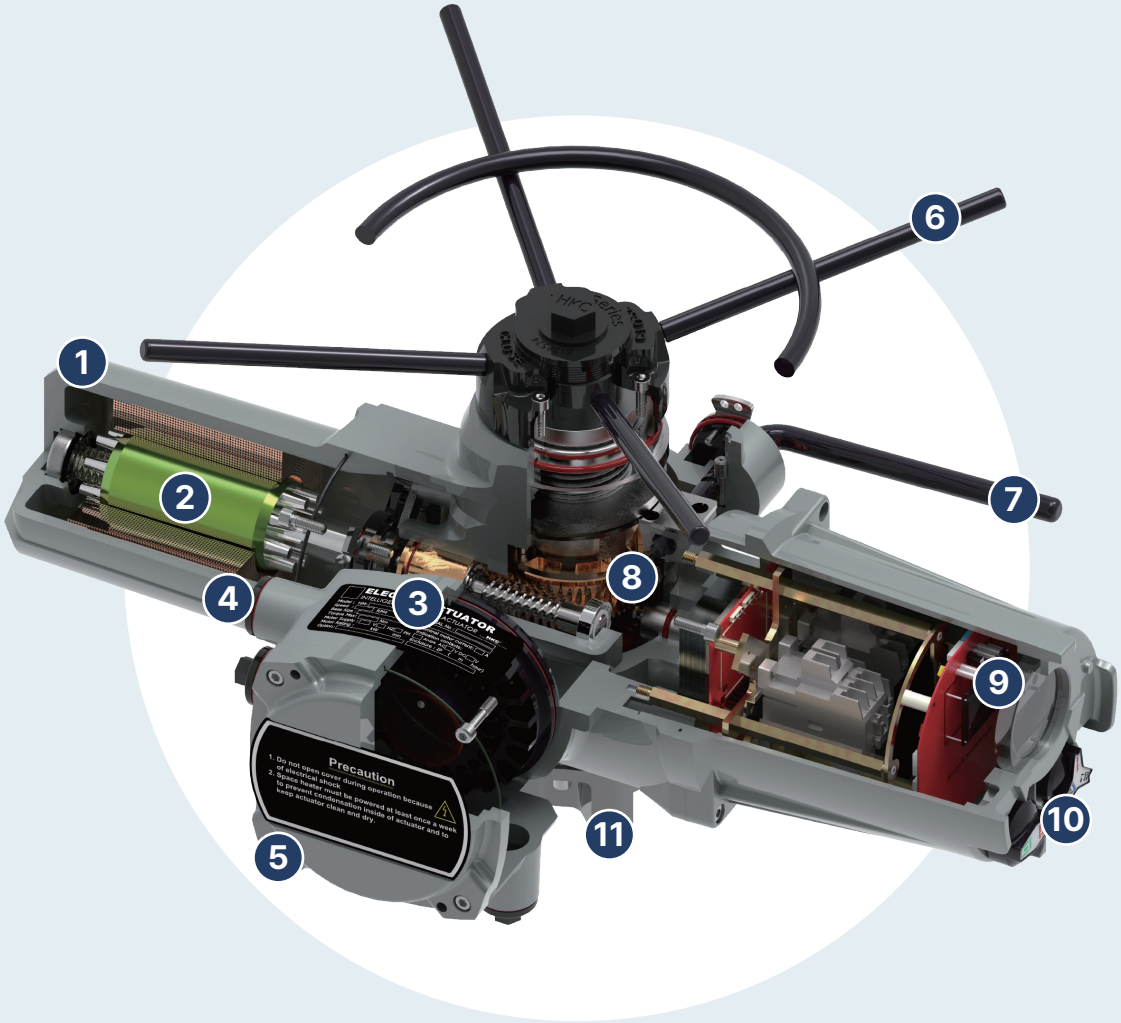
Partial stoke function: to ensure reliable valve operation, the HM-seires partilally opens/closes valve to the pre-set stroke and determines whether the valve is jammed or not.

Auto phase discriminator for 3-phase power

Password setting for security

Communication: Profibus DP, Modbus RTU

Design Features



1 Body & cover

The body and cover of the HM Series are crafted from high-grade aluminum alloys. To ensure superior corrosion resistance, they undergo hard anodization and epoxy-polyurethane coating. For applications in highly corrosive environments, anti-corrosive coating can be additionally applied to enhance corrosion protection. All components undergo precise machining within the permissible limits at HKC's machining center.

2 Motor

The HM Series motors are available in both 1-phase and 3-phase options. Custom-built for valve automation, these motors are designed to deliver high torque, low current, and low inertia. Thermostat protection is guaranteed by a thermostat resistor embedded within the motor, automatically halting operation in case of overheating.

3 Nameplate

All essential information concerning the HM Series actuator is provided on the nameplate, including the model name, serial number, speed (in RPM), maximum torque, power, and more. Each HM Series actuator is assigned a unique serial number, meticulously recorded in our system along with all pertinent details for future reference.

4 Cable entries

HM Series actuators have 5 cable entries:

※ Standard: 4 x PF1″, 1 x PF1½″ (HM-004 to 060)
4 x NPT1″, 1 x NPT1½″ (HM-004 to 300)

※ Flameproof: 4 x NPT1″, 1 x NPT1½″

5 Terminal compartment

The double-sealed terminal compartment offers the actuator comprehensive protection from environmental factors, even when the cover is removed for wiring purposes, ensuring the internal components and wires remain intact.

6 Handwheel

The manual operation (handwheel drive) can be activated by locking the manual override lever into the manual operation mode (pushed down).

7 Manual override lever

Manual operation is independent of the motor drive, ensuring safe operation. The manual override lever can be pushed down and locked regardless of the motor's status, whether it's running or not. However, it's important to note that the motor drive takes precedence over the handwheel drive; the lever automatically returns when the motor starts running. Both the handwheel and lever are designed for easy separation from the body, facilitating maintenance and installation in narrow or confined spaces.

The standard handwheel for the HM Series actuator is the direct drive handwheel, selected to match the actuator's size for effective and efficient manual operation. Optionally, the GearBox Handwheel (GBH) is available upon request, aiding users in turning the handwheel with less effort, although the number of turns increases due to the gear ratio (refer to Mechanical Data on page 9 for more details).

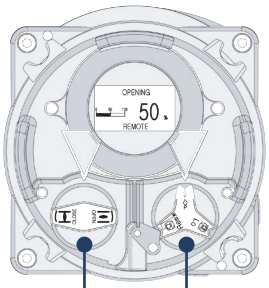
8 Worm gear system

The HM Series mechanical worm gear system provides a necessary self-locking feature which prevents displacement of valve position when an unwanted external force acts upon the valve.

9 Display

The high-resolution LCD screen provides a wealth of useful information, including the current status (open/close/stop), valve position, torque measurement, temperature, fault messages, system backup rechargeable battery level, and more. This information is complemented by a duplicated LED signal lamp unit (red: open/green: close/yellow: fault). The display is safeguarded by a sturdy 10 mm polycarbonate window.

All settings can be adjusted using either the local control switches or the remote control through the LCD window, with the user interface supporting both English and Korean languages.



Operation Selector Switch

Function Selector Switch
(Spring return type switch)

10 Local control switches

Both the function selector switch (open/close) and the lockable operation selector switch (local/stop/remote) are magnetic switches, designed not to penetrate the control cover. This non-penetration design ensures the isolation of internal circuits and enhances the actuator's protection from environmental factors such as water or dust ingress.

11 Mounting base

Both thrust (ISO 5210) and non-thrust type (ISO 5211 or MSS SP102) bases can be easily separated for installation and maintenance purposes. Importantly, the actuator remains protected by the remaining bottom cover during this process.

Torque Data

◆ 1-Phase Power

RPM		Torque (Nm)		
50 Hz	60 Hz	HM-008	HM-020	HM-040
18	21	65	165	450
24	29	60	130	400
36	43	45	130	350
48	57	40	125	320
72	86	30	100	230
96	115	25	80	190
Motor rating (kW)		0.75	1.2	1.2

Notes :

※ HM-040 actuator is available only with 220 V ac for 1-phase

◆ 3-Phase Power

RPM		Torque (Nm)									
50 Hz	60 Hz	HM-004	HM-008	HM-011	HM-020	HM-040	HM-060	HM-100	HM-150	HM-200	HM-300
18	21	35	80	110	200	400	-	-	-	-	-
24	29	35	80	110	200	400	600	1,000	1,500	2,000	3,000
36	43	35	80	-	200	300	-	850	-	-	-
48	57	35	68	110	200	250	470	680	1,000	1,360	-
72	86	35	48	-	176	250	470	680	1,000	1,360	-
96	115	35	40	-	142	230	370	540	750	1,000	-
Motor rating (kW)		0.75	0.75	0.75	1.2	1.2	1.9	2.6	3.7	5.5	5.5

◆ 1-Phase Power Solid State Design Model (Higher Precision Modulation)

RPM		Torque (Nm)	
50 Hz	60 Hz	HM-008 S1	HM-020 S1
18	21	65	165
24	29	60	130
36	43	45	130
48	57	40	125
72	86	30	100
96	115	25	80
Motor rating (kW)		0.75	1.2

Notes :

※ HM-020 S1 actuator is available only with 220 V ac for 1-phase

◆ 3-Phase Power Solid State Design Model (Higher Precision Modulation)

RPM		Torque (Nm)									
50 Hz	60 Hz	HM-004	HM-008	HM-011	HM-020	HM-040	HM-060	HM-100	HM-150	HM-200	HM-300
18	21	35	80	110	200	400	-	-	-	-	-
24	29	35	80	110	200	400	600	1,000	1,500	2,000	3,000
36	43	35	80	-	200	300	-	850	-	-	-
48	57	35	68	110	200	250	470	680	1,000	1,360	-
72	86	35	48	-	176	250	470	680	1,000	1,360	-
96	115	35	40	-	142	230	370	540	750	1,000	-
Motor rating (kW)		0.75	0.75	0.75	1.2	1.2	1.9	2.6	3.7	5.5	5.5

Specification & Mechanical Data

◆ Standard Specification

Enclosure	Weatherproof enclosure IP67		
	High grade aluminium alloy, hard anodized & epoxy-polyurethane coated (HM-004 to HM-060)		
	Nodular cast iron & high grade aluminium alloy, hard anodized & epoxy-polyurethane coated (HM-100 to HM-300)		
Power supply	1-Phase: 110/220 V ac, 50/60 Hz, (HM-008, 020, 040) *HM-040 is available only with 220 V ac		
	3-Phase: 220/380/420/440/460/480 V ac, 50/60 Hz		
Voltage tolerance	±10%	Starting voltage drop (Max.)	-15%
Duty cycle (on-off)	1-phase power: S2 15 min, 3-phase power: S2 30 min (room temperature, average load of 50% of maximum torque)		
Torque	1-phase power: 24 to 450 Nm, 3-phase power: 35 to 3,000 Nm. When combined with a gearbox up to 500,000 Nm		
Ambient temperature	-20 to +70 °C	Monitoring switches	4-SPST, 250 V ac 16 A rating
Travel angle	0 to 10,000,000 turns	Cable entries	4 x PF1", 1 x PF1½" (HM-004 to 060) or
Signal lamp unit	Red: open, green: close, yellow: fault		4 x NPT1", 1 x NPT1½" (HM-004 to 300)
Self locking	By worm gear	Indicator	Digital display position indicator
Motor	Induction motor (reversible motor)	Lubrication	Grease moly (EP type)
Designed life	Torque & thrust test: 50,000 cycles	Manual operation	Declutchable manual override
Mounting base	Multi-turn: ISO 5210, Part-turn: ISO 5211 MSS SP-102		
Local/remote control	Local control: two rotary selector switches (function switch & operation switch), remote control: setting tool (LCD window)		
Coating (color)	⚪ Grey (Munsell N6.5), ⚫ Matte grey (Munsell M2.5)		

◆ Optional Specification

Enclosure	Flameproof enclosure: Ex db IIC T4 (HM-004 to HM-100), Ex db IIB T4 (ambient temperature: -20 to +60 °C, cable entries: 4 x NPT1", 1 x NPT1½")
	Watertight enclosure: **IP68** (10 m 72 hr)
Additional switch	**AMS** Additional Monitoring Switches: +4, +8, +12 switches (4-SPST, 250 V ac 16 A rating)
Control	**PCU** Proportional control unit (modulating): input/output: 0-10 V dc or 4-20 mA dc, (duty cycle) 1-phase power: S4 25%, 3-phase power: S4 35%, 60-200 starts/hour (room temperature, average load of 50% of maximum torque)
	CPT Current position transmitter (output: 4-20 mA dc)
	PROFI Registered Profibus DP interface modules
	MODBUS Modbus RTU modules
Local control	**ICM** Independent Control Module to operate from a long distance
	ACS Actuator body and control unit separated
Manual operation	**GBH** Gearbox Handlewheel
Coating (color)	Other colors , C5 coating (for corrosive environment)
Others	**FPA** Fire Proofing Actuator (1050±5 °C / 50 min), (250±5 °C / 150 min)

◆ Mechanical Data

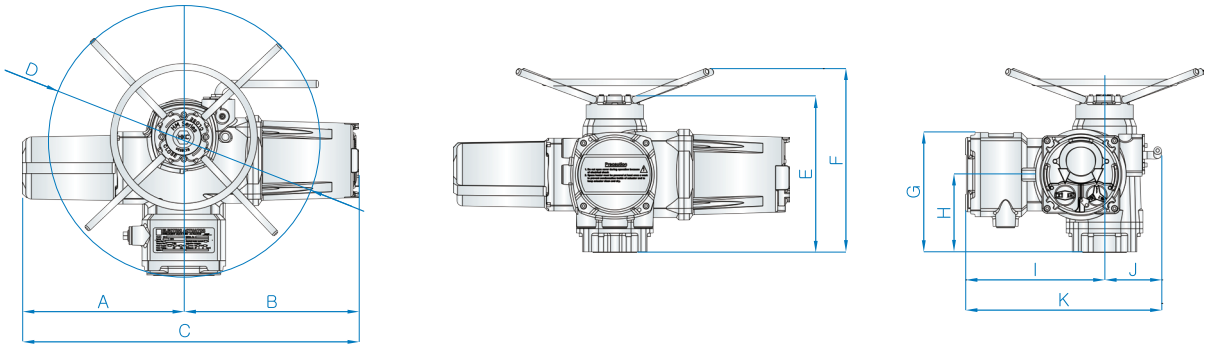
Model	HM-004	HM-008	HM-011	HM-020	HM-040	HM-060	HM-100	HM-150	HM-200	HM-300
Flange size (ISO 5211)	F10	F10	F10	F14	F14	F16	F25	F25	F30	F30
Weight (kg)	40	40	40	65	65	75	190	190	200	200
Thrust rating (kN)	44	44	44	100	100	150	220	220	334	445
Hand wheel ratio	Direct	Direct	Direct	Direct	Direct	Direct	Direct	18:1	18:1	18:1
GBH ratio	15:1	15:1	15:1	15:1	15:1	23:1	54:1	54:1	54:1	54:1

◆ Maximum Stem Diameter - Base

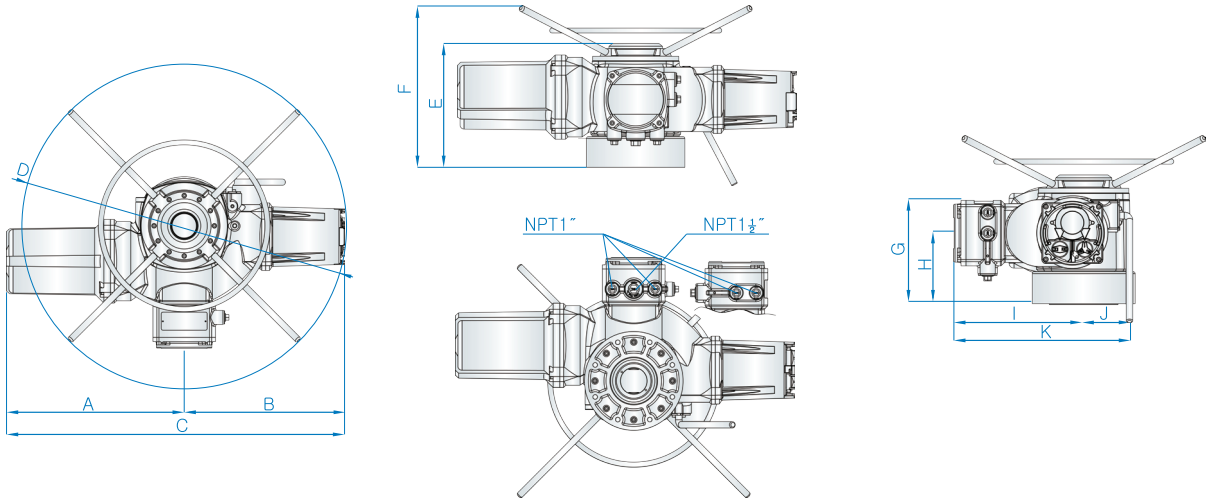
Model		HM-004	HM-008	HM-011	HM-020	HM-040	HM-060	HM-100	HM-150	HM-200	HM-300
Thrust	Rising	32	32	32	38	38	54	64	70	70	83
	Non-rising	26	26	26	32	32	45	51	57	57	73
Non-Thrust	Large type	42	42	42	60	60	80	100	100	120	120
	ISO type	20	20	20	30	30	40	50	50	50	N/A
	Blank type	20	20	20	30	30	44	50	60	60	N/A

Dimensional Drawing

HM-004 to HM-060



HM-100 to HM-300

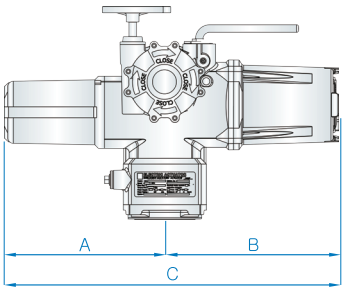


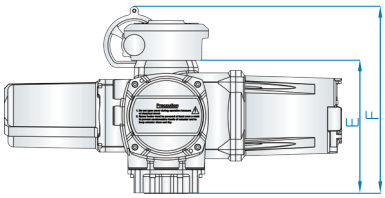
◆ Dimension

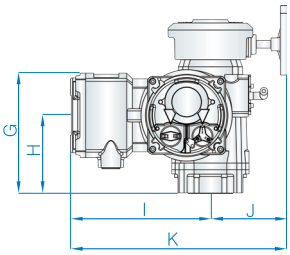
unit (mm)

Model	A	B	C	D	E	F	G	H	I	J	K
HM-004	291	382	673	490	265	316	227	131	277	130	407
HM-008	291	382	673	490	265	316	227	131	277	130	407
HM-011	291	382	673	490	265	316	227	131	277	130	407
HM-020	369	400	769	620	357	420	274	178	318	130	448
HM-040	369	400	769	620	357	420	274	178	318	130	448
HM-060	384	407	791	835	393	481	294	198	320	132	452
HM-100	453	490	942	995	379	494	305	209	379	143	552
HM-150	453	490	942	995	379	494	305	209	379	143	552
HM-200	508	490	997	995	419	611	305	209	379	143	552
HM-300	508	490	997	995	419	611	305	209	379	143	552

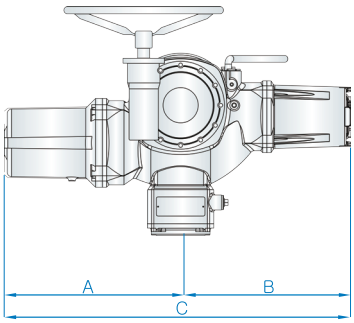
Gearbox Handwheel GBH: HM-004 to HM-060

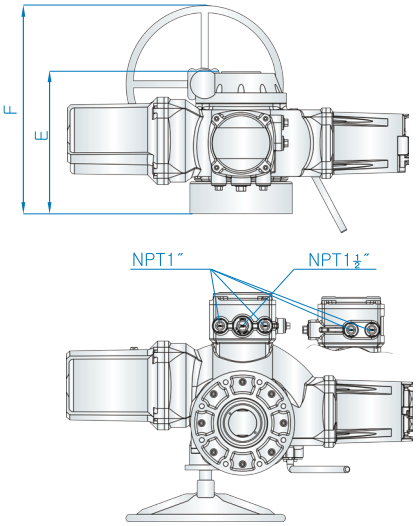


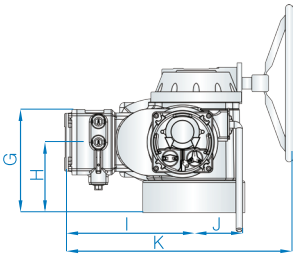




Gearbox Handwheel GBH: HM-100 to HM-300







◆ Dimension

unit (mm)

Model	A	B	C	E	F	G	H	I	J	K
HM-004	291	382	673	237	357	316	227	131	157	434
HM-008	291	382	673	237	357	316	227	131	157	434
HM-011	291	382	673	237	357	316	227	131	157	434
HM-020	369	400	769	304	427	420	274	178	173	491
HM-040	369	400	769	304	427	420	274	178	173	491
HM-060	384	407	791	324	467	481	294	198	174	494
HM-100	453	490	942	416	608	494	305	209	143	669
HM-150	453	490	942	416	608	494	305	209	143	669
HM-200	508	490	997	416	608	611	305	209	143	669
HM-300	508	490	997	416	608	611	305	209	143	669

Ordering Code

Example

	1	2	3	4	5	6	7	8	9	10	11	12	13
HM -	020	05	4	29	4	N	0	0	N	0	0	0	0

1

Model	
004	HM-004
008	HM-008
011	HM-011
020	HM-020
040	HM-040
060	HM-060
100	HM-100
150	HM-150
200	HM-200
300	HM-300

2

Coating	
05	Grey (Munsell N6.5)
21	Matte Grey (Munsell M2.5)
SP	Other colors
C5	C5 coating

3

Enclosure	
0	General purpose
1	IECEx/ATEX Flameproof: Ex db IIB
2	IECEx/ATEX Flameproof: Ex db IIC
3	KCs Flameproof: Ex db IIB
4	KCs Flameproof: Ex db IIB +H2
5	EAC Flameproof: Ex db IIB

4

RPM	
18	18 (50 Hz)
21	21 (60 Hz)
24	24 (50 Hz)
29	29 (60 Hz)
36	36 (50 Hz)
43	43 (60 Hz)
48	48 (50 Hz)
57	57 (60 Hz)
72	72 (50 Hz)
86	86 (60 Hz)
86	96 (50 Hz)
B5	115 (60 Hz)

5

Input Voltage	
1	1-Phase 110V
2	1-Phase 220V
3	3-Phase 220V
4	3-Phase 380V
5	3-Phase 440V
6	3-Phase 460V
7	3-Phase 480V

6

Cable entry	
P	4 x PF1", 1 x PF1½"
N	4 x NPT1", 1 x NPT1½"

7

Control	
0	On-off
1	**PCU**: Proportional Control Unit (intput/output: 0 – 10 V dc or 4 – 20 mA dc)
2	**CPT**: Current Position Transmitter (output: 4-20 mA dc)

8

Communication	
0	N/A
1	Profibus (single) communication protocol
2	Profibus (dual) communication protocol
3	Modbus (single) communication protocol
4	Modbus (dual) communication protocol

9

Additional Monitoring Switches	
0	N/A
1	+4 AMS
2	+8 AMS
3	+12 AMS

10

IP Rating	
0	IP67
1	IP68 (10 m 72 hr)

11

Temperature	
0	Standard: -20 to +70 °C
	Flameproof: -20 to +60 °C

12

Handle	
0	Standard
G	**GBH**: Gearbox Handwheel

13

Other Options	
0	N/A
F	**FPA**: Fire Proofing Actuator
I	**ICM**: Independent Control Moduel
A	**ASC**: Actuator body and control unit separated

Electric Linear Actuator

HL Series



Features

※ Variety of options are available
※ Lightweight, robust, and has high corrosion protection
※ Precise modulating control (300:1 at maximum stroke) as an option
※ Flameproof (Ex db IIB T4) and dust ignition proof (Ex tb IIIC T135°C) enclosures as an option
※ Maximum output force up to 25,000 N
※ Communication (PROFIBUS, MODBUS) options

Description

Ensuring safe and reliable operation, the HL Series electric linear actuator is designed for linear valve applications, such as globe valve.

◆ Wide range of application

With reliable and stable operation, the HL Series is used in many industries:

※ Oil & gas
※ Power plant
※ Chemical & petrochemical
※ Water
※ Marine & shipbuilding
※ General industries

◆ High corrosion protection

The housings of all HL Series actuators are constructed from high-grade aluminum alloys, ensuring robustness and lightweight design. To enhance corrosion resistance, the housings are anodized on both the inside and outside, with an additional polyester powder coating applied to the exterior surface. For usage in severe corrosive environments, anti-corrosive coating can be applied to the HL Series to further enhance corrosion protection.

◆ Wide range of output force

The maximum output force of the HL Series ranges from 5,000 to 25,000 N.

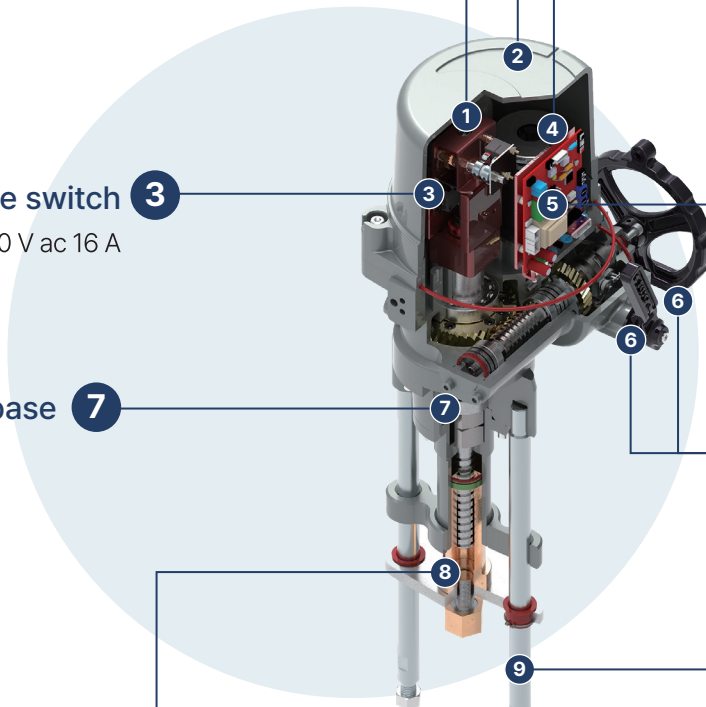
◆ Board spectrum of options

The HL Series has a board spectrum of options to be used in many different environments and satisfy user's needs.

◆ Certificates and approvals

※ IECEx (Ex db IIB T4 Gb, Ex tb IIIC T135°C Db)
※ ATEX (II 2G Ex db IIB T4 Gb, II 2D Ex tb IIIC T135°C Db)
※ KCs (Ex d IIB T4, Ex tD A21 IP6X T135°C)
※ EAC (Ex d IIB T4 Gb, Ex tb IIIC T135°C Db)
※ CCC (Ex db IIB T4 Gb, Ex tb IIIC T135°C Db)

Design Features



2 Body & Cover
High grade aluminum alloy anodized and polyester powder coated

Position control unit 1
Limit switches & potentiometer

4 Motor
1-Phase, 3-Phase, and 24 V dc

Force switch 3
SPDT 250 V ac 16 A

5 PCU (modulation card, option)
Proportional control unit output: 4-20 mA or 0-10 V

Upper base 7

6 Declutch lever & Manual handwheel

Driving rod 8

9 Guide rod

Performance Data & Specification

Performance

Model	Max. output force	Stem speed (mm/sec)	Max. stroke	Rated current (A)						No. of handle turn	Weight
				dc	ac, 1-phase, 50/60 Hz		ac, 3-phase, 50/60 Hz				
	kN	50/60 Hz	mm	24 V	110 V	220 V	380 V	440 V	460 V	n	kg
HL-05KN	5	0.44 / 0.53	60	2.1	1.0 / 1.0	0.6 / 0.5	0.3 / 0.3	0.6 / 0.4	N/A	227	11
HL-07KN	7	0.44 / 0.53	60	2.7	1.2 / 1.1	0.6 / 0.6	0.3 / 0.4	0.6 / 0.5	N/A	227	11
HL-10KN	10	0.69 / 0.82	70	3.9	1.9 / 1.8	0.9 / 0.9	0.6 / 0.4	0.6 / 0.4	0.6 / 0.3	184	21
HL-12KN	12	0.69 / 0.82	70	4.6	2.1 / 2.0	1.0 / 1.0	0.7 / 0.5	0.6 / 0.4	0.6 / 0.4	184	21
HL-15KN	15	0.69 / 0.82	80	5.6	2.2 / 2.1	1.1 / 1.1	0.7 / 0.5	0.7 / 0.4	0.6 / 0.4	210	21
HL-18KN	18	0.69 / 0.83	100	5.8	1.8 / 2.0	0.9 / 1.1	0.6 / 0.5	0.4 / 0.3	0.4 / 0.3	260	33
HL-20KN	20	0.69 / 0.83	100	6.4	2.1 / 2.4	1.0 / 1.2	0.7 / 0.6	0.7 / 0.5	0.7 / 0.5	260	33
HL-25KN	25	0.69 / 0.83	100	7.8	3.2 / 4.0	1.9 / 2.1	0.9 / 0.8	0.8 / 0.6	0.8 / 0.6	260	33

Standard Specification

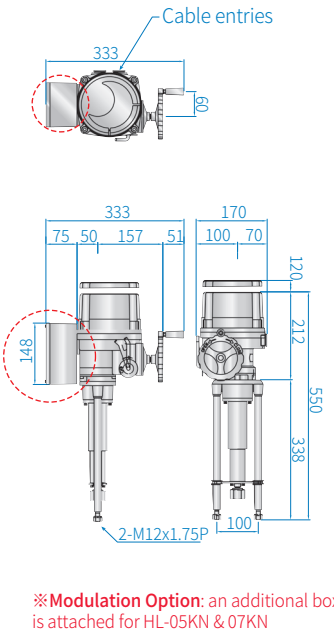
Enclosure	Weatherproof enclosure IP66/IP67		
	High grade aluminium alloy, hard anodized & polyester powder coated		
Max. output force	5,000 to 25,000 N (see the performance table above)		
Power supply	24 V dc		
	1-Phase: 110/220 V ac, 50/60 Hz, ±10%		
	3-Phase: 220/ 380/440/460 V ac, 50/60 Hz, ±10%		
Duty cycle (on-off)	S2 30 min (room temperature, average load of 50% of maximum force)		
Motor	Induction motor (reversible motor)	Cable entries	2 x PF3/4" or 2 x NPT3/4" or 2 x M25
Ambient temperature	-20 to +70 °C	Limit switches	Open/close, 2-SPDT, 250 V ac 16 A rating
Ambient humidity	90% Max. RH (non-condensing)	Force switches	Open/close, 2-SPDT, 250 V ac 16 A rating
Self locking	By double worm gear	Lubrication	Grease moly (EP type)
Manual operation	Declutchable manual override	Terminal block	Spring loaded lever push type
Space heater	HL-05KN, 07KN: 5 W, HL-10KN to 25KN: 10 W, anti-condensation		
Stall protection	Built-in thermal protection, motor stops at 150±5 °C and re-starts at 97±5 °C		
Coating (color)	● Titanium Silver (RAL 9006), ● Grey (RAL 7046), ● Red (RAL 3001)		

Optional Specification

Enclosure	Flameproof enclosure: Ex db IIB T4 (ambient temperature: -20 to +60 °C, cable entries: 4 x NPT1", 1 x NPT1½")
	Dust ignition proof enclosure: Ex tb IIIC T135°C (ambient temperature: -20 to +60 °C, cable entries: 4 x NPT1", 1 x NPT1½")
	Watertight enclosure: **IP68** (10 m 72 hr)
Power	**ADCM** 24 V ac/dc
Additional switch	**ALS** Additional Limit Switches, (+2-SPDT, 250 V ac 16 A rating)
Ambient temperature	**LT** Low Temperature: -40 to +60 °C, lubrication: tribolube-18
Control	**PCU** Proportional Control Unit (modulating), input/output: 0-10 V dc or 4-20 mA dc (duty cycle) S4 40-70%, 800-1,200 starts/hour (room temperature, average load of 50% of maximum force)
	CPT Current Position Transmitteroutput, output: 4-20 mA dc
	PIU Potentiometer unit (0-1 kΩ)
	PROFI Registered PROFIBUS DP interface modules
	MODBUS Modbus modules
Local control	**LCU-B** Local Control Unit-B: LED local control unit (integral switch)
	RBP Rechargeable Battery Pack for emergency fail safe operation
	LCU-B(EX) Explosion proof LED local control unit (integral switch, Ex db IIB T4, Ex tb IIIC T135°C Db)
	LCU-2B(EX) Explosion proof LED local control unit (integral switch, separate terminal box, Ex db IIB T4, Ex tb IIIC T135°C Db)
Coating (color)	Other colors , C5 coating (for corrosive environment)

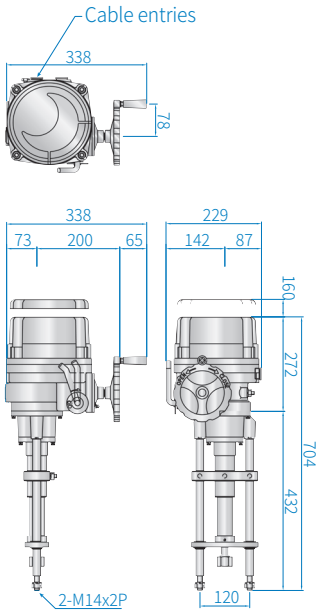
Dimensional Drawing

Standard

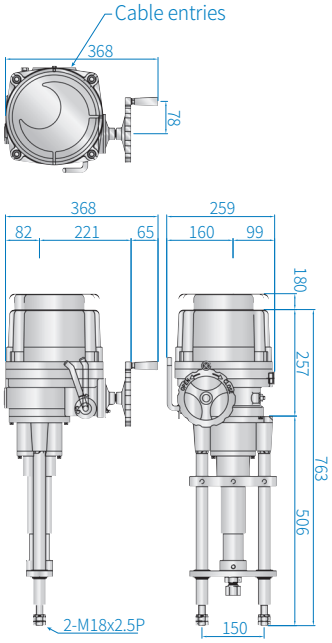


※**Modulation Option**: an additional box is attached for HL-05KN & 07KN

HL-05KN, 07KN

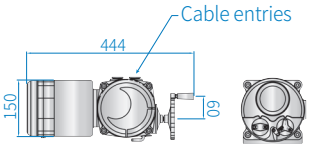


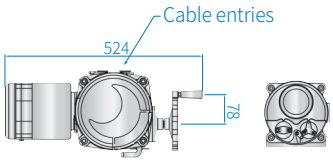
HL-10KN, 12KN, 15KN

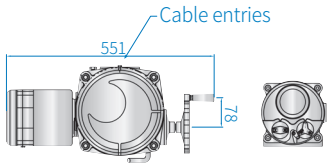


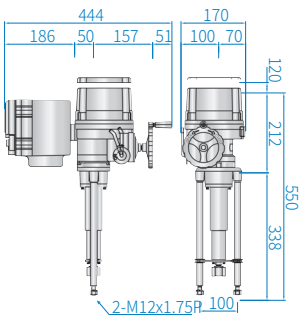
HL-18KN, 20KN, 25KN

Local Control Unit-B: LCU-B

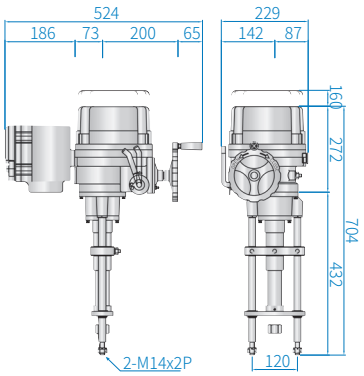




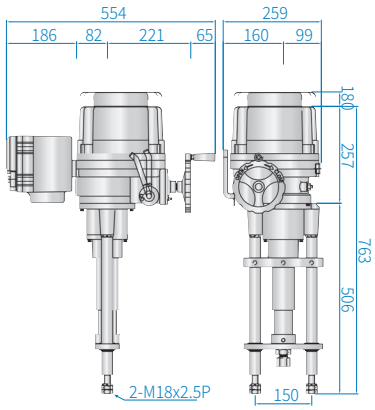




HL-05KN, 07KN

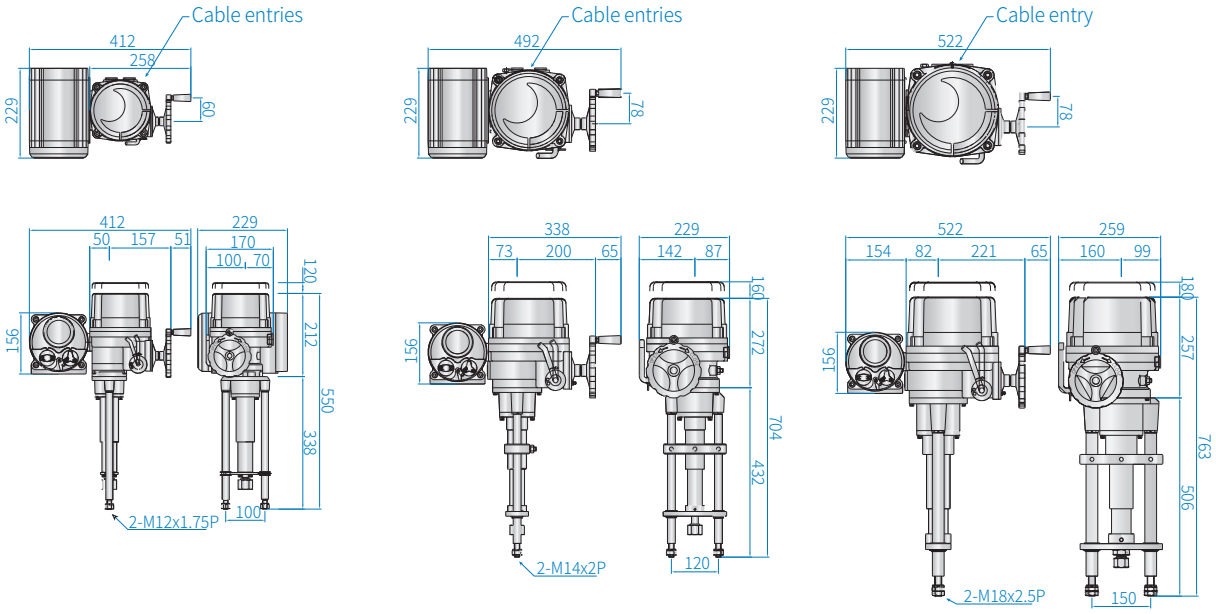


HL-10KN, 12KN, 15KN



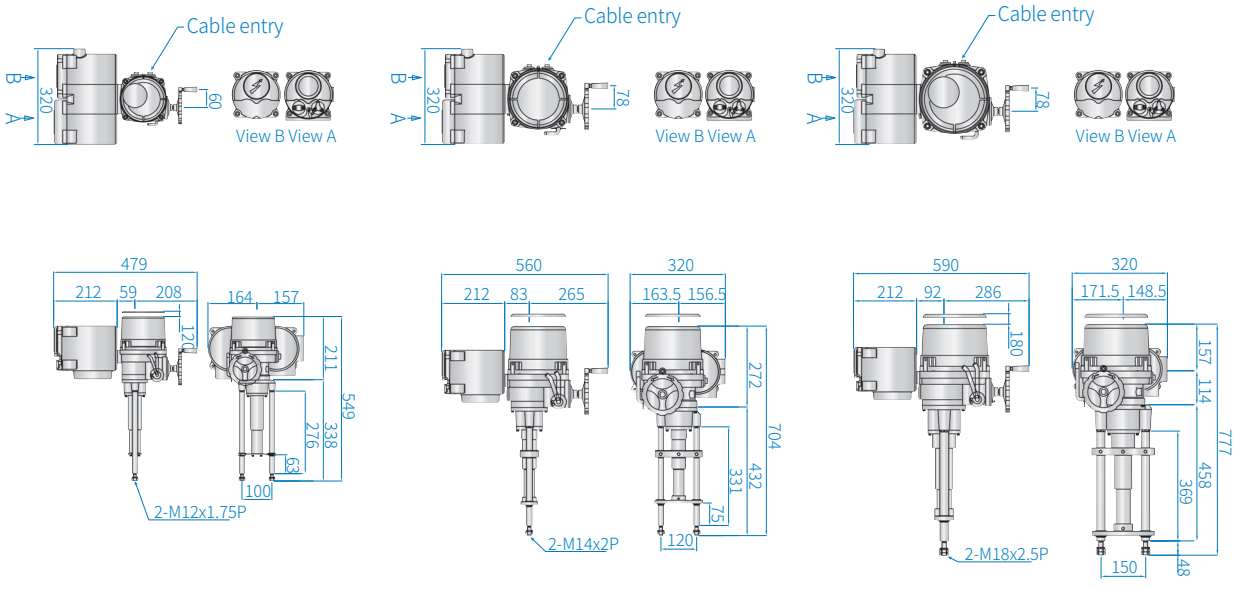
HL-18KN, 20KN, 25KN

Rechargeable Battery Pack: RBP



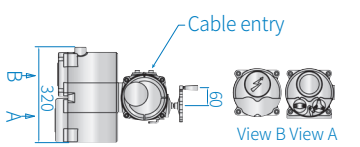
HL-05KN, 07KN | HL-10KN, 12KN, 15KN | HL-18KN, 20KN, 25KN

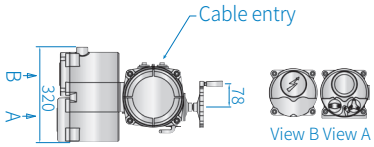
Explosion Proof Local Control Unit-B(EX): LCU-B(EX)

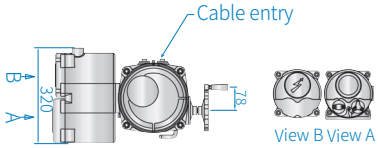


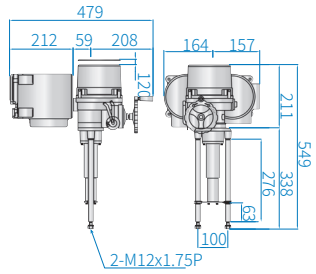
HL-05KN, 07KN | HL-10KN, 12KN, 15KN | HL-18KN, 20KN, 25KN

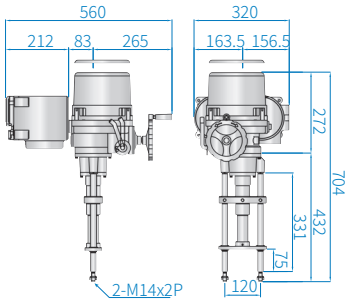
Explosion Proof Local Control Unit-2B(EX): LCU-2B(EX)

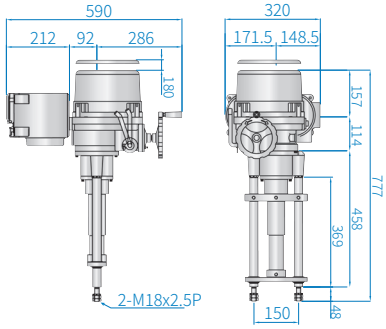










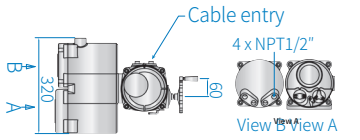


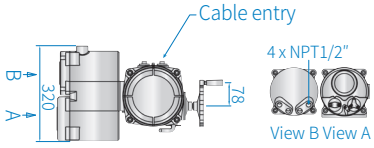
HL-05KN, 07KN

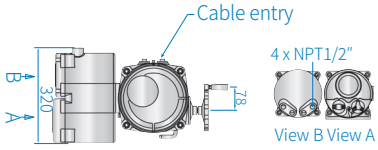
HL-10KN, 12KN, 15KN

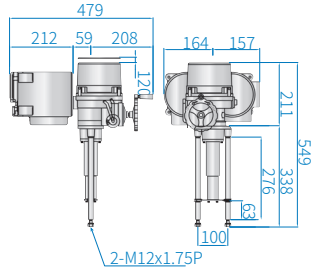
HL-18KN, 20KN, 25KN

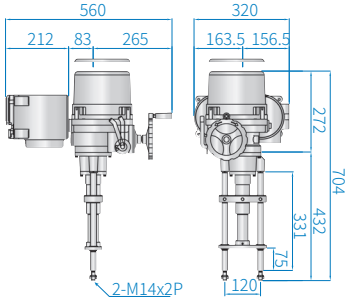
Explosion Proof MODBUS / PROFIBUS

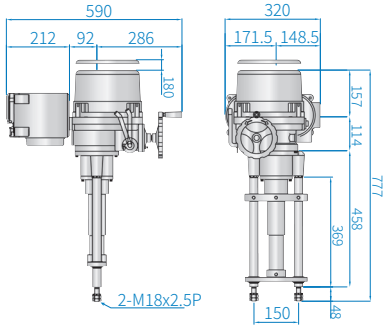












HL-05KN, 07KN

HL-10KN, 12KN, 15KN

HL-18KN, 20KN, 25KN

Ordering Code

Example

	1	2	3	4	5	6	7	8	9	10	11	12
HL -	05	21	A	31	M	0	0	00	0	0	0	0

1

Model	
05	HL-05KN
07	HL-07KN
10	HL-10KN
12	HL-12KN
15	HL-15KN
18	HL-18KN
20	HL-20KN
25	HL-25KN

2

Color	
02	Titanum Silver (RAL 9006)
21	Grey (RAL 7046)
06	Red (RAL 3001)
SP	Other colors
C5	C5 Coating

3

Enclosure	
0	General purpose
A	Flameproof: Ex db IIB
T	Dust ignition proof: Ex tb IIIC

4

Power	
10	1-Phase 110V
11	1-Phase 220V
30	3-Phase 220V
31	3-Phase 380V
32	3-Phase 440V
33	3-Phase 480V
D1	24V DC
D2	24V AC/DC

5

Cable entry	
P	3 x PF3/4"
N	2 x NPT3/4"
M	2 x M25

6

Control	
0	On-off
P	**PIU**: Potentiometer unit (0-1 kΩ)
C	**CPT**: Currentt Position Transmitter (4-20 mA dc)
M	**PCU**: Proportional Control Unit (intput/output: 0 – 10 V dc or 4 – 20 mA dc)

7

Communication	
0	N/A
1	Profibus (single) communication protocol
2	Profibus (dual) communication protocol
3	Modbus (single) communication protocol
4	Modbus (dual) communication protocol

8

Local Control Unit	
00	N/A
A1	Local Control Unit-B: **LCU-B**
D0	Rechargeable Battery Pack: **RBP**
E0	Explosion proof Local Control Unit-B: **LCU-B(EX)**
E1	Explosion proof Local Control Unit-2B: **LCU-2B(EX)**

9

Additional S/W	
0	N/A
1	**ALS**: +2-SPDT (limit s/w)

10

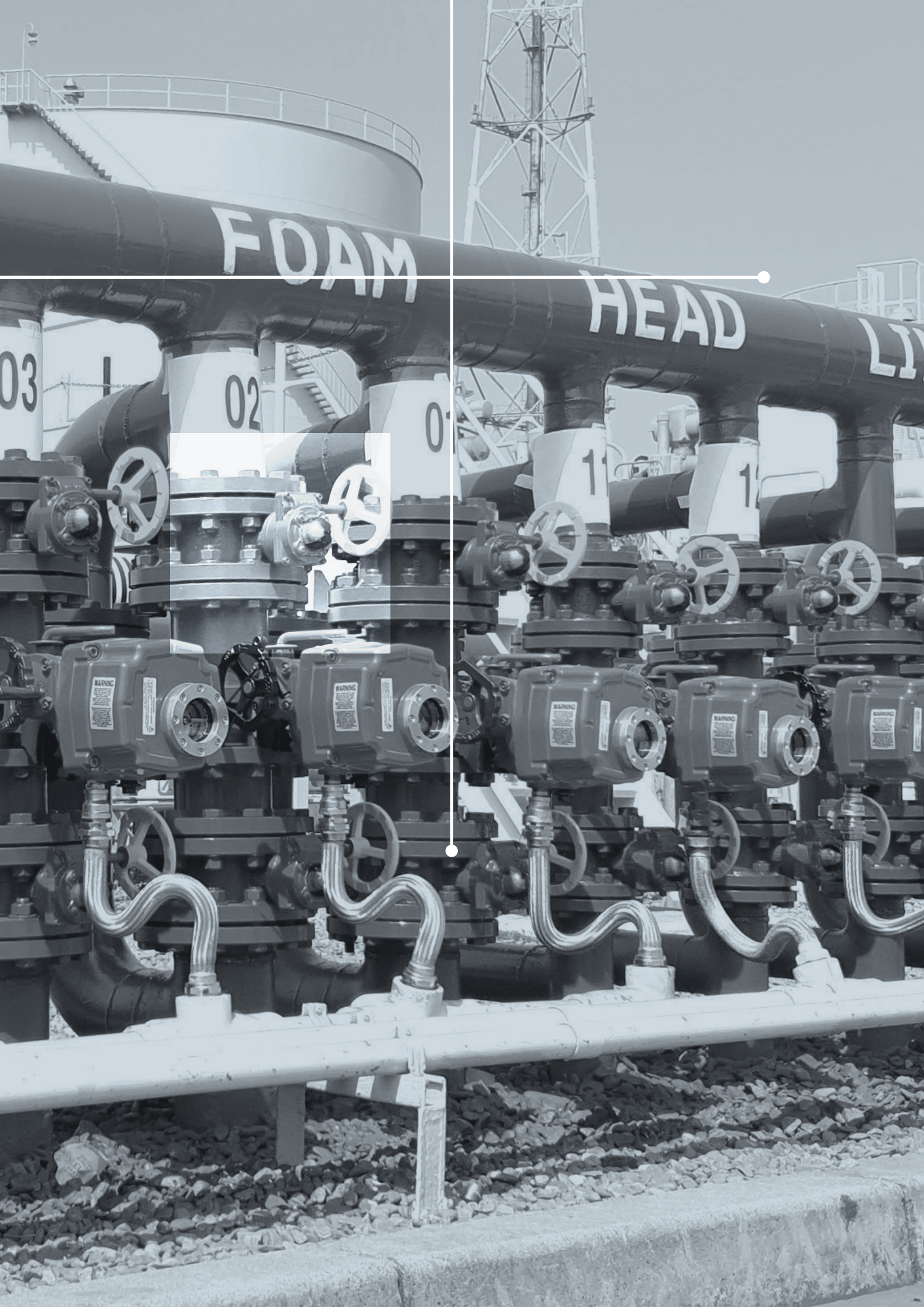
IP Rating	
0	IP66
1	IP67
2	IP68 (10 m 72 hr)

11

Temperature	
0	Standard: -20 to +70 °C
	Flameproof: -20 to +60 °C
L	**LT** Low temperature: -40 to +60 °C

12

Other Options	
0	N/A
F	**FPA**: Fire Proofing Actuator


FOAM
HEAD
03
02
01
11
12
WARNING

Electric Part-turn Actuator

HQ Series


HQ-004


HQ-006


HQ-008 to 120


HQ-200 to 300


HQ-350 to 400


HQ-600 to 900

Description

Designed for quarter-turn valves such as ball valves, butterfly valves, plug valves, dampers, and more, the HQ Series electric part-turn actuators ensure safe and reliable operation.

◆ Wide range of application

With reliable and stable operation, the HQ Series is used in many industries:

※ Oil & gas
※ Power plant
※ Chemical & petrochemical
※ Water
※ Marine & shipbuilding
※ Semiconductor factory & data center
※ General industries

◆ Wide ragne of torque

The maximum torque of the HQ Series ranges from 40 to 9,000 Nm.

◆ Board spectrum of options

The HQ Series offers a broad spectrum of options that can be combined to customize the actuator, satisfying the specific needs of the user.

◆ High corrosion protection

The covers and bodies of HQ Series actuator are made from high grade aluminum alloys which are robust and light weight. To provide high corrosion resistance, they are either chromate treated twice (HQ-004 to HQ-006) or hard-andoized (HQ-008 to HQ-900) on the inside & outside and polyester powder coating is further applied on the outside. For usauge in severe corrosive environments, C5 coating could be further applied to the HQ Series to enhance corrosion protection.

◆ High precision modulation control

250:1 control with 4-20 mA or 0-10 V dc

◆ Local Control Unit options

◆ Fail safe option with battery (RBP)

Available upto 3,000 Nm

◆ Communications

- PROFIBUS, MODBUS, CANBUS

◆ Wide range of voltages

- 100, 110, 200, 220, 240 V ac 1-phase
- 220, 380, 400, 415, 440, 460, 480 V ac 3-phase
- 12, 24 V dc (upto 3,000 Nm)
- 24 V ac/dc (upto 3,000 Nm)

Electric Quarter-turn Actuator

HQ-004

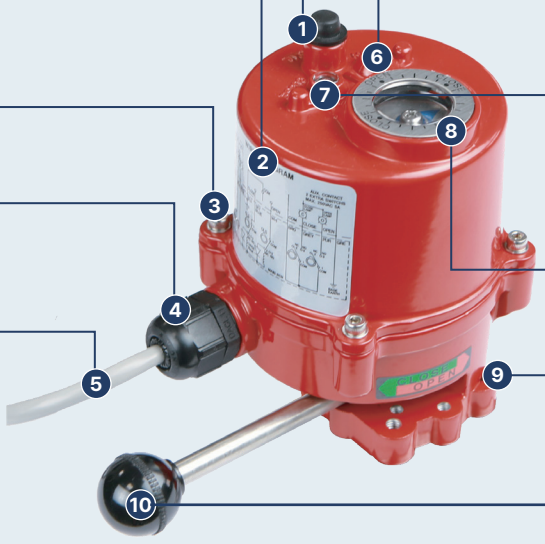
Features

※ Aluminum die-cast, compact size, and light weight
※ Multi-voltage: 85 to 265 V ac, 1-phase / 24 V dc
※ Weatherproof enclosure IP67
※ Push button and manual lever included.
※ 4 limit switches and captive cover bolts
※ Mechanical position indicator
※ LED indicators for open & close



◆ Certificates and approvals

※ RINA type approval



Manual push button 1

Wiring diagram 2

Captive cover bolts 3

Cable entry 4
- PG11

Cable 5
- Standard: 1.2 m
- Option: 3, 6.2, 10 m

6 LED indicator (Fully closed)
- Green

7 LED indicator (Fully open)
- Red

8 Position Indicator

9 Mounting base
-F03, F04, F05

10 Manual lever

Specification

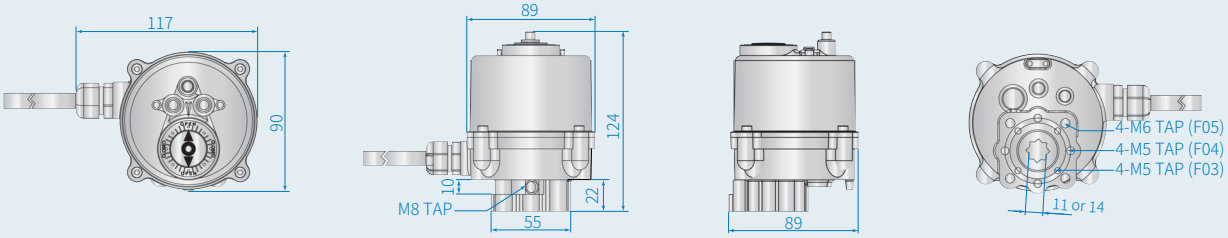
Standard Specification

Enclosure	Weatherproof enclosure IP67		
	High grade aluminium alloy, chromate treated twice & polyester powder coated		
Max. torque output	40 Nm (recommended operating torque: 30 Nm)		
Power supply	1-Phase: 85-265 V ac, 50/60 Hz, ±10% & 24 V dc	Rated current	1-phase: 0.1 A 24 V dc: 0.5 A
Duty cycle (on-off)	S2 30 min (room temp., average load of 50% of maximum torque)	Travel angle	0 - 90 °
Operating time	12 s	Limit switches	4 x SPDT (5 A 250 V ac)
Cable entry	PG11	Ambient temperature	-20 to +70 °C
Cable length	1.2 m	Lubrication	Grease moly (EP type)
		Weight	1.2 kg
No. of handle turns	8		
Flange size (ISO 5211)	F03, F04, F05/ star 11 mm or 14 mm		
Coating (color)	Red (RAL 3001), Blue (RAL 5005), Yellow (RAL 1033), Grey (RAL 7046), Light grey (RAL 7035), Green (RAL 6034)		

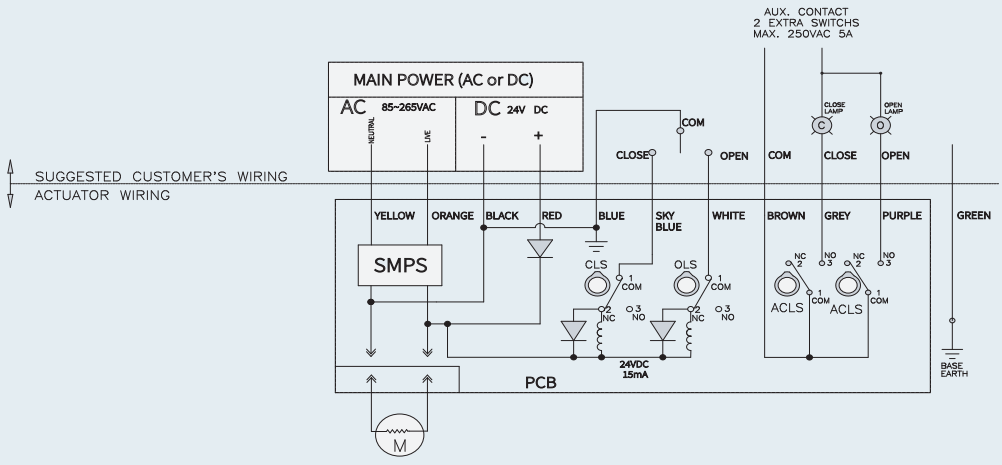
Optional Specification

Operating time	HSA: high speed actuator (Max. torque output: 20 Nm, operating time: 7 s)		
Power supply	12 V dc	Rated current	12 V dc: 1.0 A
Cable entry	M20	Cable length	3 m, 6.2 m, 10 m
Coating (color)	Other colors , C5 coating (for corrosive environment)		

Dimensional Drawing



Wiring Diagram

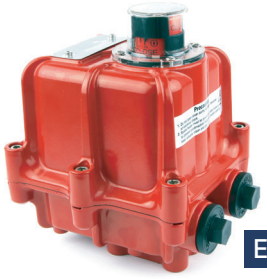


Electric Part-turn Actuator

HQ-006

Features

※ Aluminum die-cast, compact size, and light weight
※ Reversible motor with high torque and low current
※ Weatherproof IP67 or watertight IP68 option
※ Manual lever
※ Proportional Control Unit (PCU, modulating) option
※ Local Control Unit (LCU) option
※ MODBUS communication option



Explosionproof

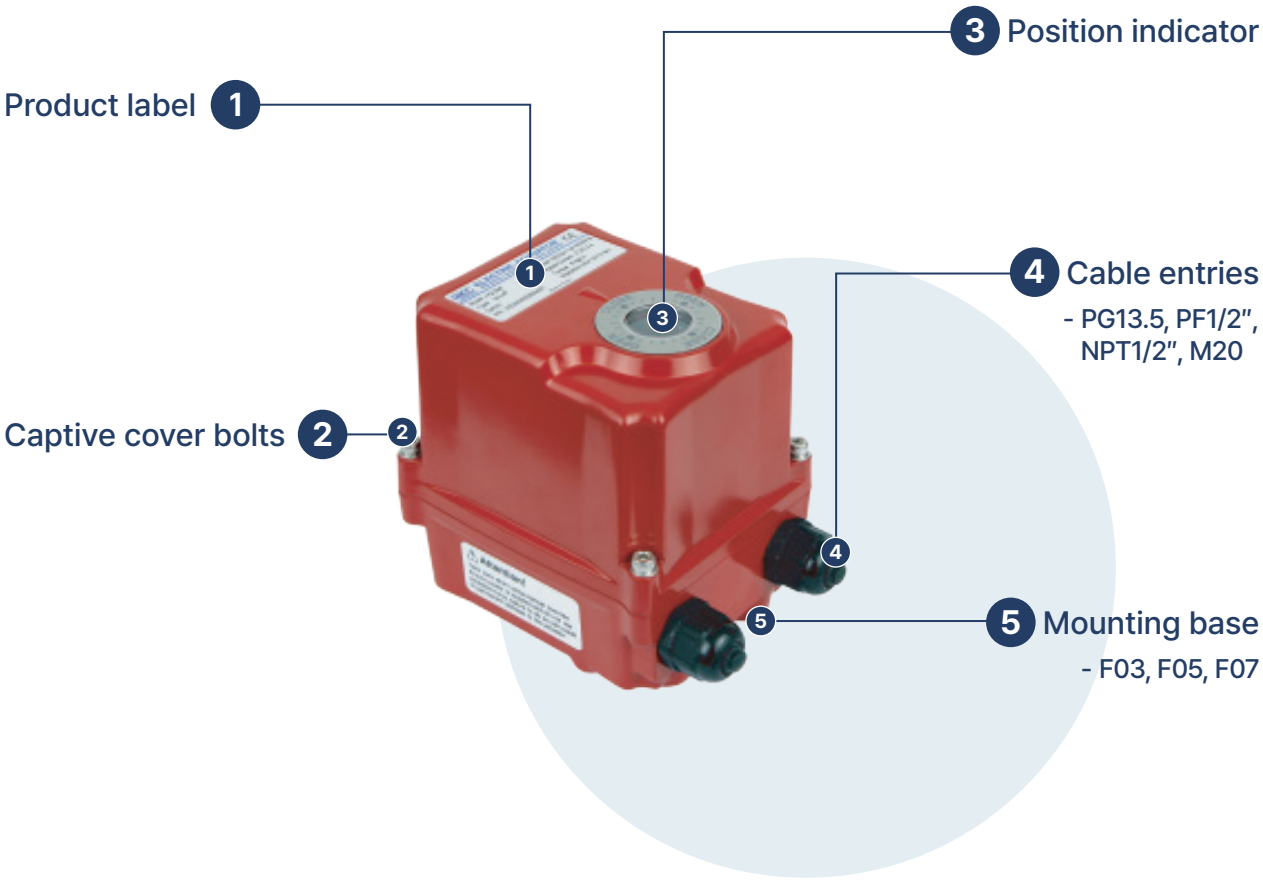


Modulation

◆ Certificates and approvals

※ IECEx (Ex db IIB T4 Gb)
※ ATEX (II 2G Ex db IIB T4 Gb)
※ KCs (Ex d IIB T4 Gb)
※ CCC (Ex d IIB T4 Gb)
※ SIL 2/3
※ ABS type approval
※ RMRS type approval
※ Turk Loydu type approval
※ RINA type approval
※ USCG test approval





Specification

◆ Standard Specification

Enclosure	Weatherproof enclosure IP67		
	High grade aluminium alloy, chromate treated twice & polyester powder coated		
Max. torque output	60 Nm		
Power supply	1-Phase: 110/220 V ac, 50/60 Hz, ±10%	Rated current	1-phase 110 V ac: 0.4 A
			1-phase 220 V ac: 0.2 A
Duty cycle (on-off)	S2 30 min (room temp., average load of 50% of maximum torque)	Travel angle	0 - 90 °, 120 °, 135 °, 180 °, 270 °, 340 °, etc.
Operating time	12 s (60 Hz), 14 s (50 Hz)	Limit switches	4 x SPDT (5 A 250 V ac)
Cable entry	2 x PG13.5, 2 x PF1/2", 2 x NPT1/2", 2 x M20	Ambient temperature	-20 to +70 °C
Weight	3 kg	Lubrication	Grease moly (EP type)
		Space heater	2 W (110/220 V ac), anti-condensation
No. of handle turns	8		
Flange size (ISO 5211)	F03, F05, F07 / star 14 mm (please see dimensional drawing below)		
Coating (color)	Red (RAL 3001), Blue (RAL 5005), Yellow (RAL 1033), Grey (RAL 7046), Light grey (RAL 7035), Green (RAL 6034)		

◆ Optional Specification

Enclosure rating	**WTA** Watertight enclosure actuator (IP68 10 m 72 hr)		
Power supply	**DC** 24 V dc	Rated current	24 V dc: 1.7 A
	ADCM 24 V ac/dc		24 V ac/dc: 1.7 A
Control	Control box is attached : weatherproof enclosure IP67, weight: 4.2 kg, cable entry: 2 x PG13.5		
	PCU Proportional Control Unit (modulating), input/output: 0-10 V dc or 4-20 mA dc (duty cycle) S4 40%, 800-1,200 starts/hour (room temperature, average load of 50% of maximum force)		
	CPT Current Position Transmitteroutput, output: 4-20 mA dc		
	PIU Potentiometer unit (0-1 kΩ)		
	MODBUS Modbus modules		
Local control	**LCU-D** Local control unit (remote/local & open/stop/close)		
	LCU-Z Local control unit (remote/local & open/stop/close) with LED lamp indicators		
Coating (color)	Other colors , C5 coating (for corrosive environment)		

◆ Explosion Proof Specification

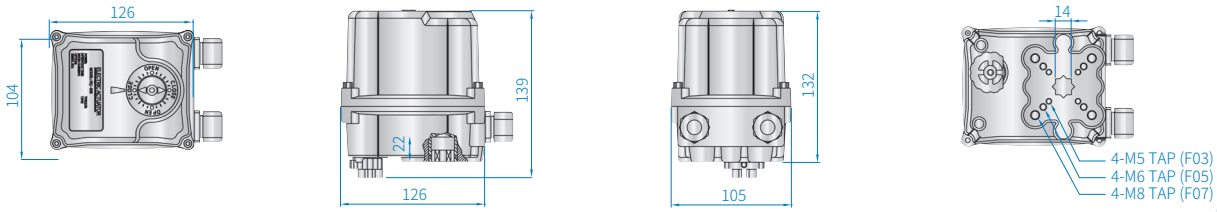
Enclosure	Weatherproof enclosure IP67		
	High grade aluminium alloy, chromate treated twice & polyester powder coated		
Max. torque output	60 Nm		
Power supply	1-Phase: 110/220 V ac, 50/60 Hz, ±10%	Rated current	1-phase 110 V ac: 0.4 A
			1-phase 220 V ac: 0.2 A
Duty cycle (on-off)	S2 30 min (room temp., average load of 50% of maximum torque)	Travel angle	0 - 90 °, 120 °, 135 °, 180 °, 270 °, 340 °, etc.
Operating time	14 s (50 Hz), 12 s (60 Hz)	Limit switches	4 x SPDT (5 A 250 V ac)
Cable entry	2 x NPT1/2", 2 x M20	Ambient temperature	-20 to +60 °C
Weight	4.2 kg	Lubrication	Grease moly (EP type)
		Space heater	2 W (110/220 V ac), anti-condensation
No. of handle turns	8		
Flange size (ISO 5211)	F04, F05, F07 / star 14 mm (please see dimensional drawing below)		
Coating (color)	Red (RAL 3001), Blue (RAL 5005), Yellow (RAL 1033), Grey (RAL 7046), Light grey (RAL 7035), Green (RAL 6034)		

◆ Explosion Proof Optional Specification

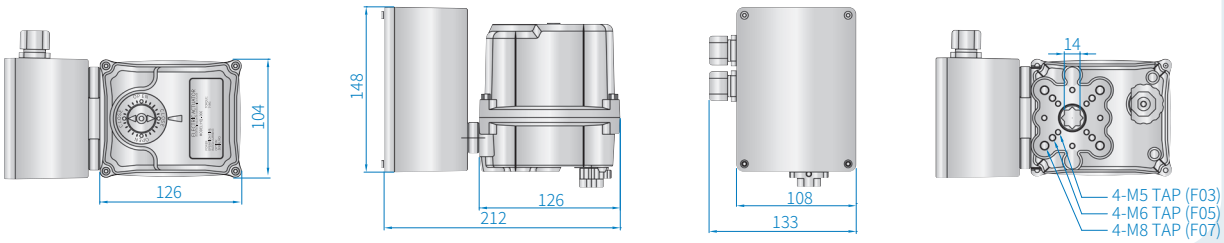
Enclosure rating	**WTA** Watertight enclosure actuator (IP68 10 m 72 hr)		
Power supply	**DC** 24 V dc	Rated current	24 V dc: 1.7 A
	ADCM 24 V ac/dc		24 V ac/dc: 1.7 A
Coating (color)	Other colors , C5 coating (for corrosive environment)		

Dimensional Drawing

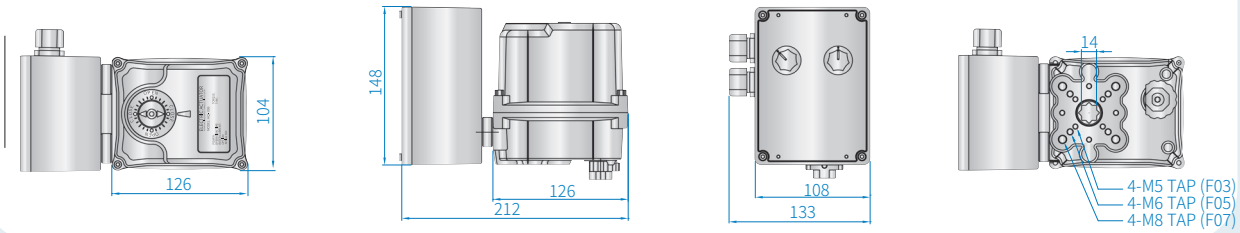
Standard



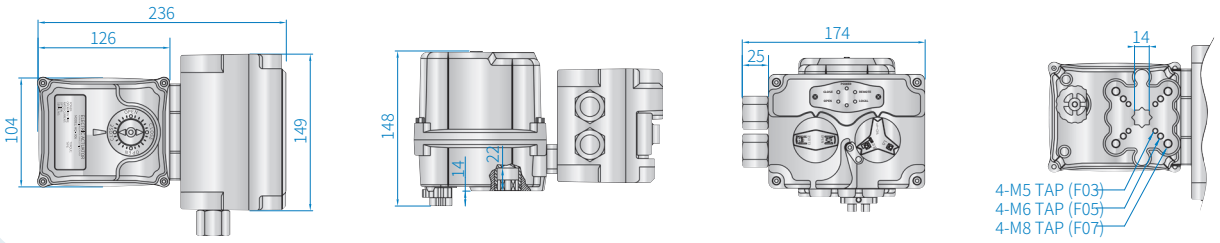
Control Box (PCU, CPT, PIU)



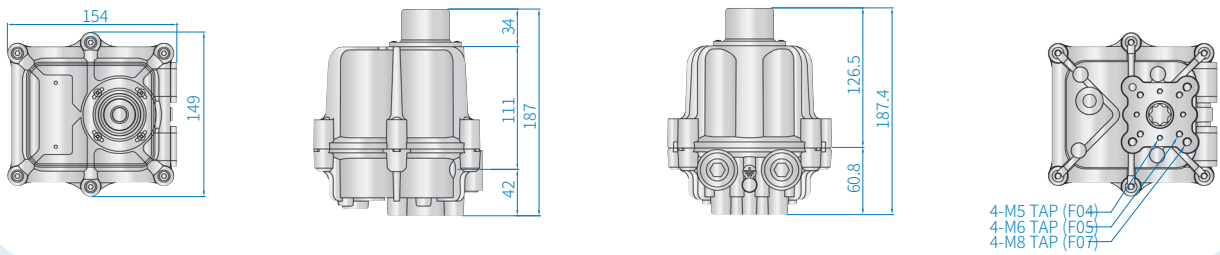
Local Control Unit-D: LCU-D



Local Control Unit-Z: LCU-Z



Explosion Proof



Electric Part-turn Actuator

HQ-008 to HQ-900

Features

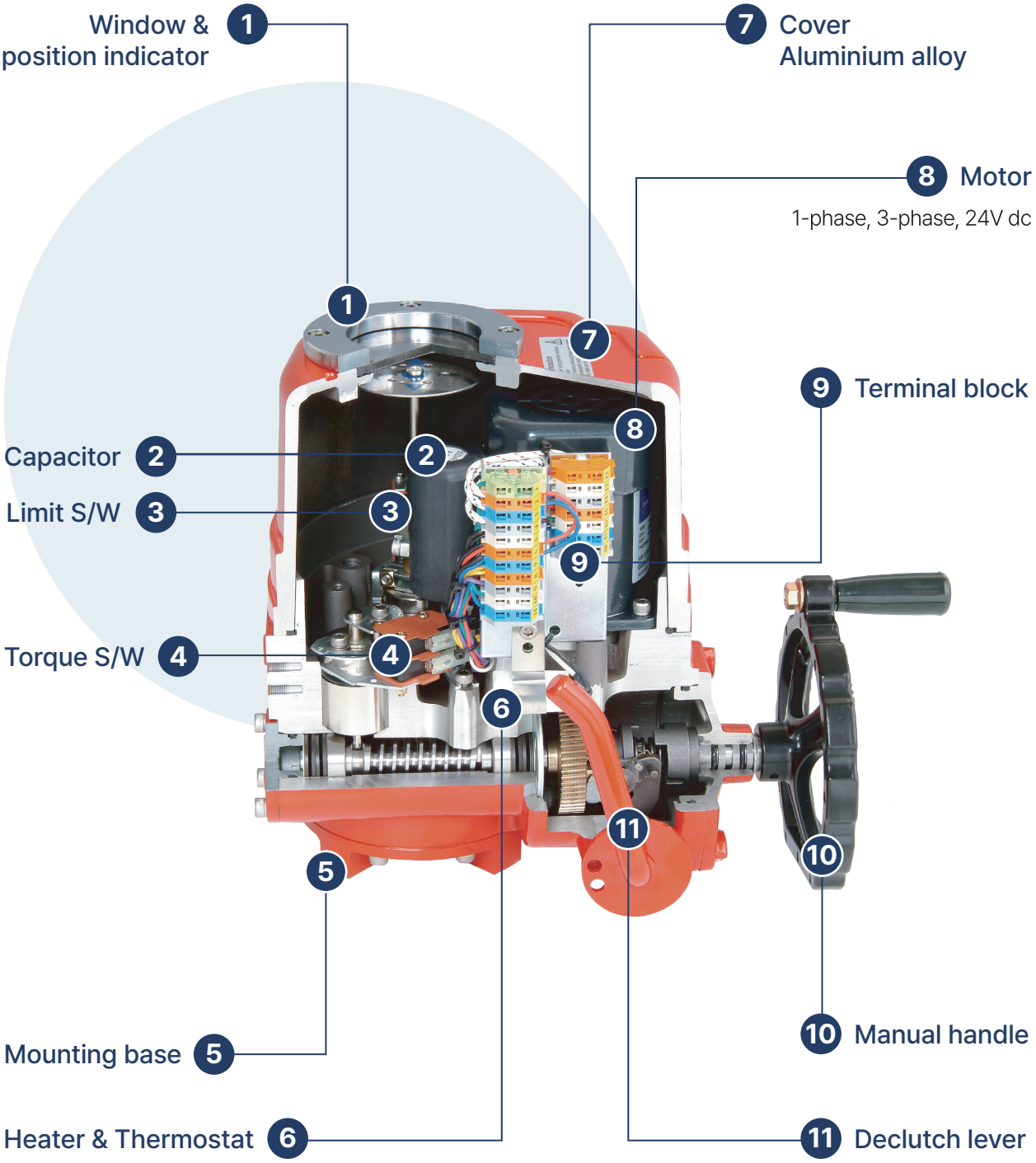
※ Listed as a World Class Korea product since 2013
※ Variety of options are available
※ Lightweight, robust, and has high corrosion protection
※ Precise modulating control (250:1) as an option
※ Maximum output torque up to 3,000 Nm with 24 V ac/dc
※ IP68 (upto 10 m, 72 hours) as an option
※ Flameproof (Ex db IIB T4) and dust ignition proof
(Ex tb IIIC T135°C) enclosures as an option
※ Communication (PROFIBUS, MODBUS, CANOpen) options
※ Fail safe battery backup option up to 3,000 Nm
※ C5 coating option for corrosive environment

◆ Certificates and approvals

※ IECEx (Ex db IIB T4 Gb, Ex tb IIIC T135°C Db)
※ ATEX (II 2G Ex db IIB T4 Gb, II 2D Ex tb IIIC T135°C Db)
※ KCs (Ex d IIB T4, Ex tD A21 IP6X, T135°C)
※ INMETRO (Ex db IIB T4 Gb, Ex tb IIIC T135°C Db)
※ EAC (1 Ex d IIB T4 Gb X, Ex tb IIIC T135°C Db)
※ CSA (Class I, Division 1, Groups C,D T4; Ex d IIB T4 Gb)
※ CCC (Ex db IIB T4 Gb, Ex tb IIIC T135°C Db)
※ SIL 2/3
※ RMRS type approval
※ ABS type approval
※ Turk Loydu type approval
※ RINA type approval
※ USCG test approval



Design Features



Performance

◆ Torque & Current

Model	Max. output torque	Operating time (sec) 50/60 Hz	Rated current (A), (50/60 Hz)										
			dc		ac, 1-phase					ac, 3-phase			
	Nm	90°	12 V	24 V	100 V 50/60 Hz	110 V 50/60 Hz	200 V 50/60 Hz	220 V 50/60 Hz	240 V 50 Hz	380 V 50/60 Hz	440 V 50/60 Hz	460 V 50/60 Hz	480 V 50/60 Hz
HQ-008	80	16/13	10.2	3.7	1.3/1.3	1.2/1.1	0.7/0.6	0.6/0.6	0.6	0.3/0.2	0.3/0.2	N/A	N/A
HQ-010	100	20/17	10.5	4.0	1.3/1.3	1.2/1.1	0.7/0.7	0.7/0.6	0.7	0.3/0.2	0.3/0.2	N/A	N/A
HQ-015	150	25/21	N/A	5.3	2.4/2.2	2.1/2.1	1.1/1.1	1.0/1.0	0.9	0.6/0.4	0.6/0.4	0.6/0.4	0.4/0.3
HQ-020	200	25/21	N/A	6.5	2.5/2.3	2.2/2.1	1.2/1.2	1.1/1.1	0.9	0.7/0.5	0.6/0.4	0.6/0.4	0.4/0.3
HQ-030	300	31/26	N/A	8.6	2.3/2.7	2.1/2.4	1.1/1.4	1.0/1.3	0.9	0.6/0.5	0.4/0.3	0.4/0.3	0.4/0.3
HQ-050	500	31/26	N/A	N/A	3.6/4.6	3.3/4.2	1.9/2.1	1.7/1.9	1.5	0.9/0.8	0.8/0.5	0.7/0.5	0.7/0.5
HQ-060	600	31/26	N/A	7.0	3.8/4.9	3.4/4.4	2.1/2.3	1.9/2.0	1.5	1.0/0.9	1.4/0.9	1.3/0.9	0.7/0.6
HQ-080	800	37/31	N/A	8.6	6.0/6.3	5.4/5.7	2.9/3.1	2.6/2.8	2.5	1.3/1.0	1.7/0.9	1.6/0.9	1.1/0.8
HQ-120	1,200	37/31	N/A	8.6	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	2.5	1.5/1.1	1.8/1.0	1.7/0.9	1.3/0.9
HQ-200	2,000	112/93	N/A	8.6	6.0/6.3	5.4/5.7	3.4/3.3	3.1/3.0	2.5	1.4/1.0	1.7/1.0	1.6/0.9	1.2/0.8
HQ-270	2,700	56/47	N/A	N/A	7.2/7.4	6.3/6.7	3.5/3.4	3.2/3.1	2.6	1.5/1.1	1.8/1.0	1.7/0.9	1.3/0.9
HQ-300	3,000	112/93	N/A	8.6	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	2.5	1.5/1.1	1.8/1.0	1.7/0.9	1.3/0.9
HQ-350	3,400	39/33	N/A	N/A	N/A	14.1/9.2	N/A	11.2/8.7	N/A	4.2/3.0	3.8/2.6	N/A	N/A
HQ-400	4,000	58/49	N/A	N/A	N/A	14.1/9.2	N/A	11.2/8.7	N/A	4.2/3.0	3.8/2.6	N/A	N/A
HQ-600	6,000	78/66	N/A	N/A	N/A	14.1/9.2	N/A	11.2/8.7	N/A	4.2/3.0	3.8/2.6	N/A	N/A
HQ-800	8,000	116/98	N/A	N/A	N/A	14.1/9.2	N/A	11.2/8.7	N/A	4.2/3.0	3.8/2.6	N/A	N/A
HQ-900	9,000	117/99	N/A	N/A	N/A	14.1/9.2	N/A	11.2/8.7	N/A	4.2/3.0	3.8/2.6	N/A	N/A

◆ Mechanical Data

Model	HQ-008 HQ-010	HQ-015 HQ-020	HQ-030	HQ-050 HQ-060	HQ-080 HQ-120	HQ-200 HQ-270 HQ-300	HQ-350 HQ-400	HQ-600	HQ-800 HQ-900
Mounting bore size Ø (mm)	20	22	35	35	45	65	75	110	110
Flange size (ISO 5211)	F07	F07/F10	F10/F12	F10/F12	F12/F14	F14/F16	F16	F25/F30	F25/F30
No. of handle turns (n)	10	11	13.5	13.5	16.5	49.5	52.5	105	157.5
Standard weight (kg)	7	14	18	19	25	65	75	215	215
Explosion proof weight (kg)	8	16	22	22	30	70	N/A	N/A	N/A

Specification

◆ Standard Specification

Material	High grade aluminium alloy, nodular cast iron, aluminium bronze, steel, polycarbonate	All
External coating	Hard anodizing treatment and polyester powder coating	All
Enclosure	Weatherproof enclosure IP67	All
	NEMA Type 4, 4X, 6, IP66, IP67	HQ-008 to HQ-300
Power	ac 1-phase, 100, 200 V, 50/60 Hz, ±10%	HQ-008 to HQ-300
	ac 1-phase, 110, 220 V, 50/60 Hz, ±10%	All
	ac 1-phase, 240 V, 50 Hz, ±10%	HQ-008 to HQ-300
	ac 3-phase, 220 V ac 3 ph, 50/60 Hz, ±10%	HQ-015 to HQ-300
	ac 3-phase, 380 to 440 V ac 3 ph, 50/60 Hz, ±10%	All
	ac 3-phase, 460, 480 V ac 3 ph, 50/60 Hz, -5/+2%	HQ-015 to HQ-300
	12 V dc	HQ-008, HQ-010
	24 V dc	HQ-008 to HQ-300
Duty cycle (on-off)	S2 30 min (room temperature, average load of 50% of maximum torque)	All
Motor	Induction motor (reversible motor)	All
Ambient temperature	-20 to +70 °C	All
Ambient humidity	90% max. RH (non-condensing)	All
Cable entries	2 x PF3/4", 2 x NPT3/4", 2 x M25, 2 x M20	HQ-008 to HQ-300
	2 x PF3/4" + PF1"	HQ-350 to HQ-900
Limit switches	2-SPDT (open/close), 250 V ac 16 A rating	HQ-008 to HQ-010
	4-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-900
Torque switches	2-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-900
Travel angle	90±10° (0-110°) clockwise to close	All
Manual operation	Declutchable manual override	All
Self locking	Provided by double worm gear	All
Space heater	5 W (100, 110, 200 to 240 V ac 1 ph, 12/24 V dc), anti-condensation	HQ-008 to HQ-010
	10 W (100, 110, 200 to 240 V ac 1 ph, 12/24 V dc), anti-condensation	HQ-015 to HQ-900
Stall protection	Built-in thermal protection (thermostat), opens at 150±5°C and closes at 97±15°C	All
Anti vibration	XYZ 10g, 0.2-34 Hz, 30 min	All
Lubrication	Grease moly (EP type)	All
Coating (color)	● Titanium Silver (RAL 9006), ● Red (RAL 3001), ● Blue (RAL 5005), ● Yellow (RAL 1033), ● Grey (RAL 7046), ● Light grey (RAL 7035), ● Green (RAL 6034)	

◆ Optional Specification

Enclosure	**WTA** watertight enclosure IP68 (10 m 72 hours)	All
Power	**ADCM** multi ac-dc 24 V (integral)	HQ-008 to 300 (except 050, 270)
Additional switch	**ALS** additional limit switches, 2-SPDT (open/close), 250 V ac 16 A rating	All
	ATS additional torque switches, 2-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-900
Ambient temperature	**LT** low temperature (-40 to +60 °C), lubrication: tribolube-18	All
High speed	High speed actuator **(2L, 3L)**	HQ-008 to HQ-300
Travel angle	**EXT** extension 120°, 135°, 180°, 270°, etc.	All
	R reverse operation, 90±10° (0-110°) counter-clockwise to close	All
Control	**PIU** potentiometer unit (0-1 kΩ)	All
	*1**CPT** current position transmitter (4-20 mA dc)	All
	*1**PCU** Proportional Control Unit (modulating), input/output: 0-10 V dc or 4-20 mA dc (duty cycle) S4 40-70%, 800-1,200 starts/hour (room temperature, average load of 50% of maximum torque)	All
	PROFI Registered PROFIBUS DP interface modules	All
	MODBUS Modbus modules	All
	CANopen CANopen modules	All
Local control	**LCU-Z** LED local control unit	All
	LCU-B LED local control unit (integral switch)	All
	LCU-C LCD local control unit (integral switch, auto phase discriminator, separate terminal box)	HQ-015 to HQ-900
	RBP Rechargeable Battery Pack for emergency fail safe operation	HQ-008 to HQ-300
Coating (color)	◕ Other colors , ◯ C5 coating (for corrosive environment)	All
Others	**SPD** Surge protection device (Max. 15 kW)	All
	FPA1 Fire proofing actuator (1050±5°C / 50 min), **FPA2** Fire proofing actuator (250±5°C / 150 min)	All

*1 An additional box is attached to HQ-008/010

◆ Explosion Proof Specification

Material	High grade aluminium alloy, nodular cast iron, aluminium bronze, steel, polycarbonate	HQ-008 to HQ-300
External coating	Hard anodizing treatment and polyester powder coating	HQ-008 to HQ-300
Enclosure	Flameproof (Ex db IIB T4) - IECEx, ATEX, CSA, EAC, CCC, KCs	HQ-008 to HQ-300
	Dust ignition proof (Ex tb IIIC T135°C) - IECEx, ATEX, EAC, CCC, KCs	HQ-008 to HQ-300
	NEMA Type 4, 4X, 6, IP66, IP67	HQ-008 to HQ-300
Power	100, 110 V ac 1 ph, 50/60 Hz, ±10%	HQ-008 to HQ-300
	200 to 240 V ac 1 ph, 50/60 Hz, ±10%	HQ-008 to HQ-300
	220 V ac 3 ph, 50/60 Hz, ±10%	HQ-015 to HQ-300
	380 to 440 V ac 3 ph, 50/60 Hz, ±10%	HQ-008 to HQ-300
	460 V ac 3 ph, 50/60 Hz, ±10%	HQ-008 to HQ-010
	12 V dc	HQ-008 to HQ-010
	24 V dc	HQ-008 to HQ-030
Duty cycle (on-off)	S2 30 min (room temperature, average load of 50% of maximum torque)	HQ-008 to HQ-300
Motor	Induction motor (reversible motor)	HQ-008 to HQ-300
Ambient temperature	-20 to +60 °C	HQ-008 to HQ-300
Ambient humidity	90% max. RH (non-condensing)	HQ-008 to HQ-300
Cable entries	2 x NPT3/4", 2 x M25, 2 x M20	HQ-008 to HQ-300
Limit switches	2-SPDT (open/close), 250 V ac 16 A rating	HQ-008 to HQ-010
	4-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-300
Torque switches	2-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-300
Travel angle	90±10° (0-110°) clockwise to close	HQ-008 to HQ-300
Manual operation	Declutchable manual override	HQ-008 to HQ-300
Self locking	Provided by double worm gear	HQ-008 to HQ-300
Space heater	5 W (100, 110, 200 to 240 V ac 1 ph, 12/24 V dc), anti-condensation	HQ-008 to HQ-010
	10 W (100, 110, 200 to 240 V ac 1 ph, 12/24 V dc), anti-condensation	HQ-015 to HQ-300
Stall protection	Built-in thermal protection (thermostat), opens at 150±5°C and closes at 97±15°C	HQ-008 to HQ-300
Anti vibration	XYZ 10g, 0.2-34 Hz, 30 min	HQ-008 to HQ-300
Lubrication	Grease moly (EP type)	HQ-008 to HQ-300
Coating (color)	● Titanium Silver (RAL 9006), ● Red (RAL 3001), ● Blue (RAL 5005), ● Yellow (RAL 1033), ● Grey (RAL 7046), ● Light grey (RAL 7035), ● Green (RAL 6034)	

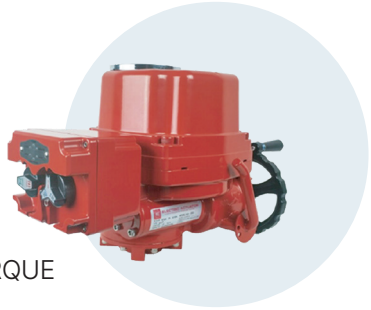
◆ Explosion Proof Optional Specification

Enclosure	**WTA** watertight enclosure IP68 (10 m 72 hours)	HQ-008 to HQ-300
Power	**ADCM** multi ac-dc 24 V (integral)	HQ-008 to 300 (except 050, 270)
Additional switch	**ALS** additional limit switches, 2-SPDT (open/close), 250 V ac 16 A rating	HQ-008 to HQ-300
	ATS additional torque switches, 2-SPDT (open/close), 250 V ac 16 A rating	HQ-015 to HQ-300
High speed	High speed actuator **(2L, 3L)**	HQ-008 to HQ-300
Travel angle	**EXT** extension 120°, 135°, 180°, 270°, etc.	HQ-008 to HQ-300
	R reverse operation, 90±10° (0-110°) counter-clockwise to close	HQ-008 to HQ-300
Control	**PIU** potentiometer unit (0-1 kΩ)	HQ-008 to HQ-300
	CPT current position transmitter (4-20 mA dc)	HQ-015 to HQ-300
	PCU Proportional Control Unit (modulating), input/output: 0-10 V dc or 4-20 mA dc (duty cycle) S4 40-70%, 800-1,200 starts/hour (room temperature, average load of 50% of maximum force)	HQ-008 to HQ-300
	PROFI Registered PROFIBUS DP interface modules	HQ-008 to HQ-300
	MODBUS Modbus modules	HQ-008 to HQ-300
	CANopen CANopen modules	HQ-008 to HQ-300
Local control	**LCU-B EX** : LED local control unit	HQ-008 to HQ-300
	LCU-2B EX: LED local control unit (integral switch)	HQ-008 to HQ-300
Coating (color)	◔ Other colors , ◯ C5 coating (for corrosive environment)	HQ-008 to HQ-300
Others	**SPD** Surge protection device (Max. 15 kW)	HQ-008 to HQ-300
	FPA1 Fire proofing actuator (1050±5°C / 50 min), **FPA2** Fire proofing actuator (250±5°C / 150 min)	HQ-008 to HQ-300

Local Control Units

Local Control Unit-Z: LCU-Z

※ Aluminum die-cast, compact size, and light weight
※ Weatherproof IP67
※ Applicable models: HQ-006 to HQ-900
※ Power supply: 110/220 V ac 1-phase, 50/60 Hz, ±10%
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

Local Control Unit-B: LCU-B

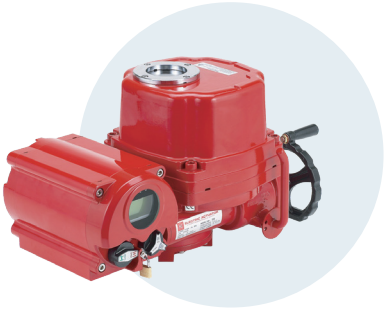
※ Aluminum die-cast, compact size, and integrated design
※ Weatherproof IP67 or IP68 option
※ Integral starter (mechanical or electrical)
※ Phase reversal protection with LED signal (yellow)
※ Applicable models: HQ-008 to HQ-900
※ Power supply
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

Local Control Unit-C: LCU-C

※ Aluminum die-cast, compact size, and integrated design
※ Weatherproof IP67 or IP68 option
※ LCD monitor: digital indicators with numbers and graphs
※ Separate terminal chmaber
※ Auto phase discriminator (easy & convenient wiring)
※ Applicable models: HQ-008 to HQ-900
※ Power supply
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%



Rechargeable Battery Pack: RBP

※ Aluminum die-cast and compact size
※ Emergency application in case of a power failure
※ Applicable models:
-HQ-008 to HQ-030, HQ-060 to HQ-300
※ Power supply
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-24 V dc
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING ● GBR : BATTERY LEVEL

Local Control Unit-Z: LCU-Z

※ Weatherproof IP67 or watertight IP68 option
※ Additional cable entries : 4 x NPT3/8
※ Integral starter (mechanical or electrical)
※ Phase reversal protection with LED signal (yellow)
※ Applicable models: HQ-008 to HQ-900
※ Power supply:
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

Explosion Proof Local Control Unit-B(EX): LCU-B(EX)

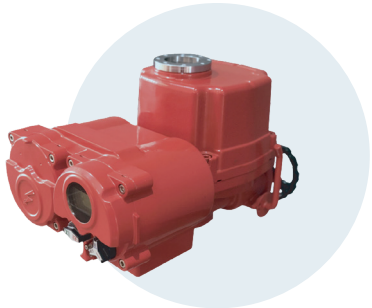
※ Flameproof (Ex db IIB T4) / Dust ignition proof (Ex tb IIIC T135°C)
※ Weatherproof IP67 or watertight IP68 option
※ Applicable models: HQ-008 to HQ-300
※ Power supply:
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

Explosion Proof Local Control Unit-2B(EX): LCU-2B(EX)

※ Flameproof (Ex db IIB T4) / Dust ignition proof (Ex tb IIIC T135°C)
※ Separate terminal chamber
※ Weatherproof IP67 or watertight IP68 option
※ Applicable models: HQ-008 to HQ-300
※ Additional cable entries : 5 x NPT3/4"
※ Power supply:
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%
※ LED lamp indicators



○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

Explosion Proof MODBUS / PROFIBUS

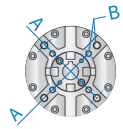
※ Flameproof (Ex db IIB T4) / Dust ignition proof (Ex tb IIIC T135°C)
※ Separate terminal chamber
※ Weatherproof IP67 or watertight IP68 option
※ Applicable models: HQ-008 to HQ-300
※ Additional cable entries : 5 x NPT3/4"
※ Power supply:
-110/220 V ac 1-phase, 50/60 Hz, ±10%
-220 to 480 V ac 3-phase, 50/60 Hz, ±10%
▪LED lamp indicators



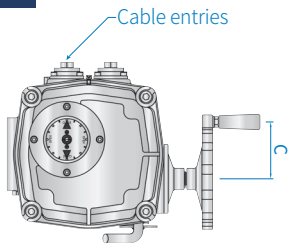
○ White : POWER ● Red : OPEN/OPENING ● Yellow : OVER TORQUE
● Blue : REMOTE ● Green : CLOSE/CLOSING

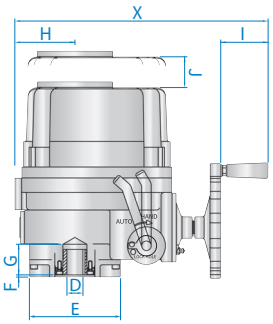
Dimensional Drawing

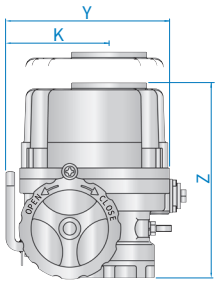
HQ-008 to HQ-120



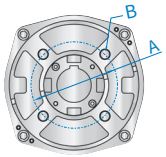
BASE ISO 5211



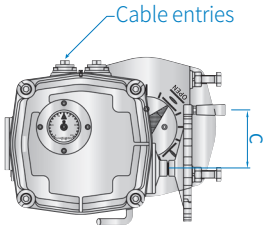


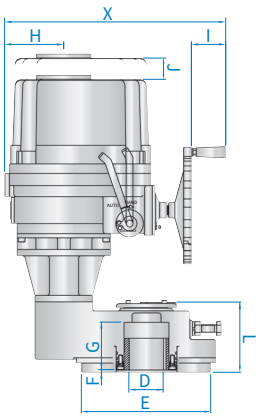


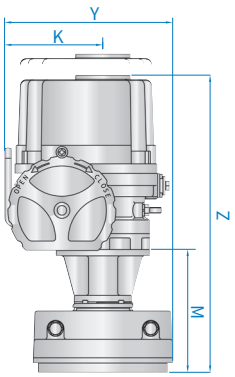
HQ-200 to HQ-300



BASE ISO 5211







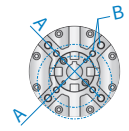
◆ Dimension

unit (mm)

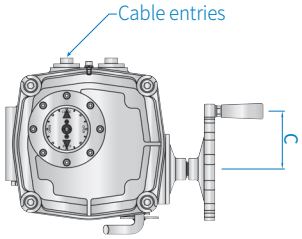
Model	A ISO 5211	B	C	D Max.	E	F	G	H	I	J	K	L	M	X	Y	Z
HQ-008	F07 Ø70	M8 DP12	60	20	94	3	32	57	51	40	100			265	166	235
HQ-010	F07 Ø70	M8 DP12	60	20	94	3	32	57	51	40	100			265	166	235
HQ-015	F07 / F10 Ø70 / Ø102	M8 / M10 DP12 / DP15	78	22	125	3	43	83	65	54	142			348	255	268
HQ-020	F07 / F10 Ø70 / Ø102	M8 / M10 DP12 / DP15	78	22	125	3	43	83	65	54	142			348	255	268
HQ-030	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			348	255	290
HQ-050	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			378	255	304
HQ-060	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			378	255	304
HQ-080	F12 / F14 Ø125 / Ø140	M12 / M16 DP18 / DP24	110	45	178	3	57	112	65	78	186			378	289	330
HQ-120	F12 / F14 Ø125 / Ø140	M12 / M16 DP18 / DP24	110	45	178	3	57	112	65	78	186			419	289	330
HQ-200	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	563
HQ-270	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	563
HQ-300	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	563

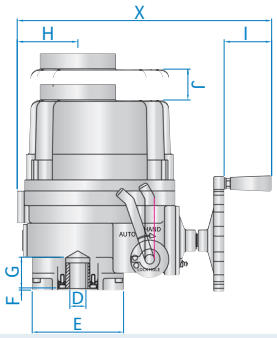
* Please consult the factory for the appropriate machined bushing size, as maximum bushing size can vary depending on the shape (star, key, etc.)

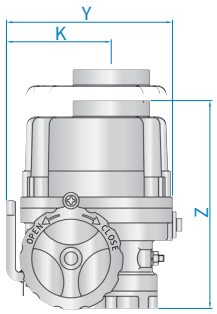
Explosion Proof HQ-008 to HQ-120



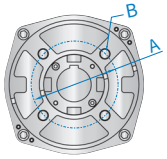
BASE ISO 5211



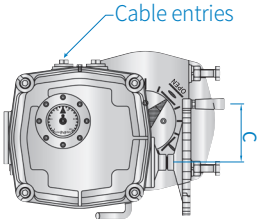


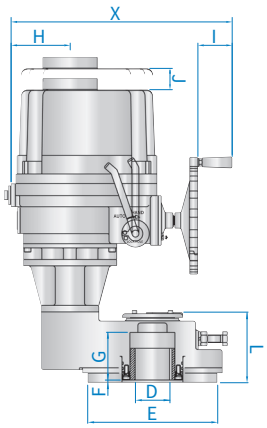


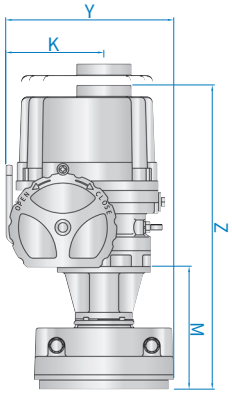
Explosion Proof HQ-200 to HQ-300



BASE ISO 5211







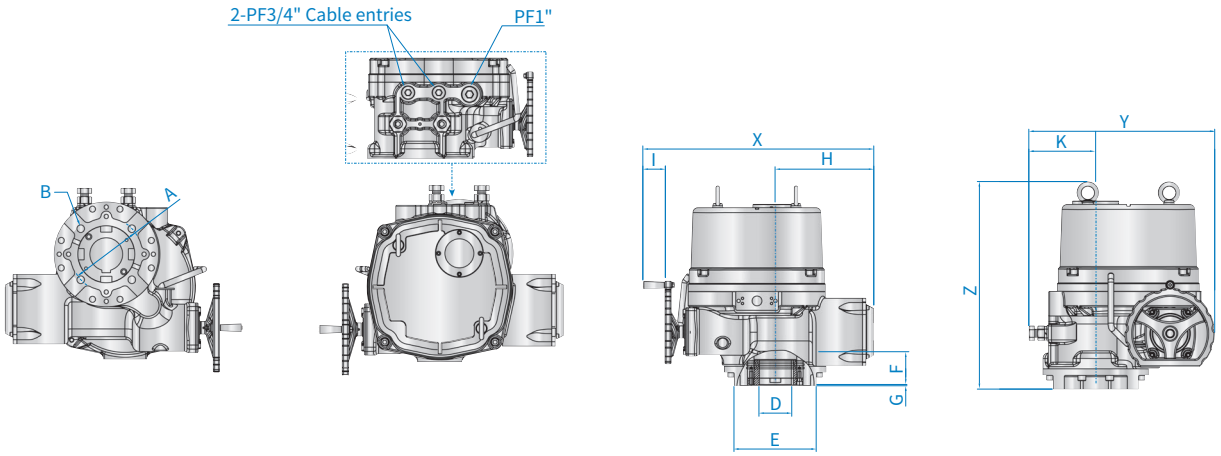
◆ Dimension

unit (mm)

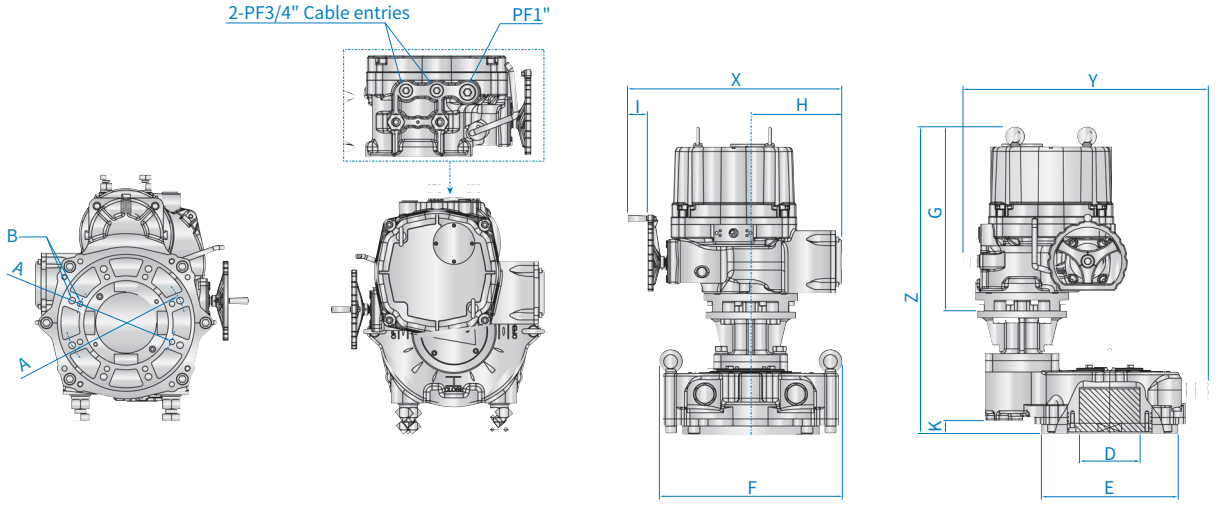
Model	A ISO 5211	B	C	D Max.	E	F	G	H	I	J	K	L	M	X	Y	Z
HQ-008	F07 Ø70	M8 DP12	60	20	94	3	32	57	51	40	100			265	166	249
HQ-010	F07 Ø70	M8 DP12	60	20	94	3	32	57	51	40	100			265	166	249
HQ-015	F07 / F10 Ø70 / Ø102	M8 / M10 DP12 / DP15	78	22	125	3	43	83	65	54	142			348	255	282
HQ-020	F07 / F10 Ø70 / Ø102	M8 / M10 DP12 / DP15	78	22	125	3	43	83	65	54	142			348	255	282
HQ-030	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			348	255	318
HQ-050	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			378	255	318
HQ-060	F10 / F12 Ø102 / Ø125	M10 / M12 DP15 / DP18	78	35	148	3	49	92	65	65	160			378	255	318
HQ-080	F12 / F14 Ø125 / Ø140	M12 / M16 DP18 / DP24	110	45	178	3	57	112	65	78	186			378	289	344
HQ-120	F12 / F14 Ø125 / Ø140	M12 / M16 DP18 / DP24	110	45	178	3	57	112	65	78	186			419	289	344
HQ-200	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	577
HQ-270	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	577
HQ-300	F14 or F16 Ø140 or Ø165	M16 or M20 DP24 or DP30	110	65	245	5	90	112	65	78	186	233	133	419	319	577

* Please consult the factory for the appropriate machined bushing size, as maximum bushing size can vary depending on the shape (star, key, etc.)

HQ-350 to HQ-400



HQ-600 to HQ-900

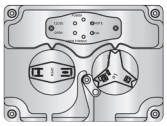


◆ Dimension

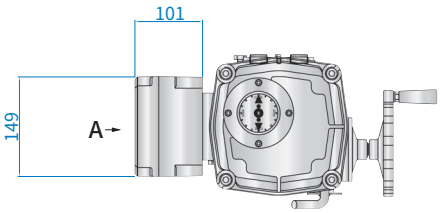
unit (mm)

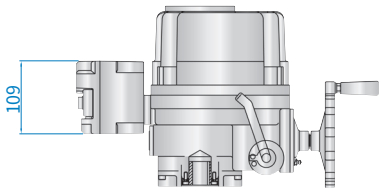
Model	A ISO 5211	B	D Max.	E	F	G	H	I	K	M	X	Y	Z
HQ-350	F16 Ø165	M20 DP30	75	77	3	232	52	152	422		378	255	318
HQ-400	F16 Ø165	M20 DP30	110	178	3	57	112	65	186		378	289	344
HQ-600	F25 / F30 Ø254 / Ø298	M16 / M20 DP30 / DP35	110	178	3	57	112	65	186		419	289	344
HQ-800	F25 / F30 Ø254 / Ø298	M16 / M20 DP30 / DP35	110	245	5	90	112	65	186	133	419	319	577
HQ-900	F25 / F30 Ø254 / Ø298	M16 / M20 DP30 / DP35	110	245	5	90	112	65	186	133	419	319	577

Local Control Unit-Z: LCU-Z

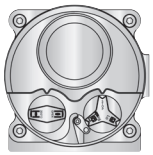


View A

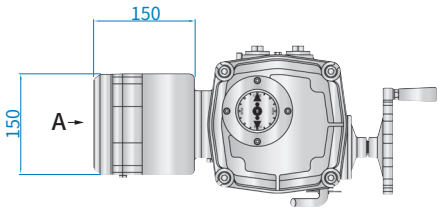


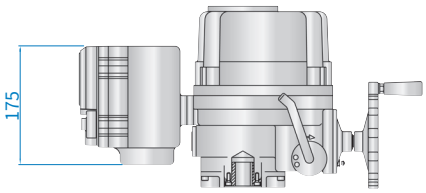


Local Control Unit-B: LCU-B

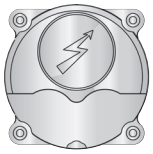


View A

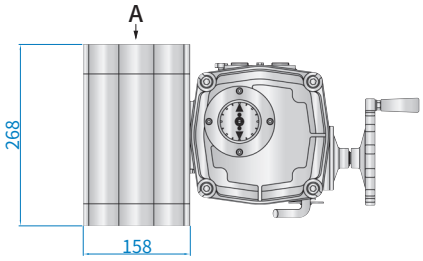


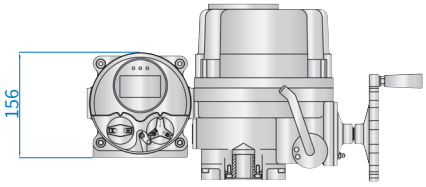


Local Control Unit-C: LCU-C

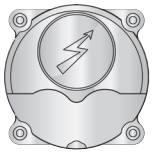


View A

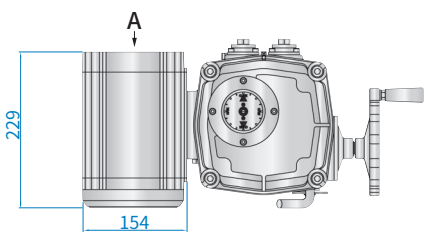


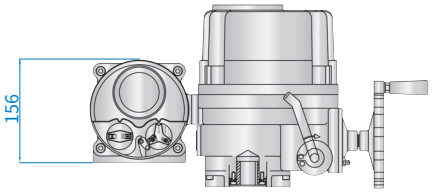


Rechargeable Battery Pack: RBP

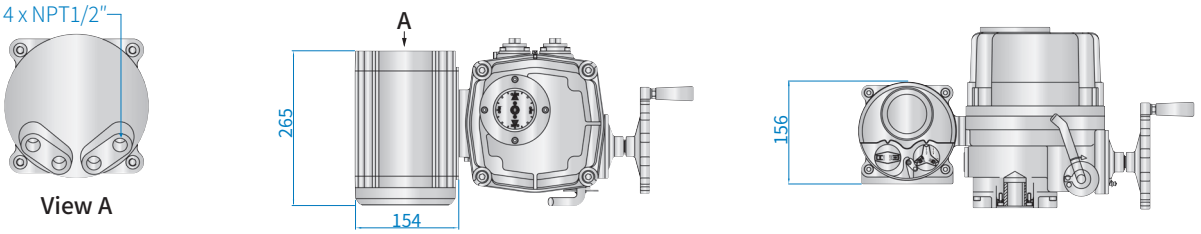


View A

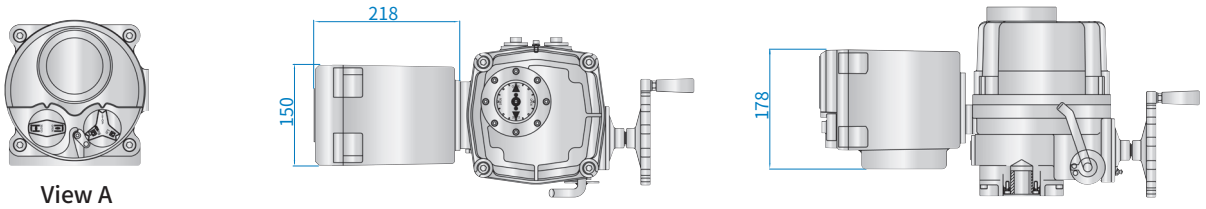




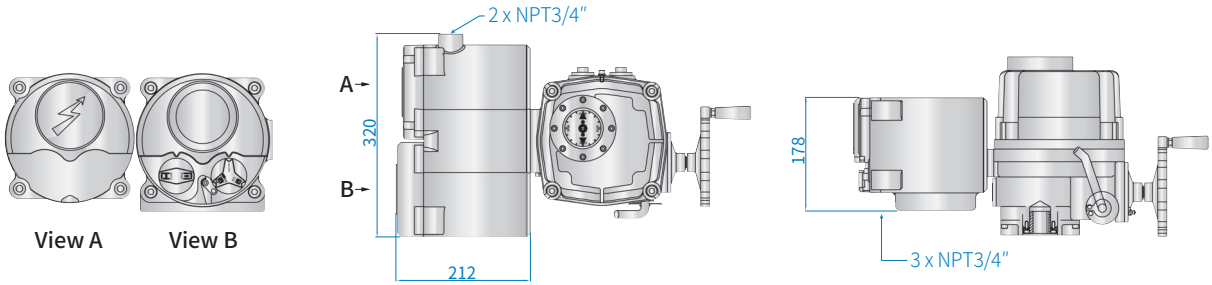
MODBUS / PROFIBUS



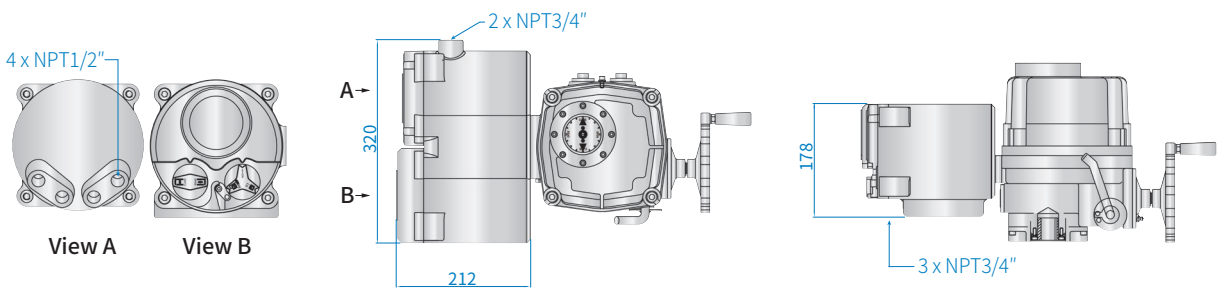
Explosion Proof Local Control Unit-B(EX): LCU-B(EX)



Explosion Proof Local Control Unit-2B(EX): LCU-2B(EX)



Explosion Proof MODBUS / PROFIBUS



HQ-004 Ordering Code

Example

	1	2	3	4	5	6
HQ-004	06	0	0	0	0	0

1

Color	
06	Red (RAL 3001)
16	Blue (RAL 5005)
11	Yellow (RAL 1033)
21	Grey (RAL 7046)
25	Light grey (RAL 7035)
33	Green (RAL 6034
SP	Other colors
C5	C5 coating

2

Cable entry	
0	PG11
M	M20

3

Power	
0	1-Phase 85-265 V ac / 24 V dc
1	12 V dc

4

Speed	
0	Standard
H	**HSA**: High Speed Actuator

5

Cable length	
0	1.2m (standard)
1	3m
2	6.2m
3	10m

6

Base (flange)	
0	ST11 (Star 11)
1	ST14 (Star 14)

HQ-006 Ordering Code

Example

	1	2	3	4	5	6	7	8
HQ-006	06	0	0	0	00	0	0	0

1

Color	
06	Red (RAL 3001)
16	Blue (RAL 5005)
11	Yellow (RAL 1033)
21	Grey (RAL 7046)
25	Light grey (RAL 7035)
33	Green (RAL 6034
SP	Other colors
C5	C5 coating

2

Enclosure	
0	General purpose
A	Flameproof: Ex d IIB

3

Cable length	
0	2 x PG13.5
P	2 x PF1/2"
N	2 x NPT1/2"
M	2 x M20

4

Power	
0	1-Phase 110/220 V ac
1	24 V dc
2	24 V ac/dc

5

Local Control Unit	
00	N/A
D0	Local Control Unit D: **LCU-D**
D1	Local Control Unit Z: **LCU-Z**

6

Control	
0	On-off
P	**PIU**: Potentiometer unit (0-1 kΩ)
C	**CPT**: Currentt Position Transmitter (output: 4-20 mA dc)
M	**PCU**: Proportional Control Unit (intput/output: 0 – 10 V dc or 4 – 20 mA dc)

7

Communication	
0	N/A
M	Modbus

8

IP Rating	
0	IP67 NEMA 4, 4X
1	IP68 (10 m 72 hr)

HQ-008 to HQ-900 Ordering Code

Example

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
HQ -	015	06	0	00	0	0	0	0	00	0	0	0	0	0

1

Model	
008	HQ-008
010	HQ-010
015	HQ-015
020	HQ-020
030	HQ-030
050	HQ-050
060	HQ-060
080	HQ-080
120	HQ-120
200	HQ-200
270	HQ-270
300	HQ-300
350	HQ-350
400	HQ-400
600	HQ-600
800	HQ-800
900	HQ-900

2

Color	
06	Red (RAL 3001)
16	Blue (RAL 5005)
11	Yellow (RAL 1033)
21	Grey (RAL 7046)
25	Light grey (RAL 7035)
33	Green (RAL 6034)
SP	Other colors
NC	Nano Coating

3

Enclosure	
0	General purpose
A	Flameproof: Ex db IIB
T	Dust ignition proof: Ex tb IIIC

4

Local Control Unit	
00	N/A
A0	Local Control Unit-Z: **LCU-Z**
A1	Local Control Unit-B: **LCU-B**
B0	Local Control Unit-C: **LCU-C**
D0	Rechargeable Battery Pack: **RBP**
E0	Explosion proof Local Control Unit-B: **LCU-B(EX)**
E1	Explosion proof Local Control Unit B: **LCU-2B(EX)**

5

Control	
0	On-off
P	**PIU**: Potentiometer unit (0-1 kΩ)
C	**CPT**: Currentt Position Transmitter (output: 4-20 mA dc)
M	**PCU**: Proportional Control Unit (input/output: 0 – 10 V dc or 4 – 20 mA dc)

6

Cable entry	
00	2 x PF3/4"
01	2 x NPT3/4"
02	2 x M25
03	2 x M20
14	2 x PF3/4" + PF1"

7

Speed	
0	Standard
1	High speed, **2L**
2	High speed, **3L**

8

Rotation	
0	90° CW to CLOSE (standard)
1	**R**: 90° CCW to CLOSE
2	**EXT**: > 90° CW to CLOSE

9

Input Voltage	
10	1-Phase 100V
11	1-Phase 110V
12	1-Phase 200V
13	1-Phase 220V
14	1-Phase 240V
30	3-Phase 220V
31	3-Phase 380V
32	3-Phase 400V
33	3-Phase 420V
34	3-Phase 440V
35	3-Phase 460V
36	3-Phase 480V
D1	12V dc
D2	24V dc
D3	24V ac/dc

10

Communication	
0	N/A
M	Modbus
P	Profibus

11

Additional S/W	
0	N/A
1	**ALS**: +2-SPDT (limit s/w)
2	**ATS**: +2-SPDT (torque s/w)
3	**ALS ATS**: +2x2-SPDT

12

Temperature	
0	Standard: -20 to +70 °C
	Flameproof: -20 to +60 °C
L	**LT** Low temperature: -40 to +60 °C

13

IP Rating	
0	IP67
1	IP68 (10 m 72 hr)

14

Other Options	
0	N/A
F	**FPA**: Fire Proofing Actuator

HKC

VALVE AUTOMATION

HKC

ISO 9001 ISO 14001 ISO 45001

KHNP KOREA WESTERN POWER CO., Ltd. EWP KOREA EAST-WEST POWER CO.,LT KOMIPO KOEN KOREA SOUTH-EAST POWER CO.

KOSPO KOGAS KNOC KOREA NATIONAL OIL CORPORATION KOREA DISTRICT HEATING CORP. KAC KOREA AIRPORTS CORPORATION K water

Arisu SK ecoplant GS E&C DSME DAEWOO SHIPBUILDING & MARINE ENGINEERING CO.,LTD. HYUNDAI ENGINEERING CO., LTD. SAMSUNG SAMSUNG ENGINEERING

posco DOOSAN LG Chem KOLON e ENGINEERING YNCC DL Construction S-OIL

KNPC Kuwait OilC ompany MARINA GROUP PETRONAS ADNOC Saudi Electricity Company Petroleum Development Oman