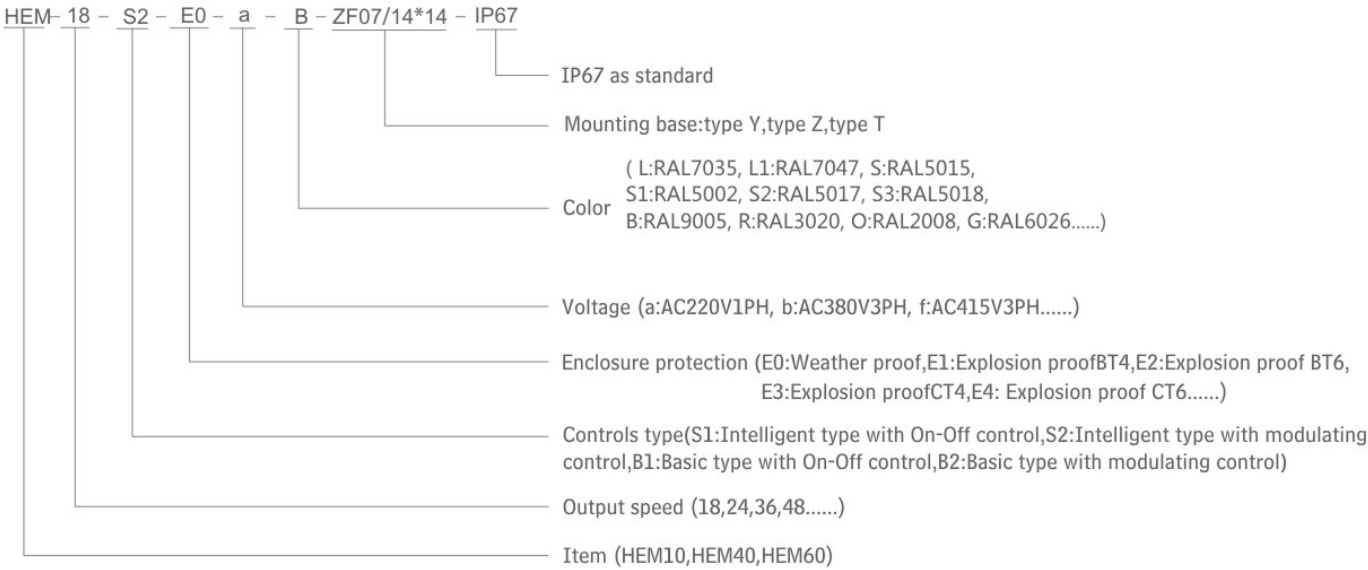


Ordering Information



WENZHOU HELI AUTOMATIC METER CO.,LTD.

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Hunting Eagles Series



HEM Multi-Turn Electric Actuator

www.cnheli.com
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Valve & Actuator Solutions



WENZHOU HELI AUTOMATIC METER CO.,LTD.



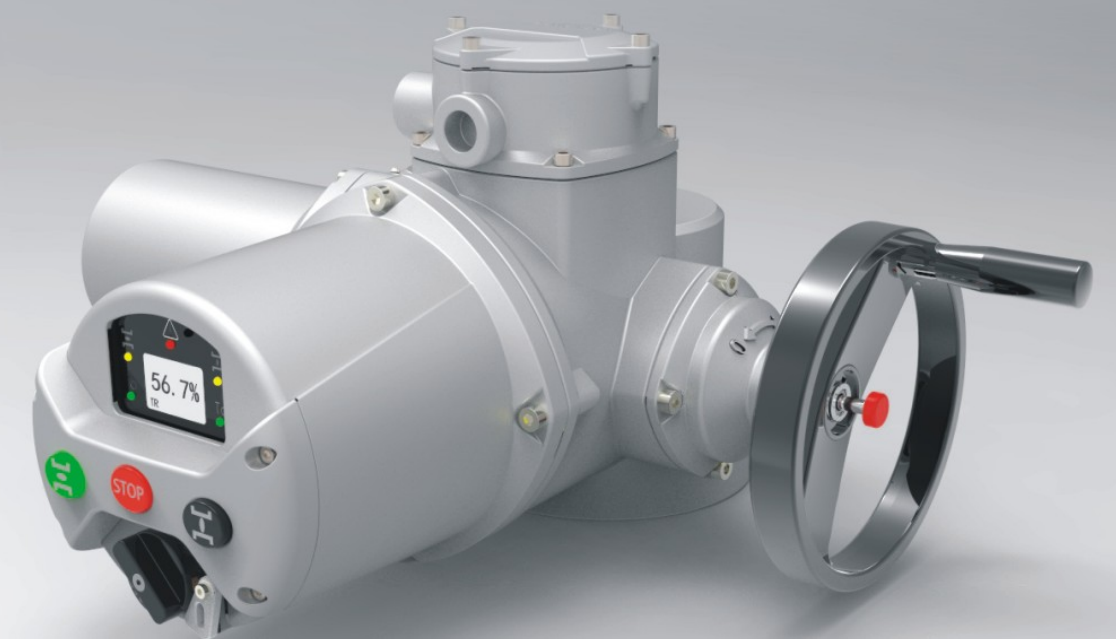
Valve & Actuator Solutions

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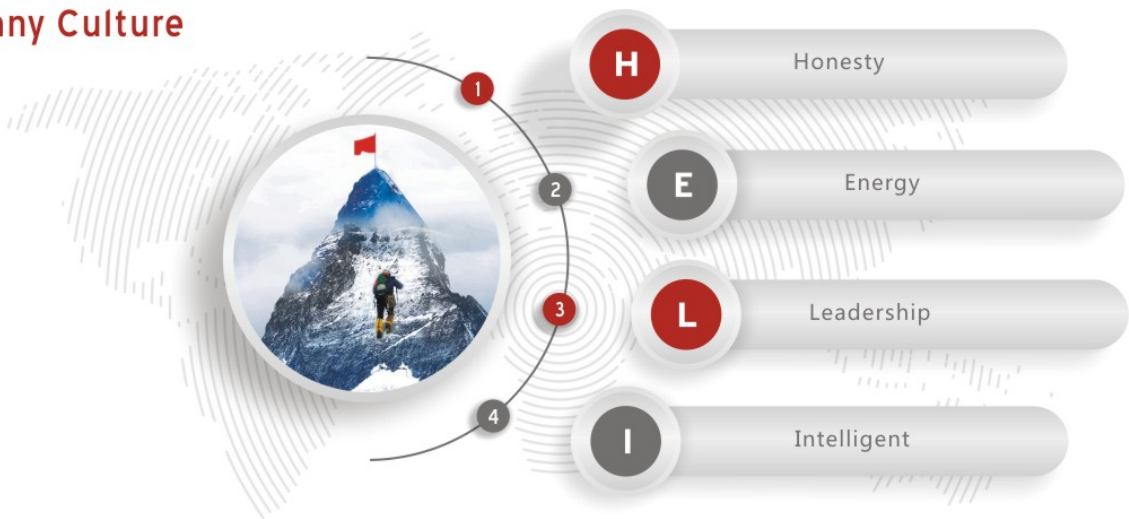
Company Profile

Wenzhou Heli Automatic Meter Co.,Ltd has more than 100 employees,including engineers and technicians accounting for 25%, owning 26 new utility patents and 2 invention patents,having the ISO9001:2015,CE,ROHS,IP67,IP68,SIL,EX certificates.

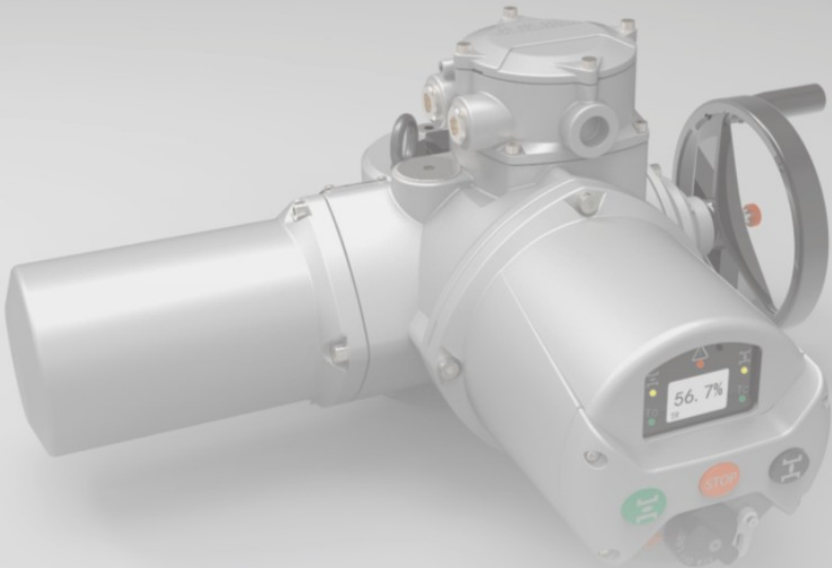
- 1999,founded the company and researched the HL series electric actuator.
- 2000,launched the HL series quarter-turn electric actuator as the first company in electric actuator industry in Wenzhou city.
- 2003,got the export lisenice with a series of certificates.
- 2004,exported the electric actuator to europe.
- 2008,launched the HLF series damper actuator for HVAC.
- 2009,launched the HAT series quarter-turn pneumatic actuator.
- 2010,launched the LQ series quarter-turn electric actuator with explosion proof.
- 2013,sold out 40000 pieces actuators.
- 2014,launched the new design HEQ series electric actuator with a international company.
- 2016,launched the HEM series for multi-turn electric actuator.
- 2018,sold out 95000 picese electric actuators.
- 2019, reached 15 million dollars of company's sales.
- 2020,built the new factory covering an area of 24000 square meters with developed production lines and facilities,



Company Culture

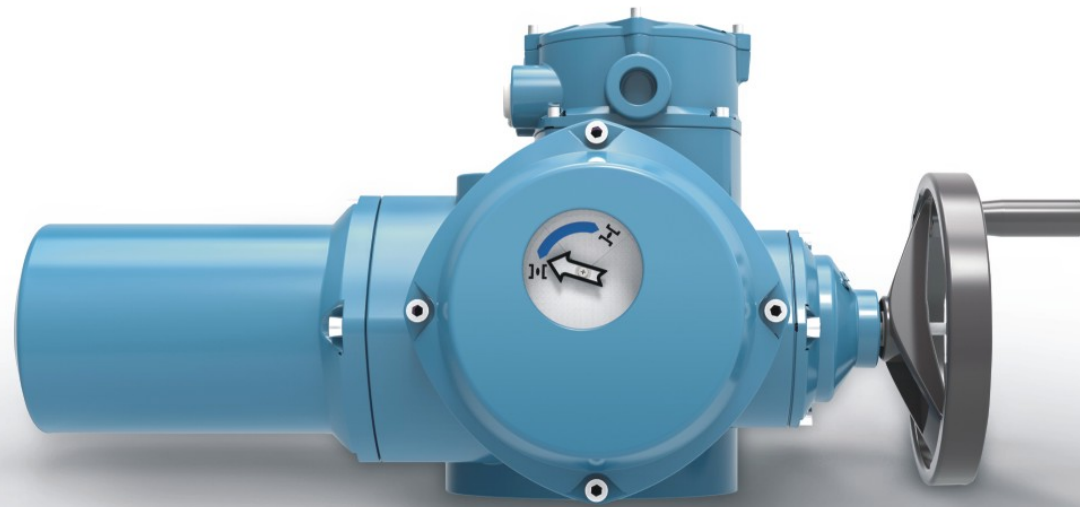


Applications



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HEM Multi-Turn Electric Actuator -Basic Type

Patent No: 202030073234.5

HEM Multi-Turn Electric Actuator-Intelligent type

Patent No: 20203008118.5

HEM – Summary

Multi-turn electric actuator

- > Available torque range from 60N.M to 800N.M.
- > Available speed range from 18rpm to 144rpm.
- > Design and control with basic,intelligent,fieldbus and separated control box to select.
- > IP67 enclosure protection as standard,IP68 ,BT4/BT6,CT4/CT6 as option.
- > Suitable for ball valve,butterfly valve,plug valve,gate valve,global valve and regulating valve.

HEM-Advantages

Advance technology

- > Reliable operation
- > Heavy duty motor
- > Accurate torque measure
- > Continuous position tracking
- > Real time valve and actuator performance information
- > Auto self test and diagnosis
- > Versatile enclosure
- > Easy maintenance
- > Hardwired controls and fieldbus communication options.
- > Asset management

Non intrusive setting

- > Command/Mode selector switch for remote or local control
- > Infrared remote control to set and commissioning

Valve and Actuator Protection

- > Phase monitoring
- > Protection of change in direction
- > Motor thermal protection
- > Torque protection
- > Emergency shutdown protection
- > Failure monitor relay
- > Password protection
- > Failure Alarms indication

User friendly &intuitive controls

- > High resolution LCD display (except for basic type)
- > Local signal
- > Local commands
- > User friendly menu

1. Double sealing

Two o-rings insure an optimum protection against water ingress into the electrical compartment based on GB/T4942.2-93,IP68 as option.

2. Non intrusive setting

- > Open/Close /Stop button and LOC/OFF/REM selector switch to achieve the close and open operation at site.
- > The infrared remote control to set and commissioning the data.

3. Rotatable electrical compartment and LCD display.

- > Possible to rotate the electrical compartment with LCD display to suit the actuator mounting.
- > Possible to rotate the direction of cable entries to meet the wiring requests.
- > The high resolution display has a wide view making it legible from a distance.

4. Heavy duty motor

Squirrel cage motor with built-in 135°C thermostat protection , low inertia design,Class F insulated.

5. Position measure

Absolute position encoder output the accurate position to show on LCD,there is no position loss due to mains power loss or any interferences.

6. Torque sensor

The torque sensor directly measures output torque and converts value to a voltage signal.Torque of intelligent type can be set in the range 40% to 100% of rated torque with the additional facility to bypass torque switch.

7. Drive train

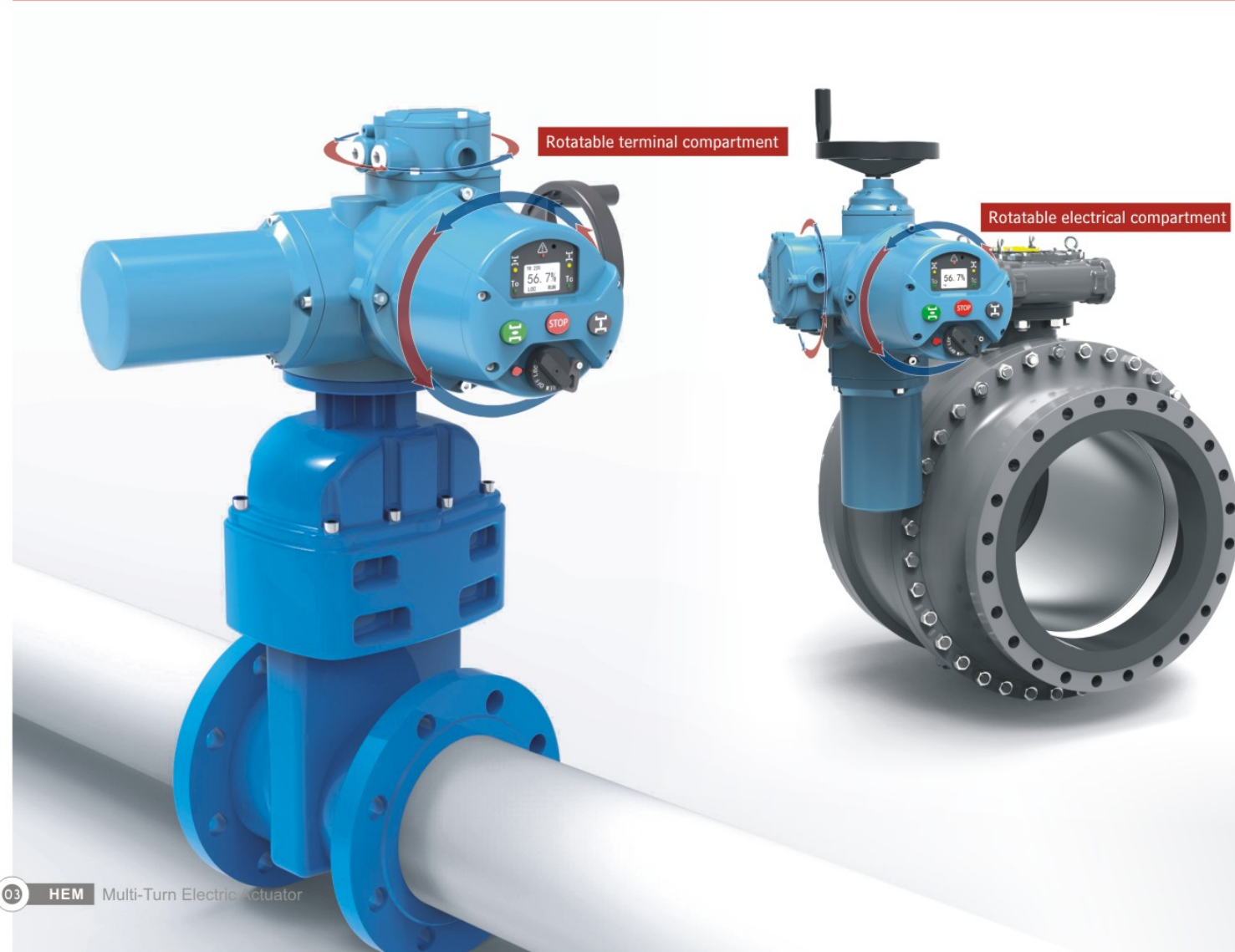
The drive train uses the basic design with the features of simple,reliable and robust,the components are oil lubricated with maintenance-free.

8. Explosion proof enclosure as option

- > In accordance with ExdIICT4, atmospheric pressure range from 86Kpa to 106Kpa,ambient temperature range from -30°C to 60°C.
- > ExdIIBT4,ExdIIBT6,ExdIICT6 as options.

9. Handwheel and Declutch button

Push the red declutch button to achieve the handwheel operation when emergency or commissioning.

HEM-Introduction

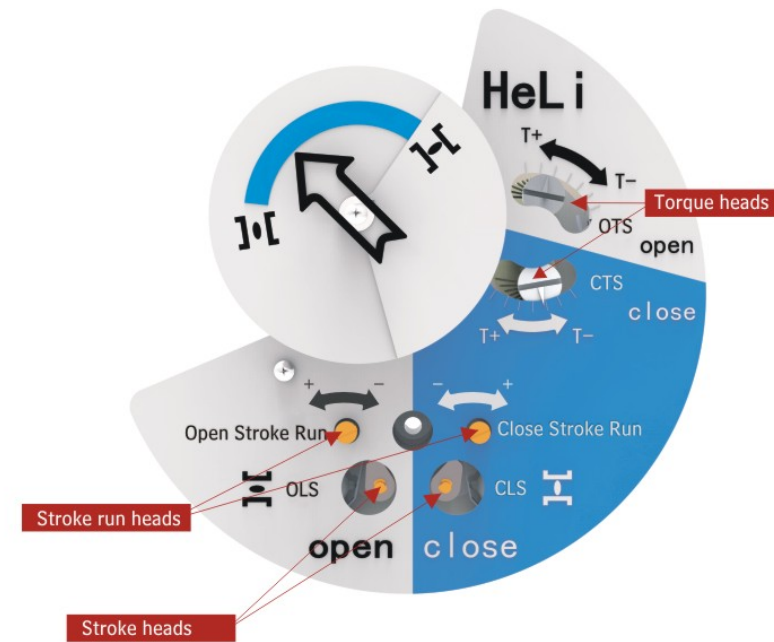
Patent No: 20201060145.3
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- Mechanical commissioning

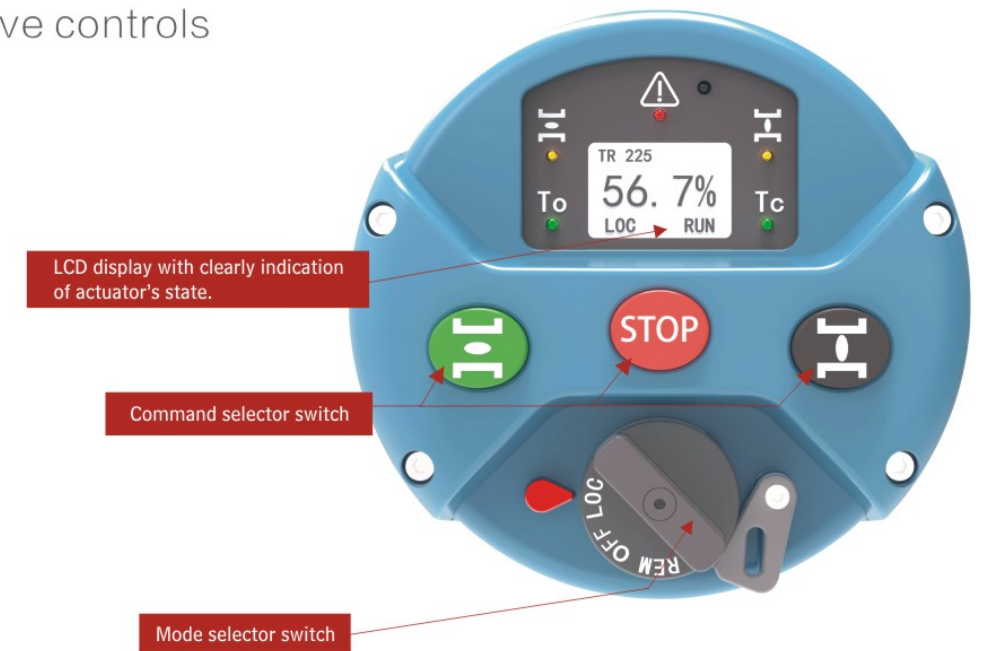
- 1 Torque heads
- 2 Stroke run heads
- 3 Stroke heads

Patent No: 202030073234.5



- User friendly & intuitive controls

Patent No: 202030008118.5

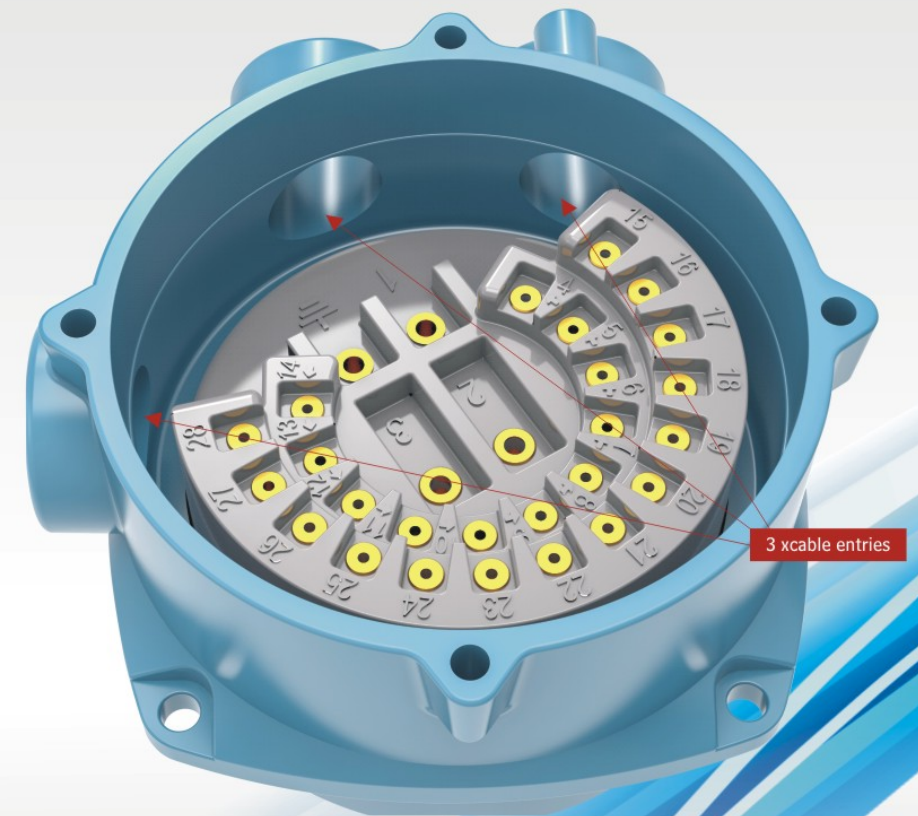
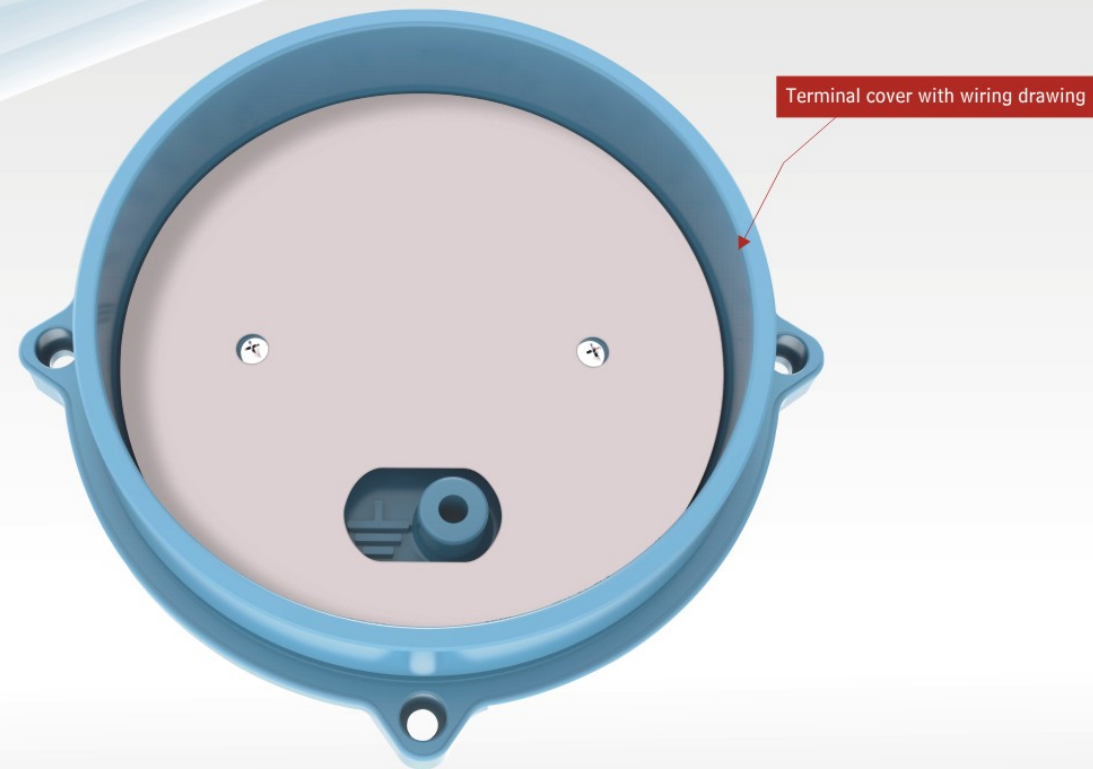


HEM Basic type- cutaway view



HEM Intelligent type-cutaway view





- 3 positions of cable entries to meet the cables from different directions.

Mounting Base And Coupling-HEM Multi-turn Electric Actuator

Removable mounting base

- Type Y (claw) as standard based on JB2920 standard.
- Type Z (bore and keyway) or type T (Thrust) based on ISO5210 standard.

Coupling

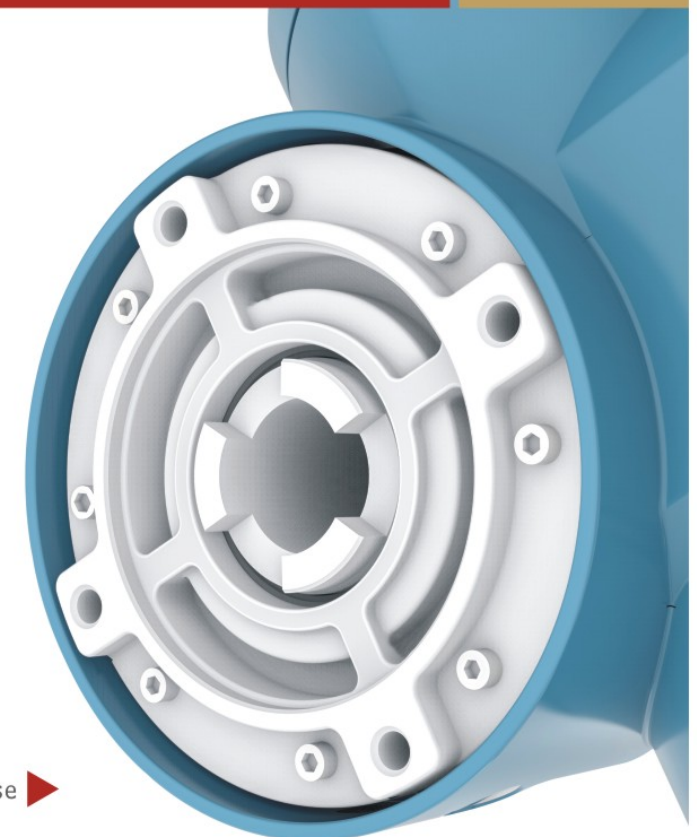
- Type Z (bore and keyway) mounting base as standard.
- Z3 (bore and keyway) and Z4 (blank) adapter sleeves as option to suit Z1.

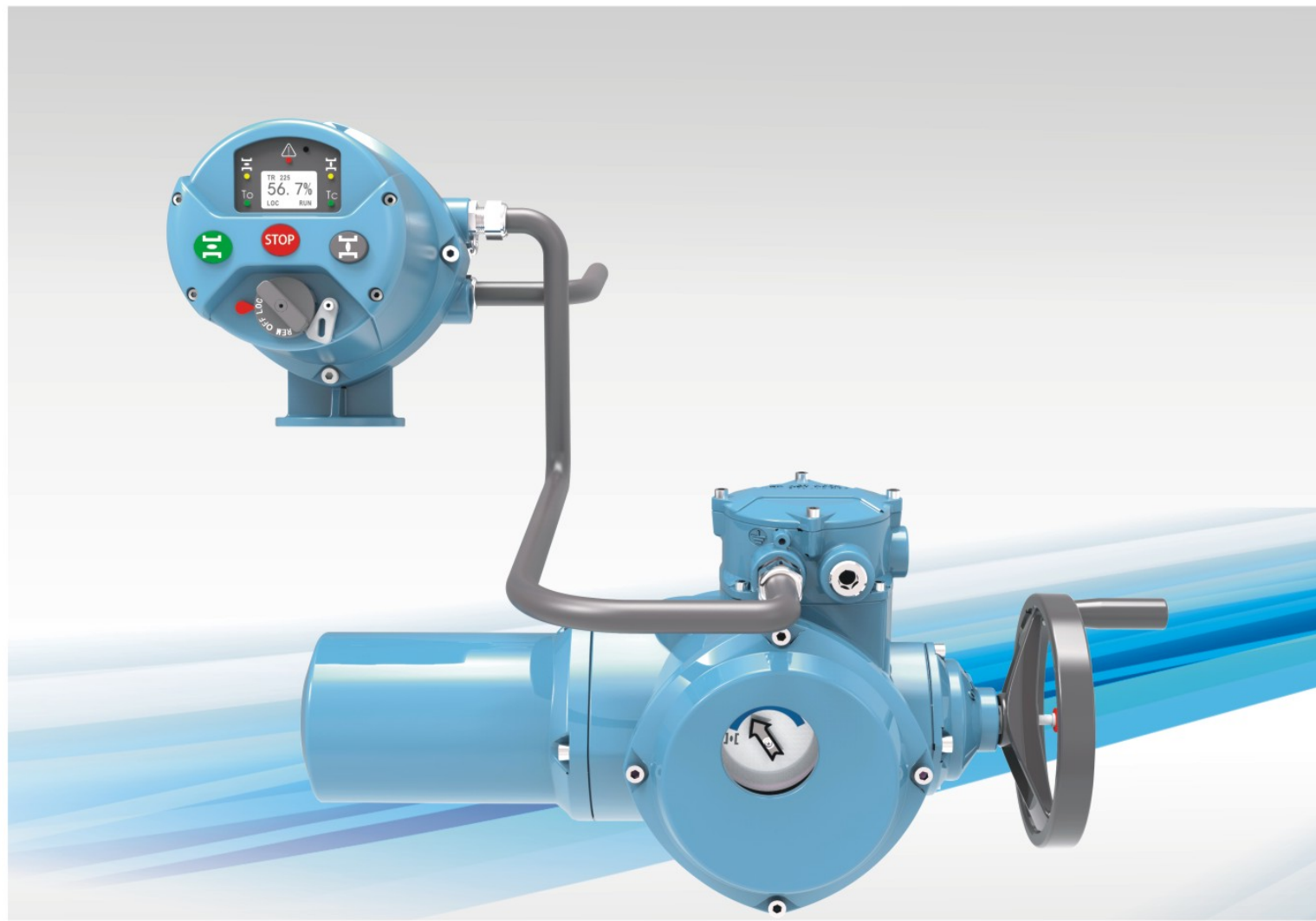
Thrust bearings

- Removable type T mounting base suitable for thrust bearings, please refer to the technical data for more information.



Type Y mounting base





Separated control box-HEM Multi-Turn Electric Actuator

The separated control box can be useful when the electric actuator has to be mounted in a difficult access, on a highly vibrating device, or in an excessively high or low temperature atmosphere, the max. distance between electric actuator and control box is 100 meters.

Electric Actuator-With thrust unit/gearbox



Thrust range with thrust unit: 5KN-217KN
Global valve and regulating valve availability.

• Thrust unit Specification

No.	Max.Thrust(N)	Standard stroke(mm)	Customized stroke(mm)
1	6400	10-60	60-100
2	10000	10-60	60-100
3	16000	10-60	60-100
4	25000	10-60	60-100
5	35000	10-60	60-100
6	45000	10-60	60-100
7	65000	10-60	60-100

Please contact the company if you need more details of specification.



Torque range with bevel gearbox: 200Nm~50000Nm
Gate valve and global valve availability.



Torque range with worm gearbox: 100Nm~600Nm
Butterfly valve, ball valve and plug valve availability.

• Worm gearbox specification

No.	Worm gearbox output torque (Nm)	Actuator input torque (Nm)	Speeds (r/min)	Ratio	Working time (s)
1	2500	100	24	122:1	76s
2	3500	120	24	122:1	76s
3	4500	150	24	132:1	83s
4	6500	200	24	150:1	94s
5	8500	250	24	150:1	94s
6	10000	300	24	150:1	94s
7	13000	400	24	160:1	100s
8	16000	500	24	160:1	100s
9	22000	600	24	153:1	96s
10	26000	550	24	215:1	135s
11	35000	600	24	255:1	160s
12	40000	500	24	340:1	212s
13	50000	600	24	360:1	225s

Please contact the company if you need more details of specification.



Communication Interfaces

Industrial network systems requires the seamless control and feedback plus asset management between actuator and control room so that the process operator needs real-time operational data to control the local equipment at all times and the maintenance manager needs the asset management to make a better maintenance plan.

Serial Communication

- When HELI developed the control module, our engineer considered the continuous development of the industrial network bus system. Through a professional system support team, HELI can provide professional and compatible actuator for fieldbus controls.
- All fieldbus controls of the HEM series are possible to update to extend other functions.
- Fieldbus controls can be used independently or in conjunction with hardwired controls according to the specific applications or site requirements.

Modbus®

- HELI modbus modules suitable for single or dual communication highways may be included in the HEM actuator, to provide Fieldbus communication of all the actuator control functions and feedback data, which is carried on an RS485 data highway and the communications protocol used is Modbus RTU. System address and data baud rate are programmed over the infrared communication or bluetooth wireless.

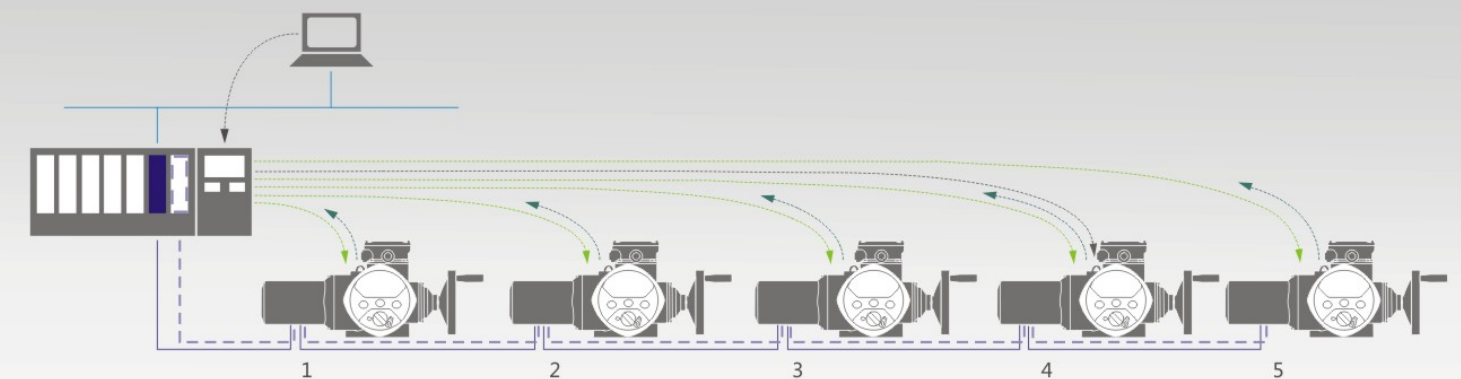
Profibus®

- Profibus DP interface module is available to allow the actuator to be integrated into a Profibus network. Full compatibility with EN50170 is provided and the Profibus network allows full actuator control and feedback of data to the host.

Profinet and Modbus TCP®

- Profinet has gradually become the most popular solutions in industrial automation. HELI already designed the modules of Modbus TCP and Profinet solutions for HEM series actuator.
- Please contact HELI for more details.**

Fieldbus Communication –HEM Multi-Turn Electric Actuator



— Single Channel
— Dual Channel

Bus cycle with 5 electric actuators



- Cyclic process data requests from master station
- Cyclic process data feedbacks from slave station
- Acyclic diagnostic or parameter data transmission

Comparison of bus cycle times





Intelligent type

Standard Specification	Torque		· 60-800Nm
	Output Speed		· 18-144 (rpm)
	Ambient Temperature		· -30℃~70℃
	Vibration Resistance		· Comply with JB/T8219
	Noise degree		· Less than 70dB witin 1 meter
	Cable entries		· 2XNPT 3/4 plus1XNPT 3/4
	Enclosure Protection		· IP67 as standard,IP68 as option
	Mounting base		· Comply with JB2920(claw) or ISO5210(Thrust or Torque)
Technical Specification	Motor ratings		· Class F,with 135℃ thermal protection
	Duty rating	· ON-OFF:S2-15min,less than 600 starts/hour	
		· Modulating:S4-50%, less than 600 starts/hour	
	Voltage	○ Option:1200 starts/hour	
		· Three phase : AC380V (± 10%) ;50HZ (± 5%) three phase three wires	
	Fieldbus controls	○ AC220V,AC415V and other voltages as option	
		· Modbus,Profibus as option	
	ON-OFF	Control signal	· ON-OFF signal(dry contact,24V,220V,possible to exchange between inching and keep)
		Feedback signal	· 6 x relay contacts(5 x state relay+1 x fault relay)
	Modulating	Control signal	· 1 xanalogue feedback:4~20mA,output impedance:≤750Ω (4~20mA as standard;0~10V,2~10V as option)
			· ON-OFF signal(dry contact,24V,220V,possible to exchange the inching and keep)
		Feedback signal	· Analogue signal:4~20mA , input impedance≤100Ω ; (0~10V,2~10V as option)
			· 6 x relay contacts (5 x state relay+1 x fault relay)
		Deadband	· 1 x analogue feedback:4~20mA,output impedance≤750Ω(4~20 as standard;0~10V,2~10V as option)
		Polarity	· 0.3~9.9% adjusted within full stroke
Operation Mode	Indication		· Yes
	Signal loss action		· Yes
	LCD display		· LCD display
	Open/Close/Remote/Failure lamp(Digital shown in percent for position and torque)		· Open/Close/Remote/Failure lamp(Digital shown in percent for position and torque)
Others	Menu operation		· Remote control or Selector switch
	Local control		· Configuration set(Position,Max.torque)
	Data logger and diagnostics		· Command selector switch(OPEN/CLOSE/STOP)
	Functions		· Mode selector switch(LOC/REM/OFF)
Others	Automatic phase correcton(3PH only)		· Infrared remote control suit menu to access the faults diagnosis
	Torque protection		· Automatic phase correcton(3PH only)
	Space heater		· Alarms(Local and remote)
	Data logger running		· Torque protection
	Event log		· Motor thermal protection
	Starts		· Bypass torque switch
	Life statistics		· Space heater
	Infrared remote control		· ESD set(Open,Close,Keep)
Others	Option: Explosion proof infrared remote control		· Data logger running
			· Duty trend logs
			· Event log
			· Running time
Others			· Average torque
			· Starts
			· Life statistics
			· Infrared remote control

Basic type

Standard Specification	Torque		· 60-800Nm
	Output Speed		· 18-144 （rpm）
	Ambient Temperature		· -30℃～70℃
	Vibration Resistance		· Comply with JB/T8219
	Noise Degree		· Less than 70dB within 1 meter
	Cable Entries		· 2×NPT 3/4 plus 1×NPT 3 /4
	Enclosure Protection		· IP67as standard,IP68 as option(15 meters head 72hours)
	Mounting Base		· Comply with JB2920(Claw) or ISO5211(Thrust,Torque)
Technical Specification	Motor ratings		· Class F,with 135℃ motor thermal protection.
	Duty ratings		· ON-OFF,S2-15min,less than 600 starts/hour
	Voltage		· three phase: AC380V （±10%） / 50Hz(±5%) three phase four wires
			○ Option: 1PH AC220V
	Fieldbus controls		· None
	ON-OFF	Control signal	· ON-OFF,built in contact with ratings 5A@250VAC
		Feedback signal	· Fully open/Fully closed (dry contact)
			· Open torque switch/Close torque switch (dry contact)
○ Option:with potentiometer			
Operation Mode	Indication		· Arrow
	Menu operation		· None
	Local control		· None
	Data logger and diagnostics		· None
Others	Functions		· Space heater
			· Torque protection
			· Motor thermal protection
			○ Option:Explosion proof infrared remote control

Torque Specification

- Due to the effects of inertia and drive coupling wear,speeds not recommended for direct mounted on gate valve application.
- Rated torque is maximum torque settting in both directions.Stall torque will be 1.4 to 2 times this value depending on speed and voltage.
- If the 60Hz purchased,the speed will increase by 1.2 times.
- If maximum torque is required for more than 20% of valve travel,please contact with us.

• 3PH380VAC-ON-OFF and Modulating up to 600 starts per hour.

Output speeds 50Hz RPM	18	24	36	48	72	96	144
Item	Torque Nm						
HEM10	100		100	100	70	50	40
HEM15	150		150	150	100	75	60
HEM20	200		200	200	170	150	100
HEM30	300		300	300	200	170	120
HEM40	400		350	300	250	230	150
HEM50	500		500	500	400	300	200
HEM60	600		600	550	500	400	260
HEM80	800		750	650	600	480	350

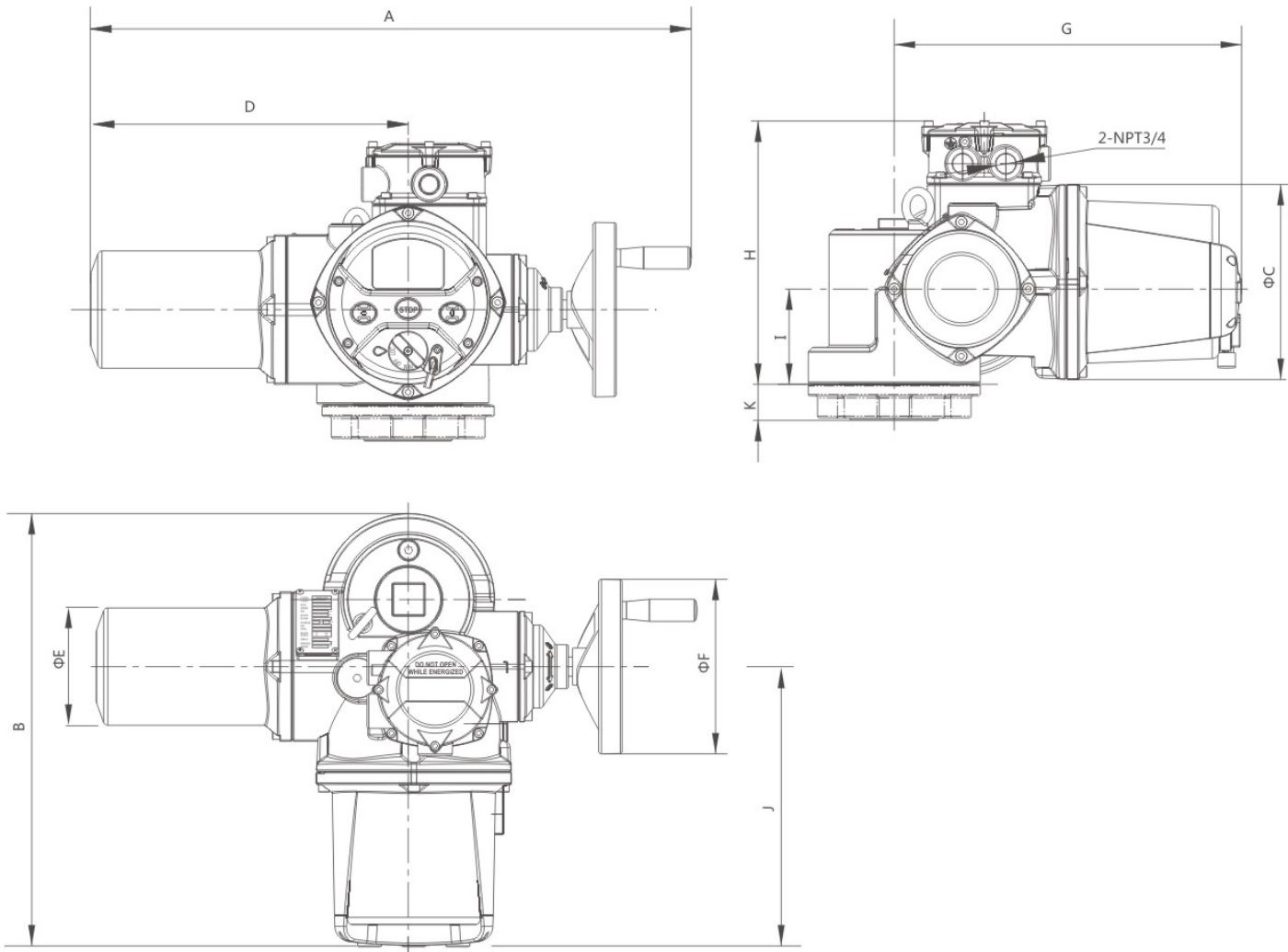
• 3PH380VAC-Modulating up to 600~1200 starts per hour

Output speeds 50Hz RPM	18	24	36	48	72	96
Item	Torque Nm					
HEM10	65		65	65	45	30
HEM15	98		98	98	65	50
HEM20	135		135	135	110	95
HEM30	195		195	195	135	110
HEM40	260		225	195	160	150
HEM50	325		325	325	260	195
HEM60	390		390	360	325	260
HEM80	520		480	420	390	310

• 1PH220VAC-ON-OFF

Output speeds 50Hz RPM	18	24	36	48	72	96
Item	Torque Nm					
	60		50	50	35	35
HEM40	150		130	100	50	50
	250		200	170	130	100

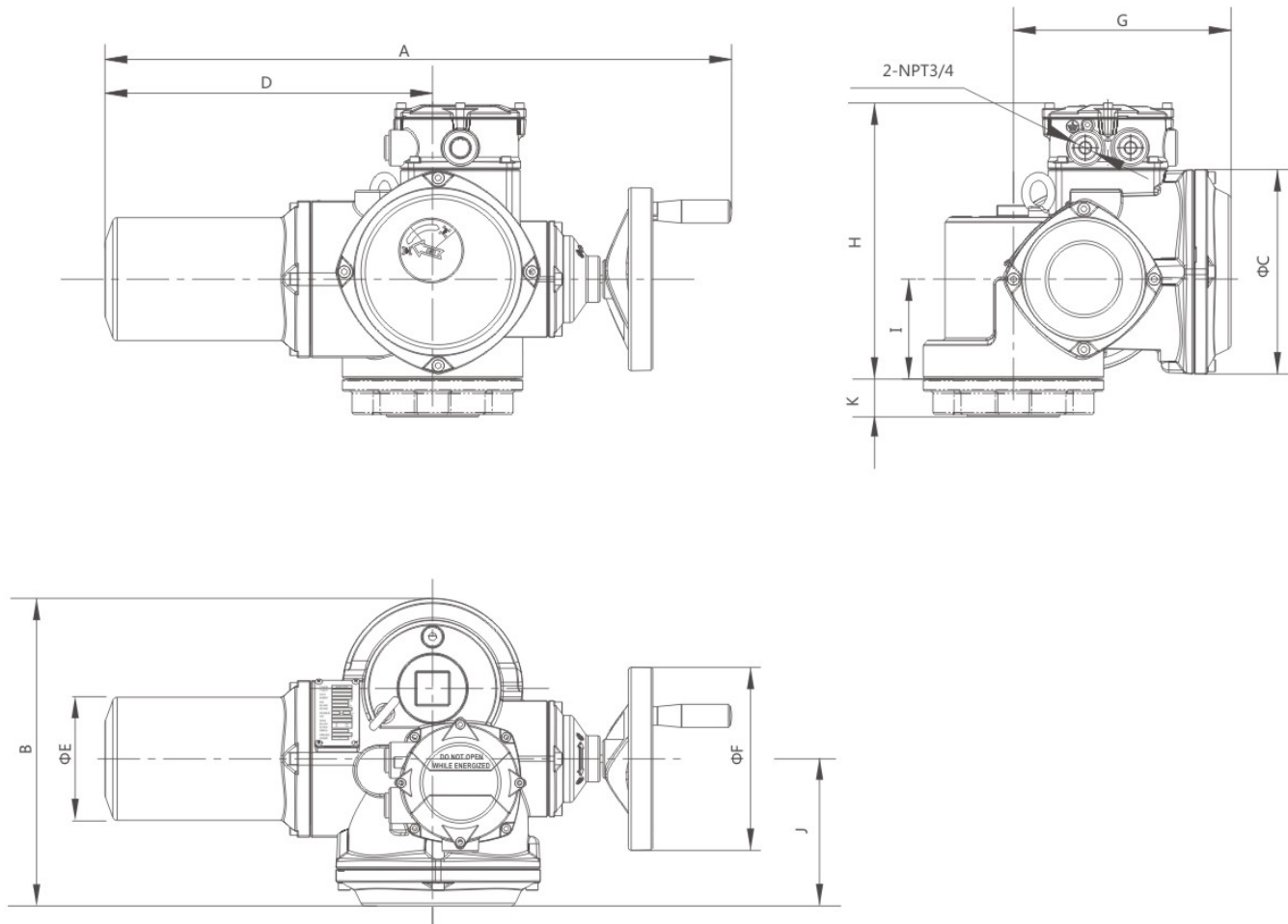
Demension(Intelligent type)



Unit : mm

Item	A	B	ΦC	D	ΦE	ΦF	G	H	I	J	K		Weight (kg)
											Type Z flange	Type T flange	
HEM10	629	387	222	308	105	200	415	300	108	338	39	45	31
HEM15	629	387	222	308	105	200	415	300	108	338	39	45	31
HEM20	682	490	222	360	135	200	394	300	108	317	41	60	42
HEM30	682	490	222	360	135	200	394	300	108	317	41	60	42
HEM40	682	490	222	360	135	200	394	300	108	317	41	60	42
HEM50	732	545	222	404	155	200	410	300	114	333	41	62	56
HEM60	732	545	222	404	155	200	410	300	114	333	41	62	56
HEM80	732	545	222	404	155	200	410	300	114	333	41	62	56

Demension(Basic type)

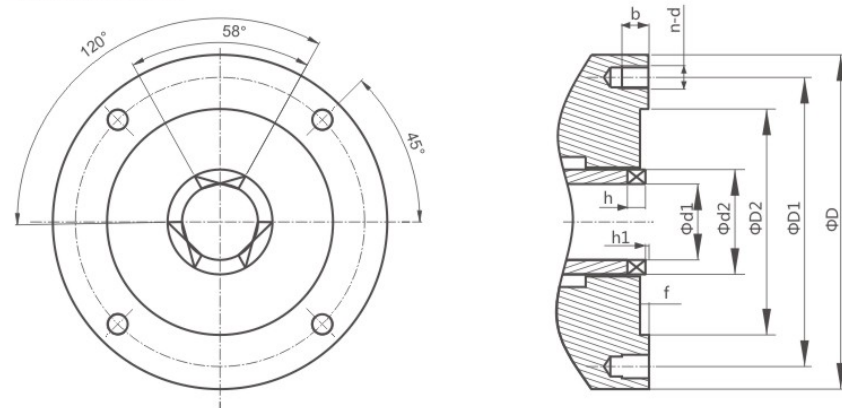


Item	A	B	ΦC	D	ΦE	ΦF	G	H	I	J	K		Weight (kg)
											Type Z flange	Type T flange	
HEM10	629	229	222	308	105	200	394	300	102	317	41	60	31
HEM15	629	229	222	308	105	200	394	300	102	317	41	60	31
HEM20	682	332	222	360	135	200	394	300	108	317	41	60	42
HEM30	682	332	222	360	135	200	394	300	108	317	41	60	42
HEM40	682	332	222	360	135	200	394	300	108	317	41	60	42
HEM50	732	387	222	404	155	200	404	300	108	324	41	60	56
HEM60	732	387	222	404	155	200	404	300	108	324	41	60	56
HEM80	732	387	222	404	155	200	404	300	108	324	41	60	56

Unit : mm

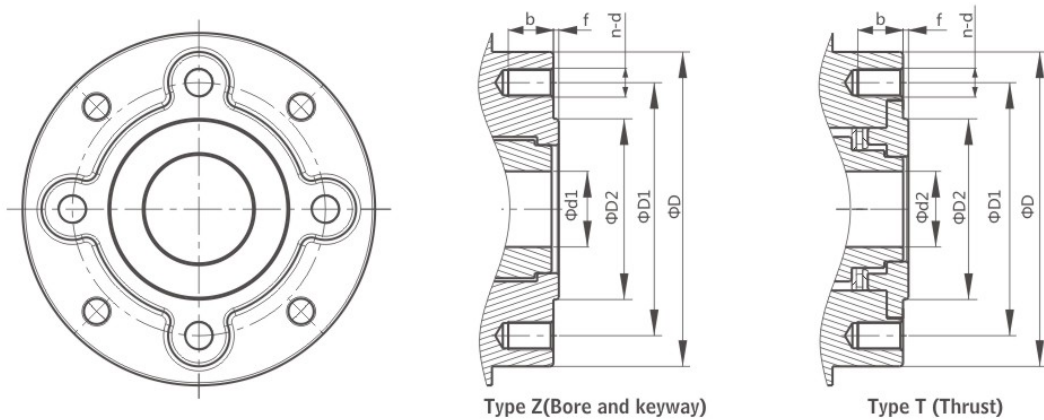
HEM Series Mounting Base

Type Y (claw)——JB2920 standard



Item	Flange	ΦD	ΦD1	ΦD2	Φd1	Φd2	f	h	h1	n-d	b
HEM10	JB2	145	120	90	30	45	5	8	2	4-M10	20
HEM15	JB2	145	120	90	30	45	5	8	2	4-M10	20
HEM20	JB3	185	160	125	43	58	5	10	2	4-M12	20
HEM30	JB3	185	160	125	43	58	5	10	2	4-M12	20
HEM40	JB3	185	160	125	43	58	5	10	2	4-M12	20
HEM50	JB4	225	195	150	50	72	5	12	2	4-M16	25
HEM60	JB4	225	195	150	50	72	5	12	2	4-M16	25
HEM80	JB4	225	195	150	50	72	5	12	2	4-M16	25

Type Z(Bore and keyway) or Type T(Thrust)——ISO5210 standard



Item	Flange	ΦD	ΦD1	ΦD2	f	Φd1 (Max.)	Φd2 (Max.)	n-d	b
HEM10	F10	120	102	70	4	32	Tr32	4-M10	15
HEM15	F10	120	102	70	4	32	Tr32	4-M10	15
HEM20	F14	175	140	100	4	48	Tr48	4-M16	24
HEM30	F14	175	140	100	4	48	Tr48	4-M16	24
HEM40	F14	175	140	100	4	48	Tr48	4-M16	24
HEM50	F16	205	165	130	5	62	Tr62	4-M20	30
HEM60	F16	205	165	130	5	62	Tr62	4-M20	30
HEM80	F16	205	165	130	5	62	Tr62	4-M20	30