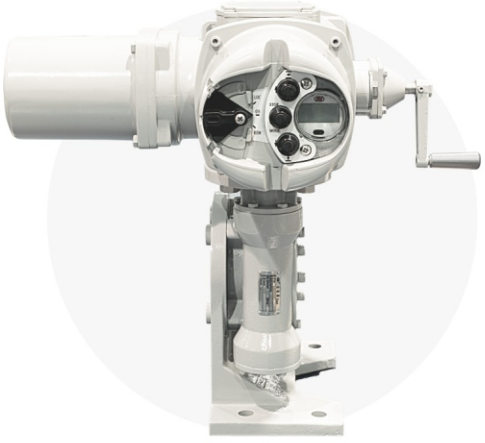


CONTENT

PRODUCT INFORMATION

SELECTION GUIDE

QUALITY GUIDELINE

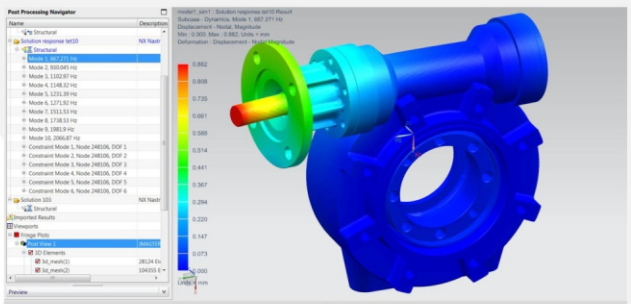
+ Product +
Strives
for Excellence

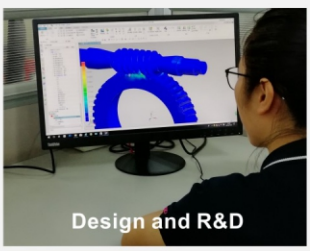
+ Quality +
Keeps
Improving

+ Service +
Makes
Customer Satisfied


Manufacturing Workshop

Intelligent Storage

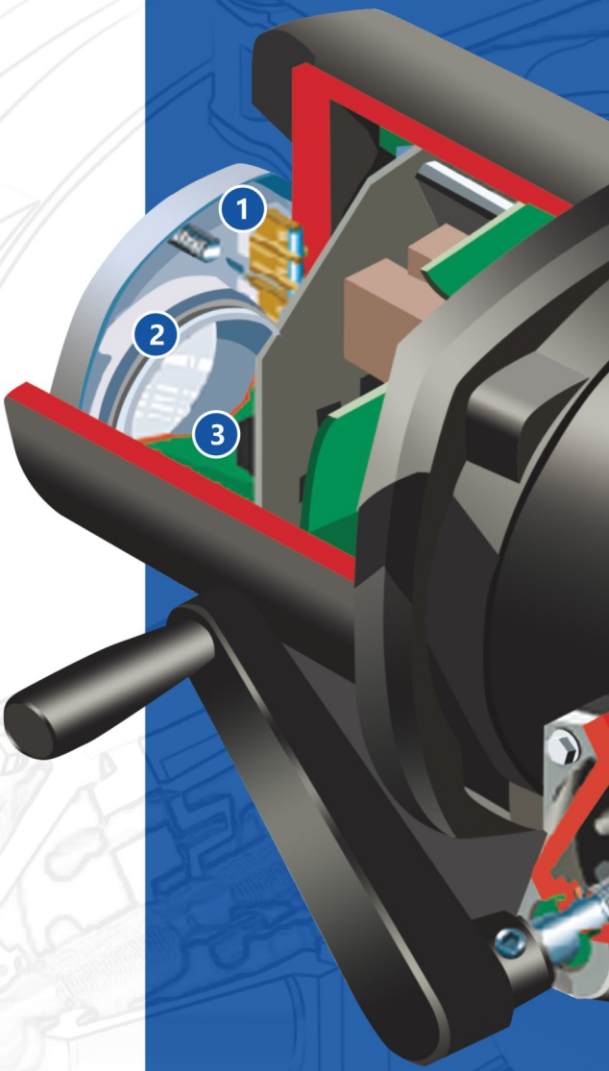



Design and R&D

STRUCTURE FIG OF SPARE PARTS

1 Signal panel

Received input and output: 4mA~20mAd.c
Analog signal (and optional on-off output signal)



2 CPU board

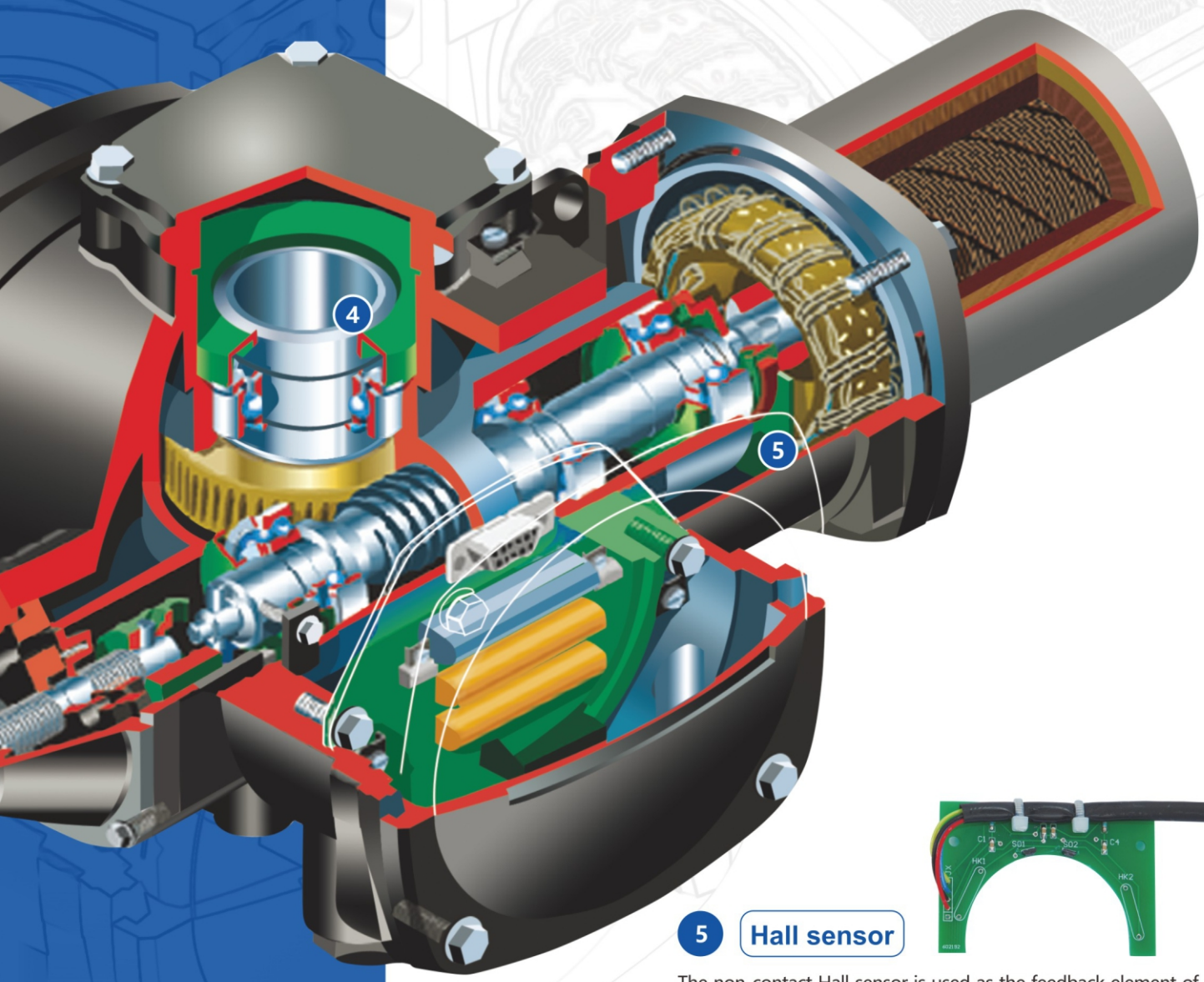
(CPU control board) variable frequency central control unit is responsible for processing all input and output signals, including control signal, feedback signal, fault signal, alarm signal, etc. It is responsible for generating the drive pulse of variable frequency control so that the drive unit can change the motor speed and the actuator can have a very high control precision and good control quality.

3 Variable frequency control board

The variable frequency control board adopts advanced IGBT power drive module and receives variable frequency control pulse so that the motor can start and brake flexibly; and its current is very small, avoiding the surge impact and the valve "water hammer" effect, and effectively protecting the actuator and valve from impact.

4 Worm and gear

Worm and gear transmission chain is simple, with compact structure, constant transmission efficiency, mechanical self-locking function without brakes; and the transmission part is coated with long-term lubricating oil so that it can run for a long time without maintenance.



5 Hall sensor

The non-contact Hall sensor is used as the feedback element of the device so that the electrical part of the position sensor does not have any mechanical friction, greatly improving the service life of the sensor.

Humanized
OPERATION INTERFACE

All parameters of M series can be set by the interactive menu through the local operation button and LCD screen.
It is very easy to debug and set up.
All settings need no mechanical adjustment and can be assigned directly by the button.

Function description of mode selection switch

Mode	Function
Remote	For remote 4mA~20mAd.c. control / remote switching value control
O/S	Position locking (remote and local operation invalid)
Local	Configuration adjustment (setting position, setting parameters, diagnosis, etc.) can be carried out through the local control panel.
LCD	Alphanumeric display of operation mode and parameters
LED	The green LED indicates “main power available” and the red LED indicates “failure”

SKETCH PLAN OF OPERATION INTERFACE

Safe position locking

Status indicator
Indicating the status of actuator

Information center
Displaying the operating information of the actuator and the parameters of the interactive menu

Communication window

Mode selection switch
Locking fastener, for preventing illegal operation

Operation button
Used for on-off, stop and parameter setting operation

Configuration adjustment (setting position, setting parameters, diagnosis, etc.) can be carried out through the local control panel. The whole setting can be carried out through the local control panel in the “local operation” state.

VARIABLE FREQUENCY CONTROL

Inverter, as a mature product, has been widely used in various industrial production fields. Our company has successfully integrated variable frequency technology into the control of the actuator, realized the speed, steering and torque adjustment functions and optimized the control of valve.

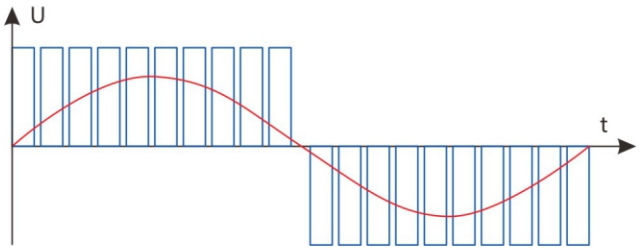
AC variable frequency speed regulation principle

According to the principle of motor, the speed of AC asynchronous motor can be expressed by the following formula: n=60f/p (1-s), where n - motor speed; P - motor's number of pole pairs; F - power frequency; S - slip.

It can be known from the formula that the factors affecting the motor speed include: P - motor's number of pole pairs, S - slip and power supply frequency, which can realize the motor speed regulation, that is, variable frequency speed regulation. The variable frequency function is realized by using AC - AC variable frequency mode, which is mainly composed of two parts including rectifier and inverter circuits.

Rectifier

The three-phase AC power supply is rectified through a high-power rectifier bridge to convert AC voltage into DC voltage.

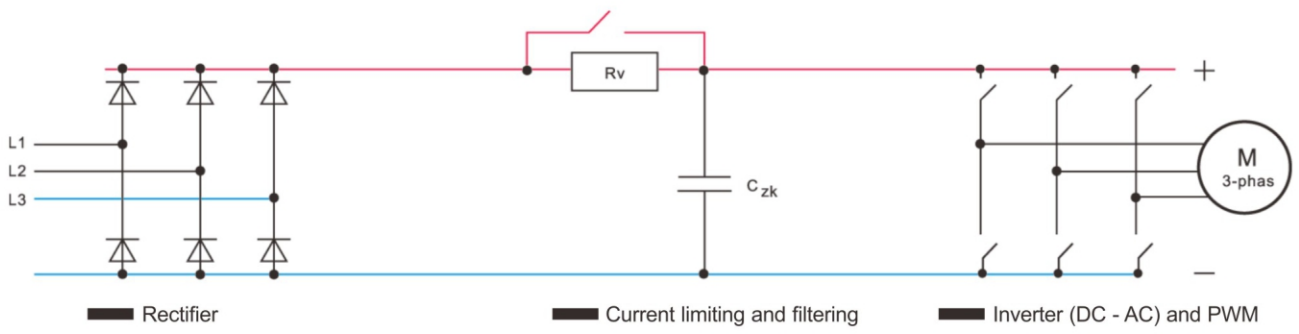


Current limiting and filtering

The filter capacitor Czk filters out the voltage ripple after rectification and keeps the voltage stable when the load changes. When the main circuit is energizing, the instantaneous impulse current is large. In order to protect the circuit components, the current limiting resistor RV is added; and after a period of delay, the switch is closed through the control circuit to short-circuit the current limiting resistor.

Inverter (DC - AC) and PWM

Through the three-phase inverter bridge composed of inverter switch tube (IGBT), applying SPWM pulse width modulation technology, combining with special algorithms, adjusting the output frequency and output voltage, and controlling the motor speed, steering and torque.



Built-in integrated frequency converter

The actuator with built-in integrated frequency converter has more functions and advantages than traditional actuators, better protection of valves and optimized control.

Flexible control

When the valve starts, the actuator runs at a low speed and high torque; when the valve is nearly fully open or fully closed, the actuator will automatically decelerate, to position at a low speed, effectively avoiding the impact caused by inertia on the valve, and prolonging the service life of the valve.

Adjustable torque speed, reducing inventory and saving cost

Shut-off torque and output speed can be set in a large range. Therefore, only a small number of specifications and models of multi-turn actuators with the corresponding reduction box or linear propulsion device, form actuators of a variety of torques (thrusts), with a straight stroke from 3kN to 100kN, an angular stroke from 60Nm to 150000Nm, so as to reduce the spare parts of finished unit and the inventory of spare parts.

Multiple safety protection, to ensure the safety of system and actuator, and to protect the motor from overheating

Through the composite sensor, accurate detection of torque, current and temperature can be realized, and effective protection against overcurrent, overheating and over-torque can be achieved.

Proprietary and unique EMC filter circuit, effectively improving the anti-jamming capacity

Proprietary EMC filter circuit, on the one hand, can avoid the interference of the external environment to the product, and improve the reliability of the product; and on the other hand, it can avoid the pollution of product operation to power grid.

Automatic identification of power supply phase sequence

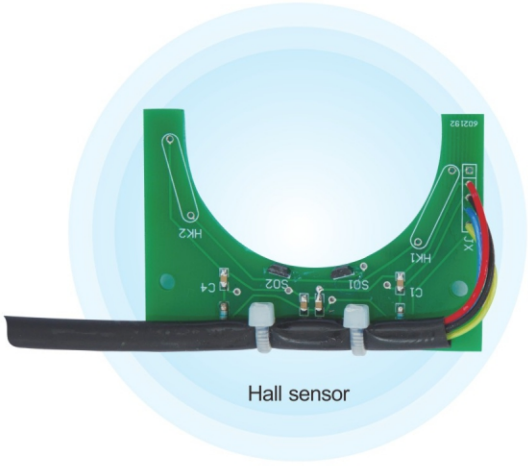
Because of the intelligent technology, the product can automatically identify the power phase sequence, therefore the power cord can be arbitrarily connected, and it is more convenient and fast for installing and debugging. Due to the use of variable frequency technology, the effect of power supply frequency and voltage fluctuation on the actuator can be effectively avoided.

Open/close speed and torque are set independently, optimizing valve control

According to the actual needs of field process control, the speed (step length 5%) and torque (step length 10%) of open direction and close direction can be set separately and independently to meet the needs of different processes or different running stages and realize the optimization of control process.

DIGITAL DETECTION

Two Hall elements distributed at an electrical angle of 90° are mounted outside the motor shaft, and 20 magnetic poles are installed on the motor shaft. The motor generates 40 voltage pulses per round. The pulse signal is processed by a microprocessor to obtain precise parameters such as displacement, steering and velocity. The position measurement has been carried out all the time, and every change is detected and stored. The Hall sensor is not affected by the change of ambient temperature. It works stably and reliably, and it is not easy to wear. It has high a measuring accuracy, strong anti-interference ability, and long service life.



Hall sensor

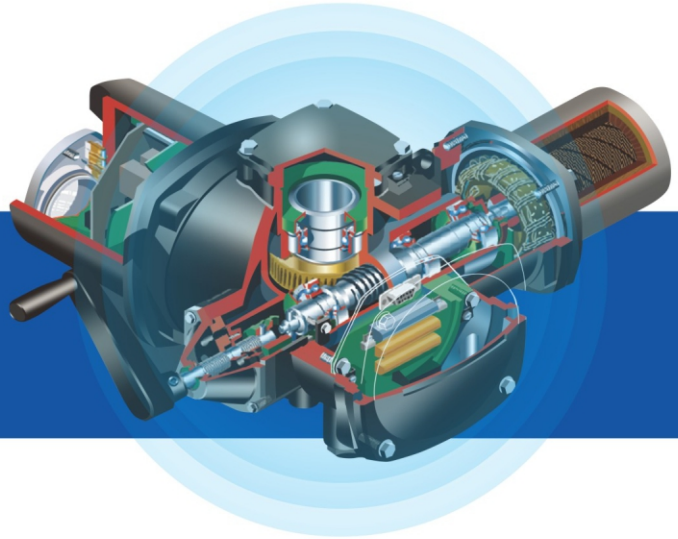
Midway limit protection function

Hall sensor can accurately detect the actual position of the actuator. Once you reach the set position, CPU outputs switch position signal through the relay on the control relay board. When the two limit positions are fully open or fully closed, the CPU controlled frequency converter will immediately cut off the power supply of motor, so as to realize limit protection.

Data doesn't depend on the battery and can be stored for a long time

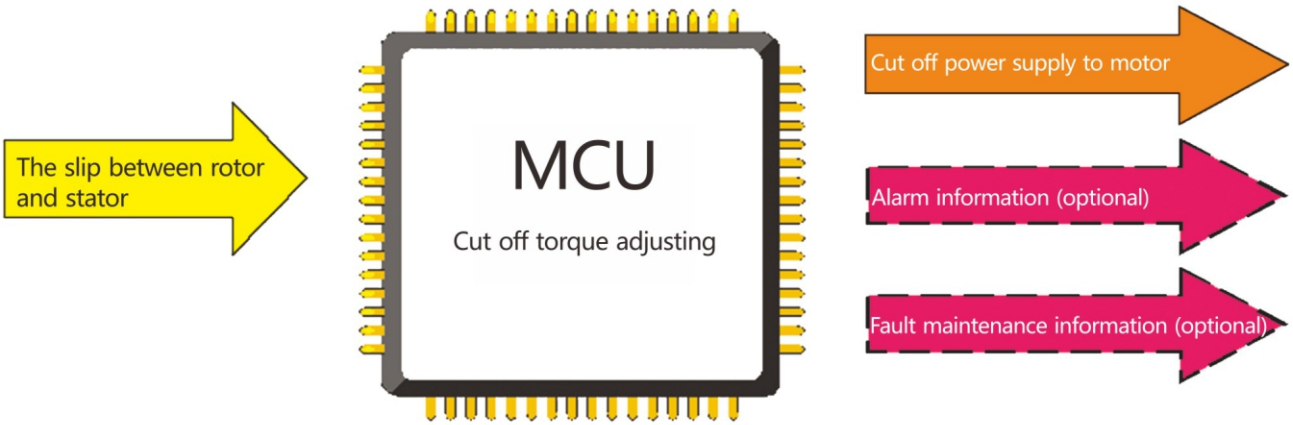
Because of the special data processing and storage mode, the operation data can also be stored for a long time in the case of power down, to achieve the permanent safety of data. Built-in lithium and ultra capacitor energy storage only play a role in recording valve position changes when the handwheel is operated under power failure, and on the other hand it is used to view the current data of the actuator when power failure occurs.

Electronic torque detection replaces mechanical torque switches



Over-torque protection

- Cutting torque can be set bidirectional (forward/reversely) independently by 10% of step length.
- During operation, microprocessor continues testing the slip between the stator and rotor and calculates the comparison between the actual torque and the presetting cut-off torque; once it overruns, CPU control frequency converter cuts off the motor power supply and outputs fault information, realizes torque protection. The actuator motor will not be burned due to blockage, and the valve will not be damaged by the torque of the actuator.
- No mechanical torque switch, no mechanical wear, and no need for adjustment and maintenance.
- The output torque can be easily and quickly set without opening the cover.



SETTING MODE

Convenient data setting

Actuator

Infrared

Non-contact debugging, setting and operation of actuator via remote control (optional)

Bus setting

Remote setting and operation of actuator via computer (optional)

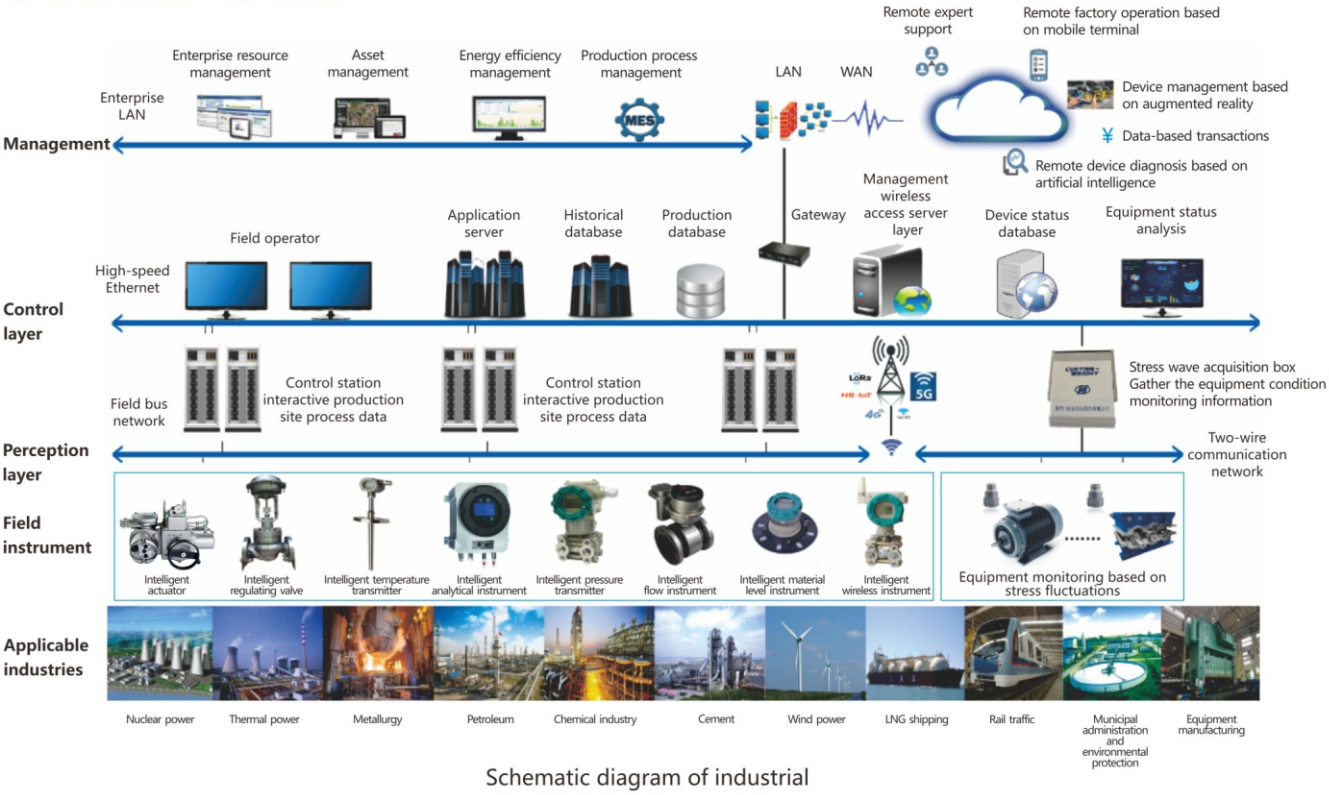
Wireless setting

IP address setting within 100m (optional)

Panel

Standard configuration, available for setting, debugging and operating the actuator in place

Field Bus



Schematic diagram of industrial

M series electric actuator is available for a variety of field bus interface options, including PROFIBUS DP / HART / FF / MODBUS / Industrial Ethernet, etc. M series electric actuator is one of the earliest electric actuator in China, which has the functions of PROFIBUS DP VO and PROFIBUS DPV1, and the dual channel redundancy function. It can be integrated within the interactive configuration tool Simauic PDM or FDT framework application. Through the bus, such operations of actuator as controlling, parameter view, setting and diagnosis can be done remotely. It has such characteristics as follows:

1 Visualization of parameters

The parameters of the actuator are intuitively displayed in each function screen, which greatly facilitates the browsing of PDM tool or FDT framework applications.

2 Convenient for debugging

All setting data (such as turn-off torque and RPM) is displayed in the screen. It is simple for setting: click a shortcut to set parameters and upload to the actuator. For safety, setting the end position of the actuator must be done in the field.

3 Powerful diagnosis function

The status information of the actuator is clear; and all fault information is displayed and recorded, making diagnosis and troubleshooting easy.

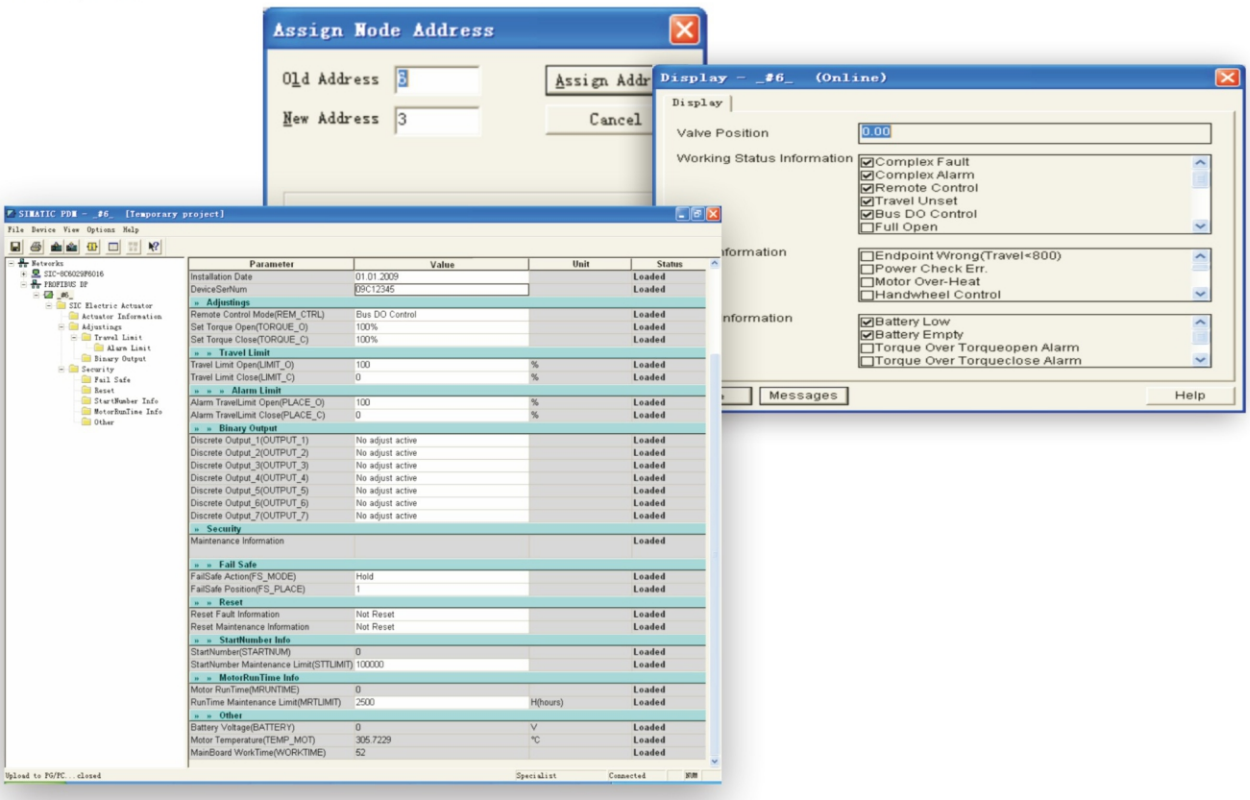
4 Field bus manual manipulator

M series electric actuator can realize fast and convenient operating mode by the field bus manual manipulator.

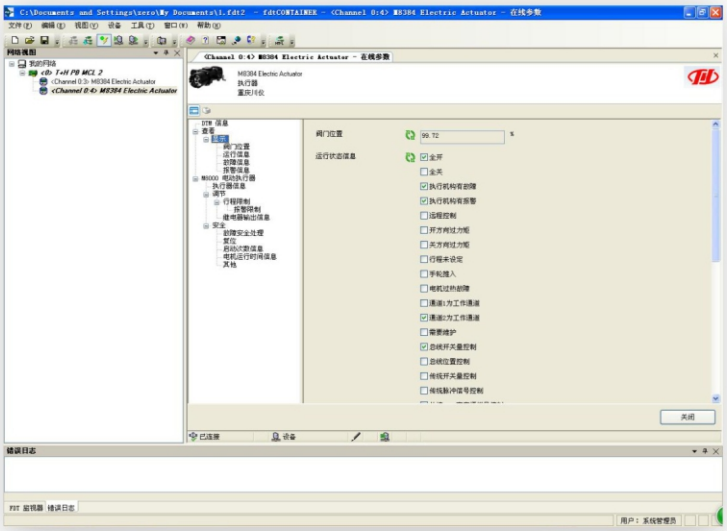
HART manual operator

PDM Software Setting Interface

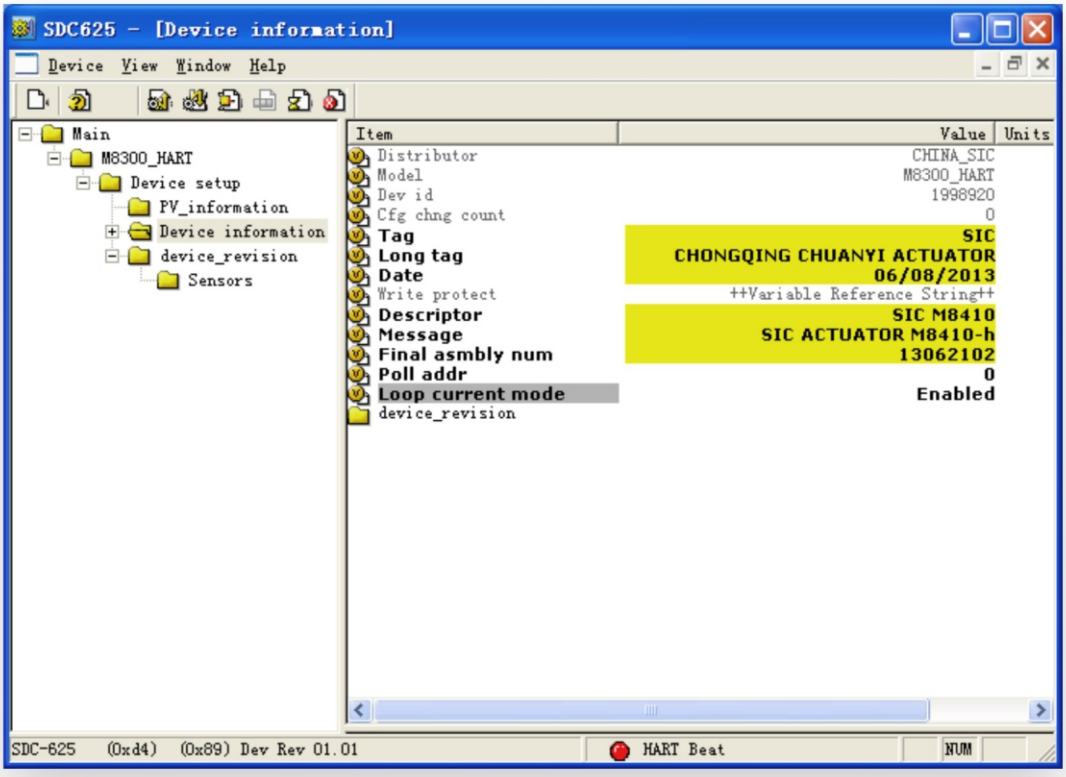
Through PDM software, the actuator can be programmed and set conveniently, so that it can meet the control requirements of the system.



FDT framework application setting interface



SDC625



SELECTION GUIDE

Coastal environment with high salt fog

High-temperature environment in desert

Low-temperature
environment in ice and snow

Table of Specifications Selected

1	2	3	4	5	6	7	8	9	10	11
M Series Multi-turn Type										
M Series Part-turn Type										
Control module	Selection code	▼								
	Intelligent on-off-type	3								
	Intelligent regulating-type	4								
	Variable frequency on-off-type	5								
	Variable frequency regulating-type	6								
Output torque	M Series Multi-turn Type	M Series Part-turn Type	▼	M Series Linear Type	▼					
	50N.m	100N.m/90°	1	3kN	03					
	100N.m	200N.m/90°	2	7kN	07					
	200N.m	300N.m/90°	3	10kN	10					
	400N.m		4	20kN	20					
	600N.m		5							
	1000N.m	600N.m/90°	6							
	2500N.m		7							
	3000N.m		8							
Output speed r/min		M Series Part-turn Type	▼	▼						
		36	34s/90°	0						
		24	28s/90°	1						
		12		2						
		72		3						
		144		6						
Environment					▼					
				Common	Default					
				Explosion-proof	d					
				Low-temperature	E					
Communication protocol						▼				
				Infrared		r				
				Wireless		w				
				Profibus field bus		p				
				Modbus field bus		m				
				FF field bus		f				
				Hart field bus		h				
Power supply							▼			
						380V/3PH	Default			
						220V/1PH	S			
						24Vd.c	B			
						12Vd.c	U			
Feedback							▼			
			On-off-type with 4~20mA output or with more than four sets of on-off output				C			
Technical protocol supplementary code								Three-digit code		

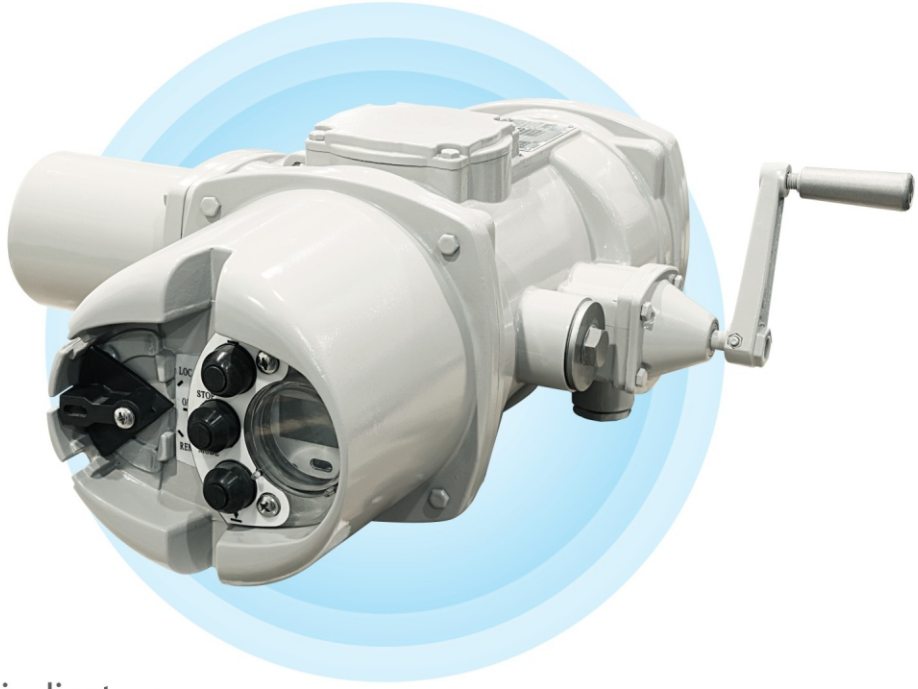
Notes:

1、The product with D endnote must have the explosion-proof mark and explosion-proof number before it can be used in the explosion environment; and its explosion-proof grade must be specified in the technical agreement or contract.

2、The product with C endnote is only valid for on-off-type series, and the rest is omitted.

3、The output torque is for reference only. See the Table of Model and Specification Parameters for specific parameters. The specific model selection is determined by the manufacturer.

M Series Multi-turn Type



Main technical indicators

Input	4mA~20mAd.c. current control / 24Vd.c passive (active) switching value control		
Optional	Infrared remote control / PROFIBUS / wireless remote control / FF bus / HART bus / MODBUS		
Output	Open/close over-torque alarm contact full open/full close position contact 4mA~ 20mAd.c. valve position feedback signal		
Features	Displacement, velocity, torque electronic, digital accurate measurement speed, and torque can be set in a wide range		
Control module	Intelligent variable frequency module / intelligent module		
Explosion-proof grade	Exd II CT4 Gb / Exd II BT4 Gb / Ex db IIB+H2 T4 Gb / Ex tb IIIC T130°C Db		
Operating mode	S4, S5 working system		
Fundamental error	±1%	IP grade	IP66, IP67 (IP68 optional)
Return difference	1%	Environment temperature	-25℃~70℃/-40℃~70℃ customized minimum ambient temperature is -60℃
Dead zone	0.5%~5% adjustable		
Damping characteristics	No shock	Relative Humidity	<95% (no condensation)
Power supply	380Va.c.(340V~440V)，50Hz/60Hz 3PH / 220Va.c.(187V~242V)，50Hz 1PH		

Note: For the specially-required voltage, please contact the manufacturer.

M Series Multi-turn Regulating-type Type

Actuator	Output		Flange ISO5210	Motor power (KW)	Current * (A) (A)	Weight (Kg)
	Rated torque (Nm)	Speed (r/min)				
M8□10	60	36	F10	0.5	0.88	24
M8□20	120	36	F10	0.85	1.75	25
M8□30	250	36	F14	2	3.5	35
M8□40	450	36	F16	3	7.0	70
M8□50	600	36	F16	5	10.5	72
M8□60	900	36	F16	5.2	12	72

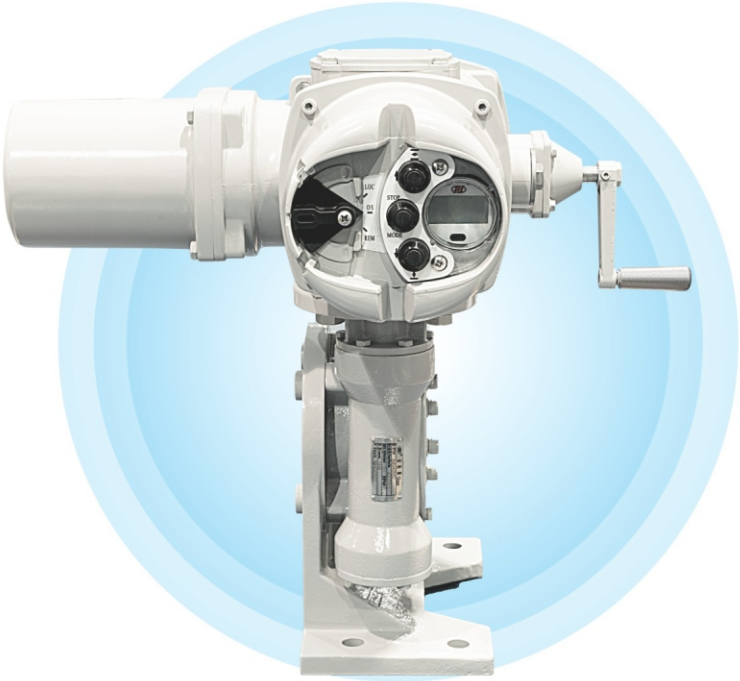
Notes: M85/8610~M85/8630 series 220Va.c. output torque decreases by 10% compared with the same period during power supply; and "*" means the current when the power supply voltage is 380Va.c.;
"□" means one of 4, 5 and 6; the above torque values are for reference only, and the selection of other torques is subject to the manufacturer's confirmation.
For other RPM, please consult the manufacturer.

M Series Multi-turn On-off-type Type

Actuator	Output		Flange ISO5210	Motor power (KW)	Current * (A) (A)	Weight (Kg)
	Rated torque (Nm)	Speed (r/min)				
M8310	60	36	F10	0.30	0.70	24
M8320	120	36	F10	0.46	1.42	25
M8330	250	36	F14	1.13	2.70	35
M8340	450	36	F16	1.70	4.03	70
M8350	600	36	F16	2.26	5.43	72
M8360	900 / 1200	36	F16	3.37 / 4.41	8 / 10	72
M8360-72	1000	72	F16	4.96	11	72
M8370	1800	36	JB2920 7#	5.23	11.70	260
M8371	2500	24	JB2920 7#	5.23	11.70	275
M8381	3500	24	JB2920 8#	7.33	16.37	290

Note: the above torque values are for reference only, and the selection of other torques is subject to the manufacturer's confirmation.

M Series Part-turn Type



Main technical indicators

Input	4mA~20mAd.c. current control / 24Vd.c passive (active) switching value control		
Optional	Infrared remote control / PROFIBUS / wireless remote control / FF bus / HART bus / MODBUS		
Output	Open/close over-torque alarm contact full open/full close position contact 4mA~ 20mAd.c. valve position feedback signal		
Features	Displacement, velocity, torque electronic, digital accurate measurement speed, and torque can be set in a wide range		
Control module	Intelligent variable frequency module / intelligent module		
Explosion-proof grade	Exd II CT4 Gb / Exd II BT4 Gb / Ex db IIB+H2 T4 Gb / Ex tb IIIC T130°C Db		
Operating mode	S4, S5 working system		
Fundamental error	±1%	IP grade	IP66, IP67 (IP68 optional)
Return difference	1%	Environment temperature	-25℃~70℃/-40℃~70℃ customized minimum ambient temperature is -60℃
Dead zone	0.5%~10% adjustable		
Damping characteristics	No shock	Relative Humidity	<95% (no condensation)
Power supply	380Va.c.(340V~440V)，50Hz/60Hz 3PH / 220Va.c.(187V~242V)，50Hz 1PH		

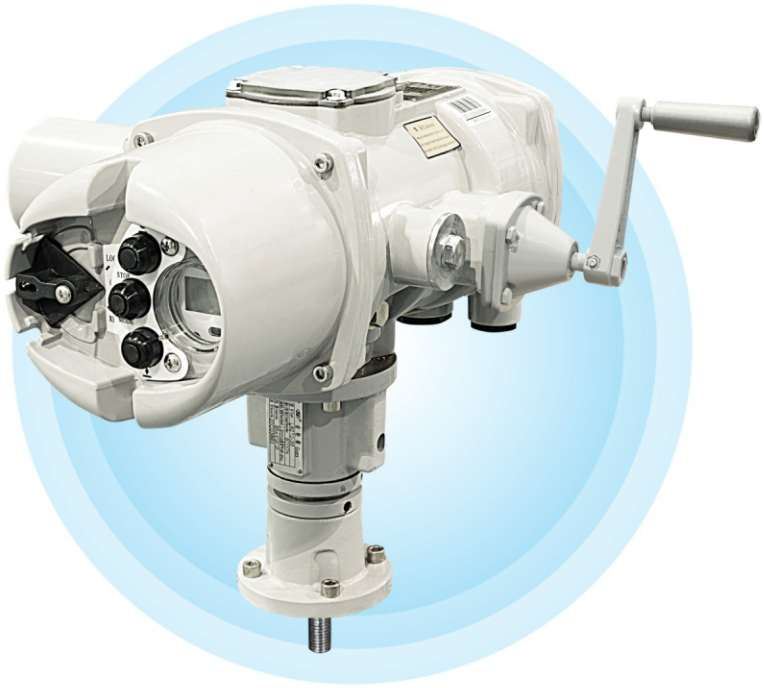
Note: For the specially-required voltage, please contact the manufacturer.

M Series Part-turn Type

Actuator model	Gearbox model	Recommended torque *	Stroke time (S/90)
M8□10	A8005	450	21
	A8010	900	30
	A8020	1200	30
M8□20	A8020	1800	30
	A8040	2800	30
M8□30	A8040	3600	30
	A8090	6000	32
	A8090+G6502	8000	60
	A8161	10000	68
	A8162	15000	88
M8□40	A8090	8000	32
	A8160	15000	42
	A8250	22000	68
M8□50	A8250	25000	68
	A8400	35000 / 45000 / 65000	85 / 115 / 144
M8□60	A8510 / A8520	150000	115 / 133
	A8600	175000 / 245000	90 / 210
	A8700	300000	210

For instance: M8310C+A8010KL stands for intelligent switch signal control, with 4mA~ 20mAd.c. feedback signal output, and seven sets of on-off output.
The output torque of the actuator is 900Nm, and the base is with lever-type connection. Notes: M85/8610~M85/8630 series 220Va.c. output torque decreases by 10% compared with the same period during power supply; and "*" means the torque when the power supply voltage is 380Va.c.;
"□" means one of 3, 4, 5 and 6; the above torque values are for reference only, and the selection of other torques is subject to the manufacturer's confirmation.
For selecting the actuator with a torque >150000Nm, please contact the Sales Dept.

M Series Linear Type



Main technical indicators

Input	4mA~20mAd.c. current control / 24Vd.c passive (active) switching value control		
Optional	Infrared remote control / PROFIBUS / wireless remote control / FF bus / HART bus / MODBUS		
Output	Open/close over-torque alarm contact full open/full close position contact 4mA~ 20mAd.c. valve position feedback signal		
Features	Displacement, velocity, torque electronic, digital accurate measurement speed, and torque can be set in a wide range		
Control module	Intelligent variable frequency module / intelligent module		
Explosion-proof grade	Exd II CT4 Gb / Exd II BT4 Gb / Ex db IIB+H2 T4 Gb / Ex tb IIIC T130°C Db		
Operating mode	S4, S5 working system		
Fundamental error	±1%	IP grade	IP66, IP67 (IP68 optional)
Return difference	1%	Environment temperature	-25℃~70℃/-40℃~70℃ customized minimum ambient temperature is -60℃
Dead zone	0.5%~5% adjustable		
Damping characteristics	No shock	Relative Humidity	<95% (no condensation)
Power supply	380Va.c.(340V~440V)，50Hz/60Hz 3PH / 220Va.c.(187V~242V)，50Hz 1PH		

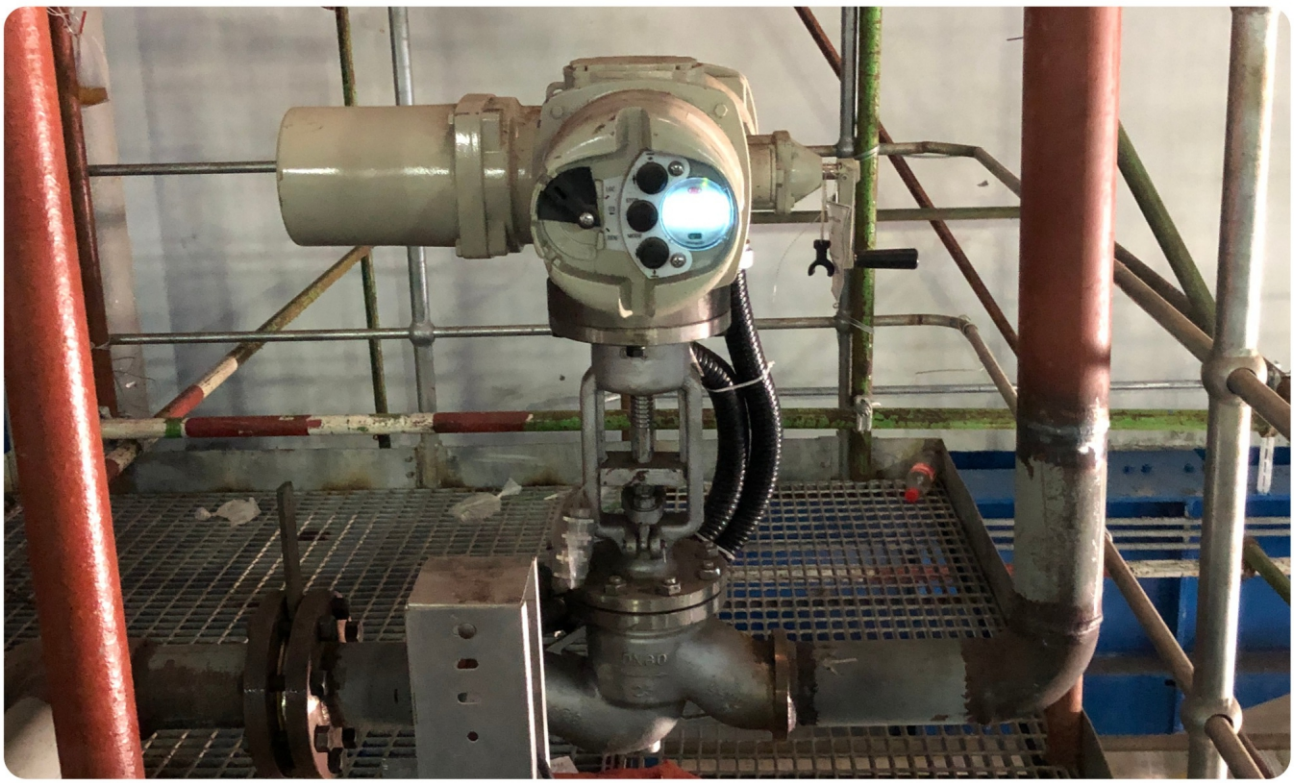
Note: For the specially-required voltage, please contact the manufacturer.

M Series Linear Type

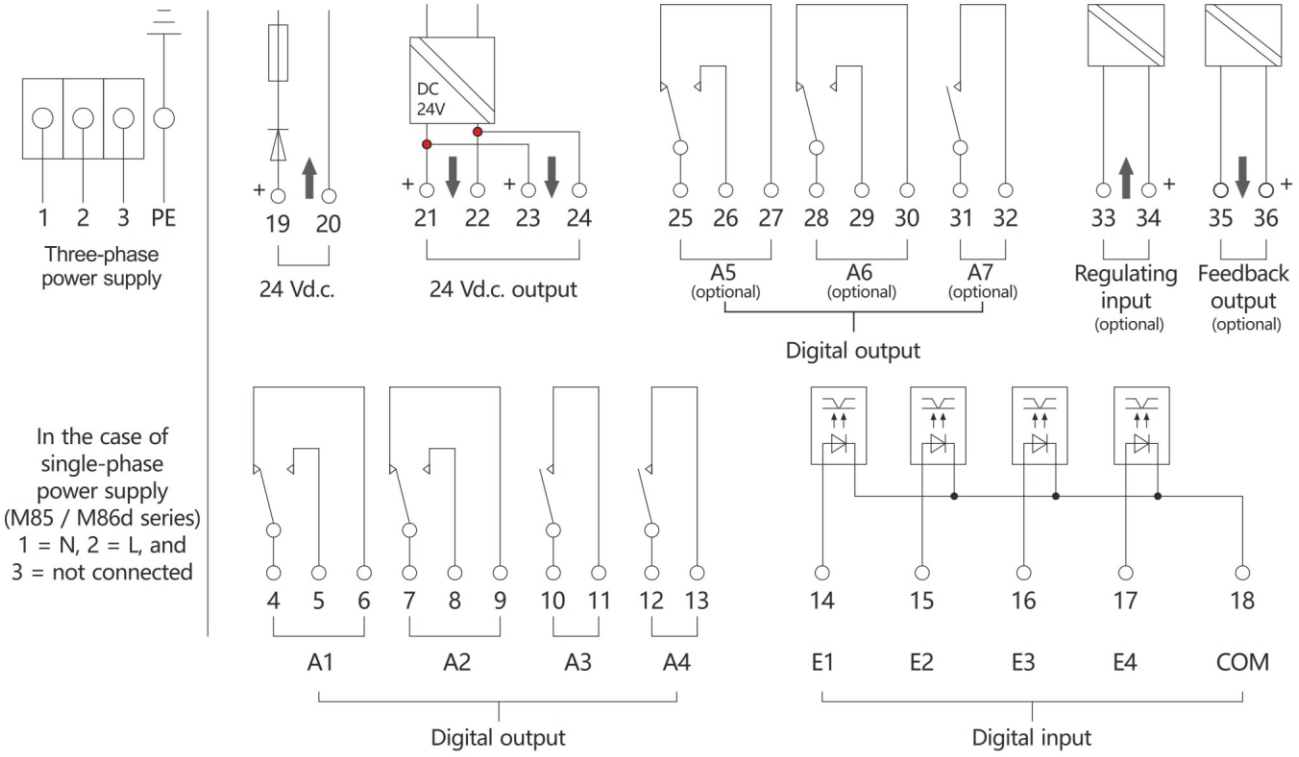
Actuator model	Linear switching mechanism model	Output thrust * (KN)	Speed (mm/s)	Stroke Max (mm)
M8☐10	L8210	8	2.9	50 / 100
M8☐20	L8220	16	2.9	50 / 100
M8☐20	L8230	25	3.5	63 / 125
M8☐30	L8240	40	4.1	60 / 100 / 160
M8☐40	L8250	100	4.7	80 / 120 / 200

For instance: M8610+ L8210 stands for intelligent regulating signal control, with 4mA~ 20mAd.c. feedback signal output, 50Nm torque of the electric actuator and 8kN output thrust of the actuator.

Notes: "*" M85/8610~M85/8630 series 220Va.c. output torque decreases by 10% compared with the same period during power supply; "□" means one of 3, 4, 5 and 6; The above thrust values are for reference only, and the selection of other thrusts is subject to the manufacturer's confirmation.
For selecting the actuator with a thrust >40KN, please contact the Sales Dept.
The above is a typical configuration; and the local adjustment can be made according to the actual situation of the valve. Please be subject to the actual selection.

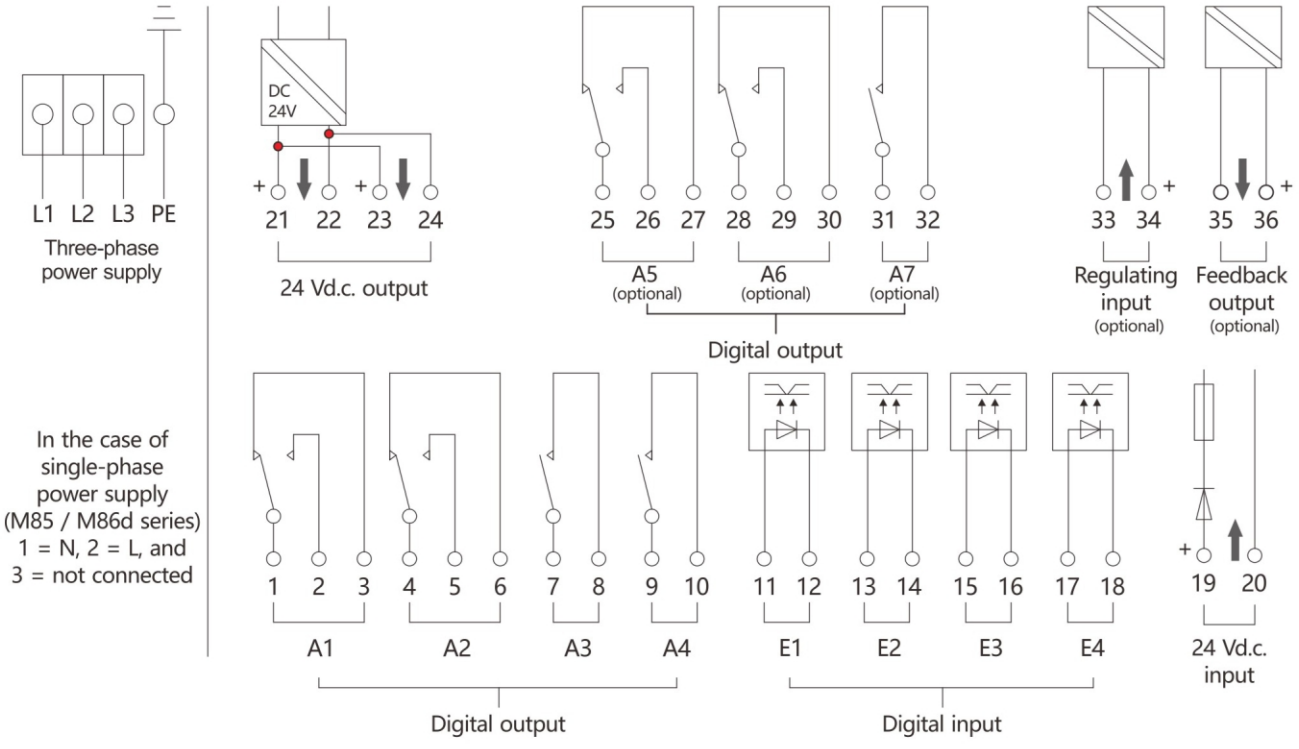


Wiring diagram of M series explosion-proof product



Note: the relay in the figure is in the untriggered state.

Wiring diagram of M series non-explosion-proof product



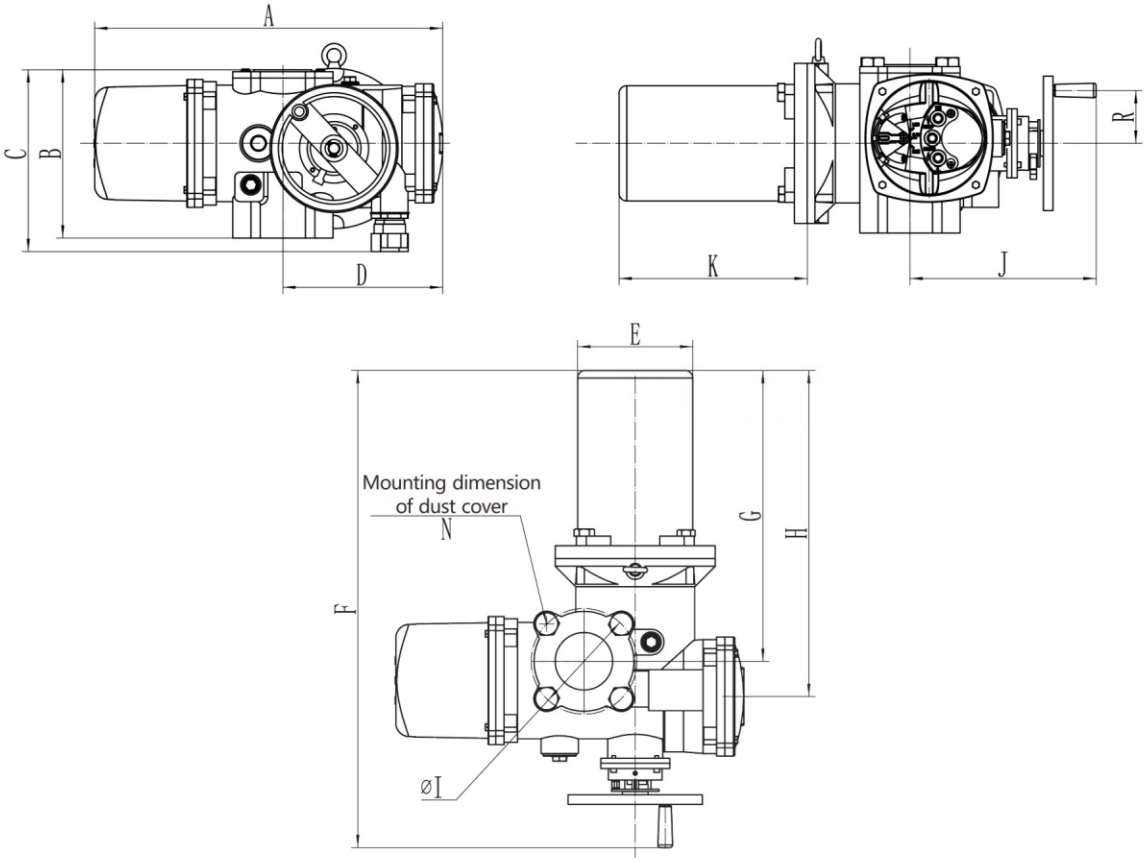
Note: the relay in the figure is in the untriggered state.

Table of functional description

Function name	Functional description	
Digital input E1-E4	Actuator on, off or stop commands; remote regulating enabled / ESD	
Digital output A1-A7	Comprehensive fault	A1-A4 (standard configuration) A5-A7 (optional) Users can select configuration according to their needs
	Regulating signal disconnected	
	Open running state	
	Close running state	
	Running state	
	Local / remote state	
	Open in place state	
	Close in place state	
	Opening over-torque alarm	
	Closing over-torque alarm	
	Comprehensive alarm	
	Valve position over-limit	
	Valve position lost	
	Valve position higher than high-end setting value	
	Valve position lower than low-end setting value	
	Temperature over-limit alarm	
	Battery voltage low / no-load alarm	
Analog input	4mA~20mAd.c. input	M84/M86(d) series configuration
		M83/M85(d) series without configuration
Feedback output	4mA-20mAd.c. output	M84/M86(d), M83/M85(d)C series configuration
24Vd.c. input	After cutting off the external power supply, if the output feedback current is needed, connect the external 24Vd.c. power supply	
24Vd.c. output	The external output of the actuator is 24Vd.c. to power supply interface, and the output current is ≤30mA.	

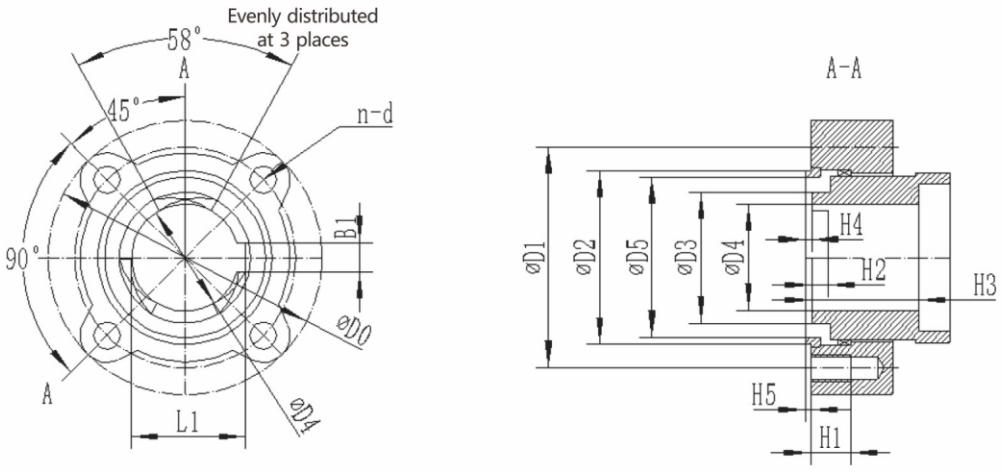
M Series Multi-turn Type

a) Boundary dimension

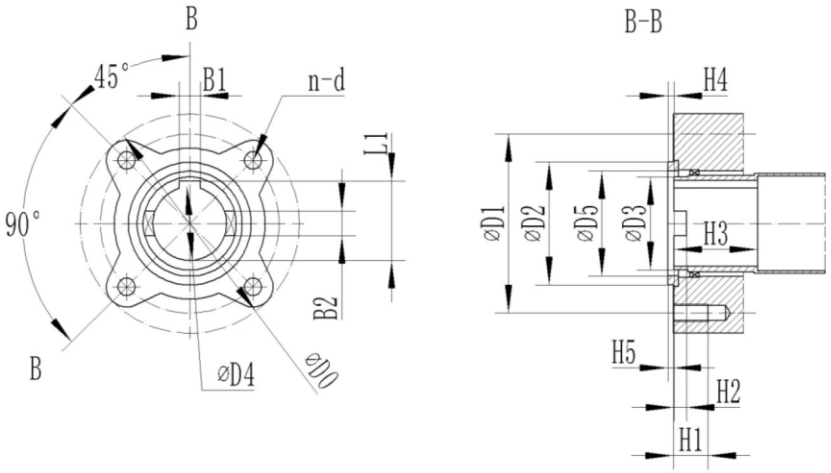


Product model	M8□10(d)	M8□20(d)	M8□30(d)	M8□40(d)	M8□50(d)	M8□60(d)
ISO5210	F10	F10	F14	F16	F16	F16
A	459	459	492	544	544	544
B	213	213	213	263	263	263
C	248	248	259	284	284	284
D	206	206	226	250	250	250
E	106	106	142	180	180	180
F	585 / 612	585 / 612	637	746	746	746
G	285	285	354	455	455	455
H	311	311	394	510	510	510
I	83	83	97	117	117	117
J	300	300	283	291	291	291
K	147 / 161	147 / 161	195	294	294	294
N	4-M6	4-M6	4-M6	-	-	-
R	99	99	99	83	83	83

b) Interface dimension



M8□40 / M8□50 / M8360 connecting type (III) and dimension

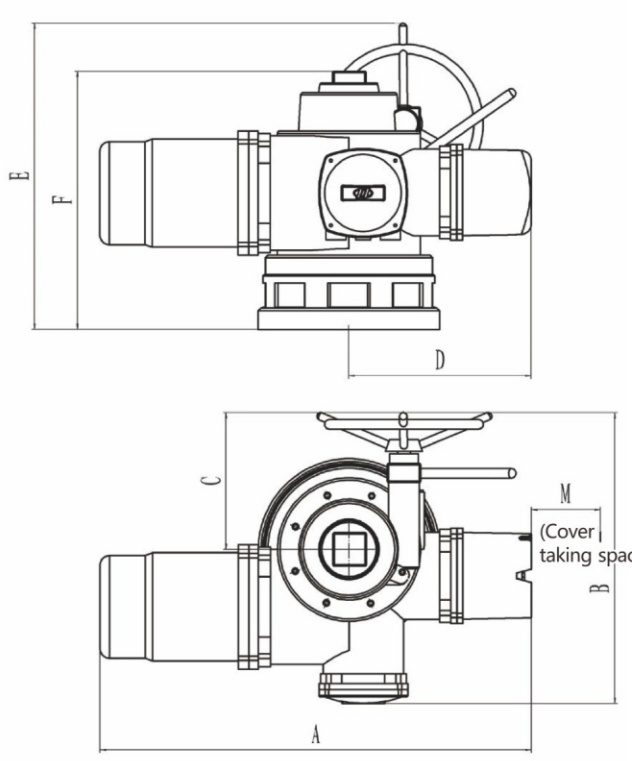


M8□10 / M8□20 / M8□30 connecting type (II-groove and dimension)

Product model	Connecting flange code ISO5210	D0	D1	D2		D3	D4		D5	H1	H2	H3	H4	H5	L1	B1	B2		n-d
M8□10(d)	F10	125	102	70	-0.076 -0.03	53	42	+0.062 0.0	60	18	7	47.6	3.5	3	45.3	12	14	0.14 0.0	4-M10
M8□20(d)																			
M8□30(d)	F14	175	140	100	-0.05 -0.10	74	60	+0.052 0.0	88	22	8	53	4.1	3.6	64.4	18	20	0.0 -0.2	4-M16
M8□40(d)	F16	205	165	130	-0.043 -0.106	98	80	+0.074 0.0	120	35	12	80	5	4	85.4	22	—		4-M20
M8□50(d)																			
M8□60(d)																			

M8370 / M8371 / M8381 Multi-turn Type

a) Boundary dimension



b) Interface dimension

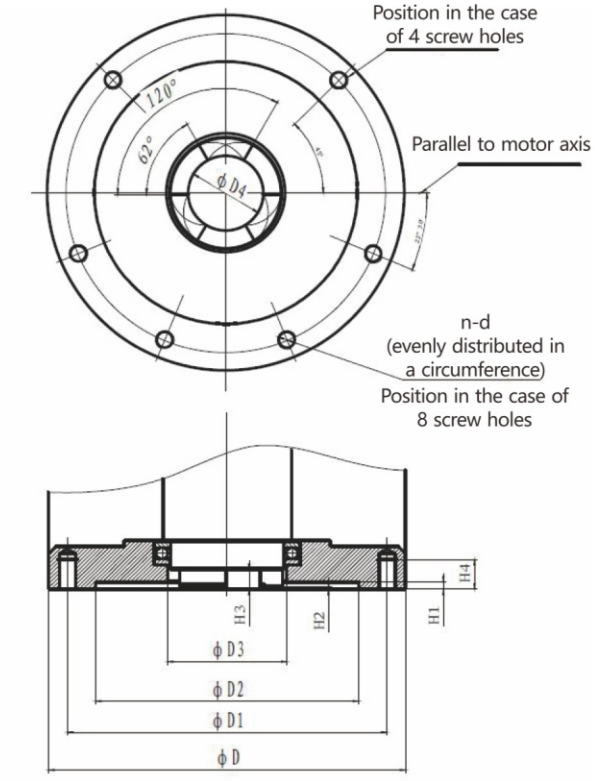
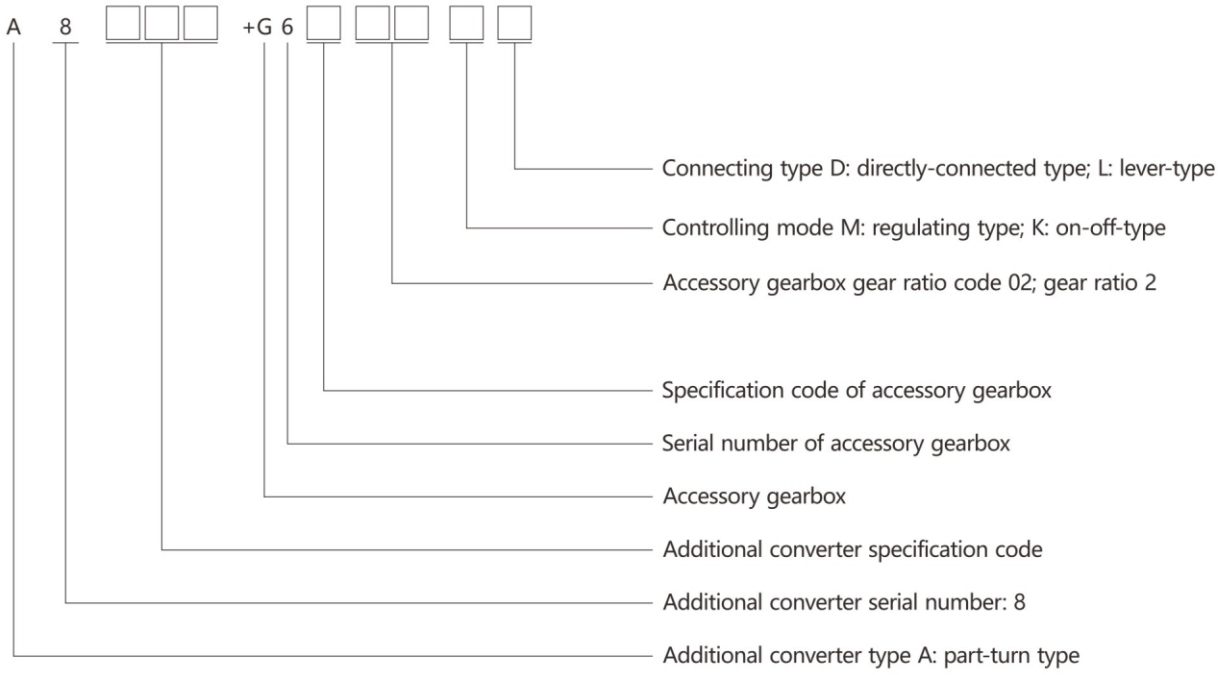


Table boundary dimension							
Product model	A	B	C	D	E	F	M
M8370(d)	998	670	335	450	670	520	160
M8371(d)	998	670	335	450	670	520	160
M8381(d)	970	670	335	450	720	570	160

Table of interface dimension											
Product model	Flange code (JB2920)	D	D1	D2	D3	D4	H1	H2	H3	H4	n-d
M8370(d)	7	350	285	220	98	65	8	3	19	42	4-M24
M8371(d)	7	350	285	220	98	65	8	3	19	42	4-M24
M8381(d)	8	380	340	280	118	80	7.5	3	21	34	8-M20

Parameters of gearbox

a) Description of part-turn type gearbox model

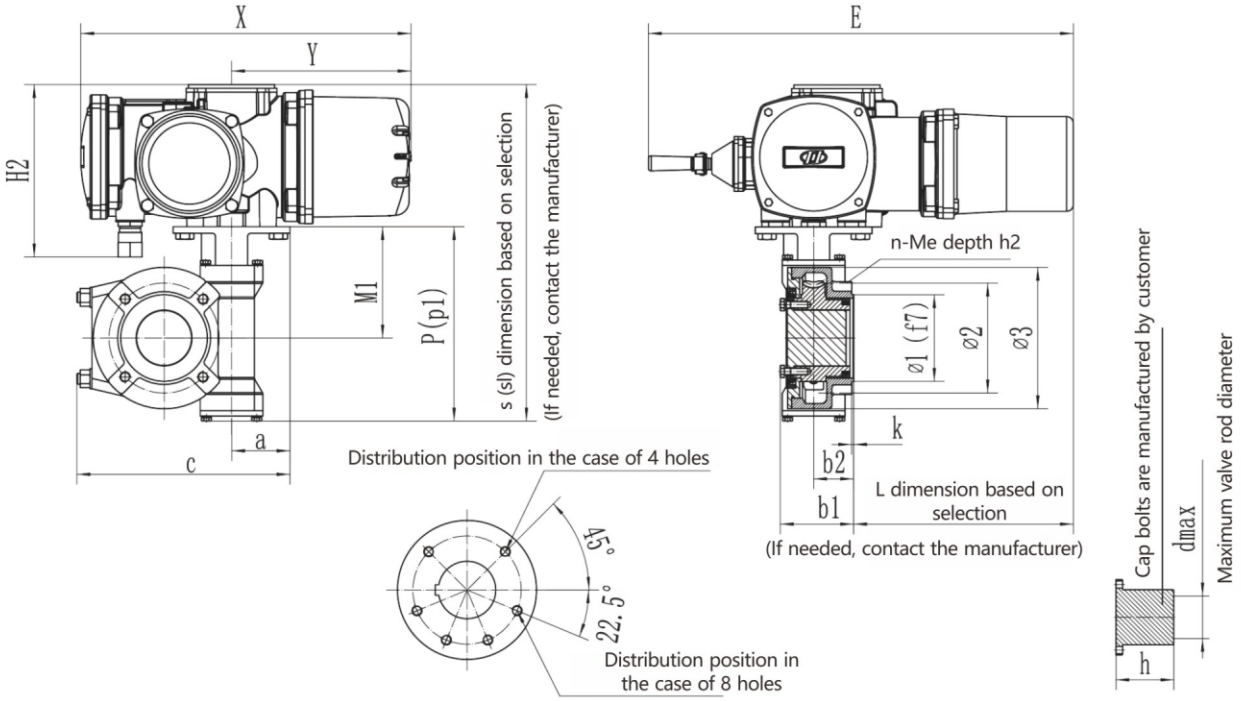


b) Technical parameters of part-turn type gearbox

Product model	Actuator flange (ISO5210)	Valve connecting flange (ISO5211)	Valve rod diameter MAX (mm)	Load ratio	Gear ratio	Weight * (Kg)
A8005	F10 / B3	F10	30	17.2	50 : 1	7 (11.6)
A8010	F10	F10	35	23.3	70 : 1	11.2 (18.5)
A8020	F10 / B3	F14	55	25.3	70 : 1	14.7 (31.4)
A8040	F10 / F14 / B3	F16	65	25.3	70 : 1	24.5 (50.8)
A8090	F14 / F16 / B3	F25	95	25.6	75 : 1	63.9 (107.3)
A8160	F16 / B3	F30 (F25)	105	32.2	100 : 1	180 (220)
A8161	F10 / B3	F30 (F25)	105	50	160 : 1	180 (220)
A8162	F14 / B3	F30 (F25)	105	66	208 : 1	180 (220)
A8090+G6502	F14 / B3	F25	95	47.9	150 : 1	78 (121)
A8250	F16 / B3	F35	115	52.8	160 : 1	280 (330)
A8400	F16	F40	160	60.4	202 : 1	365 (487)
A8510	F16	F40 (F48)	150 / 190	110	276 : 1	560
A8520	F16	F40 (F48)	150 / 190	125	318 : 1	560

* Weight: The weight outside the brackets is directly-connected type, and the weight inside the brackets is lever-type.

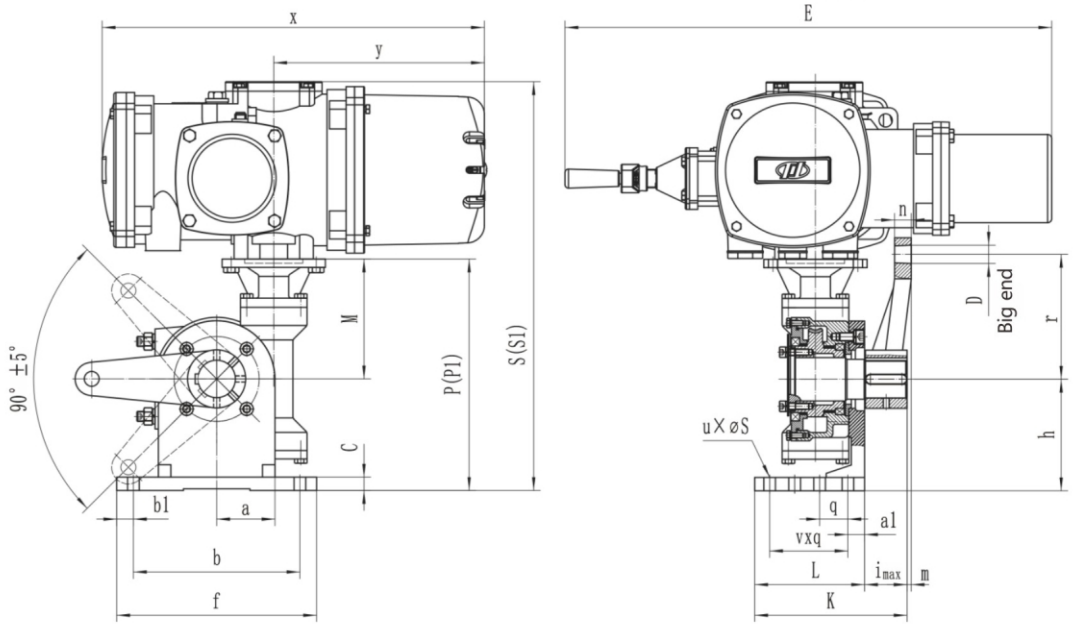
c) Connecting dimension of linear-type gearbox



Model	A8005	A8010	A8020	A8040	A8090(+G6502)	A8160 / A8161 / A8162	A8250	A8400
Flange standard ISO5211	F10	F10	F14	F16	F25	F30	F35	F40
M1	100	144	147	167	227	382	405	500
a	52	68.5	85	101	150	160	200	250
c	140	170	199	245	338	400	480	570
b1	100	108	88	107	148	198	250	250
b2	52	62	46	57	67	113	144	128
b3	236.5	245	257	290	287	345	335	330
n-Me depth h2	4-M10 depth 15	4-M10 depth 15	4-M16 depth 22	4-M20 depth 25	8-M16 depth 22	8-M20 depth 32	8-M30 depth 45	8-M36 depth 55
k	3	3	3	3	4	4	4	5
Φ1(f7)	70	70	100	130	200	230	260	300
Φ2	102	102	140	165	254	298	356	406
Φ3	120	148	176	212	310	350	436	535
dmax	30	35	55	65	95	105	115	180
h	81	67	73	88	122	158	215	235
P(p1)	172	246	252	292	F14:395(531) F16:399	589	640	830
S(s1)	386	456	466	506	F14:609(745) F16:399	859	910	1100
E	M8□10=585		M8□20=612		M8□30=637	M8□40 / 50 / 60=746		
H2	M8□10=311		M8□20=338		M8□30=389	M8□40 / 50 / 60=481		
x	M8□10=459		M8□20=459		M8□30=492	M8□40 / 50 / 60=544		
y	M8□10=253		M8□20=253		M8□30=266	M8□40 / 50 / 60=294		

Notes:"□"means one of 3, 4, 5 and 6.

Connection Dimension of Base Lever-type Gearbox



Model	A8005	A8010	A8020	A8040	A8090(+G6502)	A8160 / A8161 / A8162	A8250	A8400
u-ΦS	4-Φ14	4-Φ14	4-Φ18	4-Φ22	6-Φ22	6-Φ22	8-Φ22	8-Φ22
V x q	1 x 70	1 x 94	1 x 94	1 x 102	2 x 80	2 x 80	3 x 70	3 x 70
M	100	144	147	167	227	382	405	500
al	36	20	30	50	56	62	70	70
imax	66	51	83.5	85	77	143	150	155
k	198	183	243.5	270	333	415	470	477
L	132	132	160	185	256	272	320	320
m	8	0	0	0	0	0	0	0
n	20.5	20	30	30	30	40	42	42
D 1:10	Φ18	Φ22	Φ26	Φ30	Φ38	Φ38	Φ38	Φ38
r	160	150	200	250	250	250	500	500
h	107	134	163	200	235	250	310	350
f	180	240	290	330	400	520	630	630
b	140	200	223	270	338	448	580	580
b1	20	20	33.5	30	31	36	25	25
a	52	68.5	85	101	150	160	250	250
c	15	16	18	20	24	30	30	30
P (P1 with transition gear)	207	278	310	365	F14: 462(618) F16:466	668	666	851
s (s1)	420.5	492	524	579	F14: 678(832) F16:738	882	880	1075
E	M8□10=585		M8□20=612		M8□30=637			
x	M8□10=459		M8□20=459		M8□30=492	M8□40 / 50 / 60=544		
y	M8□10=253		M8□20=253		M8□30=266	M8□40 / 50 / 60=294		

Notes:"□"means one of 3, 4, 5 and 6.

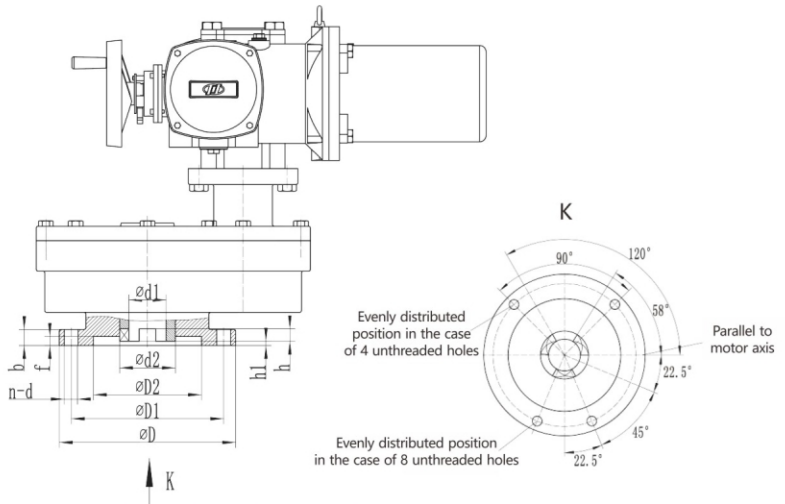
Multi-turn Additional Gearbox

a) Technical data

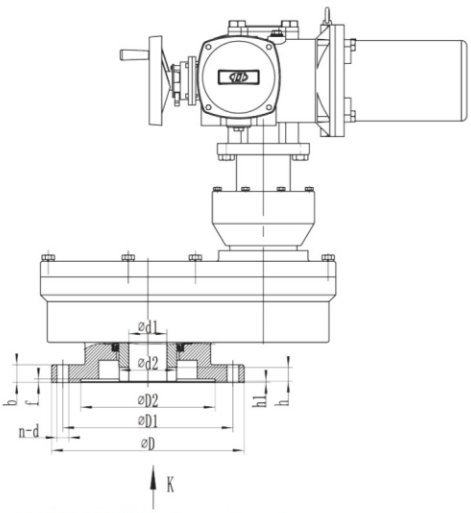
Product model	Gearbox	Reduction gear ratio	Output		Flange JB2920	Gearbox weight (Kg)
			Recommended torque (Nm)	Speed (r/min)		
M8□50	G7010	2	1200	18	5	61
M8□50	G7020	3	1800	12	7	143
M8360	G7010	1.5	1200	24	5	61
	G7020	2	1800	18	7	143
	G7030	4 / 6	3000	9 / 6	8	220
	G7050	6	5000	12	8	270
	G7060	6 / 10	8000	12 / 7	9	270

Notes:"□"means one of 3, 4, 5 and 6. The above torque and RMP values are for reference only, and the selection of other torque and RMP values is subject to the manufacturer's confirmation.

b) Boundary and mounting dimensions



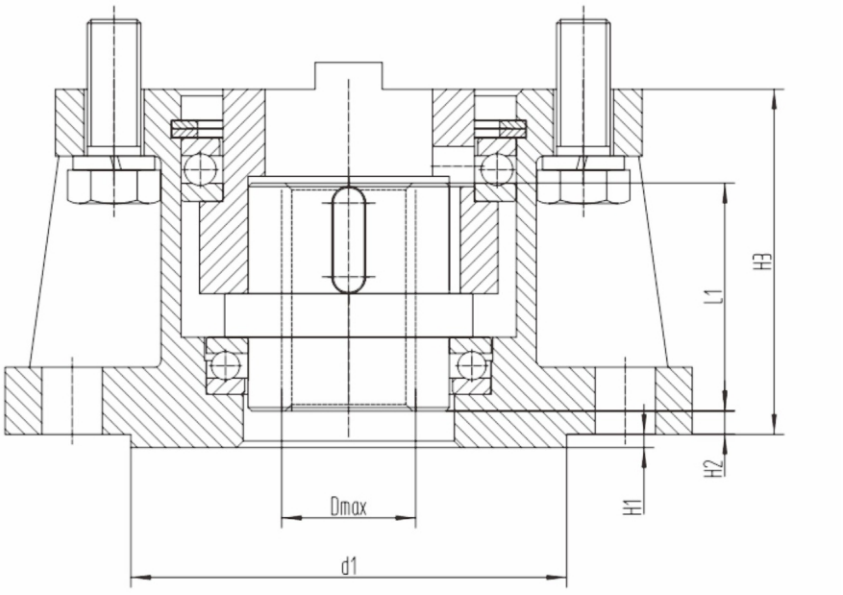
G7010 / G7020 / G7030 dimension diagram



G7050/ G7060 dimension diagram

Product model		D	D1	D2	h1	f	h	b	d1	d2	n-d	Gear ratio
M8□50+G7010 M8□60+G7010	With port 4	225	195	150	2	5	12	22	50	72	4-Φ18	1.5 : 1 2 : 1 2.65 : 1
	With port 5	275	235	180	2	5	14	25	62	82	4-Φ22	
M8□50+G7020 M8□60+G7020	With port 7	330	285	220	3	6	16	30	74	98	8-Φ26	2 : 1 / 3 : 1 4.5 : 1
M8□50+G7030 M8□60+G7030	With port 8	380	340	280	3	6	20	35	80	118	8-Φ22	4 : 1 / 6 : 1
M8□60+G7050	With port 8	380	340	280	3	8	20	35	80	118	8-Φ22	6 : 1
M8□60+G7060	With port 9	430	380	300	3	8	20	35	85	125	8-Φ26	10 : 1

Table of A-type Flange Specifications



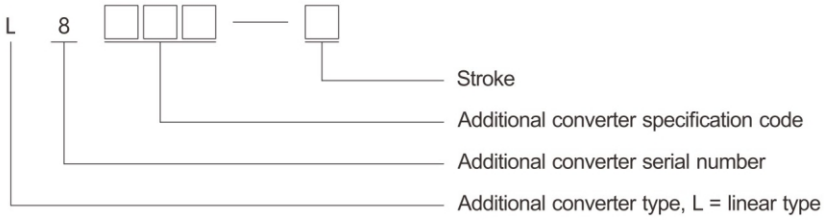
Dimension diagram of A-type thrust flange

Product model	Flange No.	d1	Dmax	L1	h1	H2	H3
M8☐10(d) / M8☐20(d)	F10	70	26	44	3	5	70
M8☐30(d)	F14	100	44	61	3	7	96
M8☐40(d) / M8☐50(d) M8☐60(d)	F16	130	44	92	4	19	131
M8☐50(d)+G7020	F25	200	70	112	4	18	131
	F30	230	70	112	4	18	131
M8☐50(d)+G7050	F30	230	90	112	4	18	131
	F35	260	90	112	4	18	131

If the valve rod size exceeds the Dmax, please contact the manufacturer for confirmation.

Linear Gearbox

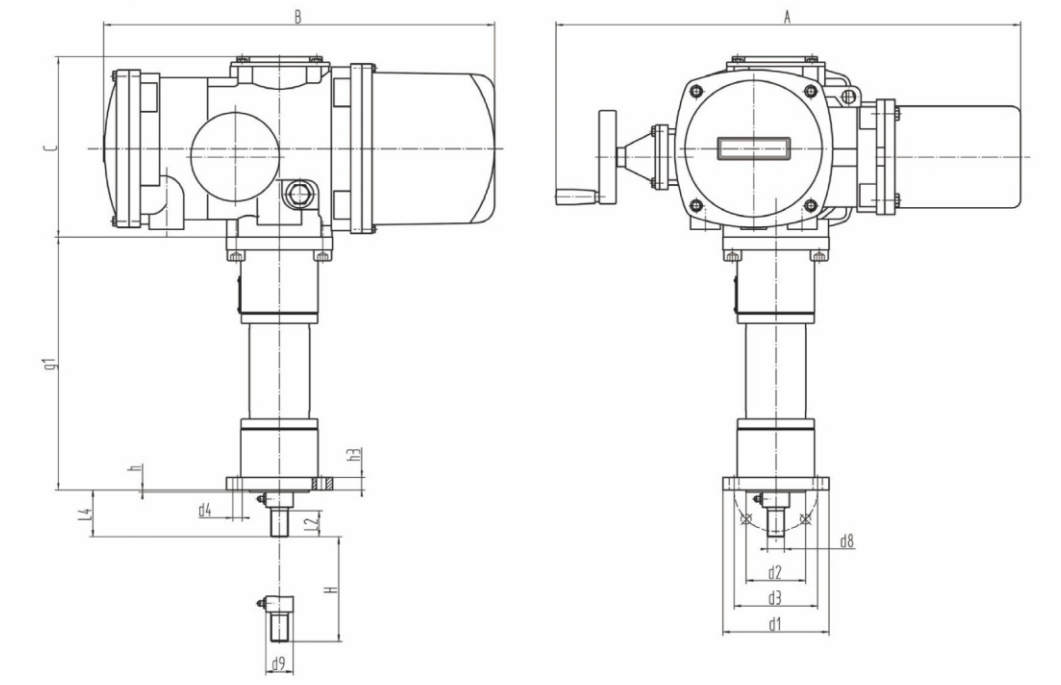
a) Description of model



b) Linear electric actuator data

Actuator	Model	Output thrust (KN)	Speed (mm/s)	Stroke max (mm)	Valve flange
M8☐10	L8210	8	2.9	50,100	F10
M8☐20	L8220	16	2.9	50,100	F10
M8☐20	L8230	25	3.5	63,125	F10
M8☐30	L8240	40	4.1	60,100,160	F14
M8☐40	L8250	100	4.7	80,120,200	F14 / F16

c) Linear electric actuator connecting dimension



	L8210		L8220		L8230		L8240			L8250	
Valve flange	F10		F10		F10		F14			F14 / F16	
Actuator	M8□10		M8□20		M8□20		M8□30			M8□40	
Actuator flange ISO5210	F10		F10		F10		F14			F16	
Stroke H	50	100	50	100	63	125	60	100	160	80 / 120	200
d1	125		125		125		175			175 / 205	
d2	70f8		70f8		70h7		100f8			100 / 130	
d3	102		102		102		140			140 / 165	
d4	11		11		11		18			18 / 22	
d8	M12 x 1.25		M16 x 1.5		M20 x 1.5		M36 x 3			M42 x 3	
g1	191	241	191	241	234	296	293	273		700	800
h	3		3		3		4			4	
h3	15		15		15		18			25	
L2	20		25		30		55			55	
L4	44		49		54		74			79	
d9	20		20		32		50			50	
A	574		598		598		665			776	
B	460		460		460		492			550	
C	202		202		202		202			250	
Weight (kg)	8	8.5	8	8.5	12	13	23.6	26	29	26	29

M Series Low-torque Part- turn Type

Main technical indicators

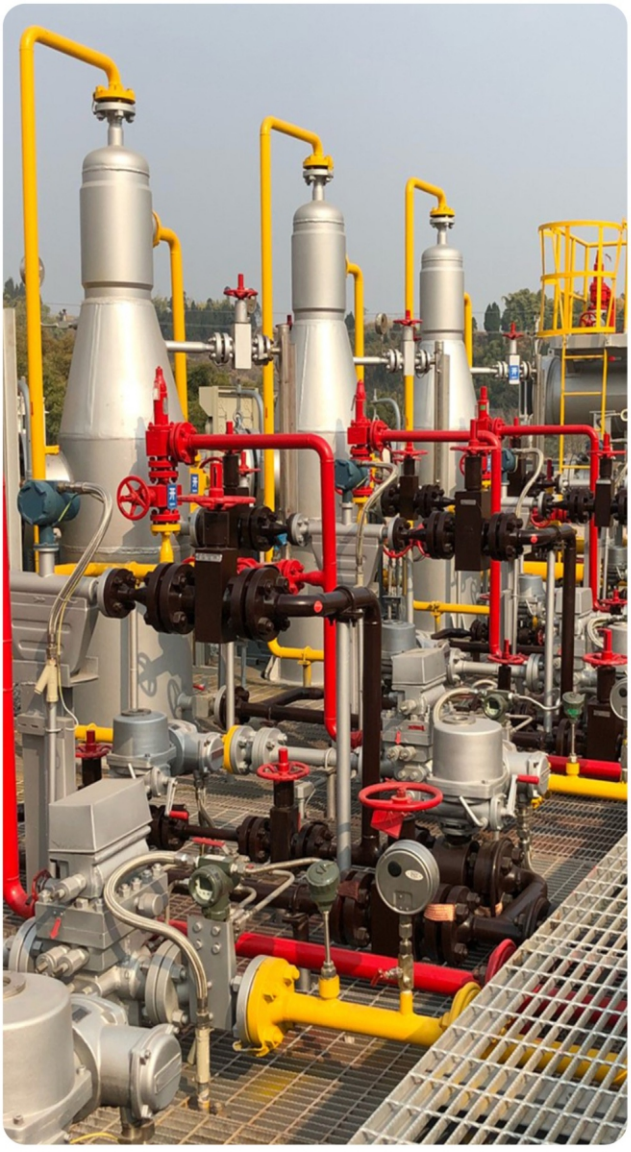
Input	4mA~20mAd.c. current control / 24Vd.c passive (active) switching value control		
Optional	Infrared remote control / PROFIBUS / wireless remote control / HART bus / MODBUS		
Output	Open/close over-torque alarm contact full open/full close position contact 4mA~ 20mAd.c. valve position feedback signal		
Features	Displacement, velocity, torque electronic, digital accurate measurement speed		
Control module	intelligent module		
Explosion-proof grade	ExdII BT4 Gb		
Operating mode	S4, S5 working system		
Fundamental error	±1%	IP grade	IP66, IP67 (IP68 optional)
Return difference	1%	Environment temperature	-25℃~70℃/-40℃~70℃ customized minimum ambient temperature is -60℃
Dead zone	0.5%~5% adjustable		
Damping characteristics	No shock	Relative Humidity	<95% (no condensation)
Power supply	380Va.c.(340V~440V)，50Hz/60Hz 3PH / 220Va.c.(187V~242V)，50Hz 1PH		

Note: For the specially-required voltage, please contact the manufacturer.

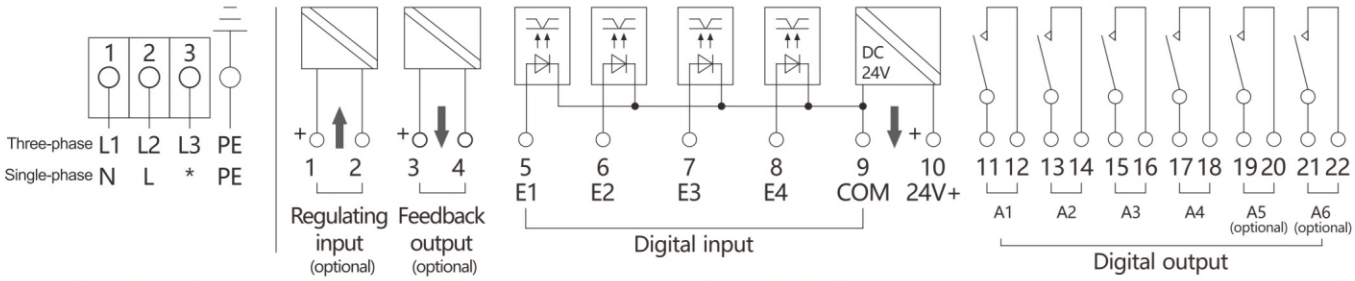
M Series Low-torque Part- turn Explosion-proof Type

Model	Output torque (Nm)	Stroke time (S/90°)		Connecting flange ISO5211	Max diameter of axle (mm)	Motor F grade (W)	Rated current (A)		Revolution of handwheel (N)	Weight (Kg)	
		220V	380V				220V	380V		220V	380V
M0☐11(-d)	100	28	28	F07/F10	Φ22	40	0.9	0.3	11	22.5	22.5
M0☐21(-d)	200	28	28	F07/F10	Φ22	40	0.9	0.3	11	22.5	22.5
M0☐30(-d)	300	34	34	F10/F12	Φ35	60	1	0.6	13.5	32	32
M0☐60(-d)	600	34	34	F10/F12	Φ35	90	1.7	0.7	13.5	33	33

Notes:"☐"means one of 3, 4, the above torque values are for reference only, and the selection of other torques is subject to the manufacturer's confirmation.



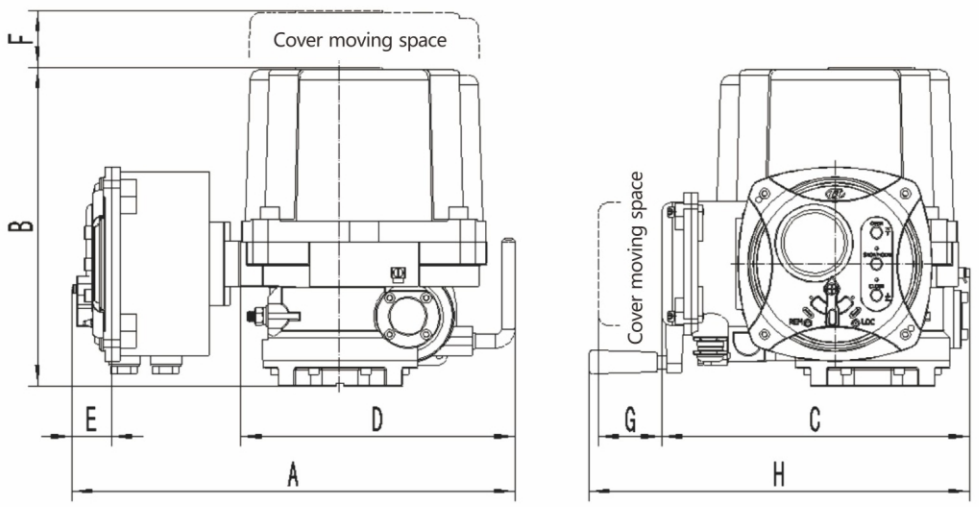
Wiring diagram of M Series Low-torque Part- turn Type



Wiring terminal No.	Purpose	Wiring terminal No.	Purpose
L1	Power supply A-phase (power supply zero line at 220V)	9	External +24Vd.c. switching input public negative terminal
L2	Power supply B-phase (power supply live line at 220V)	10	+24 Vd.c. output
L3	Power supply C-phase	11	Comprehensive alarm output terminal 1
PE	Ground	12	Comprehensive alarm output terminal 2
1	Regulating signal input positive terminal	13	Remote/local instruction terminal 1
2	Regulating signal input negative terminal	14	Remote/local instruction terminal 2
3	Feedback signal output positive terminal	15	Valve fully-open output terminal 1
4	Feedback signal output negative terminal	16	Valve fully-open output terminal 2
5	Regulating signal/switch signal switching cooperating with terminal 10	17	Valve fully-closed output terminal 1
6	Open instruction cooperating with terminal 10	18	Valve fully-closed output terminal 2
7	Close instruction cooperating with terminal 10	19-20	It is optional according to costumer's needs
8	Stop	21-22	It is optional according to costumer's needs

M Series Low-torque Part- turn Explosion-proof Type

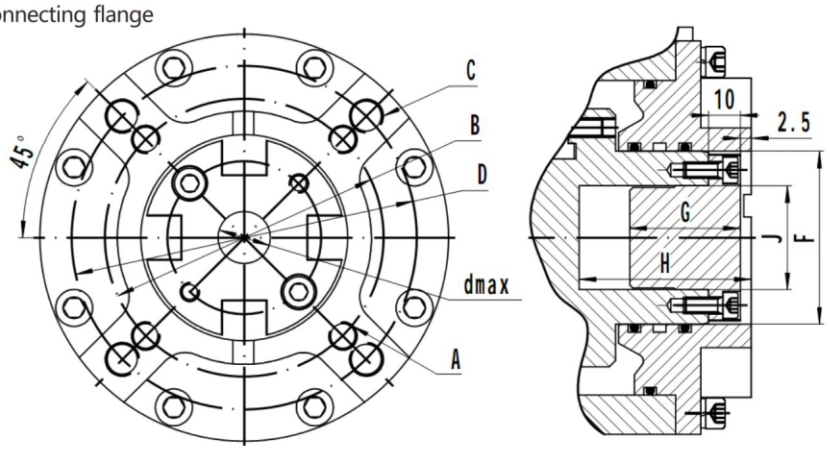
a) Boundary



Product model	A	B	C	D	E	F	G	H
M0□11/ 21-d	400	269	320	235	36	160	120	365
M0□30/ 60-d	430	309	335	265	36	180	120	410

Notes:"□"means one of 3, 4.

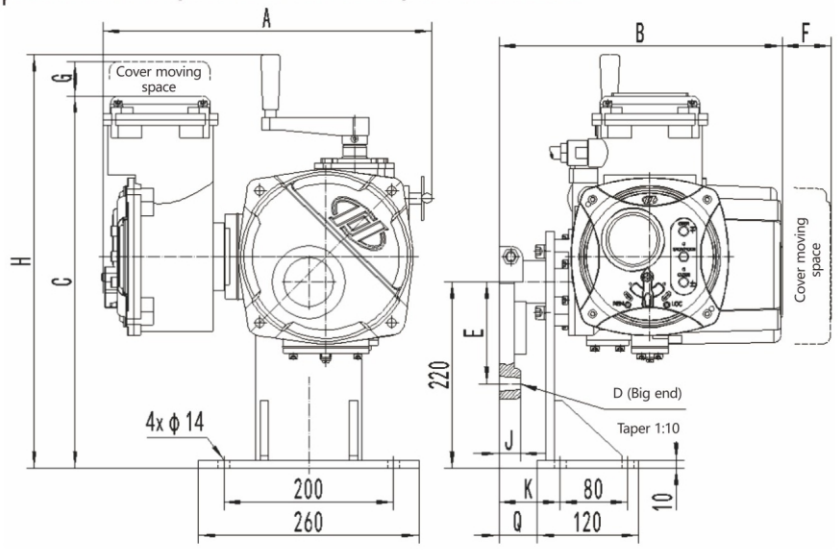
Dimension figure of connecting flange



Model	A	B	C	D	F	G	H	J	dmax
M0□11(-d) M0□21(-d)	4xM8 (F07)	Φ70 (F07)	4XM10	Φ102 (F10)	Φ55	35	41	Φ32	Φ22
M0□30(-d) M0□60(-d)	4xM10 (F10)	Φ102 (F10)	4XM12	Φ125 (F12)	Φ75	41	55	Φ47	Φ35

Notes:"□"means one of 3, 4.

b) Base lever-type boundary and mounting dimensions



Model	A	B	C	D	E	F	G	H	J	K	Q
M0□11(-d) M0□21(-d)	400	335	445	Φ18H7	120	160	120	488	20	72	45
M0□30(-d) M0□60(-d)	430	375	450	Φ22H7	150	180	120	505	22	82	55

Notes:"□"means one of 3, 4.

M Series Low-thrust Type

Main technical indicators

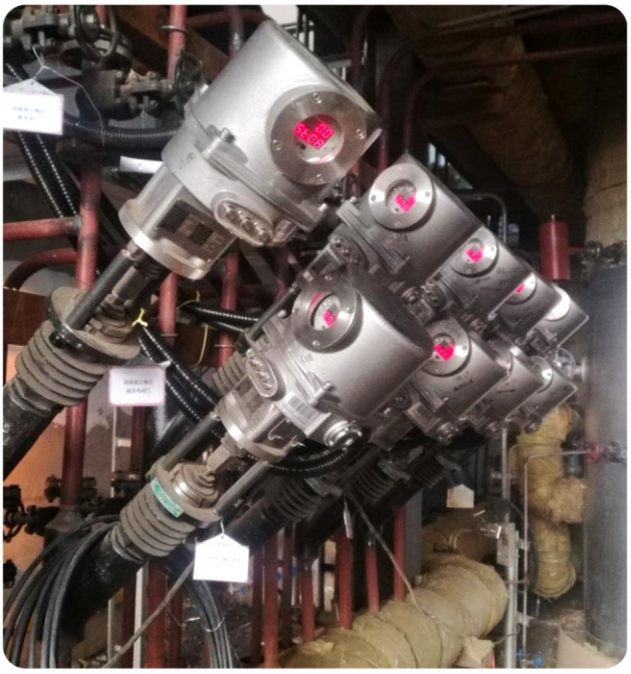
Input	4mA~20mAd.c. current control / 24Vd.c passive (active) switching value control		
Optional	Infrared remote control / PROFIBUS / wireless remote control / HART bus / MODBUS		
Output	Open/close over-torque alarm contact full open/full close position contact 4mA~ 20mAd.c. valve position feedback signal		
Features	Displacement, velocity, digital accurate measurement speed		
Control module	intelligent module		
Operating mode	S4, S5 working system		
Fundamental error	±1%	IP grade	IP66, IP67 (IP68 optional)
Return difference	1%	Environment temperature	-25℃~70℃/-40℃~70℃ customized minimum ambient temperature is -60℃
Dead zone	0.5%~5% adjustable		
Damping characteristics	No shock	Relative Humidity	<95% (no condensation)
Power supply	380Va.c.(340V~440V)，50Hz/60Hz 3PH / 220Va.c.(187V~242V)，50Hz 1PH		

Note: For the specially-required voltage, please contact the manufacturer.

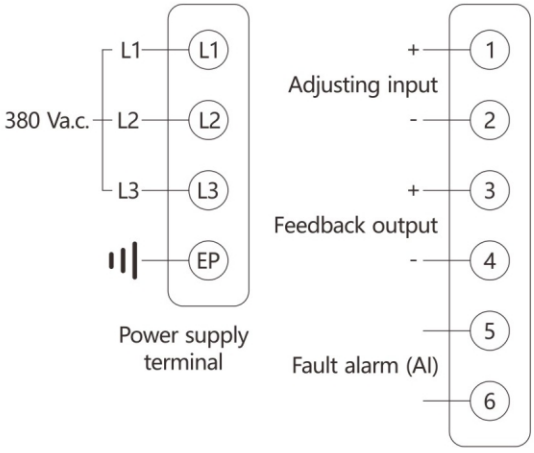
M Series Low-thrust Linear Type

Product model	Output thrust (KN)	Rated stroke (mm)	Output speed (mm/s)	Motor power (W)	Rated current (A)		Weight (Kg)
					220V	380V	
M1☐03	3	60	0.5	10	0.20	0.10	13
M1☐07	7	60	0.6	25	0.30	0.15	13
M1☐10	10	60	0.6	30	0.38	0.20	15
M1☐20	20	100	0.6	60	1.00	0.60	25

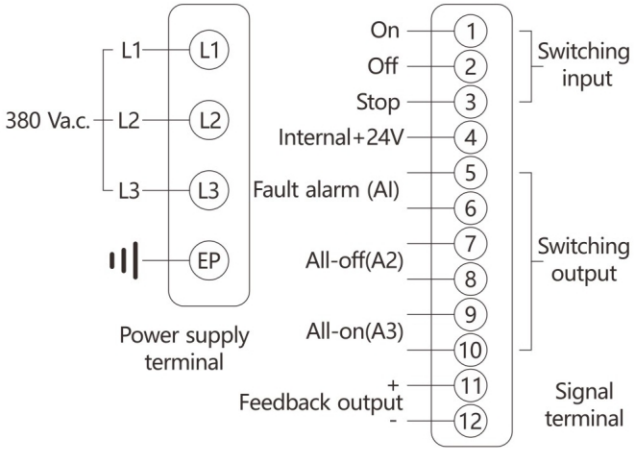
Notes:"☐"means one of 3, 4. The actuator mounting bracket is customized according to the actual size of the valve. The models not mentioned in the table are subject to the manufacturer's confirmation.



M series low-thrust electrical connection diagram

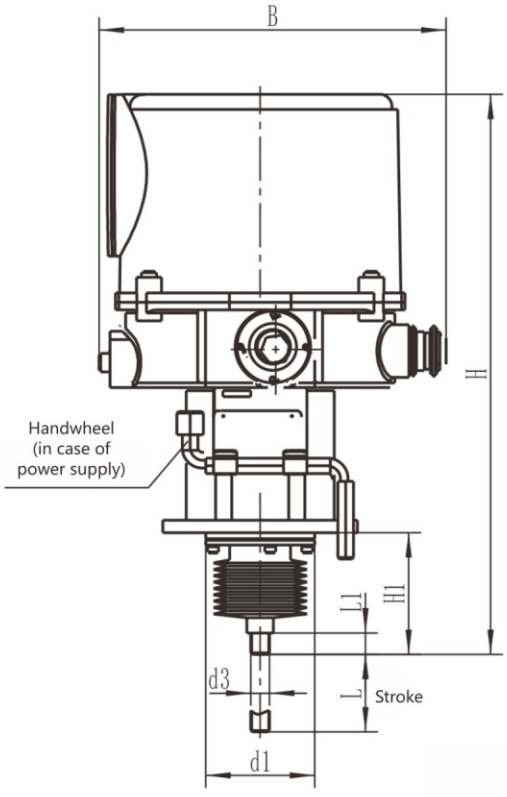


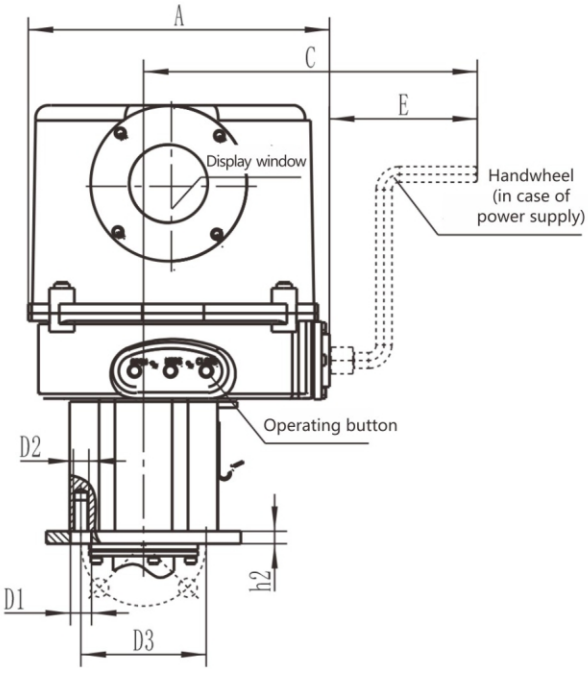
External wiring of M14 series adjusting type



External wiring of M13 series switch type

Appearance and mounting size of M series low-thrust





Technical reference of M series low-thrust linear type

Model	A	B	C	E	H	H1	h2	D1	D2	D3(Φ)	d1(Φ)	d3	L1	L
M13(4)03(S)-☐☐	193.5	223	215	95	361	78.5	8	4×Φ12	4×M10	102	70	M16×1.5-6g	25	10-60 optional
M13(4)07(S)-☐☐	193.5	223	215	95	361	78.5	8	4×Φ12	4×M10	102	70	M16×1.5-6g	25	10-60 optional
M13(4)10(S)-☐☐	193.5	223	215	95	361	78.5	8	4×Φ12	4×M10	102	70	M16×1.5-6g	25	10-60 optional
M13(4)20(S)-☐☐	227	249	233	95	535	134.5	10	4×Φ12	4×M10	102	70	M20×1.5-6g	30	10-100 optional

Note: Mounting frame is customized according to the actual size of valves, and the model not mentioned in the form is subject to the selection by the manufacturer.


4
5


星期四 15:57


F6
F7
F8
F9
G20
G21
G22
G24
开

Wenzhou Valvespro Flow Control Technology Co.,Ltd

Add : NO.649-1 Jingde West Road Guoxi Road Ouhai District, Wenzhou, Zhejiang Province, China.
Telÿ86-577-86115146

Fexÿ86-577-86110708
Emai : sales@valvespro.com
Skypeÿshaozhiqiang1688
Whatsapp: +8613777771223