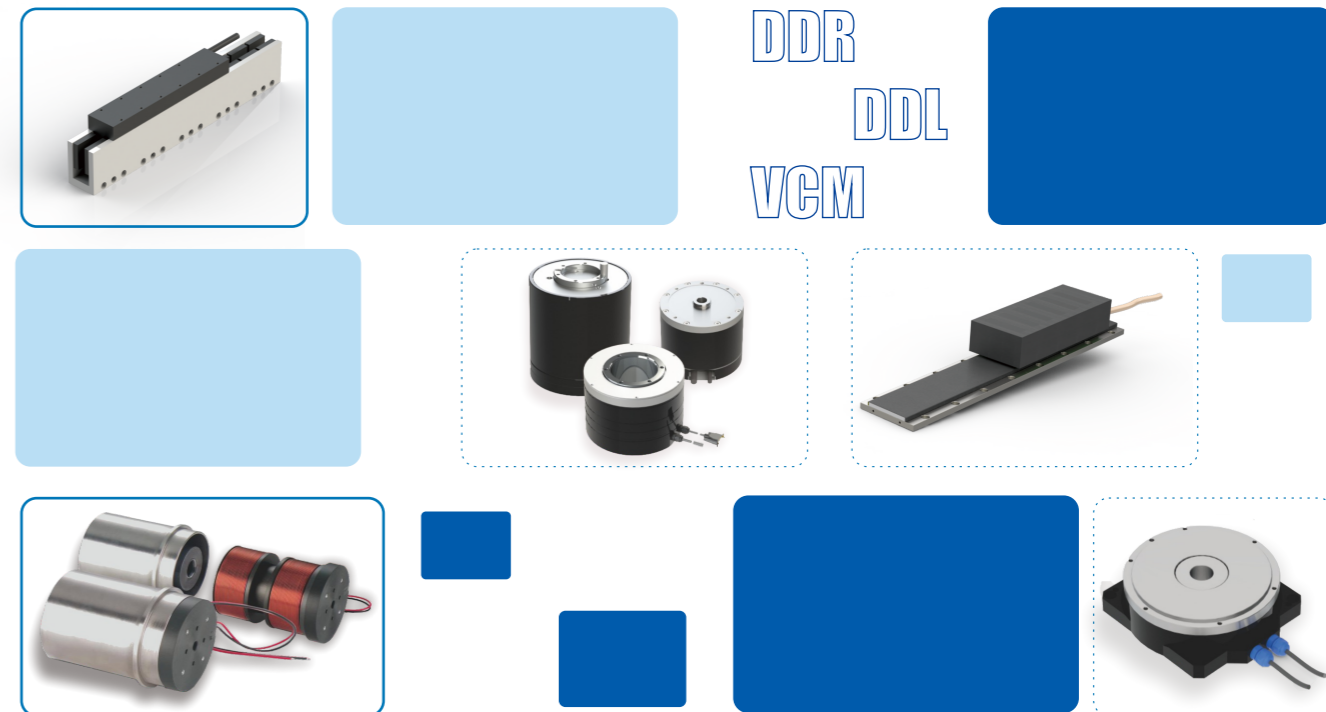




Direct Drive Motors

Direct Drive Rotary Motors / Linear Motors / Voice Coil Motors



Era of Direct Drive • Peak of Servo

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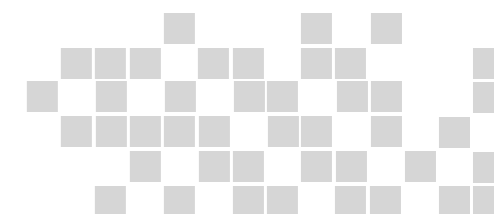


Wechat Public Account of SERVOTOP

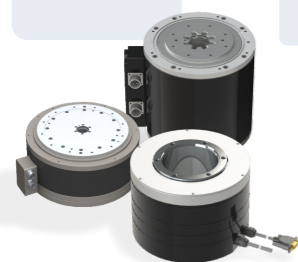
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Version: ST1C07-20240301

Direct Drive Product Selection Guide



Direct Driver Rotary Motors



Tray (axial magnetic field)

• SDM115 Series	11
• SDM140 Series	12

Standard (radial magnetic field)

• SDM80 Series	13
• SDM100 Series	14
• SDM110 Series	15
• SDM135 Series	16
• SDM140 Series	17
• SDM160 Series	18-23
• SDM220 Series	24
• SDM264 Series	25-27
• SDM360 Series	28
• SZU90 Series	29

Frameless direct

• SDW106 Series	30
• SDW160 Series	31
• SDW210 Series	32

Linear Motors

Y series flat linear motors with iron core

• SWL-AY Series	43-44
• SWL-BY Series	45-46
• SWL-BZ Series	47-48
• SWL-CY Series	49-50

S series flat linear motors with iron core

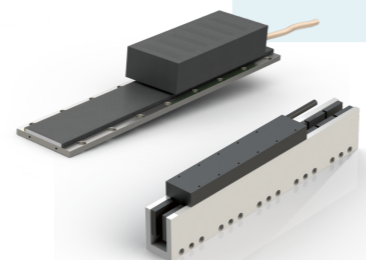
• SWL-JS Series	51-52
• SWL-KS Series	53-54
• SWL-LS Series	55-56
• SWL-MS Series	57-58
• SWL-UVS Series	59-60

E series flat linear motors with iron core

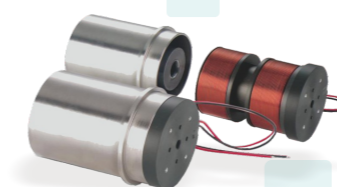
• SWL-TE Series	61
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U-shaped linear motors without iron core

• SUM-DM2 Series	62
• SUM-DM3 Series	63
• SUM-DM4 Series	64
• SUM-DM5 Series	65
• SUM-DM6 Series	66



Voice Coil Motors



CCV series voice coil motors

• CCV Series	69-90
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CFV series voice coil motors

• CFV Series	91-92
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CCV series voice coil motor dedicated for flexible vibrating disk

• CCV Series	93-94
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Reading head and Driver

Magnetic grating reading head

• Magnetic grating reading head	95-100
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Driver

• Driver model selection	101-114
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Introduction and Model Selection of Direct Drive Products

Direct Driver Rotary Motors(DDR)

Product description

•Meaning of direct driver rotary motor

1. Because of the large torque, DDR is also called torque servo.
2. The technical specifications reflect the high performance of DDR, the star in the series of servo products.

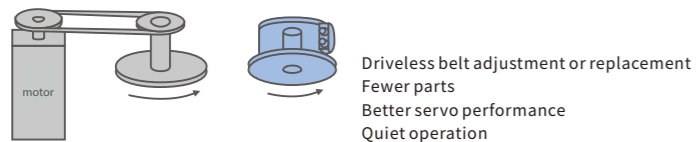
•Product Principle

1. The direct driver rotary motor is literally understood as a direct drive motor (Direct Drive), but in fact it is not an ordinary servo. Instead, it is a special AC motor with a highly complex structure, high precision, and robust performance. It is called direct drive because it adopts the way that the rotor is directly connected with the motion carrier, and no other transition connections (such as deceleration mechanism and coupling) are used in the middle.
2. The structure of the direct driver rotary motor (DDR) is categorized into two types: inner rotor and outer rotor, and the internal centripetal bearing can bear a certain amount of axial force. The angular resolution of the encoder is high, which is generally more than 500,000 ppr (pulses per round). Due to the guarantee of the high-level manufacturing process and high-precision measurement feedback, the positioning precision of this encoder can reach angular seconds (1 degree = 3600 angular seconds).

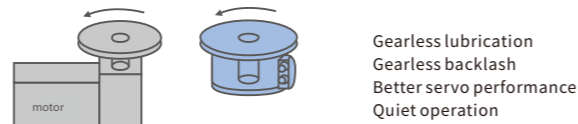
•Reasons for selecting the direct driver rotary motor

1. High rigidity, compact structure and high working efficiency.
2. The rigidity of the direct driver rotary motor is high. Because of the hard feature after integration with the load, the requirement for its driver is very high.
3. The rigidity of the direct driver rotary motor (DDR) is high. Because of the hard feature after integration with the load, the requirement for its driver is very high. The combined mechanical structure is more compact and the working efficiency is higher than those of the other methods.

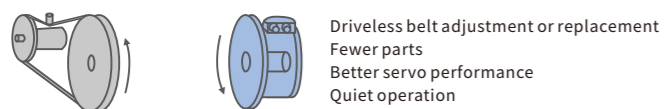
Advantage



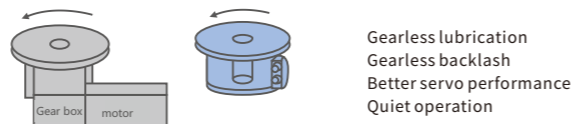
Drive belt/Pulley



Gear motor/Right angle/Linking



Large vertical wheel



Rotary graduator

Model Selection

•Key points

1. **Load inertia** [load multiplier $K = J_l/J_m$ (K value is closely related to application requirements)]. (For example, $K \leq 150$ for low speed operation; $K \leq 10$ for high speed application)
2. **Torque** Due to its structure advantage, the direct driver rotary motor can output 3 times torque in an instant.
3. **Response speed** When the direct driver rotary motor drives the load, it does not need to go through a transmission device (such as transmission belt), so that its response speed is several times or even ten times that of motors using a transmission device.
4. **Precision** High precision is its most important characteristic. It is crucial to select a proper motor to avoid waste.

•Calculation for direct driver rotary motor model selection

▲ Mechanical structure parameter

Disc diameter	$D_T = __ \text{m}$	Other constants	$G = 9.8$
Disk mass	$M^T = __ \text{kg}$		$\pi = \pi$
Tooling mass	$M_w = __ \text{kg}$	Min. torque required by motor	$T_{\text{motor}} = __ \text{Nm}$
Tooling quantity	$n = __ \text{pc}$		Lowest speed required by motor
Distance from the center of the index plate to the tooling center	$l = __ \text{m}$	Disc material density	$\beta = __ \text{kg/m}^3$
Positioning angle	$\theta = __ ^\circ$	Disc thickness	$L_T = __ \text{m}$
Positioning time	$t = __ \text{s}$	Disk mass	$M^T = __ \text{kg}$
Acceleration time ratio	$A = __$		
Reducer deceleration ratio	$i = __$		
Reducer efficiency	$\eta_G = __$		

▲ Calculation sequence

1. Determine acceleration and deceleration times

Acceleration time $t_a = t \cdot A$ (s)

2. Rotating speed of the motor

Angular acceleration of the output shaft $\beta_G = \frac{\theta \times 2\pi}{360 \cdot t_a(t-t_a)}$ (rad/s²)

Max. rotating speed of the output shaft $N = \frac{\beta_G \times t_a}{2\pi} \times 60$ (rpm)

3. Calculate the load torque

Ignored because the friction load is very light $T_L = 0$ (Nm)

4. Calculate the acceleration torque of the motor shaft (Overcome inertia)

Inertia of the table $J_T = \frac{1}{8} M_T \cdot D_T^2$ (kgm²)

Inertia of work object $J_{W1} = n \cdot M_w \cdot l^2$ (kgm²)

(The work object rotates around the work center shaft at the same time. If the work object does not rotate, this part of inertia can be ignored.)

Motor inertia $J_M = __$ (kgm²)

Full-load inertia $J_L = J_T + J_{W1}$ (kgm²)

5. Acceleration torque

Inertia of the load converted to the motor shaft

$J_{LM} = J_L / i^2$ (kgm²)

Acceleration torque of the motor shaft

$T_s = \frac{(J_{LM} + J_M) \beta_m}{\eta_G}$ (Nm)

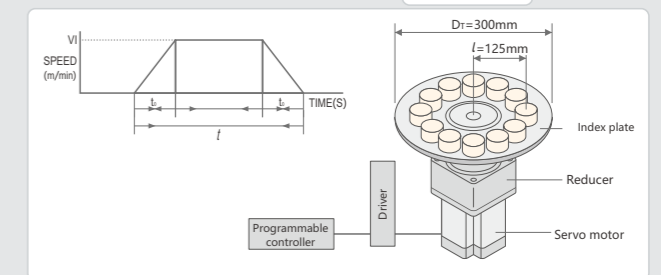
6. Mandatory torque

$T = (T_s + T_L) \cdot S$ (Nm)

Safety factor S

7. Ratio of load to motor inertia

Inertia ratio $N1 = \frac{J_L}{J_M}$



•Driver selection

For details, see "Drive and Control" (P101 to P114).



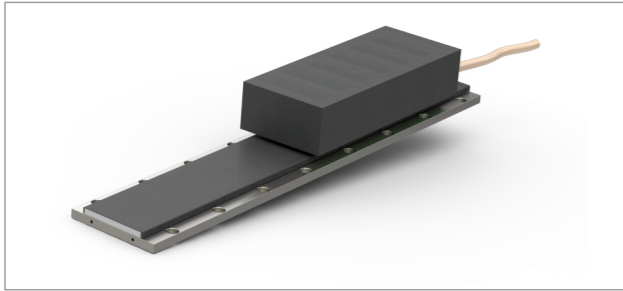
Caution

1. **Installation** The installation concentricity is 10 μm. The installation environment is guaranteed. The feedback cable runs without interference.
2. **Control precision** The upper controller needs to ensure the output of stable and reliable high-frequency signals (usually M level). Otherwise, the use precision will be reduced due to the speed requirement.

Linear motor(DDL)

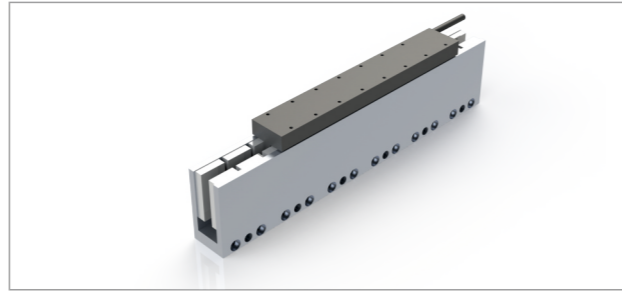
Product description

Standard product features



SWL series :

- Peak thrust: 129 to 3300 N
- Continuous thrust: 39 to 1100 N
- Patent technology with anti-cogging effect is adopted to minimize the cogging effect
- High motor constant (Km)
- High thrust density
- Zero contact, maintenance-free, brushless design
- Three-phase sinusoidal commutation
- The maximum acceleration can easily exceed 10 G
- High positioning accuracy and high resolution
- The setting time is very short
- Low heat loss
- Adopt modular magnet design
- Very small shape
- Low attractiveness



SUM series :

- Peak thrust: 144 to 5062 N
- Continuous thrust: 36 to 945 N
- Non-cogging effect
- Zero attraction
- Capable of moving smoothly at a speed as low as 1 micron per second (0.00004 inches per second)
- Lightweight coil assembly for high acceleration

Typical applications of linear motors include:

Machine tool	Chip inspection	Measurement/inspection	Other applications include:
Drilling	Chip slicing	Coordinate measuring machine	Flight simulator
Milling	Label bonding	Electronic assembly	Accelerator carrier
Grinding	Lead welding	Placement equipment	catapult
Laser-based cutting	Ion injection	Component instrumentation	Gravity measurement
Cam grinding	Lithographic printing	Silk-screen printing	
Semiconductor	Textile	Adhesive dispenser	
Wafer processing	Carpet tufting	PC board inspection and drilling	

Advantages of the linear motor

1. Wide speed range

Because the moving stator part of the linear motor is a non-contact part and there is no mechanical transmission limit, it is easy for the linear motor to achieve extremely high or extremely low speed. The speed is not limited by the motor, but it is limited by other parts of the system, such as the linear guide and the bandwidth that can be achieved from any feedback device. Generally, an application speed of more than 5 m/s can be achieved. In addition to a wide speed range, linear motors feature excellent constant speed. The speed fluctuation is usually less than $\pm 0.01\%$.



2. High dynamic performance of the system

In addition to the high-speed capability, the linear motor also has a very high acceleration. Its acceleration is only limited by the system bearing. Large motors can usually achieve an acceleration of 3 G to 5 G, while small motors can easily achieve an acceleration of more than 10 G.



3. Smooth operation and high positioning precision

Because the linear motor series products adopt a unique motor design, this series of linear motors have a very smooth motion curve. This kind of direct drive linear motor has extremely low thrust and speed fluctuation, which are suitable for smooth motion. The positioning precision is only limited by the feedback resolution, which can usually reach a resolution below micron.



4. Infinite stroke

The magnetic circuit of the linear motor is composed of a number of modular parts, and its length is an integral multiple of the magnet polar distance. Any number of other modules can be added to any module to achieve infinite stroke. Regardless of whether the required stroke is 1 mm or 100 m, this series of products can meet the requirements.



5. No wear or maintenance-free

The linear motor has only a few components. Ball screw components, such as nuts, bearing seats, couplings, motor bases, are not required. Therefore, you do not need to maintain these components. The service life is extremely long, the operation interface is clean, and there is no need to lubricate or maintain such components.



6. Significant reduction of the difficulty of component integration

Compared with rotary motors equipped with mechanical drives, linear motors require fewer components. For linear motor components, you only need to adjust the air gap from 0.8 mm (0.031 inches) to 0.5 mm (0.020 inches). There is no need to make critical adjustments on components like ball screws. The linear guide of the system ensures the straightness of the whole stroke and fully meets the requirements of **SERVOTOP** motors.



The SWL and SUM series linear motors comply with the regulations specified in the "Low-Voltage Directive 73/23/EEC" for machines. When installing and configuring a motor, you need to follow the manufacturer's recommendations in order to ensure safety. The machine installed with this product must comply with the regulations specified in the "EC Directive 89/336/EEC". The installer shall ensure that the final product complies with all relevant laws of the country where the equipment is located.

●Feedback type

All motors require commutation feedback. A conventional rotary motor usually uses a rotary transformer or photoelectric encoder installed behind the motor or a Hall element integrated on the coil winding to provide commutation signals. For linear motors, commutation feedback is realized by using various methods. Digital or linear Hall effect devices for SWL series motors can be provided, which drive electronic devices to realize commutation of linear motors just like rotary motors.

If extremely smooth motion is required, sinusoidal driven electronic components (such as the SUM-DM series products with digital Hall effect) can be used to provide sinusoidal driven current for the motor to achieve optimal constant force and speed. In addition, the linear motor system often uses a linear encoder to achieve position feedback. Other types of feedback used in more and more linear motor applications include linear inductosyn, laser interferometer, and LVDT.

Advantage

Maintenance-free, high precision and higher bandwidth	<ul style="list-style-type: none"> • More stable movement speed and less noise • No back clearance in power transmission • No need to use couplings, toothed belts, ball or trapezoidal screws, gear racks, or other transmission components • No gears or screws, no lubrication required • Reliability of the machine improved
A variety of sizes and thrust for any linear applications	<ul style="list-style-type: none"> • Skills of the whole system improved • Flat and compact drive solution • Easily matched motors and drivers • The actual acceleration can reach 10 G
Simplified design scheme of high thrust and permanent magnet	<ul style="list-style-type: none"> • Larger bandwidth and faster response than the solution with ball or trapezoidal screws or gear racks • Rapid indexing of heavy loads with a maximum thrust of 5062 N • Reduce noise, the number of parts, and the cost of ownership • The machine design structure is more compact

Part Selection

●Driver selection

For details, see "Drive and Control" (P101 to P114).

●Standard part selection

- Hall feedback element	- Cable selection
- Thermal protection: 1. Thermistor; 2. Thermal switch	- Easy-to-clean magnetic circuit cover
- Additional air or water cooling	- Certified by Fm, and can operate in hazardous environments

Voice coil motor(VCM)

Product description

Voice coil linear motor (Voice Coil Motor) becomes well-known because its structure is similar to the voice coil of a loudspeaker. It features high-frequency response and high precision, so it is suitable for short-stroke closed-loop servo applications. Because of its small size, it is especially suitable for use in some narrow spaces. It has a fast response speed (millisecond level) and small weight, so it can achieve a very high acceleration and can do high-speed oscillatory reciprocating motion (up to tens of hertz). Its control is simple and reliable, without using any commutation device. It features maintenance-free and long service life, and can work continuously for a long time.

At present, there are few companies that can really design and manufacture voice coil motor systems in China, and most of them sell motors of foreign brands on consignment. Even if some companies can manufacture motor bodies, high-precision displacement sensors and digital servo controllers still need to be imported, resulting in the high cost and price of voice coil motor systems. By introducing special servo voice coil motor systems, SERVOTOP has filled the gap in the design and manufacturing of voice coil motor systems in China, and well prepared for the wide application of this kind of motor systems in automation equipment, precision instruments, and medical equipment in the future.

SERVOTOP specializes in designing and manufacturing special voice coil motors, actuators and stators of linear motors, and the corresponding high-precision magnetic encoders and optical encoders. Users can design guide rails and other supporting structures based on their own requirements. SERVOTOP also provides a package solution that integrates the voice coil motor system and the linear motor system, that is, the motor has integrated components such as guide rail, position, feedback, control element, and support structure so that the user can use the motor directly in the same way as an ordinary rotary servo motor. The voice coil motor with the integrated structure can be directly used for precision positioning, speed, acceleration, and thrust control without any reverse clearance. The position resolution can reach 0.1 μm to 5 μm, the continuous output force is 1 N to 190 N, the acceleration is 20 G, and the maximum stroke is ±40 mm. They can also be specially designed according to customer requirements.

Precise control of thrust makes the voice coil motor system available for delicate objects that can only be slightly touched, such as wafers, IC, organisms, and objects that are easily deformed and damaged. Its main application fields include: semiconductors, optoelectronics, automotive production and testing, biological and biochemical testing sampling, food pharmaceuticals, assembly and packaging, automatic testing, high-speed scanning, efficient welding, placement, assembly, testing and testing equipment, handling and testing of optical elements, a variety of linear or rotary applications, precision and high-speed motion equipment, and especially applications requiring high-speed periodic reciprocating motion.

Advantage

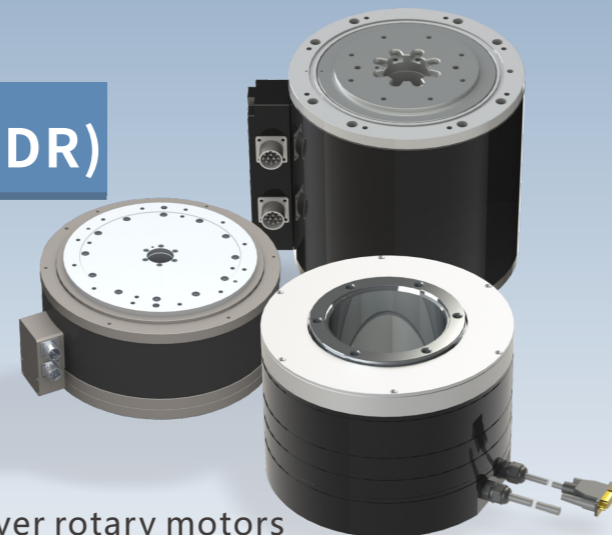
- Professional 3D electromagnetic field simulation significantly shortens the development period.
- Design the structure and electromagnetic parameters according to customer requirements to meet the custom requirements to the maximum extent.
- Self-built manufacturing plants can quickly respond to customer needs and implement mass production.
- Patented open magnetic coding technology and reflective optical coding technology with independent intellectual property rights break the monopoly of the international high-precision encoder market and enable customers to achieve higher system accuracy with limited investment.
- Choose a proper digital servo controller according to the specific needs of customers to significantly reduce the cost of the system.
- A professional design team conducts the most cost-effective selection and design for customers, so that customer products can be launched to the market in a rapid manner.

Key Performance

Thrust	<ul style="list-style-type: none"> • Peak value: 6~1370N • Rated value: 2 to 700 N
Max. acceleration	• 20 g
External feedback	<ul style="list-style-type: none"> • Optional optical grating or magnetic grating displacement sensor • The highest resolution is 0.05 um and the repetitive positioning precision is 0.1 um.
Valid travel stroke	• 1 mm to 50 mm

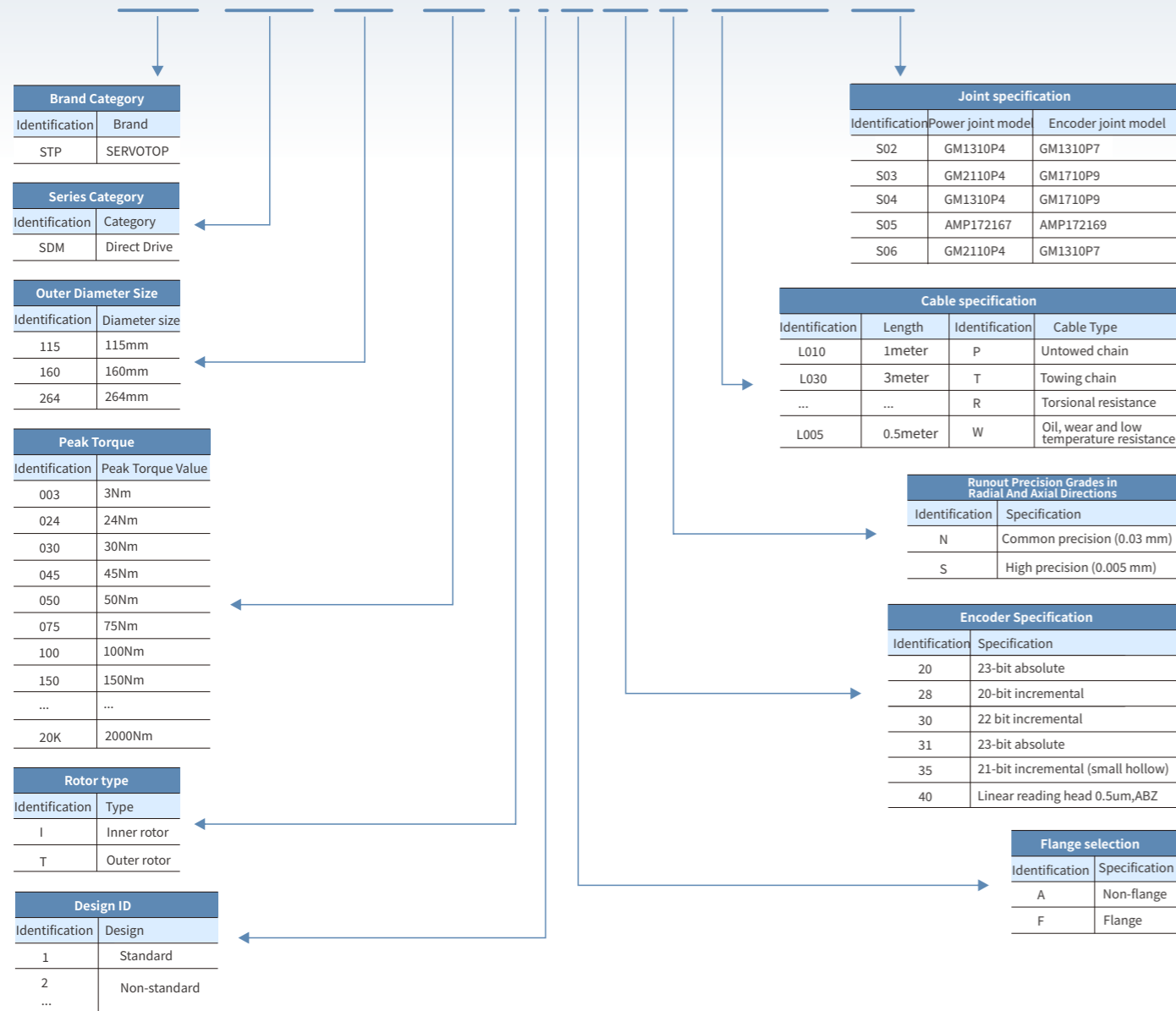
List of Specifications for DDR

Direct Driver Rotary Motors(DDR)



• Naming conventions for SDM series direct driver rotary motors

STP - SDM 160-024 I 1 A 31 N-L010T-S02



Specification table of the tray (axial magnetic field) DDR

DDR series	Repeatability (arcsec)	Model number	Continuous torque (F _{cn}) / Peak torque (F _{pk}) Unit :Nm							Page
			1	5	10	50	150	300	
SDM115	±5	SDM115-005	1.1	3.3						11
SDM140	±2	SDM140-003	0.8	3.2						12

Specification table of the standard (radial magnetic field) DDR

DDR series	Repeatability (arcsec)	Model number	Continuous torque (F _{cn}) / Peak torque (F _{pk}) Unit :Nm							Page
			1	5	10	50	150	300	
SDM80	±3	SDM80-002	0.84	2.39						13
SDM100	±5	SDM100-007	2.8	8.4						14
SDM110	±2	SDM110-010	4.2	10.5						15
SDM135	±2	SDM135-008	2.5	7.5						16
SDM145	±2	SDM145-140				36	108			17
SDM160	±4	SDM160-012	4	12						18
	±4	SDM160-024				12	24			19
	±5	SDM160-040				20	40			20
	±4	SDM160-048				15.5	46.5			21
	±3	SDM160-060				30	60			22
±4	SDM160-085				36	85			23	
SDM220	±2	SDM220-285				95.1	285			24
SDM264	±4	SDM264-120				60	120			25
	±4	SDM264-180				90	180			26
	±4	SDM264-360				180	360			27
SDM360	±2	SDM360-1100				378.2	1133.5			28
SZU90	±2	SZU90-009				95.1	285			29

Specification table of the frameless DDR

DDR series	Repeatability (arcsec)	Model number	Continuous torque (F _{cn}) / Peak torque (F _{pk}) Unit :Nm							Page
			1	5	10	50	150	300	
SDW106	-	SDW106-007	2.4	7.2						30
SDW160	-	SDW160-84				28	84			31
SDW210	-	SDW210-174				58	150			32

1. Direct Driver Rotary Motors.
2. The specifications are subject to change without prior notice.

Note: All types of motors can be customized according to customer requirements.

Tray direct driver rotary motor

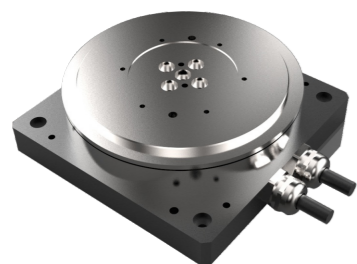
Tray direct driver rotary motor

SDM115 series DDR

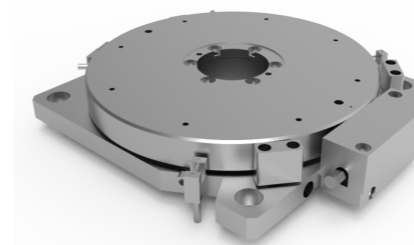
SDM140 series DDR

STP-SDM115-005I1F20N-L005T-S05 (Non-hollow with flange)

STP-SDM140-003I3A40N-L005T-S05 (Hollow belt flange)



- Peak torque: 5.5Nm
- Peak speed: 200rpm



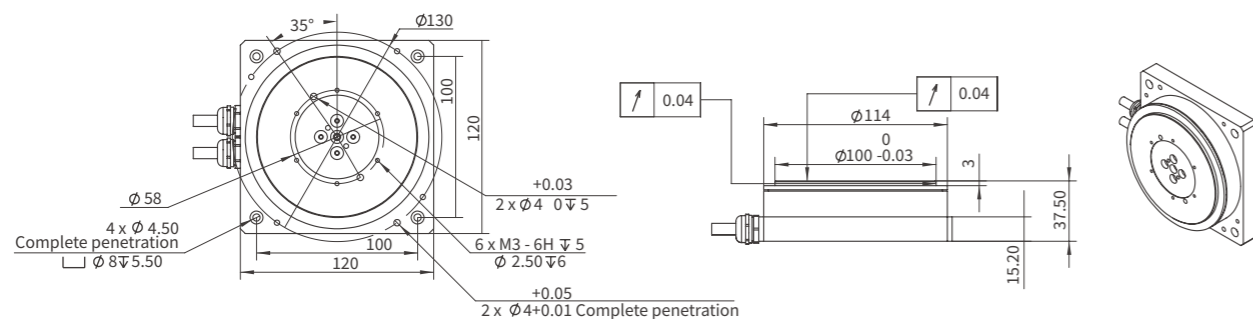
- Peak torque: 3.2Nm
- Peak speed: 200rpm

Motor parameter

Model Parameter	Unit	STP-SDM115-005I1F20N-L005T-S05
Continuous torque \geq	Nm	1.1
Peak torque \geq	Nm	5.5
Continuous rotating speed \geq	rpm	100
Peak speed \geq	rpm	200
Number of poles	PCS	10
Continuous current	Arms	2
Thrust constant \geq	Nm/Arms	0.55
Peak current	Arms	6
Resistor	ohm	8.8
Inductance	mh	3.4
Absolute precision	arcsec	± 150
Repeatability	arcsec	± 5
Axial force	N	400
Radial force	N	160
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	1.8
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.00213

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

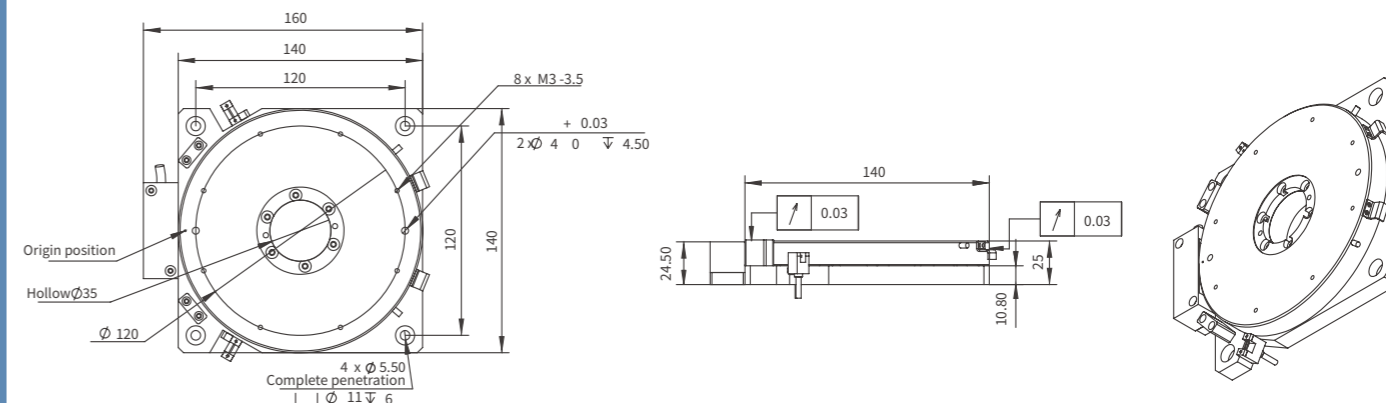


Motor parameter

Model Parameter	Unit	STP-SDM140-003I3A40N-L005T-S05
Continuous torque \geq	Nm	0.8
Peak torque \geq	Nm	3.2
Continuous rotating speed \geq	rpm	90
Peak speed \geq	rpm	200
Number of poles	PCS	10
Continuous current	Arms	1
Thrust constant \geq	Nm/Arms	0.8
Peak current	Arms	4
Resistor	ohm	5.6
Inductance	mh	15
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 2
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	3.2
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.0102

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



SDM80 series DDR

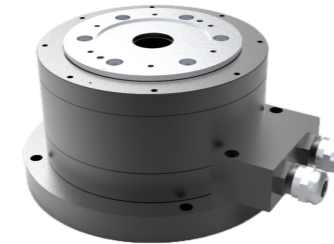
SDM100 series DDR

STP-SDM80-002I04F20N-L005T-S05 (Non-hollow with flange)

STP-SDM100-007I1F16N-L005R-S04 (Hollow belt flange)



- Peak torque: 2.39Nm
- Peak speed: 300rpm



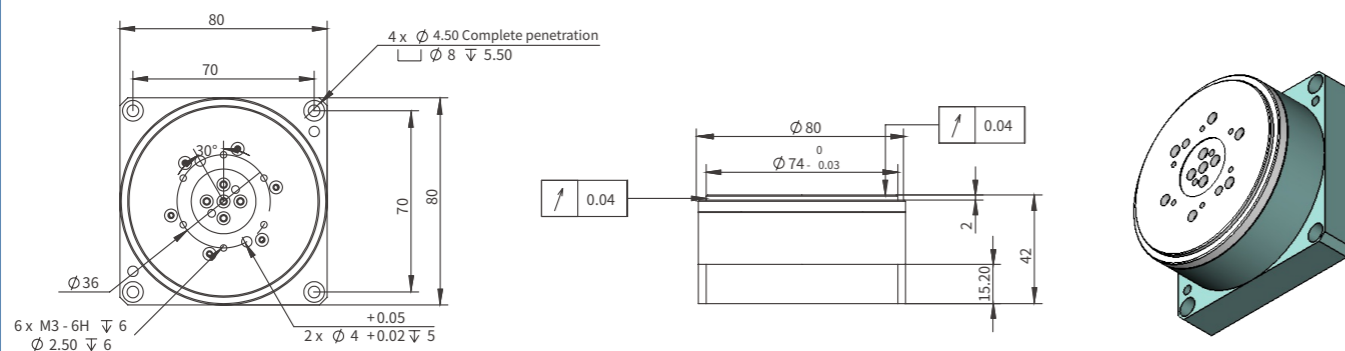
- Peak torque: 8.4Nm
- Peak speed: 300rpm

Motor parameter

Model Parameter	Unit	STP-SDM80-002I04F20N-L005T-S05
Continuous torque \geq	Nm	0.84
Peak torque \geq	Nm	2.39
Continuous rotating speed \geq	rpm	100
Peak speed \geq	rpm	300
Number of poles	PCS	10
Continuous current	Arms	1.27
Thrust constant \geq	Nm/Arms	0.52
Peak current	Arms	3.81
Resistor	ohm	10.3
Inductance	mh	3.5
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 3
Axial force	N	300
Radial force	N	120
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	0.9
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.00213

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

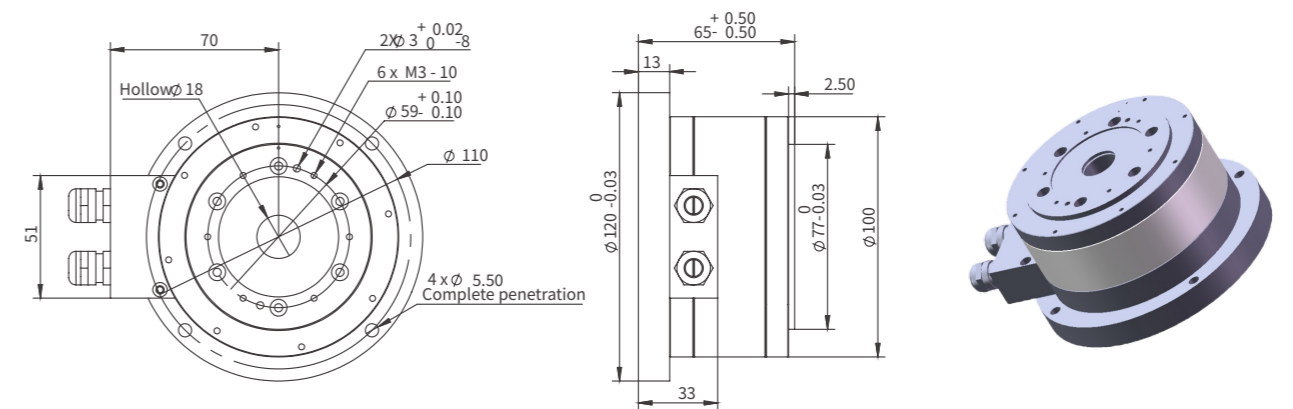


Motor parameter

Model Parameter	Unit	STP-SDM100-007I1F16N-L005R-S04
Continuous torque \geq	Nm	2.8
Peak torque \geq	Nm	8.4
Continuous rotating speed \geq	rpm	90
Peak speed \geq	rpm	300
Number of poles	PCS	16
Continuous current	Arms	3
Thrust constant \geq	Nm/Arms	0.73
Peak current	Arms	9
Resistor	ohm	4.8
Inductance	mh	39
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 5
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	2.6
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.0015

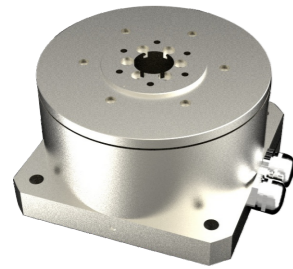
Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



SDM110 series DDR

STP-SDM110-010I1A35N-L005R-S04 (Hollow belt flange)



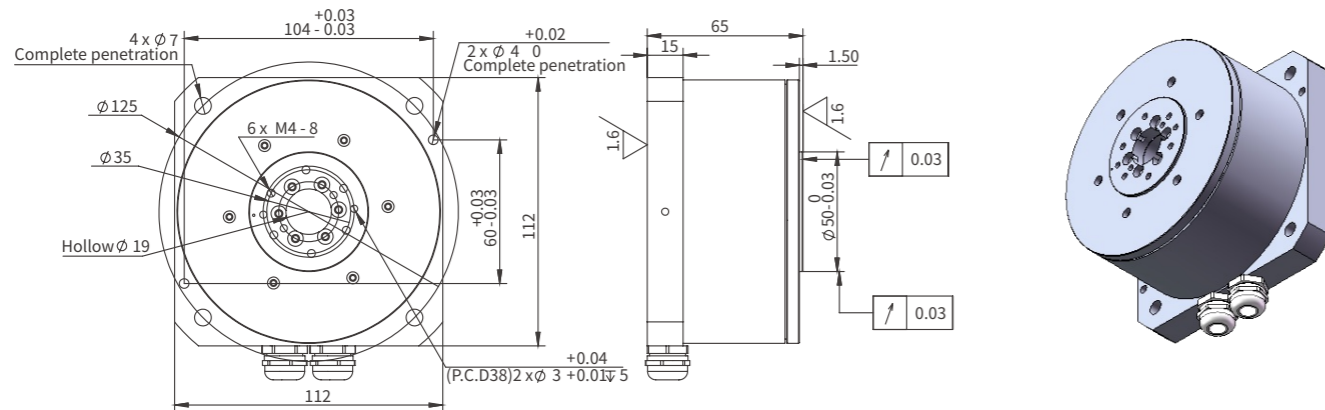
- Peak torque: 10.5Nm
- Peak speed: 300rpm

Motor parameter

Model Parameter	Unit	STP-SDM110-010I1A35N-L005R-S04
Continuous torque ≥	Nm	4.2
Peak torque ≥	Nm	10.5
Continuous rotating speed ≥	rpm	90
Peak speed ≥	rpm	300
Number of poles	PCS	16
Continuous current	Arms	2
Thrust constant ≥	Nm/Arms	2.1
Peak current	Arms	7
Resistor	ohm	3
Inductance	mh	3.2
Absolute precision	arcsec	±30
Repeatability	arcsec	±2
Axial force	N	1200
Radial force	N	400
Max. coil temperature	°C	155
Mass	KG	2.6
Moment of inertia of actuator	KG*m ²	0.0015

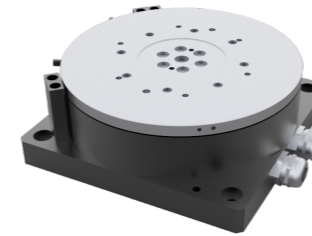
Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



SDM135 series DDR

STP-SDM135-008I1F20N-L005T-S05 (Non-hollow with flange)



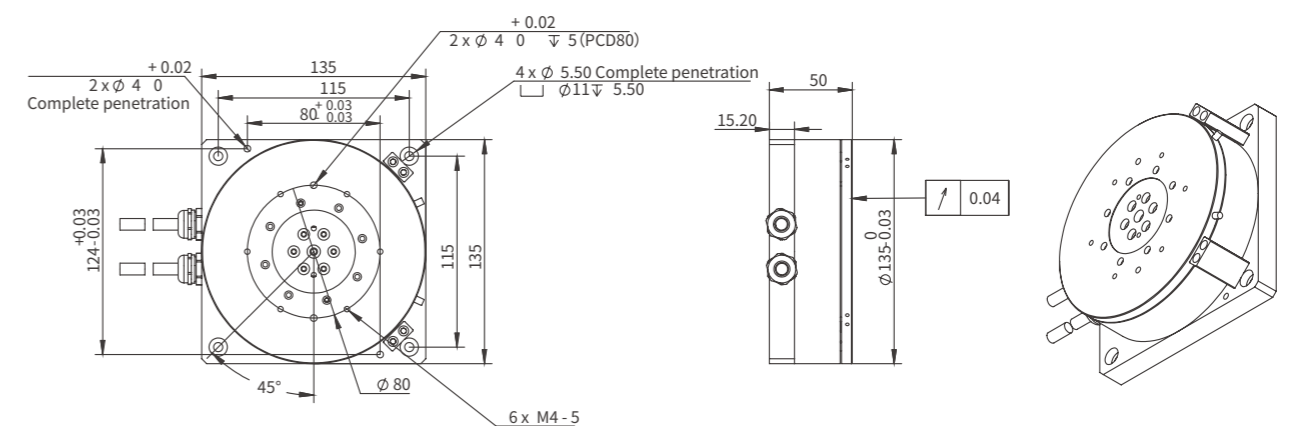
- Peak torque: 7.5Nm
- Peak speed: 240rpm

Motor parameter

Model Parameter	Unit	STP-SDM135-008I1F20N-L005T-S05
Continuous torque ≥	Nm	2.5
Peak torque ≥	Nm	7.5
Continuous rotating speed ≥	rpm	120
Peak speed ≥	rpm	240
Number of poles	PCS	10
Continuous current	Arms	3
Thrust constant ≥	Nm/Arms	0.81
Peak current	Arms	9
Resistor	ohm	3.8
Inductance	mh	32
Absolute precision	arcsec	±20
Repeatability	arcsec	±2
Max. coil temperature	°C	155
Mass	KG	2.5
Moment of inertia of actuator	KG*m ²	0.0082

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



SDM140 series DDR

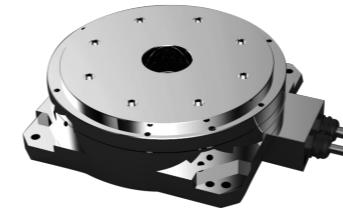
SDM160 series DDR

STP-SDM145-140I1A31N-L005T-S06 (Hollow)

STP-SDM160-012I1F31N-L005T-S05 (Hollow belt flange)



- Peak torque: 108Nm
- Peak speed: 800rpm



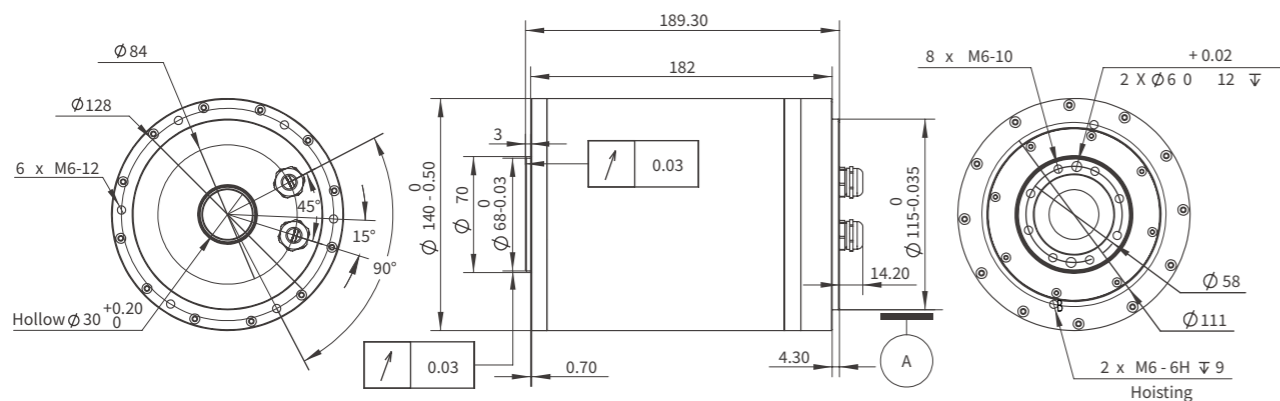
- Peak torque: 12Nm
- Peak speed: 240rpm

Motor parameter

Model Parameter	Unit	STP-SDM145-140I1A31N-L005T-S06
Continuous torque ≥	Nm	36
Peak torque ≥	Nm	108
Continuous rotating speed ≥	rpm	150
Peak speed ≥	rpm	800
Number of poles	PCS	10
Continuous current	Arms	10
Thrust constant ≥	Nm/Arms	4.5
Peak current	Arms	30
Resistor	ohm	2.4
Inductance	mh	33
Absolute precision	arcsec	±20
Repeatability	arcsec	±2
Axial force	N	3200
Radial force	N	5000
Max. coil temperature	°C	155
Mass	KG	12
Moment of inertia of actuator	KG*m ²	0.0033

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

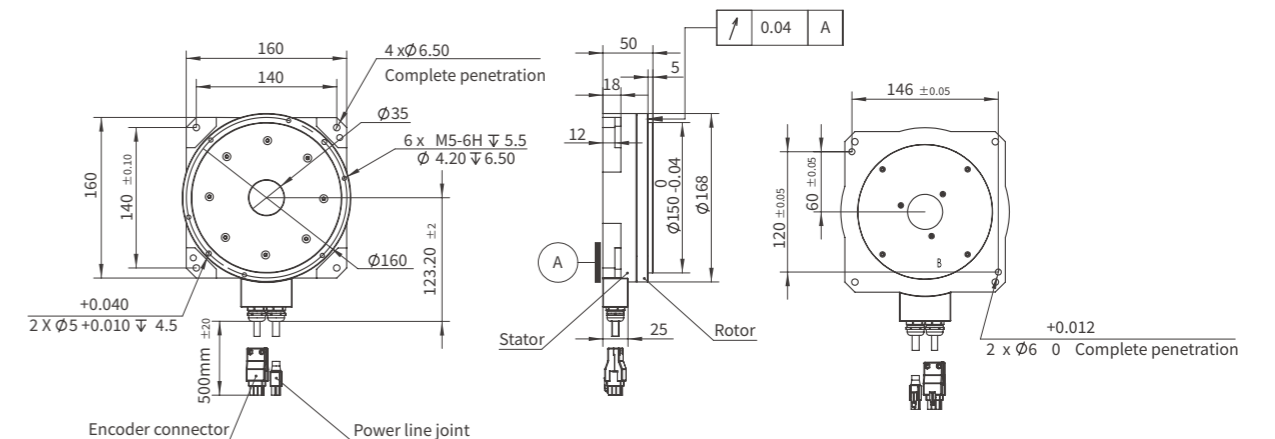


Motor parameter

Model Parameter	Unit	STP-SDM160-012I1F31N-L005T-S05
Continuous torque ≥	Nm	4
Peak torque ≥	Nm	12
Continuous rotating speed ≥	rpm	120
Peak speed ≥	rpm	240
Number of poles	PCS	40
Continuous current	Arms	3
Thrust constant ≥	Nm/Arms	1.333
Peak current	Arms	9
Resistor	ohm	4.8
Inductance	mh	15
Absolute precision	arcsec	±30
Repeatability	arcsec	±4
Axial force	N	600
Radial force	N	200
Max. coil temperature	°C	155
Mass	KG	2.6
Moment of inertia of actuator	KG*m ²	0.0102

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

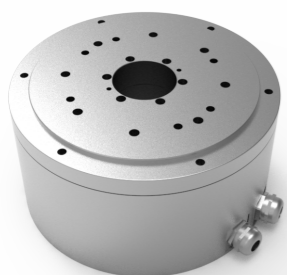


SDM160 series DDR

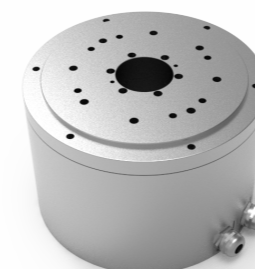
SDM160 series DDR

STP-SDM160-024I1A31N-L005T-S05 (Hollow)

STP-SDM160-040I1A31N-L005T-S05 (Hollow)



- Peak torque: 24Nm
- Peak speed: 200rpm



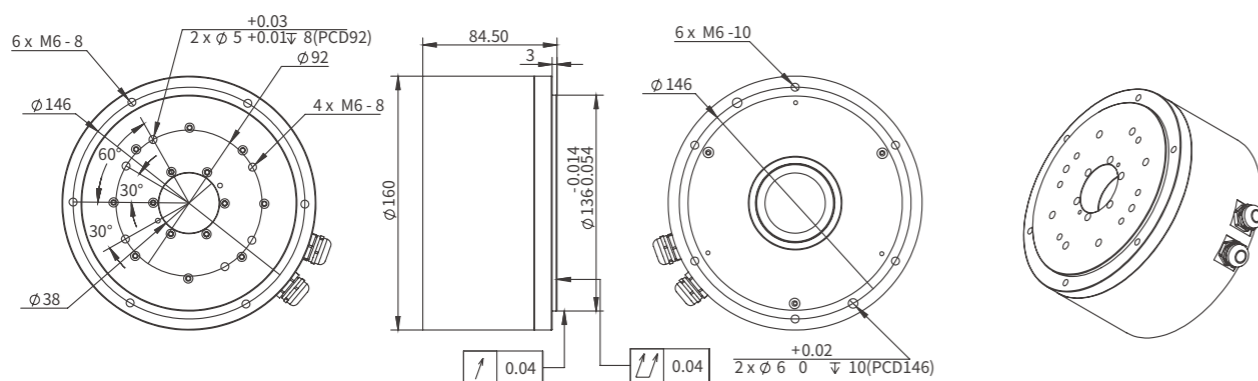
- Peak torque: 40Nm
- Peak speed: 150rpm

Motor parameter

Model Parameter	Unit	STP-SDM160-024I1A31N-L005T-S05
Continuous torque \geq	Nm	12
Peak torque \geq	Nm	24
Continuous rotating speed \geq	rpm	120
Peak speed \geq	rpm	200
Number of poles	PCS	40
Continuous current	Arms	2.8
Thrust constant \geq	Nm/Arms	4.28
Peak current	Arms	8.4
Resistor	ohm	9
Inductance	mh	52.5
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 4
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	7.3
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.0065

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

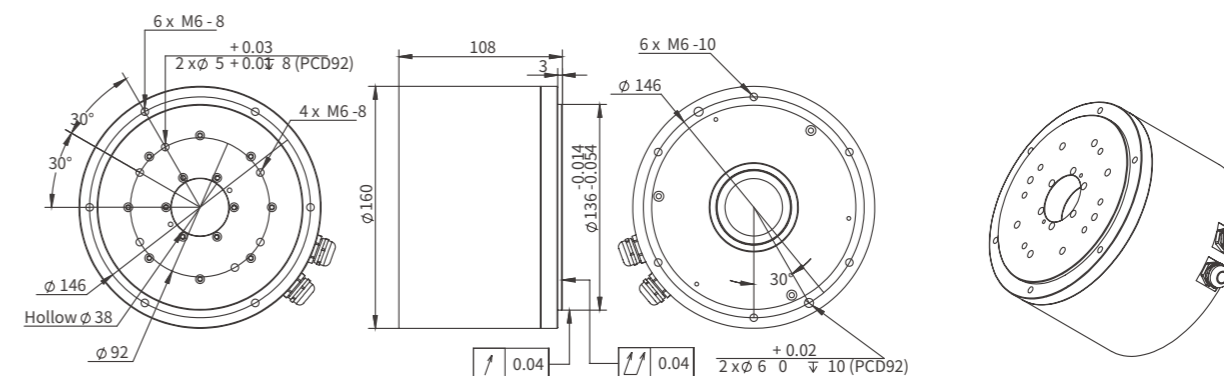


Motor parameter

Model Parameter	Unit	STP-SDM160-040I1A31N-L005T-S05
Continuous torque \geq	Nm	16
Peak torque \geq	Nm	40
Continuous rotating speed \geq	rpm	120
Peak speed \geq	rpm	200
Number of poles	PCS	40
Continuous current	Arms	3.6
Thrust constant \geq	Nm/Arms	4.44
Peak current	Arms	13.5
Resistor	ohm	11.2
Inductance	mh	110.6
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 4
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	12.3
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.009

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

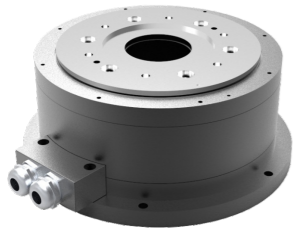


SDM160 series DDR

SDM160 series DDR

STP-SDM160-048I1F31N-L005T-S05 (Hollow belt flange)

STP-SDM160-060I1A31N-L005T-S05 (Hollow)



- Peak torque: 46.5Nm
- Peak speed: 200rpm



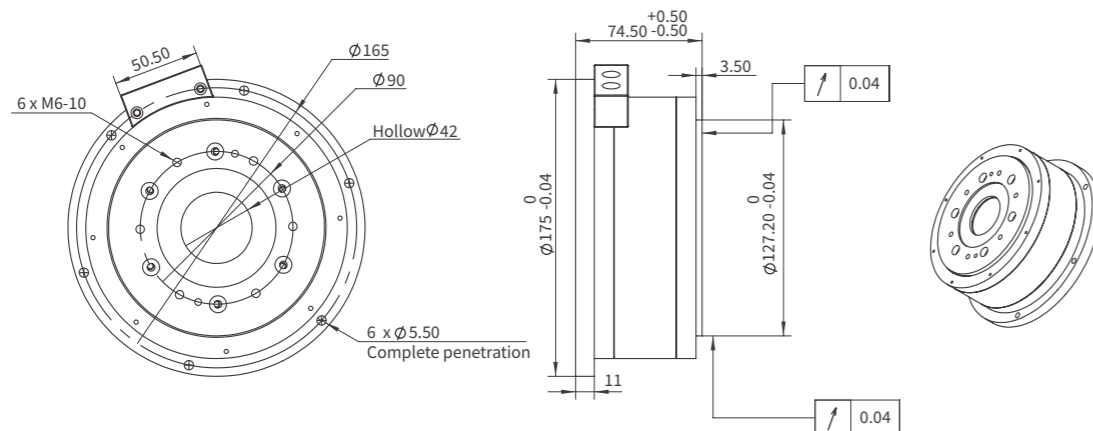
- Peak torque: 60Nm
- Peak speed: 200rpm

Motor parameter

Model Parameter	Unit	STP-SDM160-048I1F31N-L005T-S05
Continuous torque \geq	Nm	15.5
Peak torque \geq	Nm	46.5
Continuous rotating speed \geq	rpm	120
Peak speed \geq	rpm	200
Number of poles	PCS	16
Continuous current	Arms	4.5
Thrust constant \geq	Nm/Arms	3.44
Peak current	Arms	13.5
Resistor	ohm	5.9
Inductance	mh	14.9
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 4
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	6.5
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.0039

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

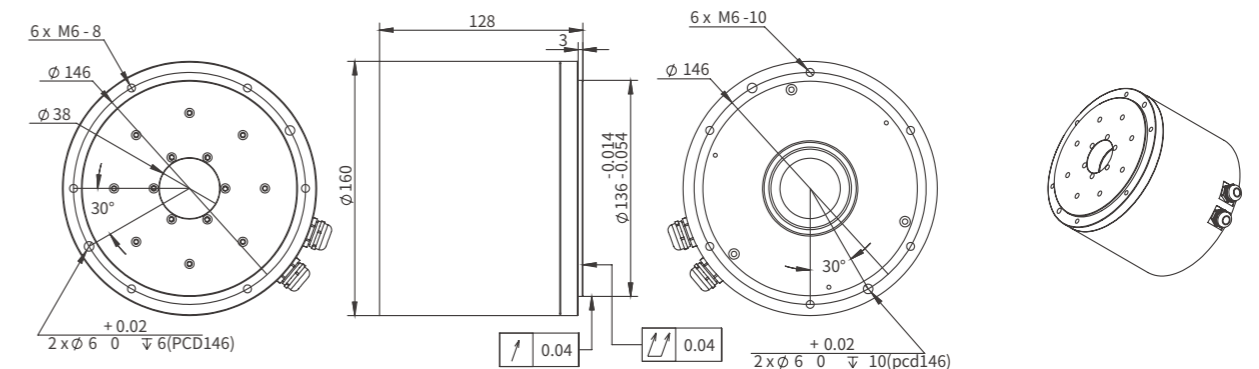


Motor parameter

Model Parameter	Unit	STP-SDM160-060I1A31N-L005T-S05
Continuous torque \geq	Nm	30
Peak torque \geq	Nm	60
Continuous rotating speed \geq	rpm	120
Peak speed \geq	rpm	200
Number of poles	PCS	40
Continuous current	Arms	4.5
Thrust constant \geq	Nm/Arms	6.66
Peak current	Arms	13.5
Resistor	ohm	16.5
Inductance	mh	141.6
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 3
Axial force	N	1200
Radial force	N	400
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	15
Moment of inertia of actuator	$\text{KG} \cdot \text{m}^2$	0.0115

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

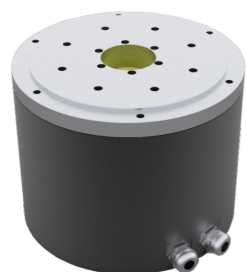


SDM160 series DDR

SDM220 series DDR

STP-SDM160-085I1A31N-L005T-S05 (Hollow)

STP-SDM220-138I1A31N-L005T-S06 (Hollow)
STP-SDM220-285I1A31N-L005T-S06 (Hollow)



- Peak torque: 85Nm
- Peak speed: 200rpm



- SDM220-138**
- Peak torque: 138Nm
 - Peak speed: 88rpm



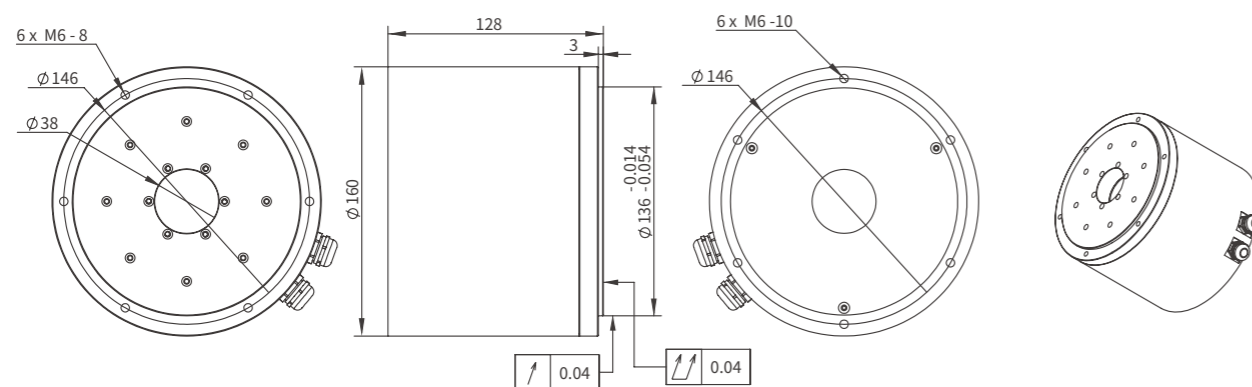
- SDM220-285**
- Peak torque: 285Nm
 - Peak speed: 88rpm

Motor parameter

Model Parameter	Unit	STP-SDM160-085I1A31N-L005T-S05
Continuous torque ≥	Nm	36
Peak torque ≥	Nm	85
Continuous rotating speed ≥	rpm	120
Peak speed ≥	rpm	200
Number of poles	PCS	40
Continuous current	Arms	5
Thrust constant ≥	Nm/Arms	7.2
Peak current	Arms	18
Resistor	ohm	6.5
Inductance	mh	58.1
Absolute precision	arcsec	±30
Repeatability	arcsec	±4
Axial force	N	1200
Radial force	N	400
Max. coil temperature	°C	155
Mass	KG	11.5
Moment of inertia of actuator	KG*m ²	0.0120

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

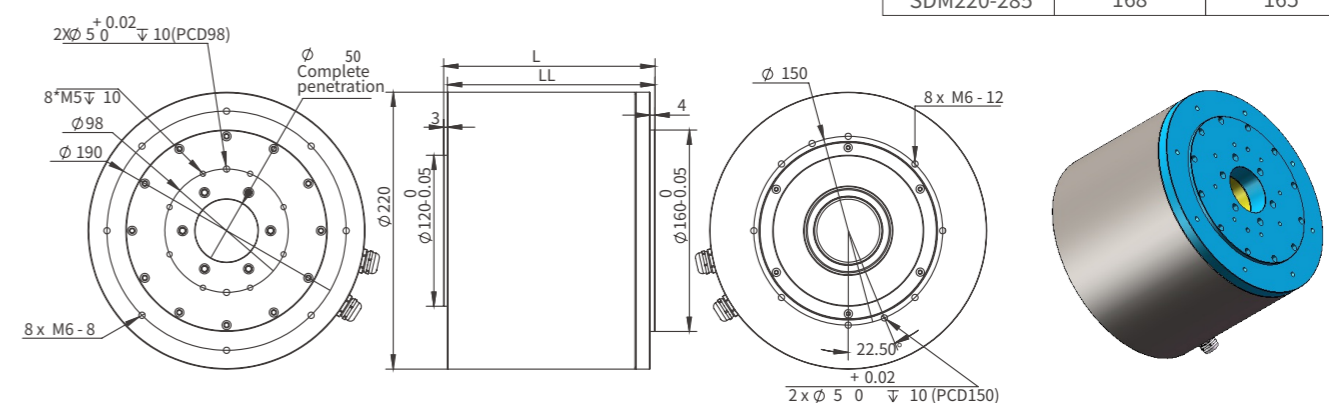


Motor parameter

Model Parameter	Unit	STP-SDM220-138I1A31N-L005T-S06	STP-SDM220-285I1A31N-L005T-S06
Continuous torque ≥	Nm	50	95.1
Peak torque ≥	Nm	138	285
Continuous rotating speed ≥	rpm	50	50
Peak speed ≥	rpm	88	88
Number of poles	PCS	22	22
Continuous current	Arms	5.4	5.4
Thrust constant ≥	Nm/Arms	9.1	17.57
Peak current	Arms	16.2	16.2
Resistor	ohm	5.9	10.1
Inductance	mh	53.6	106.7
Absolute precision	arcsec	±30	±30
Repeatability	arcsec	±2	±2
Axial force	N	7000	7000
Radial force	N	6000	6000
Max. coil temperature	°C	155	155
Mass	KG	18.5	24
Moment of inertia of actuator	KG*m ²	0.019	0.025

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



Model number	L	LL
SDM220-138	123	120
SDM220-285	168	165

SDM264 series DDR

SDM264 series DDR

STP-SDM264-120I1A31N-L005T-S06 (Hollow)

STP-SDM264-180I1A31N-L005T-S06 (Hollow)



- Peak torque: 120Nm
- Peak speed: 200rpm



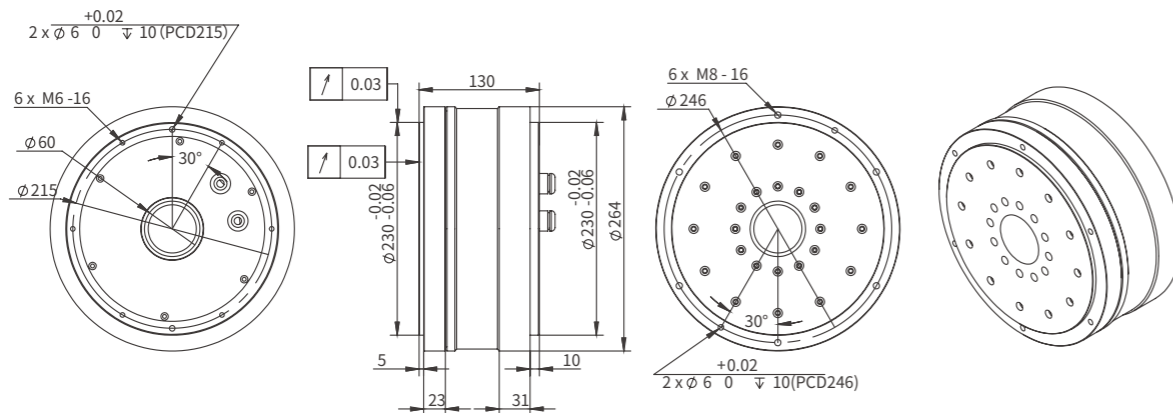
- Peak torque: 180Nm
- Peak speed: 200rpm

Motor parameter

Model Parameter	Unit	STP-SDM264-120I1A31N-L005T-S06
Continuous torque ≥	Nm	60
Peak torque ≥	Nm	120
Continuous rotating speed ≥	rpm	150
Peak speed ≥	rpm	200
Number of poles	PCS	60
Continuous current	Arms	4.5
Thrust constant ≥	Nm/Arms	13.3
Peak current	Arms	13.5
Resistor	ohm	10.1
Inductance	mh	66.8
Absolute precision	arcsec	±30
Repeatability	arcsec	±4
Axial force	N	70000
Radial force	N	60000
Max. coil temperature	°C	155
Mass	KG	35
Moment of inertia of actuator	KG*m ²	0.091

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

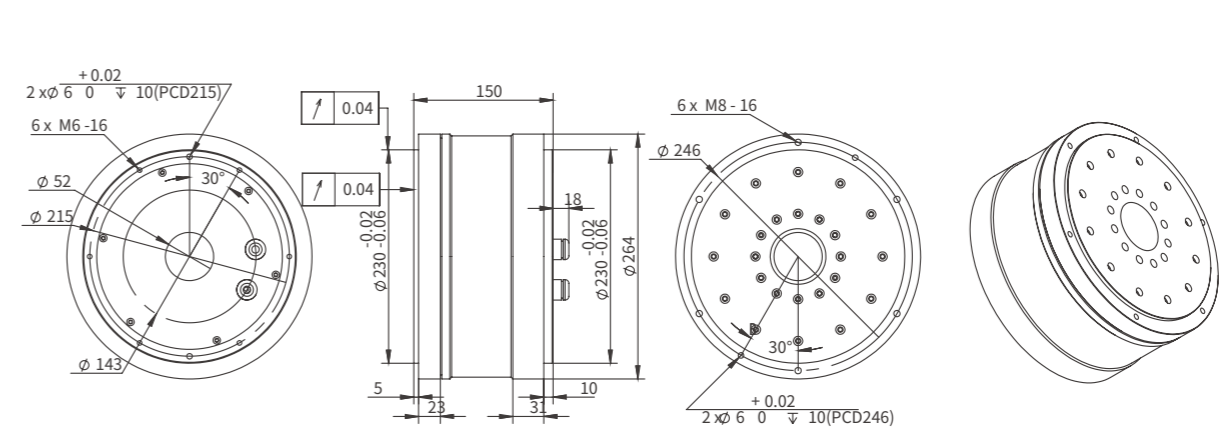


Motor parameter

Model Parameter	Unit	STP-SDM264-180I1A31N-L005T-S06
Continuous torque ≥	Nm	90
Peak torque ≥	Nm	180
Continuous rotating speed ≥	rpm	150
Peak speed ≥	rpm	200
Number of poles	PCS	60
Continuous current	Arms	6
Thrust constant ≥	Nm/Arms	15
Peak current	Arms	18
Resistor	ohm	7.1
Inductance	mh	52.4
Absolute precision	arcsec	±30
Repeatability	arcsec	±4
Axial force	N	70000
Radial force	N	60000
Max. coil temperature	°C	155
Mass	KG	50
Moment of inertia of actuator	KG*m ²	0.118

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

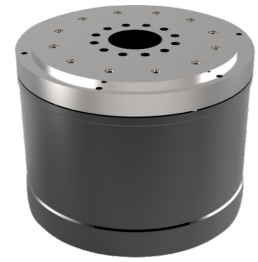
Overall dimension



SDM264 series DDR

SDM360 series DDR

STP-SDM264-360I1A31N-L005T-S06 (Hollow)



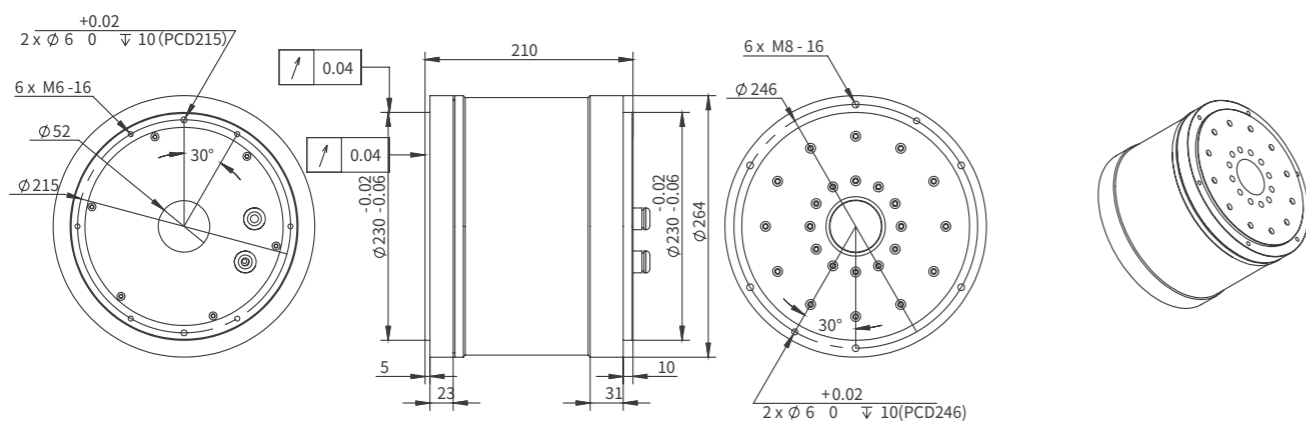
- Peak torque: 360Nm
- Peak speed: 200rpm

Motor parameter

Model Parameter	Unit	STP-SDM264-360I1A31N-L005T-S06
Continuous torque \geq	Nm	180
Peak torque \geq	Nm	360
Continuous rotating speed \geq	rpm	150
Peak speed \geq	rpm	200
Number of poles	PCS	60
Continuous current	Arms	8
Thrust constant \geq	Nm/Arms	22.5
Peak current	Arms	24
Resistor	ohm	12.3
Inductance	mh	100
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 4
Axial force	N	70000
Radial force	N	60000
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	68
Moment of inertia of actuator	KG^*m^2	0.181

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

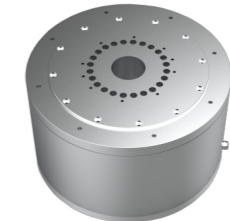
Overall dimension



STP-SDM360-555I1A31N-L005T-S06 (Hollow) STP-SDM360-1100I1A31N-L005T-S06 (Hollow)



- SDM360-555**
- Peak torque: 555Nm
 - Peak speed: 314rpm



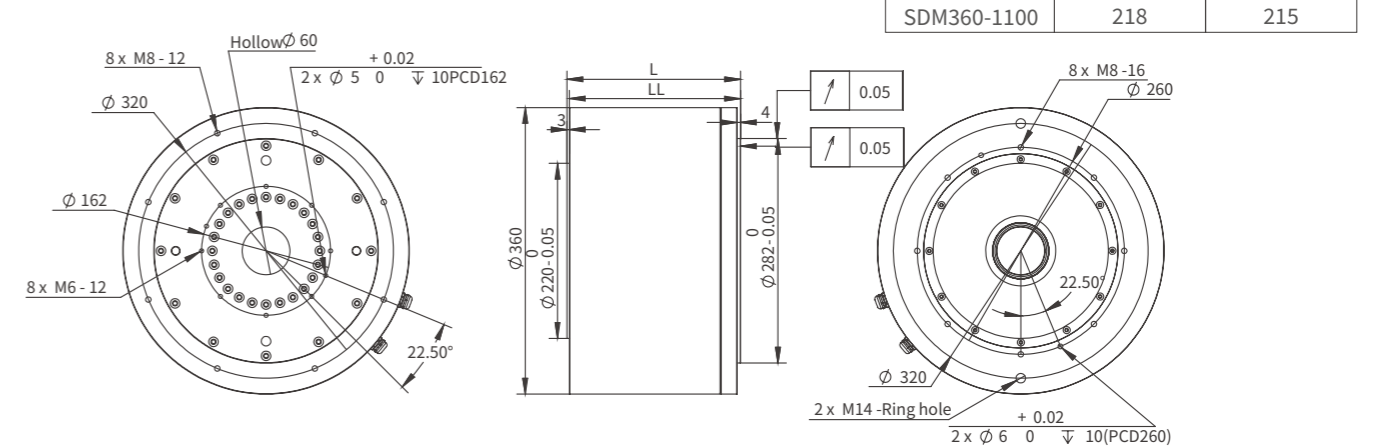
- SDM360-1100**
- Peak torque: 1133.5Nm
 - Peak speed: 76rpm

Motor parameter

Model Parameter	Unit	STP-SDM360-555I1A31N-L005T-S06	STP-SDM360-1100I1A31N-L005T-S06
Continuous torque \geq	Nm	185	378.2
Peak torque \geq	Nm	555	1133.5
Continuous rotating speed \geq	rpm	132	44
Peak speed \geq	rpm	314	76
Number of poles	PCS	44	44
Continuous current	Arms	10	10
Thrust constant \geq	Nm/Arms	18.5	37.8
Peak current	Arms	30	30
Resistor	ohm	3.1	5.26
Inductance	mh	32.1	54.74
Absolute precision	arcsec	± 30	± 30
Repeatability	arcsec	± 2	± 2
Axial force	N	70000	70000
Radial force	N	60000	60000
Max. coil temperature	$^{\circ}\text{C}$	155	155
Mass	KG	56	71
Moment of inertia of actuator	KG^*m^2	0.204	0.325

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension



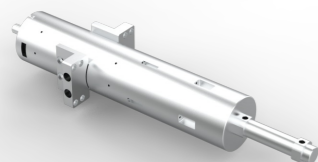
Model number	L	LL
SDM360-555	153	150
SDM360-1100	218	215

SZU90 series DDR

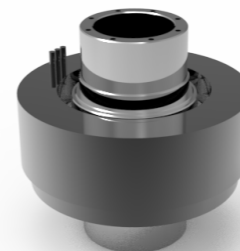
SDW106 series DDR

STP-SZU90-009I135N-L005T-S04

STP-SDW106-007I1A00N-L005X-S00



- Peak torque: 285Nm
- Peak speed: 88rpm



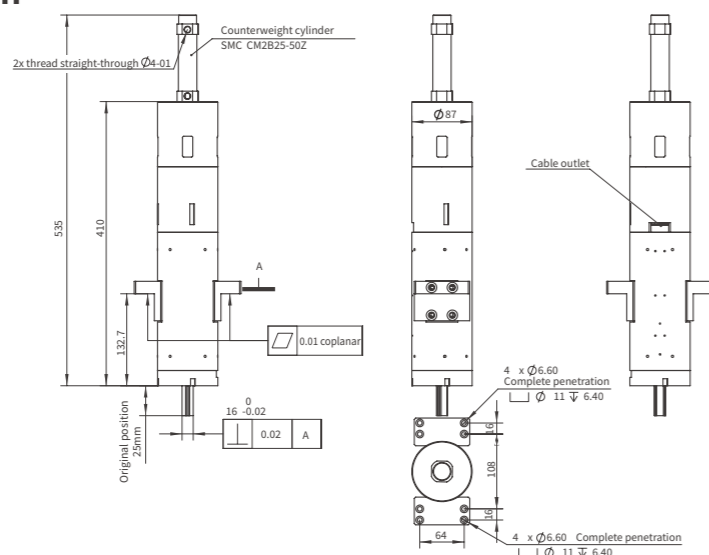
- Peak torque: 7.2Nm
- Peak speed: 4500rpm

Motor parameter

Model Parameter	Unit	STP-SZU90-009I135N-L005T-S04
Continuous torque \geq	Nm	95.1
Peak torque \geq	Nm	285
Continuous rotating speed \geq	rpm	50
Peak speed \geq	rpm	88
Number of poles	PCS	22
Continuous current	Arms	5.4
Thrust constant \geq	Nm/Arms	17.57
Peak current	Arms	16.2
Resistor	ohm	10.1
Inductance	mh	106.7
Absolute precision	arcsec	± 30
Repeatability	arcsec	± 2
Axial force	N	70000
Radial force	N	60000
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	24
Moment of inertia of actuator	$\text{KG}\cdot\text{m}^2$	0.025

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

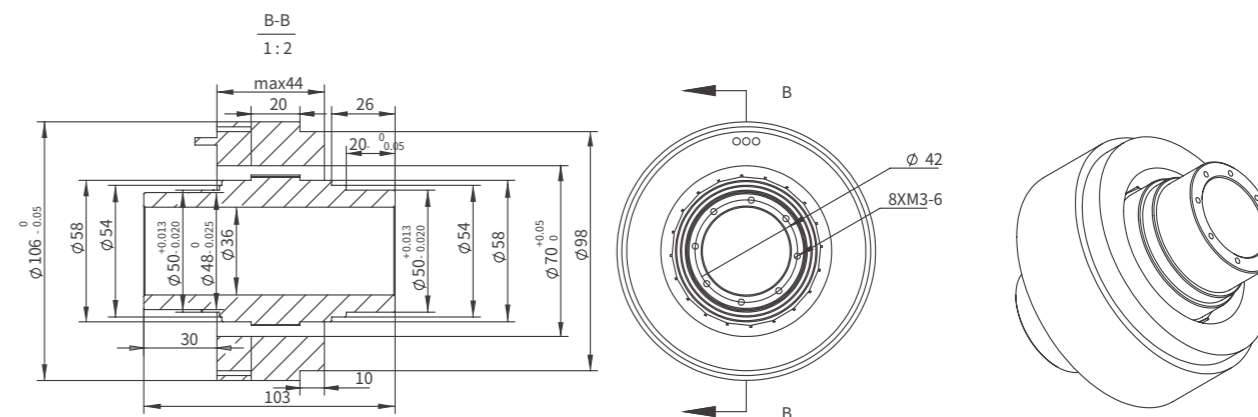


Motor parameter

Model Parameter	Unit	STP-SDW160-007I1A00N-L005X-S00
Continuous torque \geq	Nm	2.4
Peak torque \geq	Nm	7.2
Continuous rotating speed \geq	rpm	3000
Peak speed \geq	rpm	4500
Number of poles	PCS	10
Continuous current	Arms	4.6
Thrust constant \geq	Nm/Arms	0.519
Peak current	Arms	17.2
Resistor	ohm	1.6
Inductance	mh	6.8
Max. coil temperature	$^{\circ}\text{C}$	155
Mass	KG	2.8
Moment of inertia of actuator	$\text{KG}\cdot\text{m}^2$	0.0015

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

Overall dimension

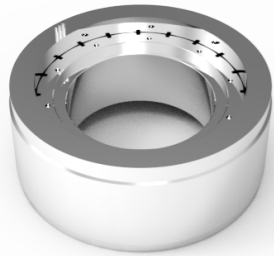


SDW160 series DDR

SDW210 series DDR

STP-SDW160-84I1A00N-L005X-S00

STP-SDW210-174I1A00N-L005X-S00



- Peak torque: 84Nm
- Peak speed: 310rpm



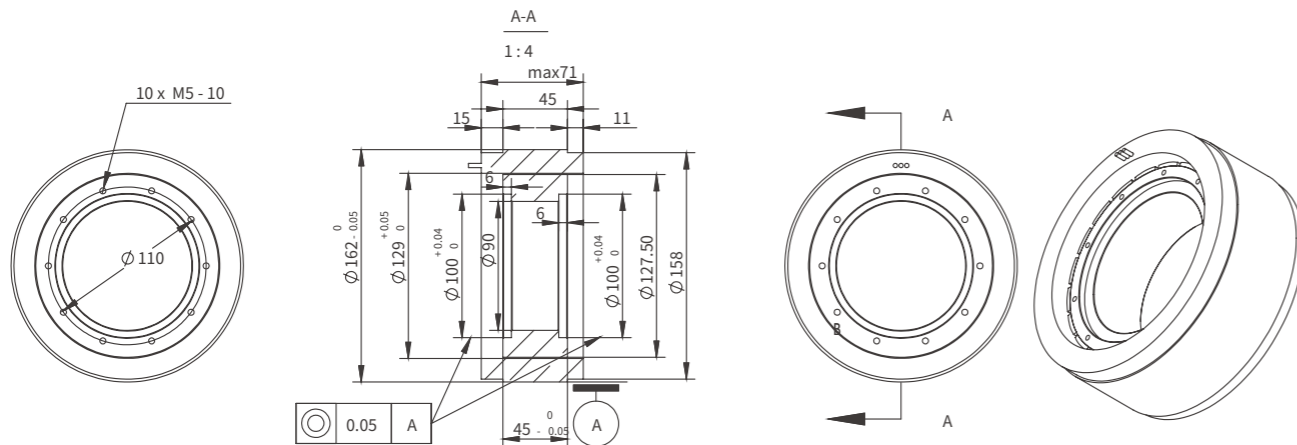
- Peak torque: 150Nm
- Peak speed: 270rpm

■ Motor parameter

Model Parameter	Unit	STP-SDW160-84I1A00N-L005X-S00
Continuous torque \geq	Nm	28
Peak torque \geq	Nm	84
Continuous rotating speed \geq	rpm	230
Peak speed \geq	rpm	310
Number of poles	PCS	40
Continuous current	Arms	4.5
Thrust constant \geq	Nm/Arms	6.2
Peak current	Arms	15
Resistor	ohm	5.75
Inductance	mh	57
Max. coil temperature	°C	155
Mass	KG	4.6
Moment of inertia of actuator	KG*m ²	0.025

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

■ Overall dimension

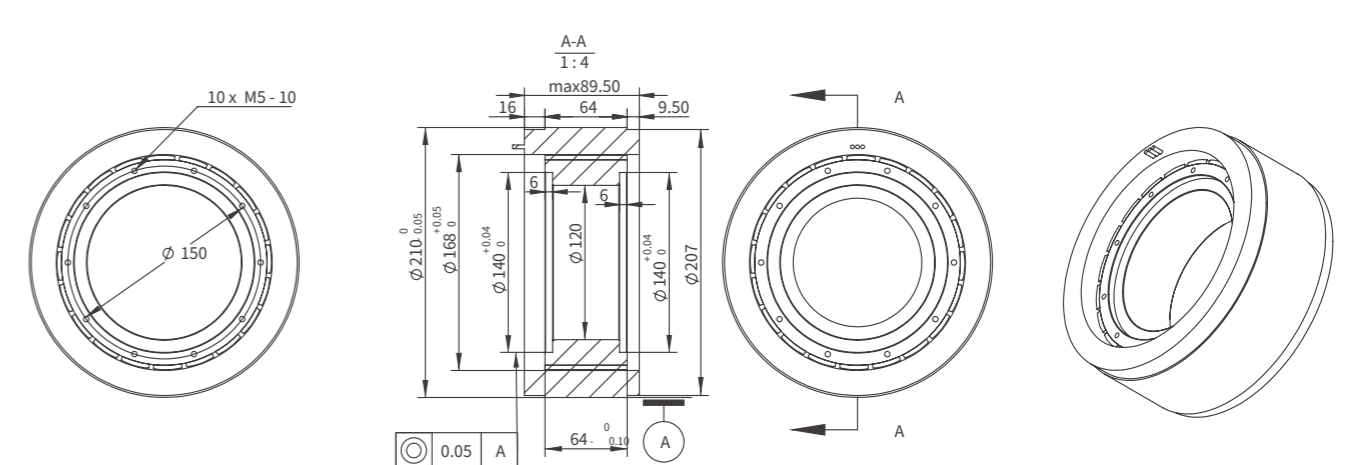


■ Motor parameter

Model Parameter	Unit	STP-SDW210-174I1A00N-L005X-S00
Continuous torque \geq	Nm	58
Peak torque \geq	Nm	150
Continuous rotating speed \geq	rpm	200
Peak speed \geq	rpm	270
Number of poles	PCS	20
Continuous current	Arms	6
Thrust constant \geq	Nm/Arms	9.7
Peak current	Arms	20
Resistor	ohm	3.75
Inductance	mh	68
Max. coil temperature	°C	155
Mass	KG	8.6
Moment of inertia of actuator	KG*m ²	0.065

Note: If you choose the Torque motor with high positioning accuracy or high axial runout accuracy or high radial runout accuracy, please contact our company.

■ Overall dimension

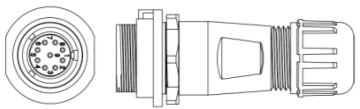


DDR Joint Model Selection

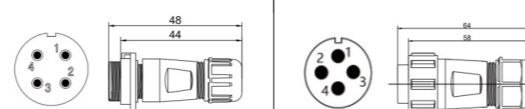
Joint definition

● Communication encoder connector type: S02/S06

Encoder wire connector	
S02 : Guleimu GM1310P7	
S06 : Guleimu GM1310P7	
	Communication encoder
1	Shielding
2	5V
3	0V
4	SD+
5	SD-
6	Battery + (multiple laps)
7	Battery + (multiple laps)

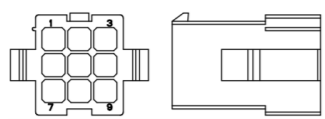


Power line joint		
	S02 : Guleimu GM1310P4	S06 : Guleimu GM2110P4
1	U	
2	V	
3	W	
4	Ground wire	

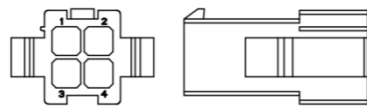


● Communication encoder connector type: S05

Encoder connector	
S05 : Amp AMP172169-1	
	Communication encoder
1	Shielding
2	5V
3	0V
4	PS+
5	PS-
6	Battery + (multiple laps)
7	Battery - (multiple laps)
8	
9	



Power line joint	
S05 : Amp AMP172167-1	
1	U
2	V
3	W
4	Ground wire



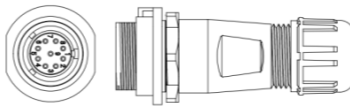
Note: (1) In case that the current is 5 A or below and the dustproof and waterproof functions are required, S02 is recommended.
 (2) In case that the current is 5 A or below and the dustproof and waterproof functions are not required, S05 is recommended.
 (3) In case that the current is above 5 A and the dustproof and waterproof functions are required, S06 is recommended.

DDR Joint Model Selection

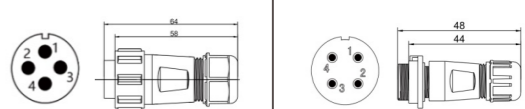
Joint definition

● Incremental encoder connector type: S03/S04

Encoder connector	
S03/S04 : Guleimu GM1710P9	
	Incremental encoder
1	Z+
2	Z-
3	5
4	GND
5	A+
6	A-
7	B+
8	B-
9	Shielding

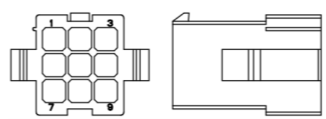


Power line joint		
	S03 : Guleimu GM2110P4	S04 : Guleimu GM1310P4
1	U	
2	V	
3	W	
4	Ground wire	

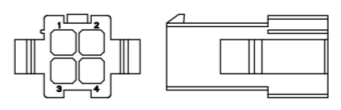


● Incremental encoder connector type: S05

Encoder connector	
S05 : Amp AMP172169-1	
	Incremental encoder
1	Z+
2	Z-
3	5V
4	GND
5	A+
6	A-
7	B+
8	B-
9	Shielding



Power line joint	
S05 : Amp AMP172167-1	
1	U
2	V
3	W
4	Ground wire



Note: (1) In case that the current is above 5 A and the dustproof and waterproof functions are required, S03 is recommended.
 (2) In case that the current is 5 A or below and the dustproof and waterproof functions are required, S04 is recommended.
 (3) In case that the current is 5 A or below and the dustproof and waterproof functions are not required, S05 is recommended.

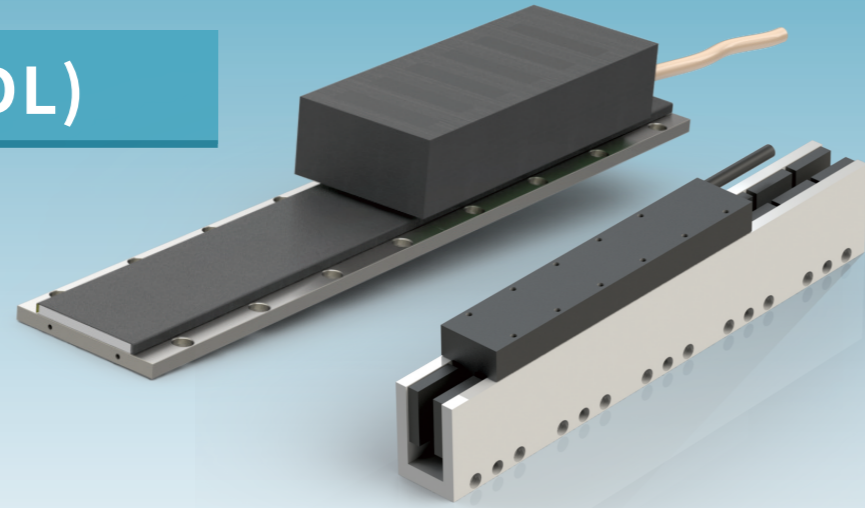
Cable Model

Type	Encoder Type	Connector on Motor End	Cable Performance	Matching driver	Cable Length (m)	Model
Power extension line	/	S02	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P05-L030-M31A-S03A
	/	S02	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P05-L050-M31A-S03A
	/	S02	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P05-L080-M31A-S03A
	/	S02	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P05-L100-M31A-S03A
	/	S03	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P08-L030-M30A-S03A
	/	S03	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P08-L050-M30A-S03A
	/	S03	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P08-L080-M30A-S03A
	/	S03	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P08-L100-M30A-S03A
	/	S04	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P05-L030-M31A-S03A
	/	S04	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P05-L050-M31A-S03A
	/	S04	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P05-L080-M31A-S03A
	/	S04	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P05-L100-M31A-S03A
	/	S05	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P05-L030-M07A-S03A
	/	S05	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P05-L050-M07A-S03A
	/	S05	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P05-L080-M07A-S03A
	/	S05	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P05-L100-M07A-S03A
	/	S06	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P08-L030-M30A-S03A
	/	S06	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P08-L050-M30A-S03A
	/	S06	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P08-L080-M30A-S03A
	/	S06	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P08-L100-M30A-S03A

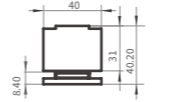






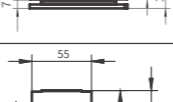
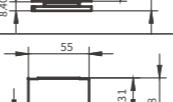

Cable Model

Type	Encoder Type	Corresponding motor end connector	Cable Performance	Matching Driver	Cable Length (m)	Model
Encoder Type	Incremental	S02	Cable carrier wire	ST6/ST7/ST8	3	STP-ET04-P01-L030-M29A-S01A
	Incremental	S02	Cable carrier wire	ST6/ST7/ST8	5	STP-ET04-P01-L050-M29A-S01A
	Incremental	S02	Cable carrier wire	ST6/ST7/ST8	8	STP-ET04-P01-L080-M29A-S01A
	Incremental	S02	Cable carrier wire	ST6/ST7/ST8	10	STP-ET04-P01-L100-M29A-S01A
	Incremental	S03	Cable carrier wire	ST6/ST7/ST8	3	STP-ET08-P01-L030-M28A-S01D
	Incremental	S03	Cable carrier wire	ST6/ST7/ST8	5	STP-ET08-P01-L050-M28A-S01D
	Incremental	S03	Cable carrier wire	ST6/ST7/ST8	8	STP-ET08-P01-L080-M28A-S01D
	Incremental	S03	Cable carrier wire	ST6/ST7/ST8	10	STP-ET08-P01-L100-M28A-S01D
	Incremental	S04	Cable carrier wire	ST6/ST7/ST8	3	STP-ET08-P01-L030-M28A-S01D
	Incremental	S04	Cable carrier wire	ST6/ST7/ST8	5	STP-ET08-P01-L050-M28A-S01D
	Incremental	S04	Cable carrier wire	ST6/ST7/ST8	8	STP-ET08-P01-L080-M28A-S01D
	Incremental	S04	Cable carrier wire	ST6/ST7/ST8	10	STP-ET08-P01-L100-M28A-S01D
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	3	STP-ET08-P01-L030-M08C-S01D
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	5	STP-ET08-P01-L050-M08C-S01D
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	8	STP-ET08-P01-L080-M08C-S01D
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	10	STP-ET08-P01-L100-M08C-S01D
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	3	STP-ET04-P01-L030-M08A-S01A
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	5	STP-ET04-P01-L050-M08A-S01A
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	8	STP-ET04-P01-L080-M08A-S01A
	Incremental	S05	Cable carrier wire	ST6/ST7/ST8	10	STP-ET04-P01-L100-M08A-S01A
	Incremental	S06	Cable carrier wire	ST6/ST7/ST8	3	STP-ET04-P01-L030-M29A-S01A
	Incremental	S06	Cable carrier wire	ST6/ST7/ST8	5	STP-ET04-P01-L050-M29A-S01A
	Incremental	S06	Cable carrier wire	ST6/ST7/ST8	8	STP-ET04-P01-L080-M29A-S01A
	Incremental	S06	Cable carrier wire	ST6/ST7/ST8	10	STP-ET04-P01-L100-M29A-S01A

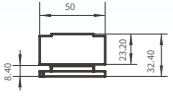
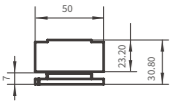
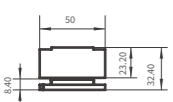
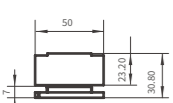
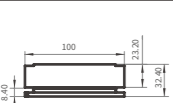
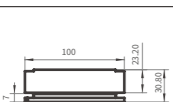
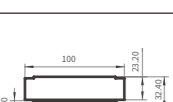
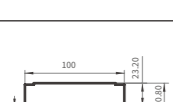
Linear motor (DDL)



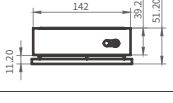
Specification Table of the S Series Linear Motor with Iron Core and Flat Plate

Series	Model number	Continuous thrust (F _{cn}) Peak thrust (F _{pk}) Unit : N						Pages
		50	100	500	1000	1500	
	SWL-JS-S1-N	71	142					51
	SWL-JS-S2-N		141	282				
	SWL-JS-S3-N		212	425				
	SWL-JS-S1-L	64	121					52
	SWL-JS-S2-L		127	240				
	SWL-JS-S3-L		191	361				
	SWL-KS-S1-N		132	264				53
	SWL-KS-S2-N		263	526				
	SWL-KS-S3-N		397	794				
	SWL-KS-S1-L		119	224				54
	SWL-KS-S2-L		237	447				
	SWL-KS-S3-L		357	675				
	SWL-LS-S1-N		190	380				55
	SWL-LS-S2-N		379	759				
	SWL-LS-S3-N		573	1145				
	SWL-LS-S1-L		171	323				56
	SWL-LS-S2-L		341	645				
	SWL-LS-S3-L		516	973				
	SWL-MS-S1-N		231	462				57
	SWL-MS-S2-N		459	918				
	SWL-MS-S3-N		693	1386				
	SWL-MS-S1-L		208	393				58
	SWL-MS-S2-L		413	708				
	SWL-MS-S3-L		627	1178				
	SWL-UVS-S3-N		325	845				59
	SWL-UVS-S4-N		423	1100				
	SWL-UVS-S3-L		317	718				60
	SWL-UVS-S4-L		381	935				

Specification Table of the Y Series Linear Motor with Iron Core and Flat Plate

Series	Model number	Continuous thrust (F _{cn}) Peak thrust (F _{pk}) Unit : N						Pages
		50	100	500	1000	1500	
	SWL-AY-S0-N	39	129					43
	SWL-AY-S1-N	62	206					
	SWL-AY-S2-N		128	426				
	SWL-AY-S3-N		192	639				
	SWL-AY-S0-L	35	110					44
	SWL-AY-S1-L	56	175					
	SWL-AY-S2-L		115	362				
	SWL-AY-S3-L		172	545				
	SWL-BY-S0-N	64	213					45
	SWL-BY-S1-N	105	350					
	SWL-BY-S2-N		210	700				
	SWL-BY-S3-N		315	1050				
	SWL-BY-S0-L	58	181					46
	SWL-BY-S1-L	95	300					
	SWL-BY-S2-L		189	600				
	SWL-BY-S3-L		284	895				
	SWL-BZ-S0-N	99	329					47
	SWL-BZ-S1-N	164	546					
	SWL-BZ-S2-N		328	1092				
	SWL-BZ-S3-N		492	1638				
	SWL-BZ-S0-L	89	280					48
	SWL-BZ-S1-L	148	465					
	SWL-BZ-S2-L		295	930				
	SWL-BZ-S3-L		443	1395				
	SWL-CY-S0-N	127	426					49
	SWL-CY-S1-N	208	693					
	SWL-CY-S2-N		420	1400				
	SWL-CY-S3-N		630	2097				
	SWL-CY-S0-L	114	365					50
	SWL-CY-S1-L	187	590					
	SWL-CY-S2-L		362	1190				
	SWL-CY-S3-L		567	1780				

Specification Table of the E Series Linear Motor with Iron Core and Flat Plate

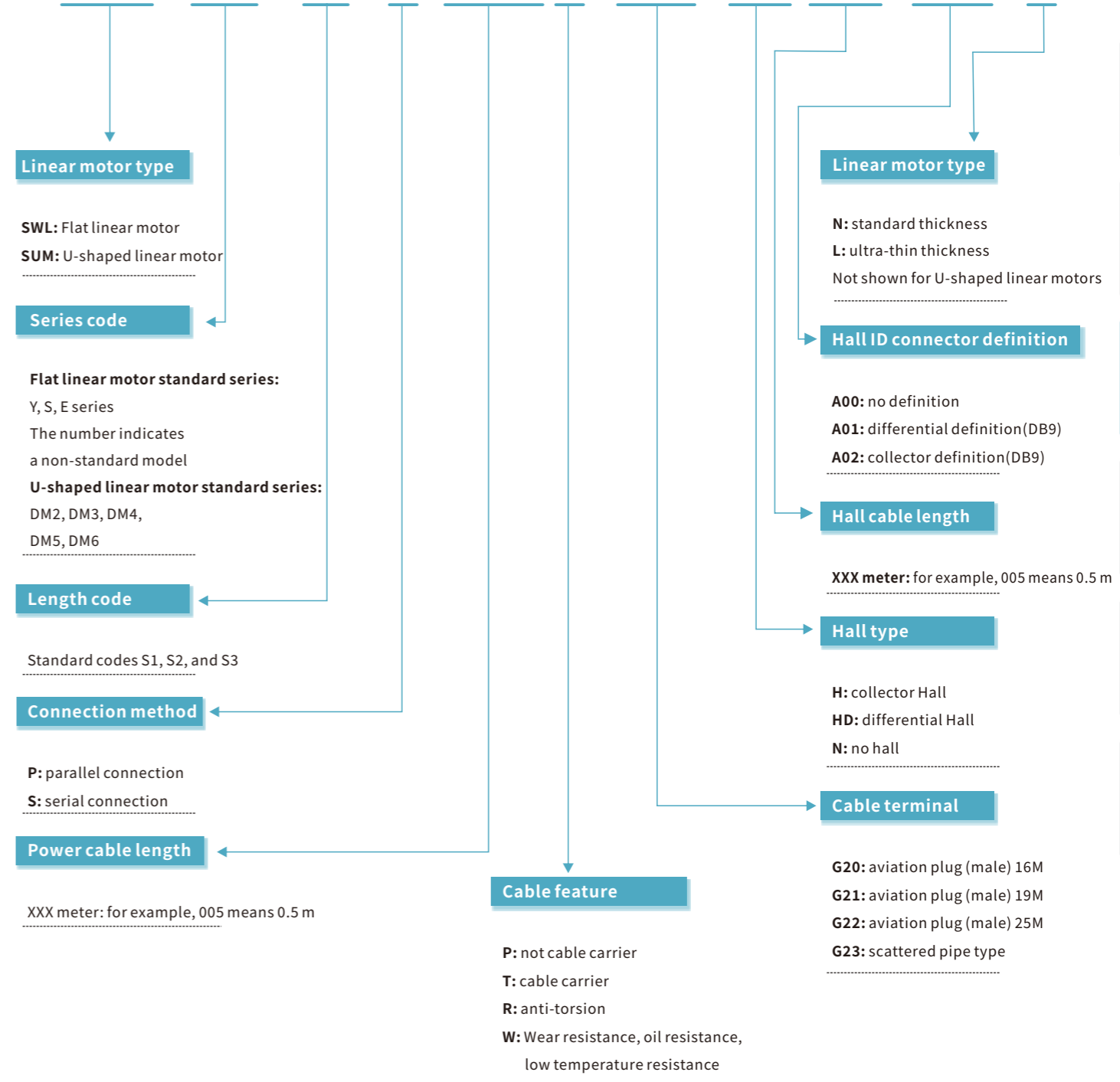
Series	Model number	Continuous thrust (F _{cn}) Peak thrust (F _{pk}) Unit : N						Pages
		50	100	500	1000	1500	
	SWL-TE-S1-N			580		1740		61
	SWL-TE-S2-N			820		2460		
	SWL-TE-S3-N			1100		3300		

Specification Table of the U-Shaped Linear Motor Without Iron Core

Series	Model number	Continuous thrust (F _{cn}) Peak thrust (F _{pk}) Unit :N						Pages
		50	100	500	1000	1500	
	SUM-DM2-S1	17.6	88					62
	SUM-DM2-S2	26.4	132					
	SUM-DM2-S3	35.2	176					
	SUM-DM2-S4	52.8	264					
	SUM-DM3-S1	36	144					63
	SUM-DM3-S2	72	288					
	SUM-DM3-S3	108	432					
	SUM-DM3-S4	144	576					
	SUM-DM3-S5	216	864					
	SUM-DM4-S1	176	915					64
	SUM-DM4-S2	232	1206					
	SUM-DM4-S3	292	1518					
	SUM-DM4-S4	362	1882					
	SUM-DM5-S1	248	1328					65
	SUM-DM5-S2	352	1885					
	SUM-DM5-S3	456	2649					
	SUM-DM5-S4	585	3134					
	SUM-DM5-S5	696	3728					
	SUM-DM5-S6	945	5062					
	SUM-DM6-S6			1180		8300		66
	SUM-DM6-S8				1850	10100		

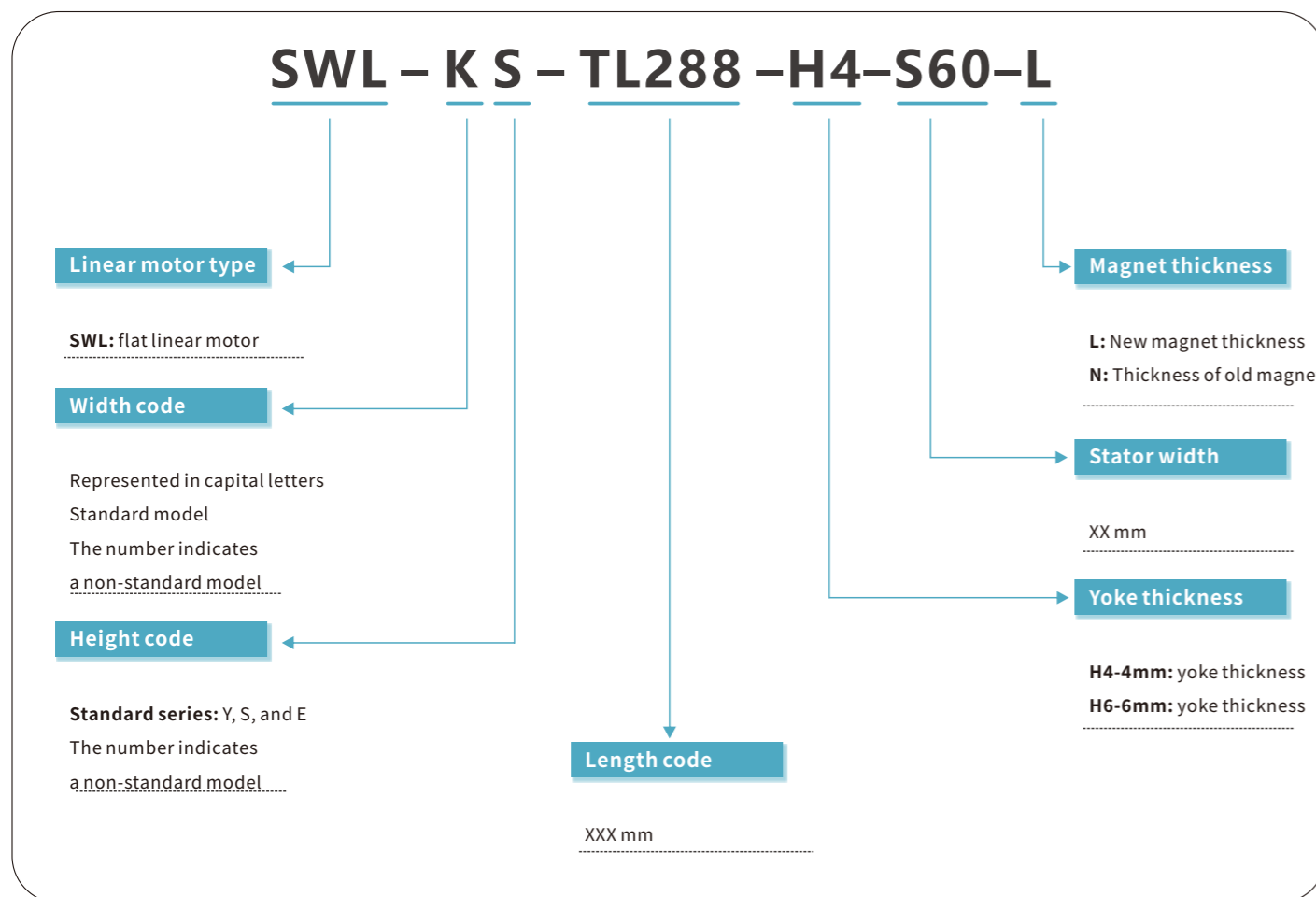
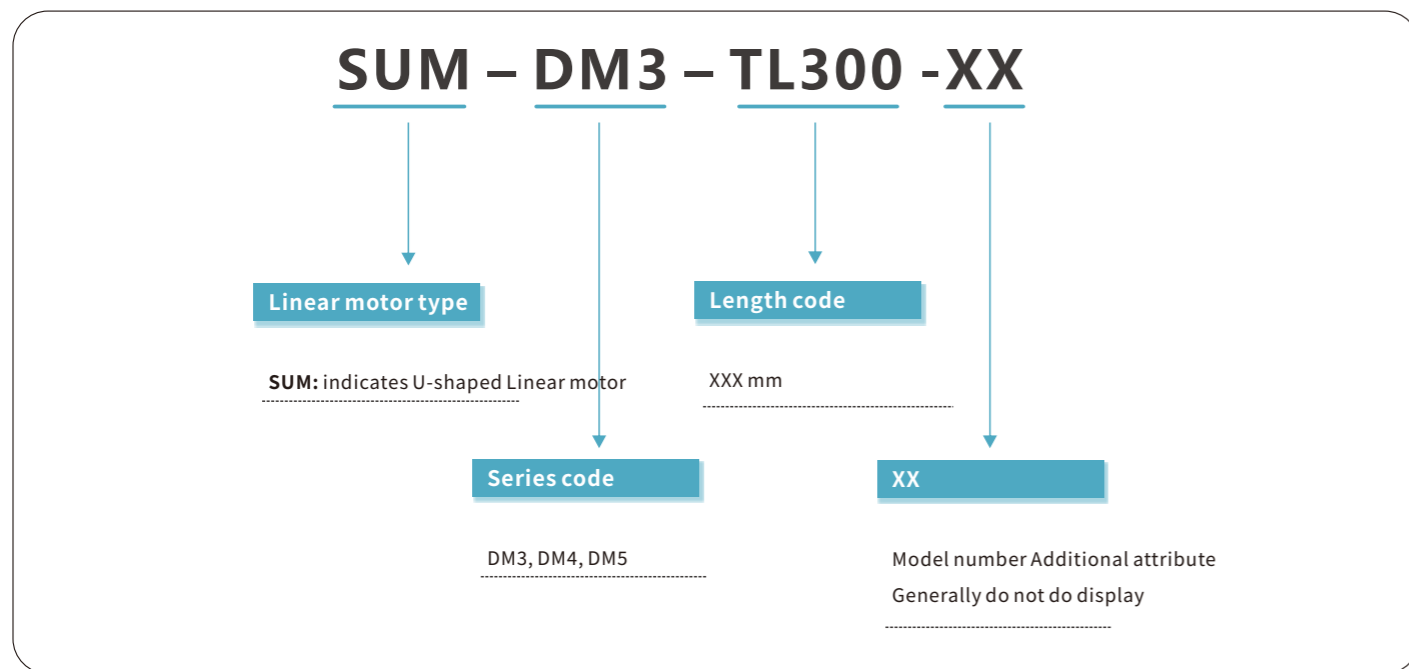
Naming Convention for Linear Motor Actuators

SWL – KS – S3 – S – L005 T – G20 – HD 005 – A01 – N



Linear motor naming rule

Naming Convention for Linear Motor Stator



Cable and connector definition

Cable Model number

Type	Encoder Type	Connector on Motor End	Cable Performance	Matching Driver	Cable Length (m)	Model
Power extension cord	/	G20	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P05-L030-M20A-S03A
	/	G20	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P05-L050-M20A-S03A
	/	G20	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P05-L080-M20A-S03A
	/	G20	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P05-L100-M20A-S03A
	/	G21	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P05-L030-M21A-S03A
	/	G21	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P05-L050-M21A-S03A
	/	G21	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P05-L080-M21A-S03A
	/	G21	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P05-L100-M21A-S03A
	/	G22	Cable carrier wire	ST6/ST7/ST8	3	STP-MT04-P08-L030-M22A-S03A
	/	G22	Cable carrier wire	ST6/ST7/ST8	5	STP-MT04-P08-L050-M22A-S03A
	/	G22	Cable carrier wire	ST6/ST7/ST8	8	STP-MT04-P08-L080-M22A-S03A
	/	G22	Cable carrier wire	ST6/ST7/ST8	10	STP-MT04-P08-L080-M22A-S03A

Aviation plug definition

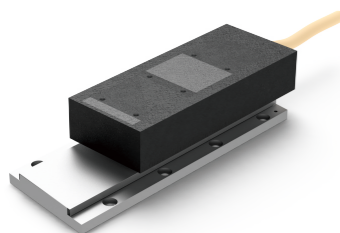
Power line joint	
1	U
2	V
3	W
4	Ground wire

■ Plate type with iron core

■ Plate type with iron core

SWL-AY series linear motor

SWL-AY series linear motor



AY-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

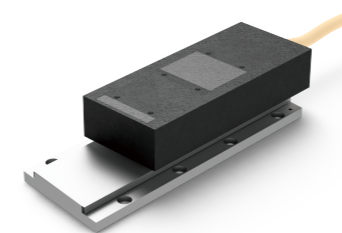
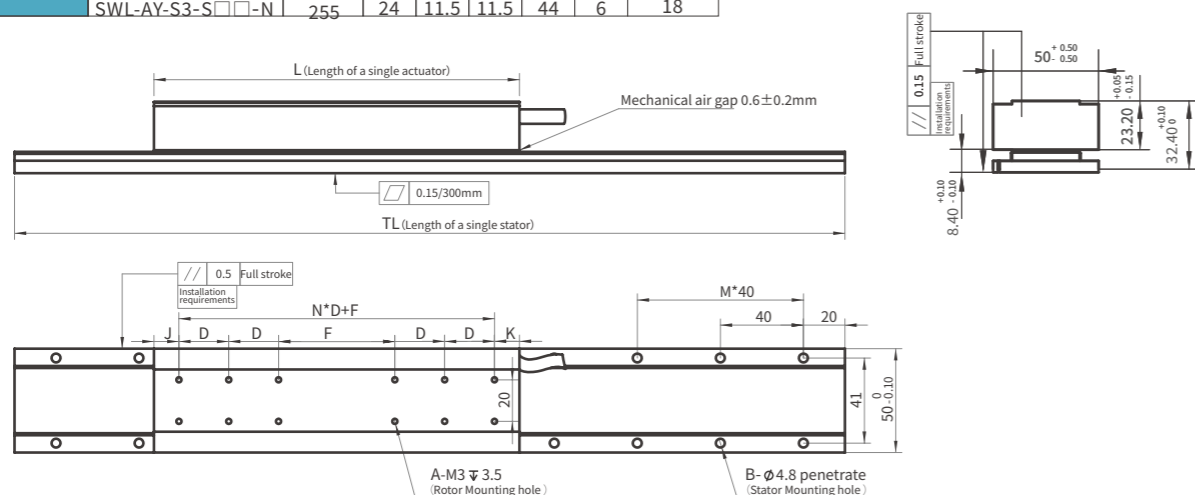
■ Motor parameter

Model Parameter	Unit	SWL-AY-S0-S□□-N	SWL-AY-S1-S□□-N	SWL-AY-S2-S□□-N	SWL-AY-S3-S□□-N
Performance parameter					
Continuous thrust (at temperature Tmax)	N	39	62	128	192
Peak thrust	N	129	206	426	639
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	3	3
Peak current (duration 1s)	Arms	11.5	13.8	13.8	13.8
Thrust constant (at 25°C±10%)	N/Arms	13	20.6	42.6	64
Back electromotive force (at 25°C±10%)	V/m/s	10.5	16.9	34.9	52.5
Motor constant (at 120°C)	Nm/√w	6.3	7.8	11.3	13.8
Inductance (at 25°C±20%)	mH	12.6	11.5	23	36.5
Resistance (at 25°C±10%)	Ω	4.1	2.6	5.2	7.8
Electromagnetic attraction force	KN	0.28	0.48	0.94	1.41
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.6	0.8	1.3	1.8
Stator mass	Kg/m	2.5	2.5	2.5	2.5

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-AY-S0-S□□-N	59	24	17.5	17.5	0	1	4
	SWL-AY-S1-S□□-N	96	24	12	12	0	3	8
	SWL-AY-S2-S□□-N	179	24	13.5	13.5	56	4	12
	SWL-AY-S3-S□□-N	255	24	11.5	11.5	44	6	18

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-AY-TL80-H4-S50-N	80	1	4
	SWL-AY-TL200-H4-S50-N	200	4	10
	SWL-AY-TL400-H4-S50-N	400	9	20



AY-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

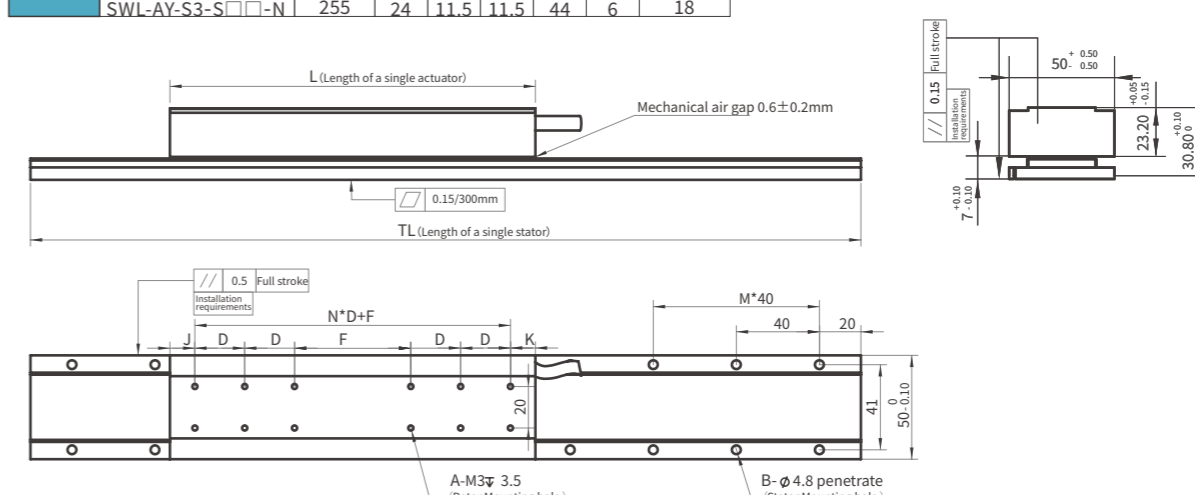
■ Motor parameter

Model Parameter	Unit	SWL-AY-S0-S□□-L	SWL-AY-S1-S□□-L	SWL-AY-S2-S□□-L	SWL-AY-S3-S□□-L
Performance parameter					
Continuous thrust (at temperature Tmax)	N	35	56	115	172
Peak thrust	N	110	175	362	545
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	3	3
Peak current (duration 1s)	Arms	11.5	13.8	13.8	13.8
Thrust constant (at 25°C±10%)	N/Arms	13	20.6	42.6	64
Back electromotive force (at 25°C±10%)	V/m/s	10.5	16.9	34.9	52.5
Motor constant (at 120°C)	Nm/√w	6.3	7.8	11.3	13.8
Inductance (at 25°C±20%)	mH	12.6	11.5	23	36.5
Resistance (at 25°C±10%)	Ω	4.1	2.6	5.2	7.8
Electromagnetic attraction force	KN	0.18	0.31	0.61	0.91
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.6	0.8	1.3	1.8
Stator mass	Kg/m	2.1	2.1	2.1	2.1

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-AY-S0-S□□-N	59	24	17.5	17.5	0	1	4
	SWL-AY-S1-S□□-N	96	24	12	12	0	3	8
	SWL-AY-S2-S□□-N	179	24	13.5	13.5	56	4	12
	SWL-AY-S3-S□□-N	255	24	11.5	11.5	44	6	18

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-AY-TL80-H4-S50-L	80	1	4
	SWL-AY-TL200-H4-S50-L	200	4	10
	SWL-AY-TL400-H4-S50-L	400	9	20

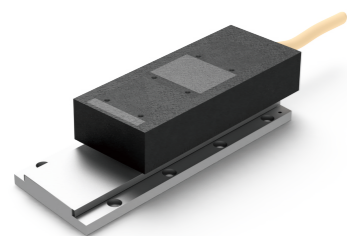


■ Plate type with iron core

■ Plate type with iron core

SWL-BY series linear motor

SWL-BY series linear motor



BY-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

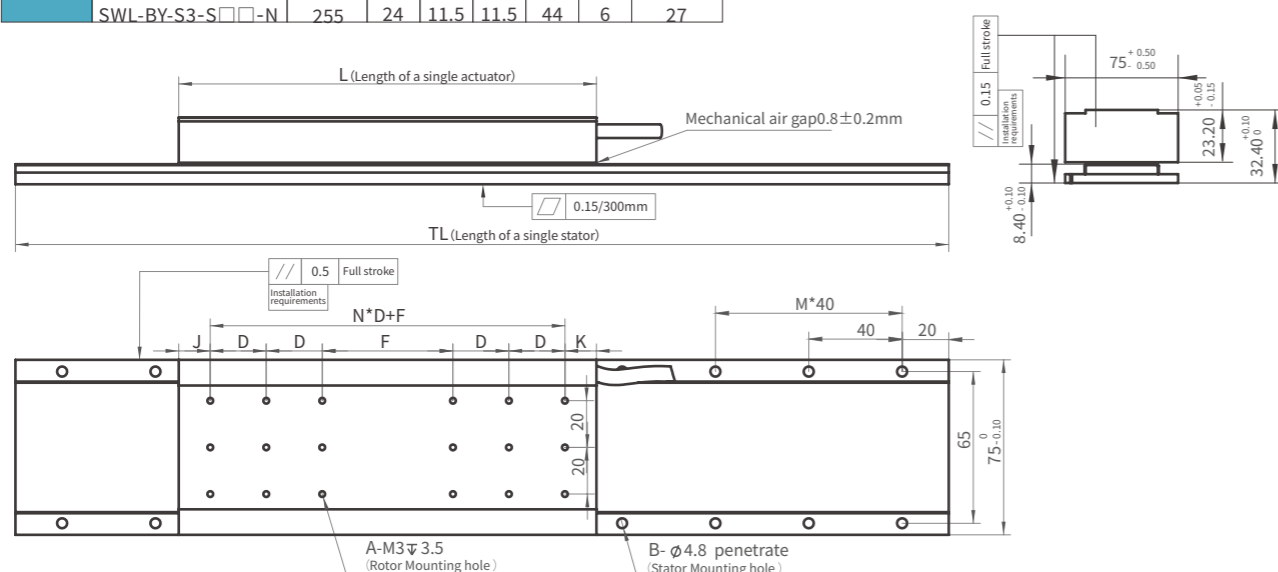
■ Motor parameter

Model Parameter	Unit	SWL-BY-S0-S□□-N	SWL-BY-S1-S□□-N	SWL-BY-S2-S□□-N	SWL-BY-S3-S□□-N
Performance parameter					
Continuous thrust (at temperature Tmax)	N	64	105	210	315
Peak thrust	N	213	350	700	1050
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	3	4.5
Peak current (duration 1s)	Arms	11.5	13.8	13.8	20.7
Thrust constant (at 25°C±10%)	N/Arms	21.3	35	70	70
Back electromotive force (at 25°C±10%)	V/m/s	17.5	28.7	57.4	57.4
Motor constant (at 120°C)	Nm/√w	8	10.2	14.1	17.7
Inductance (at 25°C±20%)	mH	8.1	19	38	35.6
Resistance (at 25°C±10%)	Ω	2.4	4	8	10.5
Electromagnetic attraction force	KN	0.47	0.8	1.57	3
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.8	1.2	2	3
Stator mass	Kg/m	3.95	3.95	3.95	3.95

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-BY-S0-S□□-N	59	24	17.5	17.5	0	1	6
SWL-BY-S1-S□□-N	96	24	12	12	0	3	12	
SWL-BY-S2-S□□-N	179	24	13.5	13.5	56	4	18	
SWL-BY-S3-S□□-N	255	24	11.5	11.5	44	6	27	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-BY-TL80-H4-S75-N	80	1	4
SWL-BY-TL200-H4-S75-N	200	4	10	
SWL-BY-TL400-H4-S75-N	400	9	20	



BY-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design

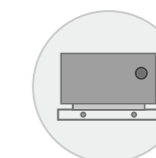


Plate type

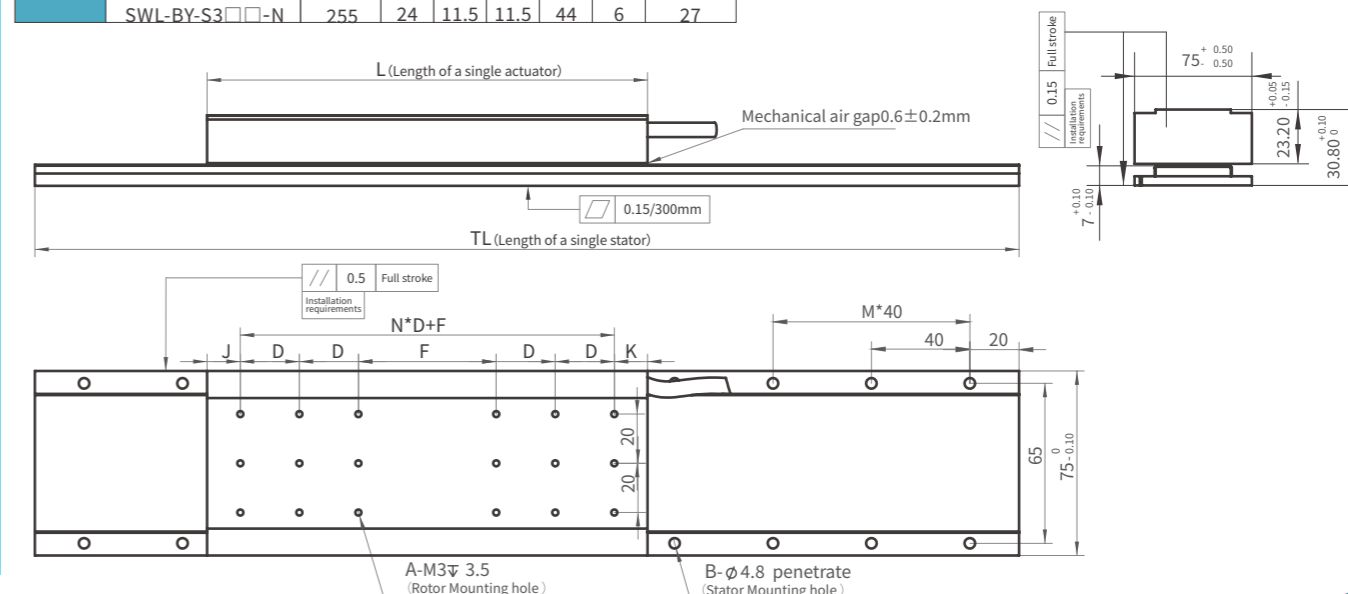
■ Motor parameter

Model Parameter	Unit	SWL-BY-S0-S□□-L	SWL-BY-S1-S□□-L	SWL-BY-S2-S□□-L	SWL-BY-S3-S□□-L
Performance parameter					
Continuous thrust (at temperature Tmax)	N	58	95	189	284
Peak thrust	N	181	300	600	895
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	3	4.5
Peak current (duration 1s)	Arms	11.5	13.8	13.8	20.7
Thrust constant (at 25°C±10%)	N/Arms	21.3	35	70	70
Back electromotive force (at 25°C±10%)	V/m/s	17.5	28.7	57.4	57.4
Motor constant (at 120°C)	Nm/√w	8	10.2	14.1	17.7
Inductance (at 25°C±20%)	mH	8.1	19	38	35.6
Resistance (at 25°C±10%)	Ω	2.4	4	8	10.5
Electromagnetic attraction force	KN	0.31	0.52	1.02	0.195
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.8	1.2	2	3
Stator mass	Kg/m	3.2	3.2	3.2	3.2

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-BY-S0-S□□-N	59	24	17.5	17.5	0	1	6
SWL-BY-S1-S□□-N	96	24	12	12	0	3	12	
SWL-BY-S2-S□□-N	179	24	13.5	13.5	56	4	18	
SWL-BY-S3-S□□-N	255	24	11.5	11.5	44	6	27	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-BY-TL80-H4-S50-L	80	1	4
SWL-BY-TL200-H4-S50-L	200	4	10	
SWL-BY-TL400-H4-S50-L	400	9	20	

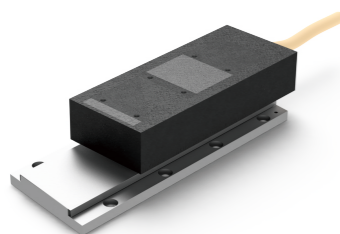


■ Plate type with iron core

■ Plate type with iron core

SWL-BZ series linear motor

SWL-BZ series linear motor



BZ-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

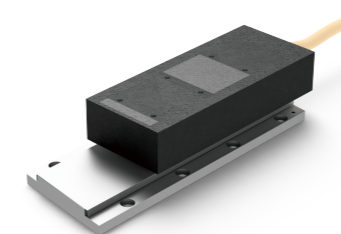
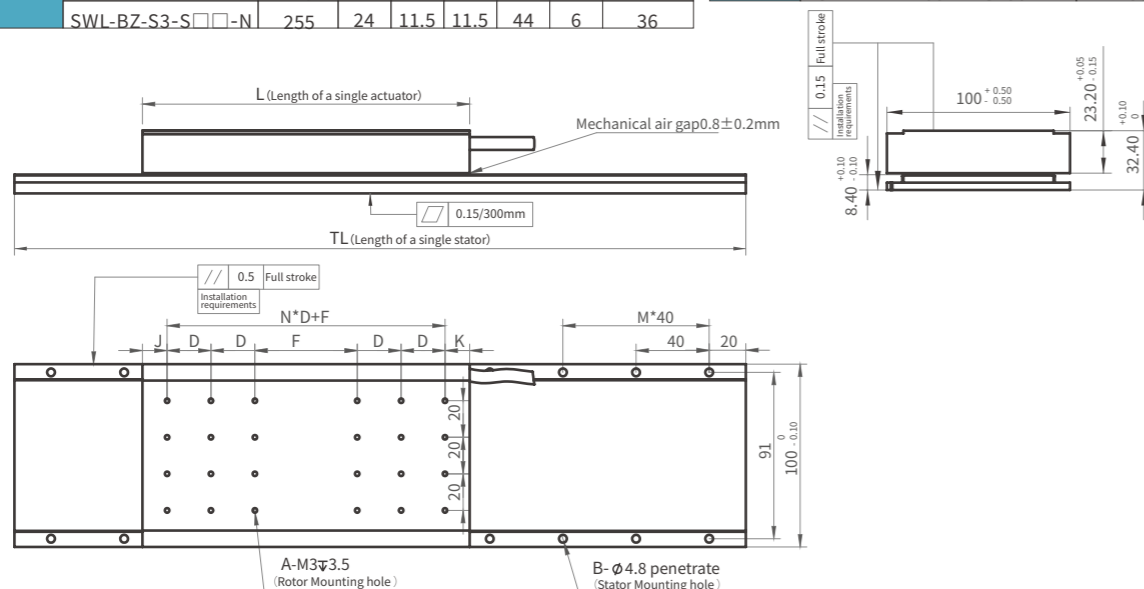
■ Motor parameter

Model Parameter	Unit	SWL-BZ-S0-S□□-N	SWL-BZ-S1-S□□-N	SWL-BZ-S2-P□□-N	SWL-BZ-S3-S□□-N
Performance parameter					
Continuous thrust (at temperature Tmax)	N	99	164	328	492
Peak thrust	N	329	546	1092	1638
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	6	6
Peak current (duration 1s)	Arms	11.5	13.8	27.4	27.4
Thrust constant (at 25°C±10%)	N/Arms	33	54.6	54.6	82
Back electromotive force (at 25°C±10%)	V/m/s	27	44.8	44.8	67.3
Motor constant (at 120°C)	Nm/√w	9.9	12.8	18.2	22.1
Inductance (at 25°C±20%)	mH	15.2	19	13.1	21
Resistance (at 25°C±10%)	Ω	5.8	4	2.7	4.2
Electromagnetic attraction force	KN	0.74	1.28	2.56	3.84
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.95	1.8	2.6	3.5
Stator mass	Kg/m	5.3	5.3	5.3	5.3

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-BZ-S0-S□□-N	59	24	17.5	17.5	0	1	8
SWL-BZ-S1-S□□-N	96	24	12	12	0	3	16	
SWL-BZ-S2-P□□-N	179	24	13.5	13.5	56	4	24	
SWL-BZ-S3-S□□-N	255	24	11.5	11.5	44	6	36	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-BZ-TL80-H4-S100-N	80	1	4
SWL-BZ-TL200-H4-S100-N	200	4	10	
SWL-BZ-TL400-H4-S100-N	400	9	20	



BZ-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design

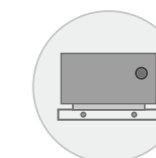


Plate type

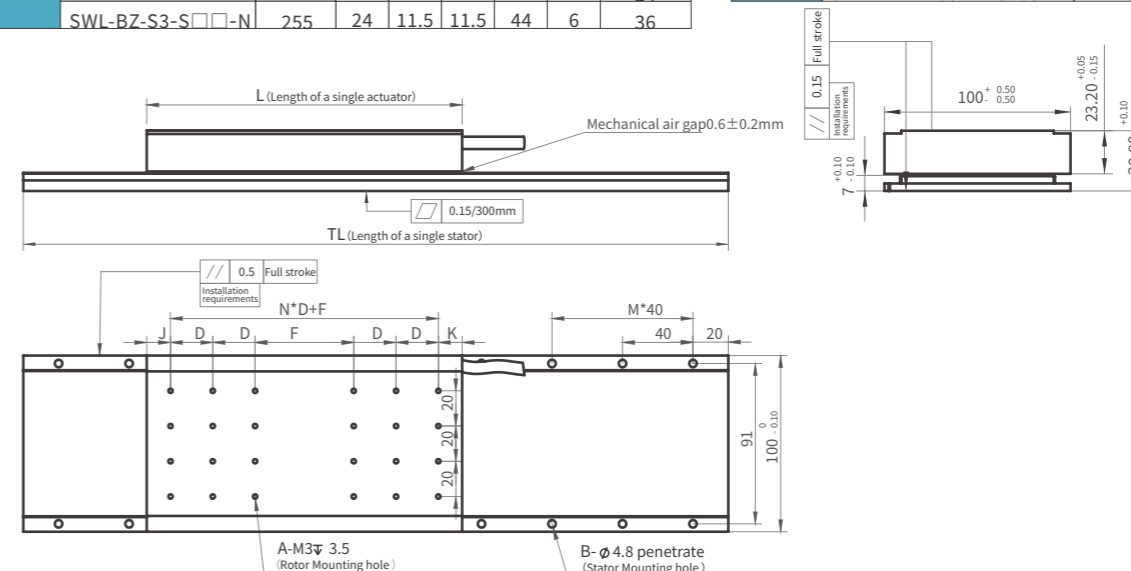
■ Motor parameter

Model Parameter	Unit	SWL-BZ-S0-S□□-L	SWL-BZ-S1-S□□-L	SWL-BZ-S2-P□□-L	SWL-BZ-S3-S□□-L
Performance parameter					
Continuous thrust (at temperature Tmax)	N	89	148	295	443
Peak thrust	N	280	465	930	1395
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	6	6
Peak current (duration 1s)	Arms	11.5	13.8	27.4	27.4
Thrust constant (at 25°C±10%)	N/Arms	33	54.6	54.6	82
Back electromotive force (at 25°C±10%)	V/m/s	27	44.8	44.8	67.3
Motor constant (at 120°C)	Nm/√w	9.9	12.8	18.2	22.1
Inductance (at 25°C±20%)	mH	15.2	19	13.1	21
Resistance (at 25°C±10%)	Ω	5.8	4	2.7	4.2
Electromagnetic attraction force	KN	0.48	0.83	1.67	2.50
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	0.95	1.8	2.6	3.5
Stator mass	Kg/m	4.68	4.68	4.68	4.68

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-BZ-S0-S□□-N	59	24	17.5	17.5	0	1	8
SWL-BZ-S1-S□□-N	96	24	12	12	0	3	16	
SWL-BZ-S2-P□□-N	179	24	13.5	13.5	56	4	24	
SWL-BZ-S3-S□□-N	255	24	11.5	11.5	44	6	36	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-BZ-TL80-H4-S100-L	80	1	4
SWL-BZ-TL200-H4-S100-L	200	4	10	
SWL-BZ-TL400-H4-S100-L	400	9	20	

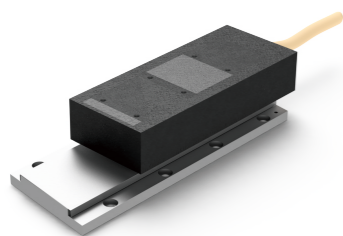


■ Plate type with iron core

■ Plate type with iron core

SWL-CY series linear motor

SWL-CY series linear motor



CY-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

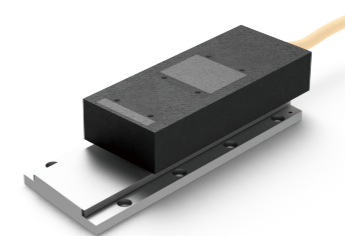
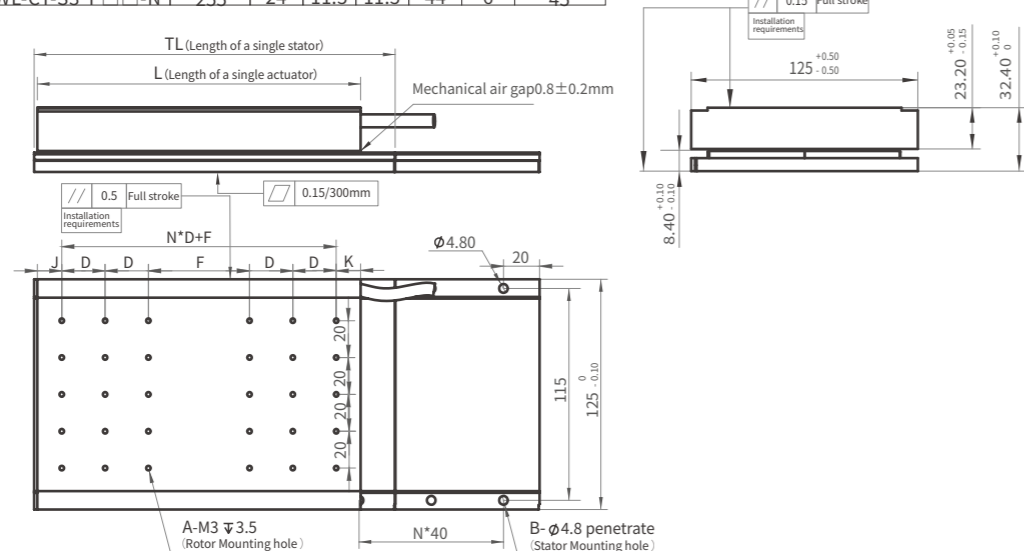
■ Motor parameter

Model Parameter	Unit	SWL-CY-S0-S□□-N	SWL-CY-S1-S□□-N	SWL-CY-S2-P□□-N	SWL-CY-S3-P□□-N
Performance parameter					
Continuous thrust (at temperature Tmax)	N	127	208	420	630
Peak thrust	N	426	693	1400	2097
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	6	8
Peak current (duration 1s)	Arms	11.5	13.8	27.4	36.5
Thrust constant (at 25°C±10%)	N/Arms	42.3	69.3	70	78.8
Back electromotive force (at 25°C±10%)	V/m/s	34.7	56.8	57.4	64.6
Motor constant (at 120°C)	Nm/√w	11.3	14.3	20.5	25.1
Inductance (at 25°C±20%)	mH	28.6	33.2	15.5	12.7
Resistance (at 25°C±10%)	Ω	7.8	6.5	3.4	2.9
Electromagnetic attraction force	KN	0.93	1.58	3.1	4.6
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	1.1	2	3.2	4.2
Stator mass	Kg/m	6.45	6.45	6.45	6.45

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-CY-S0-S□□-N	59	24	17.5	17.5	0	1	10
SWL-CY-S1-S□□-N	96	24	12	12	0	3	20	
SWL-CY-S2-P□□-N	179	24	13.5	13.5	56	4	30	
SWL-CY-S3-P□□-N	255	24	11.5	11.5	44	6	45	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-CY-TL80-H4-S125-N	80	1	4
SWL-CY-TL200-H4-S125-N	200	4	10	
SWL-CY-TL400-H4-S125-N	400	9	20	



CY-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design

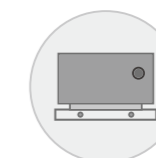


Plate type

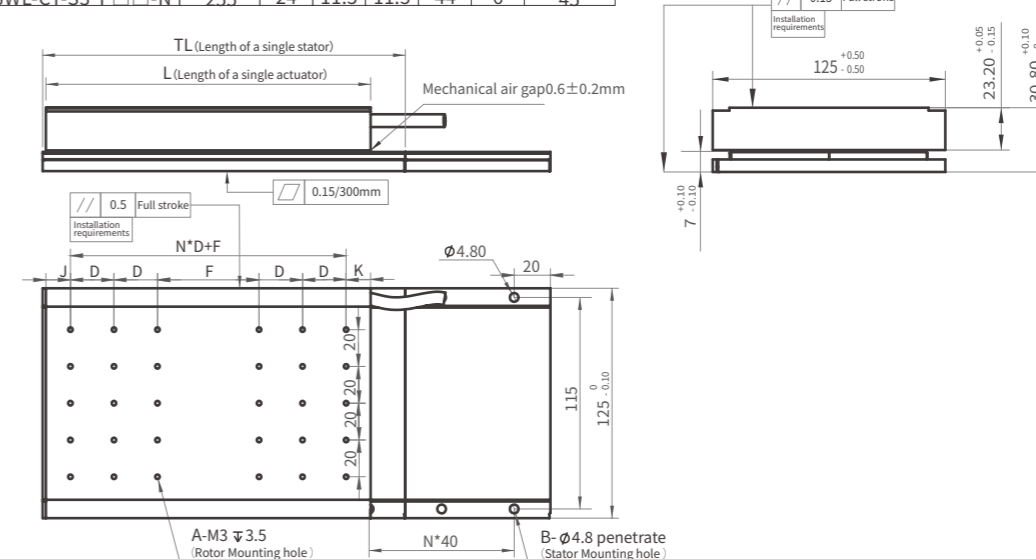
■ Motor parameter

Model Parameter	Unit	SWL-CY-S0-S□□-L	SWL-CY-S1-S□□-L	SWL-CY-S2-P□□-L	SWL-CY-S3-P□□-L
Performance parameter					
Continuous thrust (at temperature Tmax)	N	114	187	362	567
Peak thrust	N	365	590	1190	1780
Electrical parameter					
Polar distance(N-S)	mm	10	10	10	10
Continuous current (at temperature Tmax)	Arms	2.5	3	6	8
Peak current (duration 1s)	Arms	11.5	13.8	27.4	36.5
Thrust constant (at 25°C±10%)	N/Arms	42.3	69.3	70	78.8
Back electromotive force (at 25°C±10%)	V/m/s	34.7	56.8	57.4	64.6
Motor constant (at 120°C)	Nm/√w	11.3	14.3	20.5	25.1
Inductance (at 25°C±20%)	mH	28.6	33.2	15.5	12.7
Resistance (at 25°C±10%)	Ω	7.8	6.5	3.4	2.9
Electromagnetic attraction force	KN	0.60	1.02	2.04	3.03
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	1.1	2	3.2	4.2
Stator mass	Kg/m	5.65	5.65	5.65	5.65

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	F	N	Mounting hole A
	SWL-CY-S0-S□□-N	59	24	17.5	17.5	0	1	10
SWL-CY-S1-S□□-N	96	24	12	12	0	3	20	
SWL-CY-S2-P□□-N	179	24	13.5	13.5	56	4	30	
SWL-CY-S3-P□□-N	255	24	11.5	11.5	44	6	45	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-CY-TL80-H4-S125-L	80	1	4
SWL-CY-TL200-H4-S125-L	200	4	10	
SWL-CY-TL400-H4-S125-L	400	9	20	

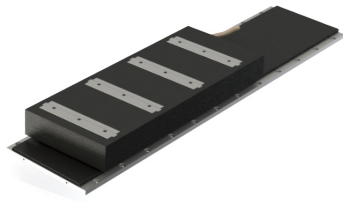


■ Plate type with iron core

■ Plate type with iron core

SWL-JS series linear motor

SWL-JS series linear motor



JS-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



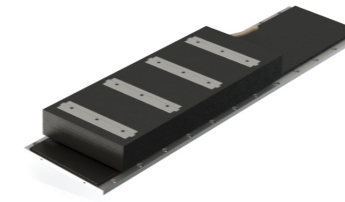
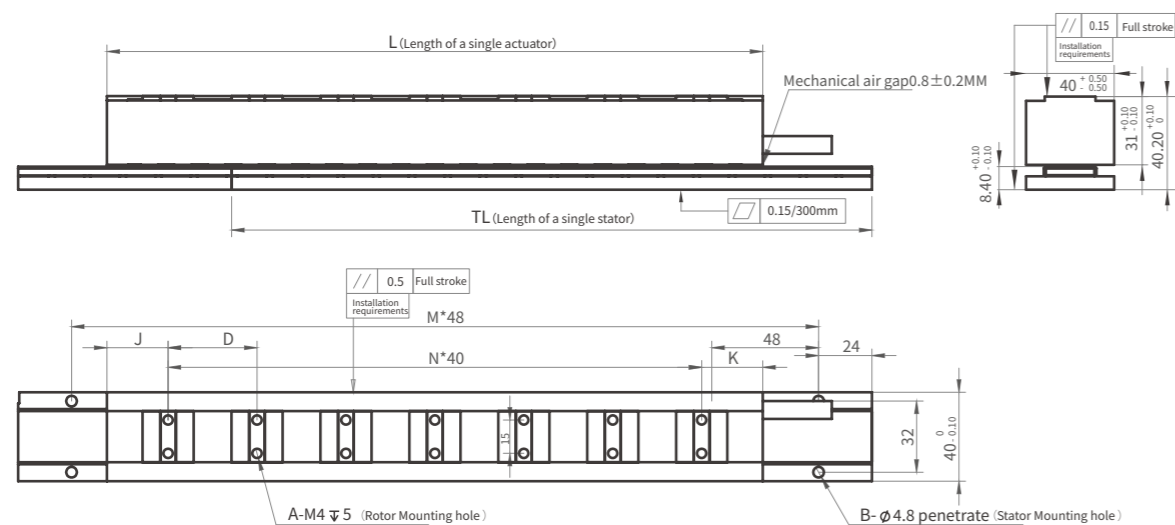
Plate type

■ Motor parameter

Model Parameter	Unit	SWL-JS-S1-S□□-N	SWL-JS-S2-S□□-N	SWL-JS-S3-S□□-N
Performance parameter				
Continuous thrust (at temperature Tmax)	N	71	141	212
Peak thrust	N	142	282	425
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	3	3	4.5
Peak current (duration 1s)	Arms	11.5	11.5	11.5
Thrust constant (at 25°C±10%)	N/Arms	23.7	47	47.1
Back electromotive force (at 25°C±10%)	V/m/s	19.5	38.5	38.6
Motor constant (at 120°C)	Nm/√w	8.4	11.8	14.5
Inductance (at 25°C±20%)	mH	22.1	46	41
Resistance (at 25°C±10%)	Ω	3.1	6	3.6
Electromagnetic attraction force	KN	0.48	1.06	1.65
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	0.7	1.3	2.2
Stator mass	Kg/m	2.1	2.1	2.1

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A	Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-JS-S1-S□□-N	100	40	30	30	1	4		SWL-JS-TL96-H4-S40-N	96	1	4
SWL-JS-S2-S□□-N	199	40	19.5	19.5	4	10	SWL-JS-TL192-H4-S40-N	192	3	8		
SWL-JS-S3-S□□-N	295	40	27.5	27.5	6	14	SWL-JS-TL288-H4-S40-N	288	5	12		



JS-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



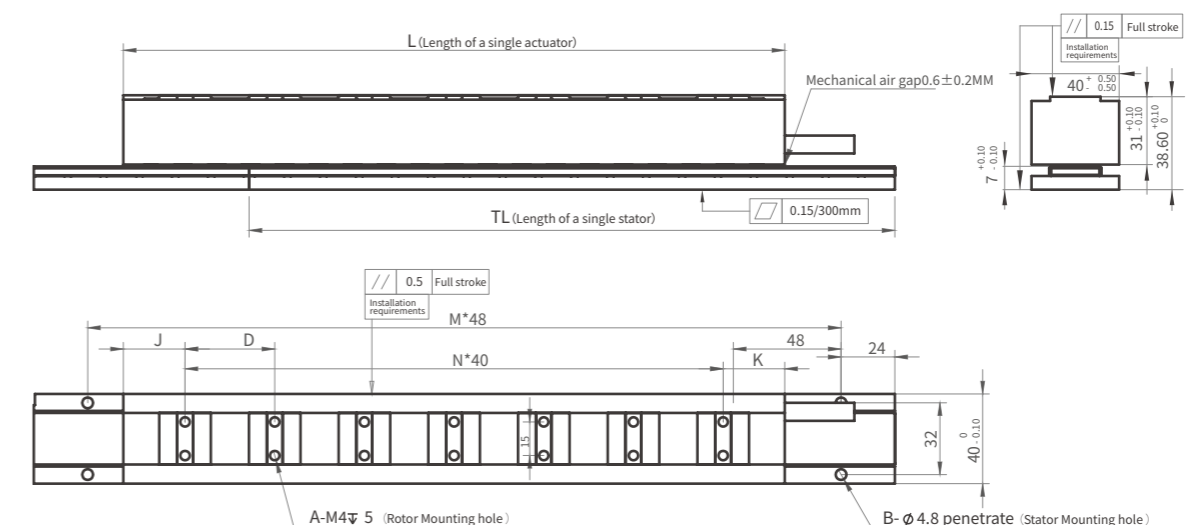
Plate type

■ Motor parameter

Model Parameter	Unit	SWL-JS-S1-S□□-L	SWL-JS-S2-S□□-L	SWL-JS-S3-S□□-L
Performance parameter				
Continuous thrust (at temperature Tmax)	N	64	127	191
Peak thrust	N	121	240	361
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	3	3	4.5
Peak current (duration 1s)	Arms	13.5	13.5	13.5
Thrust constant (at 25°C±10%)	N/Arms	23.7	47	47.1
Back electromotive force (at 25°C±10%)	V/m/s	19.5	38.5	38.6
Motor constant (at 120°C)	Nm/√w	8.4	11.8	14.5
Inductance (at 25°C±20%)	mH	22.1	46	41
Resistance (at 25°C±10%)	Ω	3.1	6	3.6
Electromagnetic attraction force	KN	0.31	0.68	1.07
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	0.7	1.3	2.2
Stator mass	Kg/m	1.73	1.73	1.73

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A	Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-JS-S1-S□□-N	100	40	30	30	1	4		SWL-JS-TL96-H4-S40-L	96	1	4
SWL-JS-S2-S□□-N	199	40	19.5	19.5	4	10	SWL-JS-TL192-H4-S40-L	192	3	8		
SWL-JS-S3-S□□-N	295	40	27.5	27.5	6	14	SWL-JS-TL288-H4-S40-L	288	5	12		

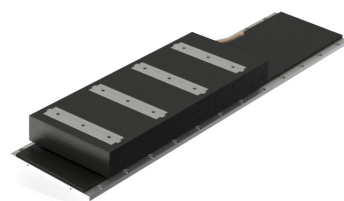


■ Plate type with iron core

■ Plate type with iron core

SWL-KS series linear motor

SWL-KS series linear motor

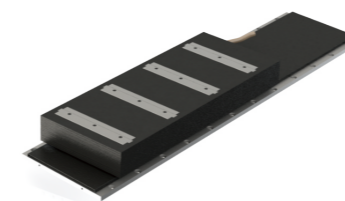


KS-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type



KS-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design

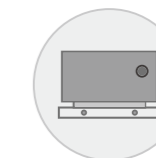


Plate type

■ Motor parameter

Model Parameter	Unit	SWL-KS-S1-S□□-N	SWL-KS-S2-S□□-N	SWL-KS-S3-S□□-N
Performance parameter				
Continuous thrust (at temperature Tmax)	N	132	263	397
Peak thrust	N	264	526	794
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	4.5
Peak current (duration 1s)	Arms	11.5	11.5	11.5
Thrust constant (at 25°C±10%)	N/Arms	29.3	58.4	88
Back electromotive force (at 25°C±10%)	V/m/s	24	47.9	72
Motor constant (at 120°C)	Nm/√w	11.3	13.2	19.8
Inductance (at 25°C±20%)	mH	12.6	30	44.5
Resistance (at 25°C±10%)	Ω	2	3.6	5.9
Electromagnetic attraction force	KN	0.63	1.43	2.23
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	0.9	1.7	2.6
Stator mass	Kg/m	3.4	3.4	3.4

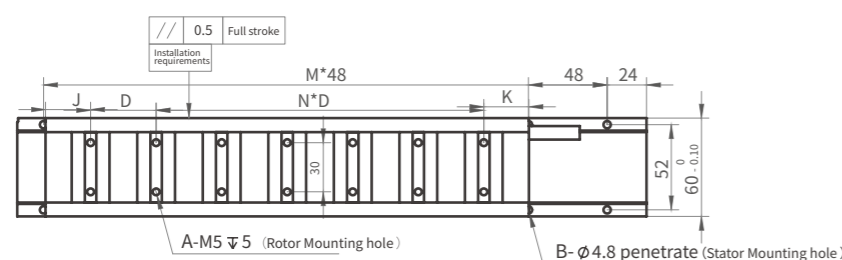
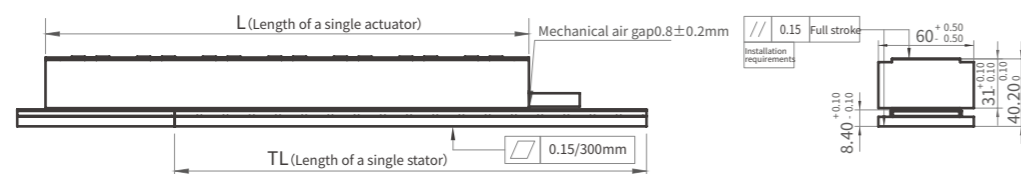
■ Motor parameter

Model Parameter	Unit	SWL-KS-S1-S□□-L	SWL-KS-S2-S□□-L	SWL-KS-S3-S□□-L
Performance parameter				
Continuous thrust (at temperature Tmax)	N	119	237	357
Peak thrust	N	224	447	675
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	4.5
Peak current (duration 1s)	Arms	13.5	13.5	13.5
Thrust constant (at 25°C±10%)	N/Arms	29.3	58.4	88
Back electromotive force (at 25°C±10%)	V/m/s	24	47.9	72
Motor constant (at 120°C)	Nm/√w	11.3	13.2	19.8
Inductance (at 25°C±20%)	mH	12.6	30	44.5
Resistance (at 25°C±10%)	Ω	2	3.6	5.9
Electromagnetic attraction force	KN	0.43	0.93	1.45
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	0.9	1.7	2.6
Stator mass	Kg/m	2.82	2.82	2.82

■ Overall dimension

Model number	Actuator length L	D	K	J	N	Mounting hole A
SWL-KS-S1-S□□-N	100	40	30	30	1	4
SWL-KS-S2-S□□-N	199	40	19.5	19.5	4	10
SWL-KS-S3-S□□-N	295	40	27.5	27.5	6	14

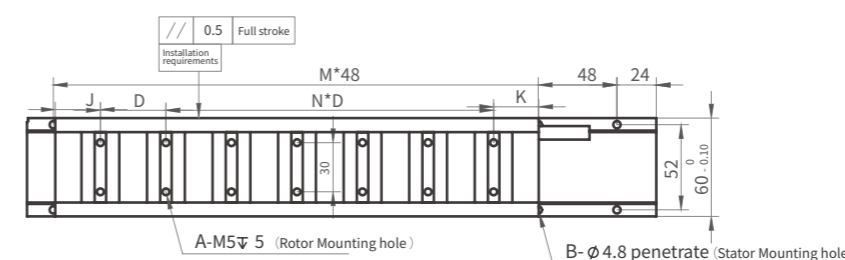
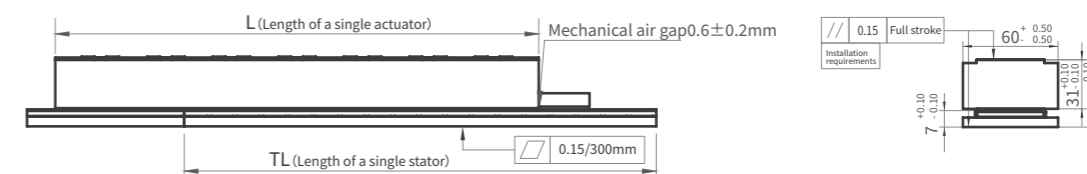
Model number	Stator length TL	M	Mounting hole B
SWL-KS-TL96-H4-S60-N	96	1	4
SWL-KS-TL192-H4-S60-N	192	3	8
SWL-KS-TL288-H4-S60-N	288	5	12



■ Overall dimension

Model number	Actuator length L	D	K	J	N	Mounting hole A
SWL-KS-S1-S□□-L	100	40	30	30	1	4
SWL-KS-S2-S□□-L	199	40	19.5	19.5	4	10
SWL-KS-S3-S□□-L	295	40	27.5	27.5	6	14

Model number	Stator length TL	M	Mounting hole B
SWL-KS-TL96-H4-S60-L	96	1	4
SWL-KS-TL192-H4-S60-L	192	3	8
SWL-KS-TL288-H4-S60-L	288	5	12



■ Plate type with iron core

■ Plate type with iron core

SWL-LS series linear motor

SWL-LS series linear motor



LS-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

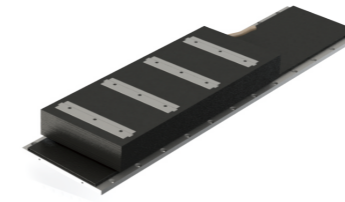
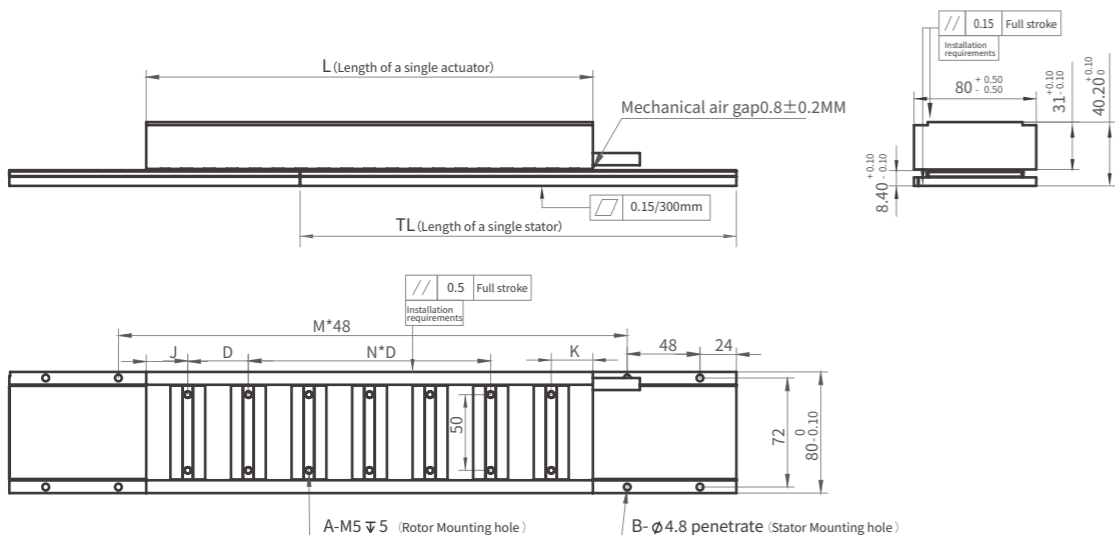
■ Motor parameter

Model Parameter	Unit	SWL-LS-S1-S□□-N	SWL-LS-S2-S□□-N	SWL-LS-S3-P□□-N
Performance parameter				
Continuous thrust (at temperature Tmax)	N	190	379	573
Peak thrust	N	380	759	1145
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	8
Peak current (duration 1s)	Arms	11.5	11.5	16
Thrust constant (at 25°C±10%)	N/Arms	42	84	71.6
Back electromotive force (at 25°C±10%)	V/m/s	34.6	69	58.6
Motor constant (at 120°C)	Nm/√w	13.9	19.6	23.2
Inductance (at 25°C±20%)	mH	21.3	41	20.4
Resistance (at 25°C±10%)	Ω	2.8	5.0	3
Electromagnetic attraction force	KN	0.92	2.1	3.2
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	1.1	2.4	3.1
Stator mass	Kg/m	4.71	4.71	4.71

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A
	SWL-LS-S1-S□□-N	100	40	30	30	1	4
SWL-LS-S2-S□□-N	199	40	19.5	19.5	4	10	
SWL-LS-S3-P□□-N	295	40	27.5	27.5	6	14	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-LS-TL96-H4-S80-N	96	1	4
SWL-LS-TL192-H4-S80-N	192	3	8	
SWL-LS-TL288-H4-S80-N	288	5	12	



LS-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

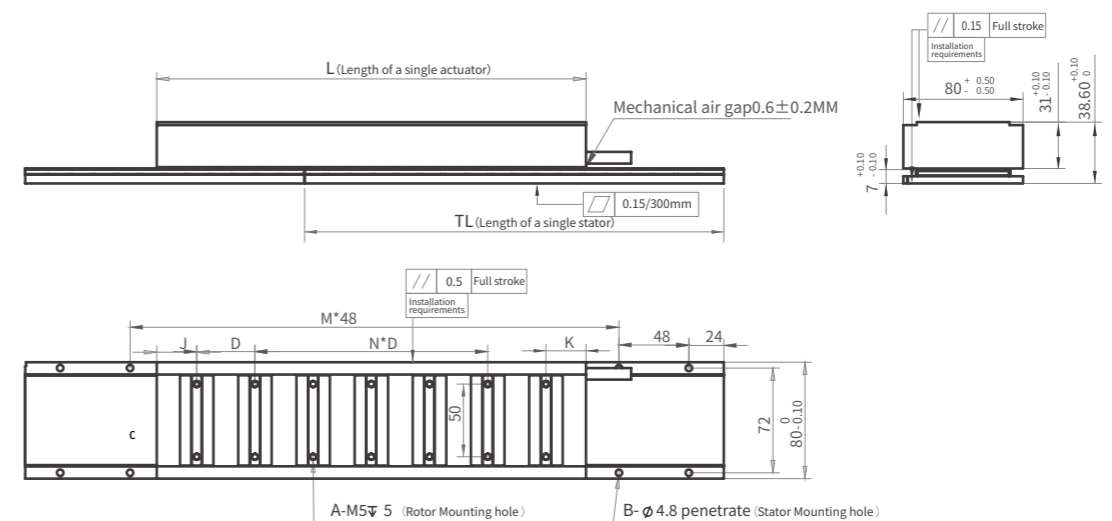
■ Motor parameter

Model Parameter	Unit	SWL-LS-S1-S□□-L	SWL-LS-S2-S□□-L	SWL-LS-S3-P□□-L
Performance parameter				
Continuous thrust (at temperature Tmax)	N	171	341	516
Peak thrust	N	323	645	973
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	8
Peak current (duration 1s)	Arms	13.5	13.5	16
Thrust constant (at 25°C±10%)	N/Arms	42	84	71.6
Back electromotive force (at 25°C±10%)	V/m/s	34.6	69	58.6
Motor constant (at 120°C)	Nm/√w	13.9	19.6	23.2
Inductance (at 25°C±20%)	mH	21.3	41	20.4
Resistance (at 25°C±10%)	Ω	2.8	5.0	3
Electromagnetic attraction force	KN	0.6	1.4	3.2
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	1.1	2.4	3.1
Stator mass	Kg/m	3.87	3.87	3.87

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A
	SWL-LS-S1-S□□-N	100	40	30	30	1	4
SWL-LS-S2-S□□-N	199	40	19.5	19.5	4	10	
SWL-LS-S3-P□□-N	295	40	27.5	27.5	6	14	

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-LS-TL96-H4-S80-L	96	1	4
SWL-LS-TL192-H4-S80-L	192	3	8	
SWL-LS-TL288-H4-S80-L	288	5	12	



■ Plate type with iron core

■ Plate type with iron core

SWL-MS series linear motor

SWL-MS series linear motor



MS-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

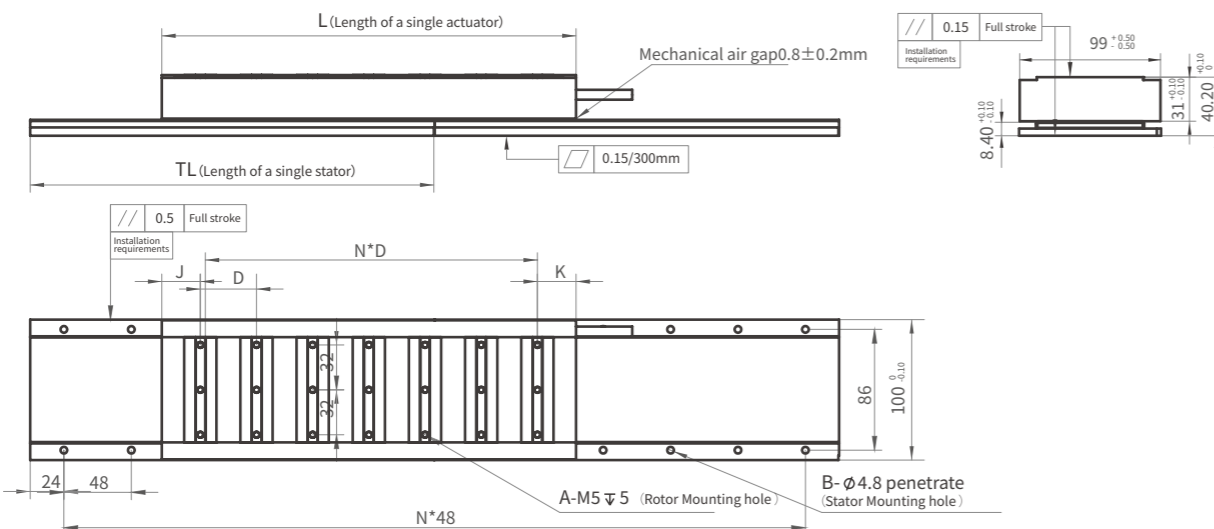
■ Motor parameter

Model Parameter	Unit	SWL-MS-S1-S□□-N	SWL-MS-S2-S□□-N	SWL-MS-S3-P□□-N
Performance parameter				
Continuous thrust (at temperature Tmax)	N	231	459	693
Peak thrust	N	462	918	1386
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	8
Peak current (duration 1s)	Arms	11.5	11.5	16
Thrust constant (at 25°C±10%)	N/Arms	51.5	102	86.6
Back electromotive force (at 25°C±10%)	V/m/s	35.5	79.2	71
Motor constant (at 120°C)	Nm/√w	39	53	73
Inductance (at 25°C±20%)	mH	23	51	22.6
Resistance (at 25°C±10%)	Ω	3	6.7	3.2
Electromagnetic attraction force	KN	1.1	2.5	3.9
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	1.5	3.8	5.7
Stator mass	Kg/m	5.8	5.8	5.8

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A
	SWL-MS-S1-S□□-N	100	40	30	30	1	4
	SWL-MS-S2-S□□-N	199	40	19.5	19.5	4	10
	SWL-MS-S3-P□□-N	295	40	27.5	27.5	6	14

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-MS-TL96-H4-S100-N	96	1	4
	SWL-MS-TL192-H4-S100-N	192	3	8
	SWL-MS-TL288-H4-S100-N	288	5	12



MS-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

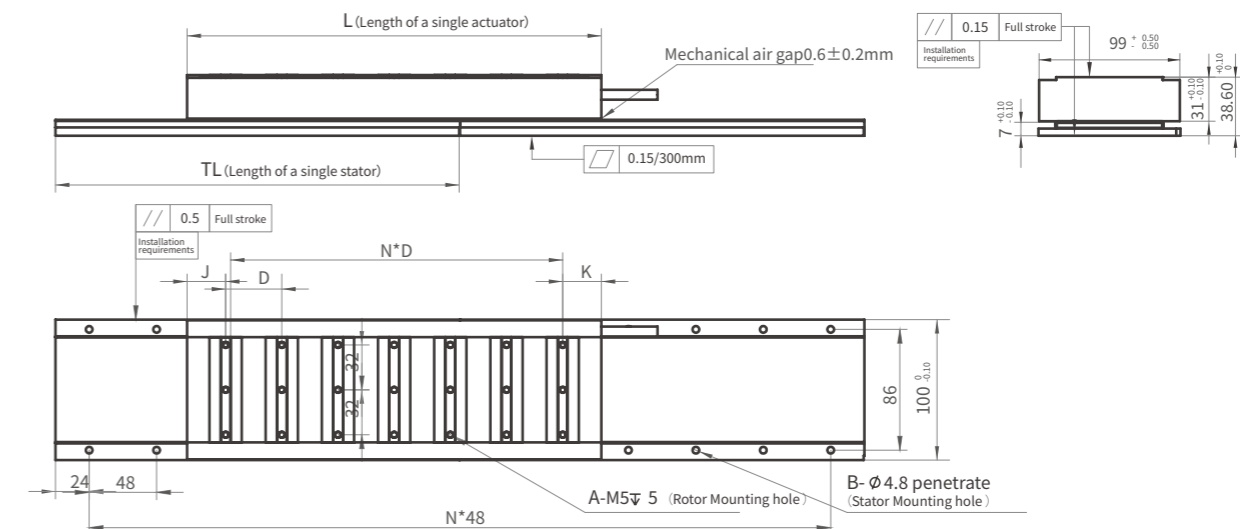
■ Motor parameter

Model Parameter	Unit	SWL-MS-S1-S□□-L	SWL-MS-S2-S□□-L	SWL-MS-S3-P□□-L
Performance parameter				
Continuous thrust (at temperature Tmax)	N	208	413	627
Peak thrust	N	393	780	1178
Electrical parameter				
Polar distance(N-S)	mm	16	16	16
Continuous current (at temperature Tmax)	Arms	4.5	4.5	8
Peak current (duration 1s)	Arms	13.5	13.5	16
Thrust constant (at 25°C±10%)	N/Arms	51.5	102	86.6
Back electromotive force (at 25°C±10%)	V/m/s	35.5	79.2	71
Motor constant (at 120°C)	Nm/√w	39	53	73
Inductance (at 25°C±20%)	mH	23	51	22.6
Resistance (at 25°C±10%)	Ω	3	6.7	3.3
Electromagnetic attraction force	KN	0.71	1.65	2.53
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	1.5	3.8	5.7
Stator mass	Kg/m	4.78	4.78	4.78

■ Overall dimension

Rotor	Model number	Actuator length L	D	K	J	N	Mounting hole A
	SWL-MS-S1-S□□-L	100	40	30	30	1	4
	SWL-MS-S2-S□□-L	199	40	19.5	19.5	4	10
	SWL-MS-S3-P□□-L	295	40	27.5	27.5	6	14

Stator	Model number	Stator length TL	M	Mounting hole B
	SWL-MS-TL96-H4-S100-L	96	1	4
	SWL-MS-TL192-H4-S100-L	192	3	8
	SWL-MS-TL288-H4-S100-L	288	5	12



■ Plate type with iron core

■ Plate type with iron core

SWL-UVS series linear motor

SWL-UVS series linear motor



UVS-N series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

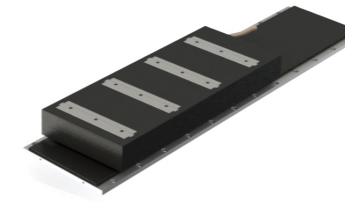
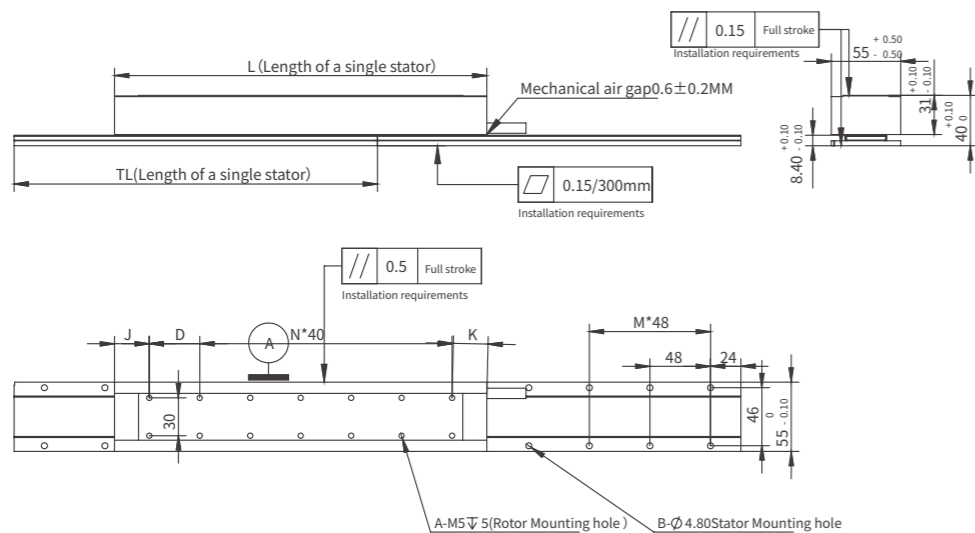
■ Motor parameter

Model Parameter	Unit	SWL-UVS-S3-S□□-N	SWL-UVS-S4-S□□-N
Performance parameter			
Continuous thrust (at temperature Tmax)	N	325	423
Peak thrust	N	845	1100
Electrical parameter			
Polar distance(N-S)	mm	12	12
Continuous current (at temperature Tmax)	Arms	4.5	4.5
Peak current (duration 1s)	Arms	12	12
Thrust constant (at 25°C±10%)	N/Arms	72	94
Back electromotive force (at 25°C±10%)	V/m/s	59.2	76.9
Motor constant (at 120°C)	Nm/√w	18.5	20.5
Inductance (at 25°C±20%)	mH	38.5	51
Resistance (at 25°C±10%)	Ω	4.7	5.8
Electromagnetic attraction force	KN	1.95	1.95
Thermal Parameters			
Max. coil temperature	°C	150	150
Mechanical parameter			
Moving mass (coil)	Kg	2.3	3.5
Stator mass	Kg/m	3.2	3.2

■ Overall dimension

Model number	Actuator length L	D	K	J	N	Mounting hole A
SWL-UVS-S3-S□□-N	298	40	29	29	6	14
SWL-UVS-S4-S□□-N	394	40	17	17	9	20

Model number	Stator length TL	M	Mounting hole B
SWL-UVS-TL96-H4-S55-N	96	1	4
SWL-UVS-TL192-H4-S55-N	192	3	8
SWL-UVS-TL288-H4-S55-N	288	5	12



UVS-L series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

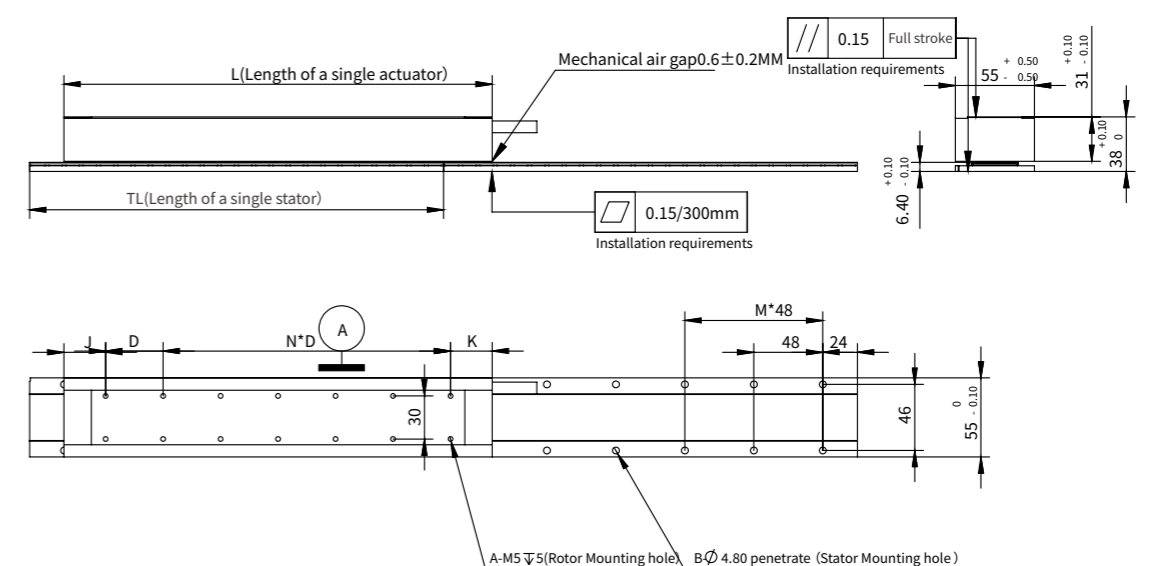
■ Motor parameter

Model Parameter	Unit	SWL-UVS-S3-S□□-L	SWL-UVS-S4-S□□-L
Performance parameter			
Continuous thrust (at temperature Tmax)	N	317	381
Peak thrust	N	718	935
Electrical parameter			
Polar distance(N-S)	mm	12	12
Continuous current (at temperature Tmax)	Arms	4.5	4.5
Peak current (duration 1s)	Arms	13	13
Thrust constant (at 25°C±10%)	N/Arms	72	94
Back electromotive force (at 25°C±10%)	V/m/s	59.2	77
Motor constant (at 120°C)	Nm/√w	18.5	20.5
Inductance (at 25°C±20%)	mH	38.5	51
Resistance (at 25°C±10%)	Ω	4.7	5.8
Electromagnetic attraction force	KN	1.95	1.95
Thermal Parameters			
Max. coil temperature	°C	150	150
Mechanical parameter			
Moving mass (coil)	Kg	2.3	3.5
Stator mass	Kg/m	3.2	3.2

■ Overall dimension

Model number	Actuator length L	D	K	J	N	Mounting hole A
SWL-UVS-S3-S□□-L	298	40	29	29	6	14
SWL-UVS-S4-S□□-L	394	40	17	17	9	20

Model number	Stator length TL	M	Mounting hole B
SWL-UVS-TL96-H4-S55-L	96	1	4
SWL-UVS-TL192-H4-S55-L	192	3	8
SWL-UVS-TL288-H4-S55-L	288	5	12

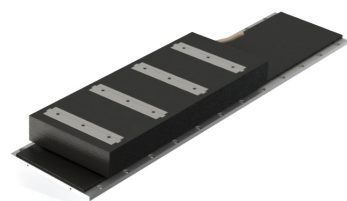


■ Plate type with iron core

■ U-shaped without iron core

SWL-TE series linear motor

SUM-DM series linear motor



TE series

- Strong thrust
- Excellent acceleration performance
- Strong overload capacity
- Using the cogging force suppression technology
- Modular design



Plate type

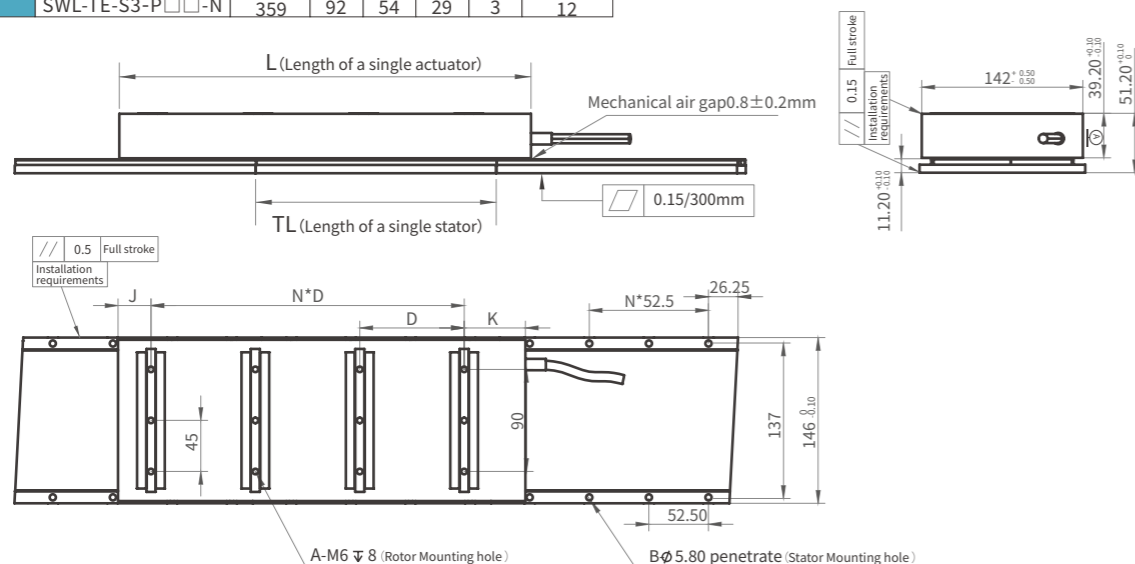
■ Motor parameter

Model Parameter	Unit	SWL-TE-S1-P□□-N	SWL-TE-S2-P□□-N	SWL-TE-S3-P□□-N
Performance parameter				
Continuous thrust (at temperature Tmax)	N	580	820	1100
Peak thrust	N	1740	2460	3300
Electrical parameter				
Polar distance(N-S)	mm	21	21	21
Continuous current (at temperature Tmax)	Arms	8	8	8
Peak current (duration 1s)	Arms	24	24	24
Thrust constant (at 25°C±10%)	N/Arms	72.5	102.5	137.5
Back electromotive force (at 25°C±10%)	V/m/s	59.4	84	112.7
Motor constant (at 120°C)	Nm/√w	43.5	49.4	60.5
Inductance (at 25°C±20%)	mH	18	24.2	36
Resistance (at 25°C±10%)	Ω	1.8	2.5	3.6
Electromagnetic attraction force	KN	3	4.5	6
Thermal Parameters				
Max. coil temperature	°C	150	150	150
Mechanical parameter				
Moving mass (coil)	Kg	5.8	8.4	11.2
Stator mass	Kg/m	9.5	9.5	9.5

■ Overall dimension

Model number	Actuator length L	D	K	J	N	Mounting hole A
SWL-TE-S1-P□□-N	191	92	54	45	1	6
SWL-TE-S2-P□□-N	275	92	54	37	2	9
SWL-TE-S3-P□□-N	359	92	54	29	3	12

Model number	Stator length TL	M	Mounting hole B
SWL-TE-TL105-H4-S146-N	105	1	4
SWL-TE-TL210-H4-S146-N	210	3	8



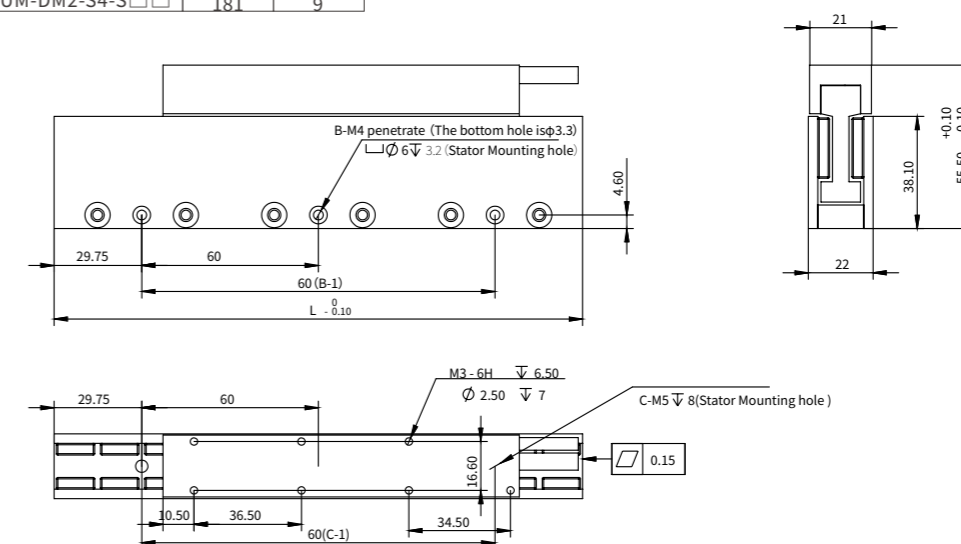
■ Motor parameter

Model Parameter	Unit	SUM-DM2-S1-S□□	SUM-DM2-S2-S□□	SUM-DM2-S3-S□□	SUM-DM2-S4-S□□
Performance parameter					
Continuous thrust (at temperature Tmax)	N	17.6	26.4	35.2	52.8
Peak thrust	N	88	132	176	264
Electrical parameter					
Polar distance(N-S)	mm	15	15	15	15
Continuous current (at temperature Tmax)	Arms	1.6	1.6	1.6	1.6
Peak current (duration 1s)	Arms	8	8	8	8
Thrust constant (at 25°C±10%)	N/Arms	11	16.5	22	33
Back electromotive force (at 25°C±10%)	V/m/s	9	13.5	18	27
Motor constant (at 120°C)	Nm/√w	4.3	5.2	6.1	7.5
Inductance (at 25°C±20%)	mH	1.5	1.7	1.9	4.5
Resistance (at 25°C±10%)	Ω	4.8	7.0	2.3	3.3
Electromagnetic attraction force	KN	0	0	0	0
Thermal Parameters					
Max. coil temperature	°C	120	120	120	120
Mechanical parameter					
Moving mass (coil)	Kg	0.12	0.18	0.24	0.30
Stator mass	Kg/m	3.72	3.72	3.72	3.72

■ Overall dimension

Model number	Actuator length L	Mounting hole A
SUM-DM2-S1-S□□	61	3
SUM-DM2-S2-S□□	91	5
SUM-DM2-S3-S□□	121	7
SUM-DM2-S4-S□□	181	9

Model number	Stator length TL	Mounting hole B	Mounting hole C
SUM-DM2-TL180	179.5	3	3
SUM-DM2-TL240	239.5	4	4

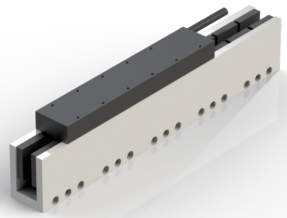


U-shaped without iron core

U-shaped without iron core

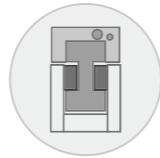
SUM-DM series linear motor

SUM-DM series linear motor



DM3 series

- Strong thrust and smooth thrust
- Small inertia and high acceleration
- Strong overload capacity
- No cogging force or electromagnetic attraction force
- Modular design



U-shape

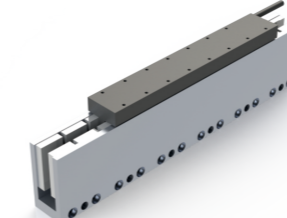
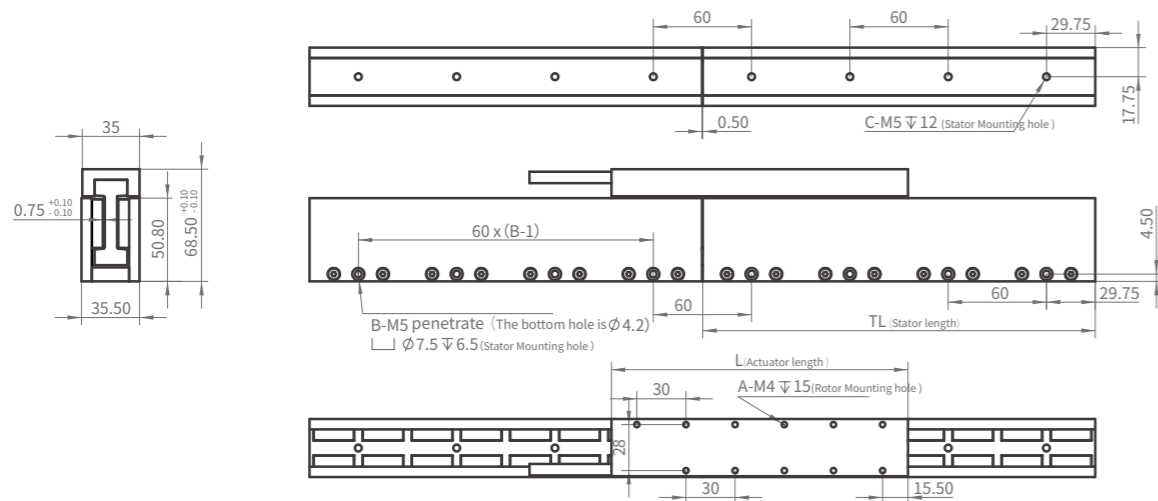
Motor parameter

Model Parameter	Unit	SUM-DM3-S1-S□□	SUM-DM3-S2-S□□	SUM-DM3-S3-S□□	SUM-DM3-S4-S□□	SUM-DM3-S5-S□□
Performance parameter						
Continuous thrust (at temperature Tmax)	N	36	72	108	144	216
Peak thrust	N	144	288	432	576	864
Electrical parameter						
Polar distance(N-S)	mm	30	30	30	30	30
Continuous current (at temperature Tmax)	Arms	2.3	2.3	2.3	2.3	2.3
Peak current (duration 1s)	Arms	9.2	9.2	9.2	9.2	9.2
Thrust constant (at 25°C±10%)	N/Arms	15.7	31.4	47.1	62.8	94.2
Back electromotive force (at 25°C±10%)	V/m/s	12.9	25.7	38.6	51.5	77.2
Motor constant (at 120°C)	Nm/√w	5.9	8.8	11	12.8	15.8
Inductance (at 25°C±20%)	mH	2	4	6	8	12
Resistance (at 25°C±10%)	Ω	3.3	6	8.7	10.4	14.2
Electromagnetic attraction force	KN	0	0	0	0	0
Thermal Parameters						
Max. coil temperature	°C	150	150	150	150	150
Mechanical parameter						
Moving mass (coil)	Kg	0.3	0.6	0.9	1.2	1.8
Stator mass	Kg/m	9	9	9	9	9

Overall dimension

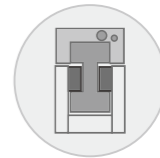
Rotor	Model number	Actuator length L	Mounting hole A
	SUM-DM3-S1-S□□	61	3
	SUM-DM3-S2-S□□	121	7
	SUM-DM3-S3-S□□	181	11
	SUM-DM3-S4-S□□	241	15
	SUM-DM3-S5-S□□	361	23

Stator	Model number	Stator length TL	Mounting hole B	Mounting hole C
	SUM-DM3-TL120	119.5	2	2
	SUM-DM3-TL180	179.5	3	3
	SUM-DM3-TL240	239.5	4	4
	SUM-DM3-TL300	299.5	5	5



DM4 series

- Strong thrust and smooth thrust
- Small inertia and high acceleration
- Strong overload capacity
- No cogging force or electromagnetic attraction force
- Modular design



U-shape

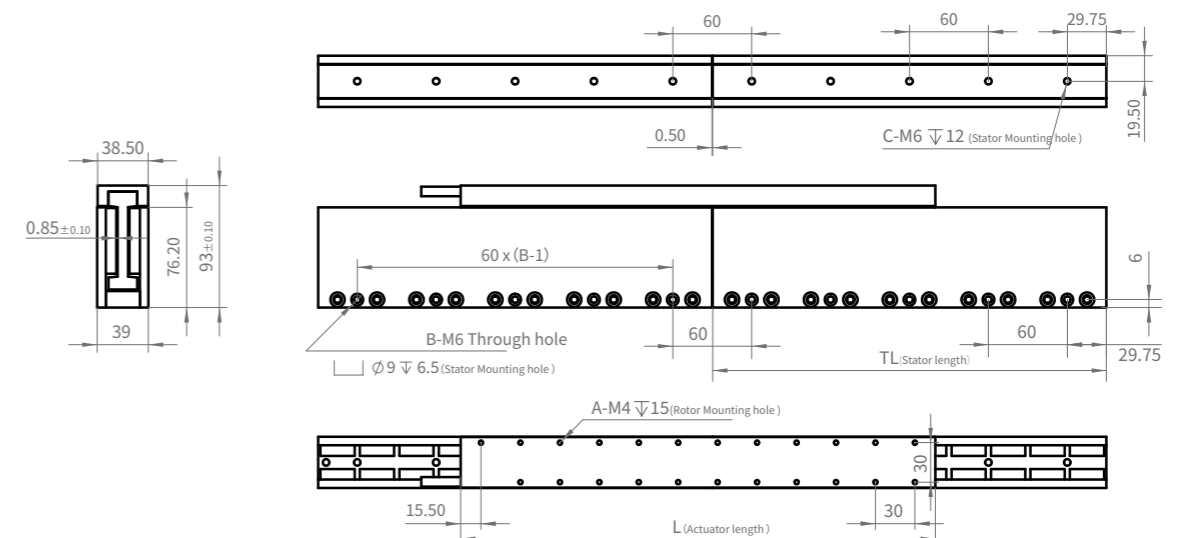
Motor parameter

Model Parameter	Unit	SUM-DM4-S1-S□□	SUM-DM4-S2-S□□	SUM-DM4-S3-S□□	SUM-DM4-S4-S□□
Performance parameter					
Continuous thrust (at temperature Tmax)	N	176	232	292	362
Peak thrust	N	915	1206	1518	1882
Electrical parameter					
Polar distance(N-S)	mm	30	30	30	30
Continuous current (at temperature Tmax)	Arms	2.5	2.5	2.5	2.5
Peak current (duration 1s)	Arms	13	13	13	13
Thrust constant (at 25°C±10%)	N/Arms	70.4	92.8	116.8	114.8
Back electromotive force (at 25°C±10%)	V/m/s	57.7	76.1	95.8	118.1
Motor constant (at 120°C)	Nm/√w	15	17.4	19.4	21.3
Inductance (at 25°C±20%)	mH	9.8	12.6	16	19
Resistance (at 25°C±10%)	Ω	10.3	14.6	17.5	22.5
Electromagnetic attraction force	KN	0	0	0	0
Thermal Parameters					
Max. coil temperature	°C	150	150	150	150
Mechanical parameter					
Moving mass (coil)	Kg	1	1.3	1.65	2
Stator mass	Kg/m	15	15	15	15

Overall dimension

Rotor	Model number	Actuator length L	Mounting hole A
	SUM-DM4-S1-S□□	181	11
	SUM-DM4-S2-S□□	241	15
	SUM-DM4-S3-S□□	301	19
	SUM-DM4-S4-S□□	361	23

Stator	Model number	Stator length TL	Mounting hole B	Mounting hole C
	SUM-DM4-TL120	119.5	2	2
	SUM-DM4-TL180	179.5	3	3
	SUM-DM4-TL240	239.5	4	4
	SUM-DM4-TL300	299.5	5	5

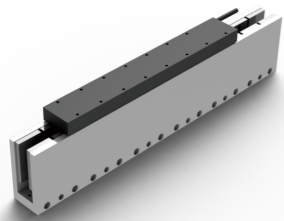


U-shaped without iron core

U-shaped without iron core

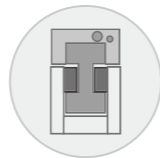
SUM-DM series linear motor

SUM-DM series linear motor



DM5 series

- Strong thrust and smooth thrust
- Small inertia and high acceleration
- Strong overload capacity
- No cogging force or electromagnetic attraction force
- Modular design

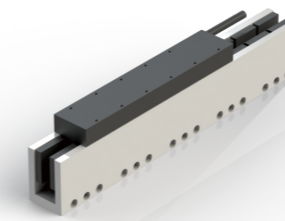
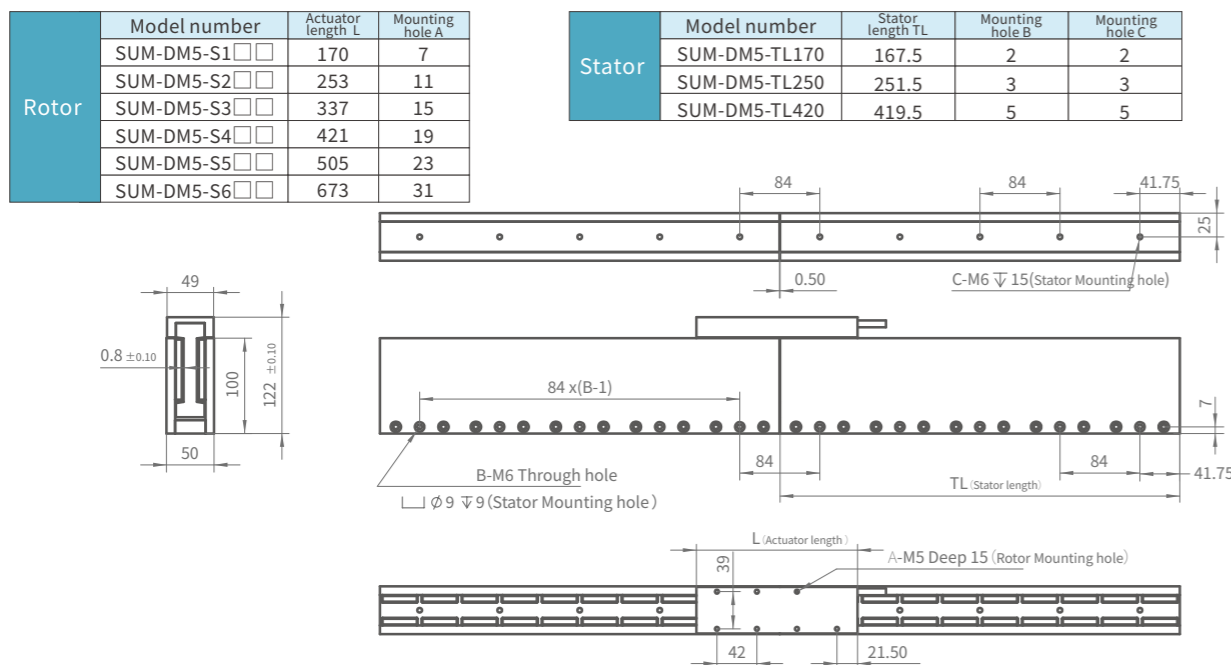


U-shape

Motor parameter

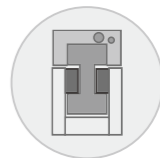
Model Parameter	Unit	SUM-DM5-S1□□		SUM-DM5-S2□□		SUM-DM5-S3□□		SUM-DM5-S4□□		SUM-DM5-S5□□		SUM-DM5-S6□□	
Performance parameter													
Coil connection mode		S	P	S	P	S	P	S	P	S	P	S	P
Continuous thrust (at temperature Tmax)	N	248		352		456		585		696		945	
Peak thrust	N	1328		1885		2649		3134		3728		5062	
Electrical parameter													
Polar distance(N-S)	mm	42		42		42		42		42		42	
Continuous current (at temperature Tmax)	Arms	2.8	5.6	2.8	5.6	2.8	5.6	2.8	5.6	2.8	5.6	2.8	5.6
Peak current (duration 1s)	Arms	15	30	15	30	15	30	15	30	15	30	15	30
Thrust constant (at 25°C±10%)	N/Arms	88.6	44.3	125.7	62.9	162.8	81.4	208.9	104	248.5	124.5	337.5	168.8
Back electromotive force (at 25°C±10%)	V/m/s	72.6	36.3	103	51.5	133.5	66.8	171.2	85	203.8	101.9	289.7	144.9
Motor constant (at 120°C)	Nm/√w	20		23.5		27.2		30.5		33.4		38.7	
Inductance (at 25°C±20%)	mH	22	5.5	28.5	3.75	38	11	47.5	11.8	67	16.3	82.6	19
Resistance (at 25°C±10%)	Ω	10.6	3	15.2	2	20.1	5.4	25	6.25	29.95	8	42.2	9.9
Electromagnetic attraction force	KN	0		0		0		0		0		0	
Thermal Parameters													
Max. coil temperature	°C	150		150		150		150		150		150	
Mechanical parameter													
Moving mass (coil)	Kg	1.9		2.7		3.6		4.5		5.4		7.2	
Stator mass	Kg/m	24		24		24		24		24		24	

Overall dimension



DM6 series

- Strong thrust and smooth thrust
- Small inertia and high acceleration
- Strong overload capacity
- No cogging force or electromagnetic attraction force
- Modular design

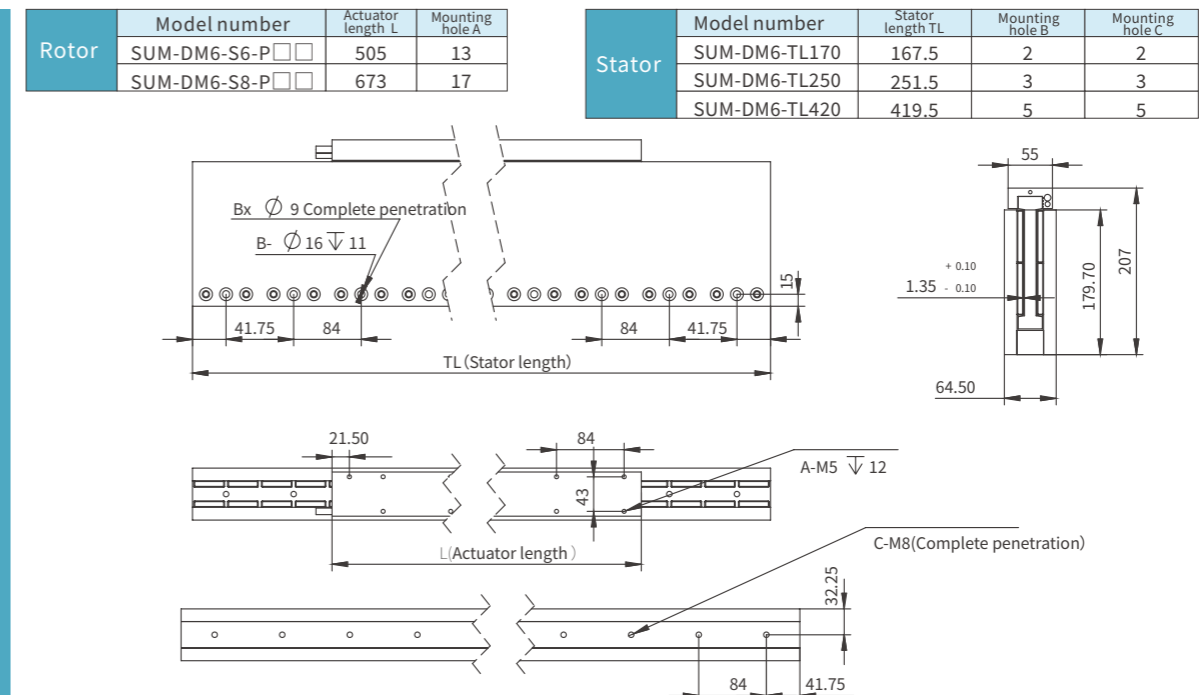


U-shape

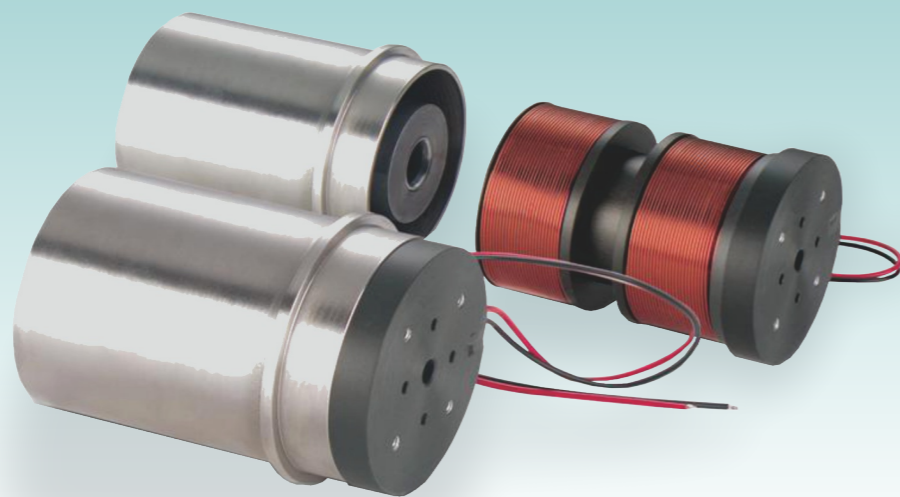
Motor parameter

Model Parameter	Unit	SUM-DM6-S6-P□□		SUM-DM6-S8-P□□	
Performance parameter					
Continuous thrust (at temperature Tmax)	N	1180		1850	
Peak thrust	N	8300		10100	
Electrical parameter					
Polar distance(N-S)	mm	42		42	
Continuous current (at temperature Tmax)	Arms	15.6		11.2	
Peak current (duration 1s)	Arms	108		61	
Thrust constant (at 25°C±10%)	N/Arms	75.6		165	
Back electromotive force (at 25°C±10%)	V/m/s	62		135	
Motor constant (at 120°C)	Nm/√w	34		34	
Inductance (at 25°C±20%)	mH	1.8		5.1	
Resistance (at 25°C±10%)	Ω	1.85		4.6	
Electromagnetic attraction force	KN	0		0	
Thermal Parameters					
Max. coil temperature	°C	150		150	
Mechanical parameter					
Moving mass (coil)	Kg	6.9		9.1	
Stator mass	Kg/m	67		67	

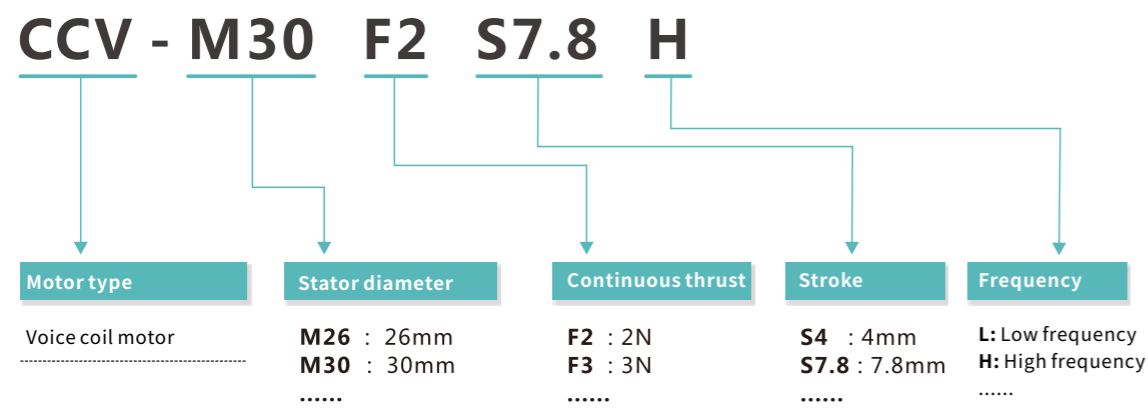
Overall dimension



Voice coil motor (VCM)



• Naming convention of CCV series voice coil motors



■ Model parameter list

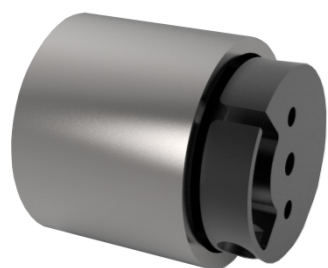
Motor parameter	Peak thrust (N)	Continuous thrust (N)	Stroke (mm)	Thrust constant (N/A)	Peak current (A)	Actuator quality (g)	Stator quality (g)	Pages No.
CCV-M20F5.1S4.5	15.3	5.1	±2.25	5.1	3	15	36	69
CCV-M20F5.1S8	15.3	5.1	±4	3.4	4.5	21	43	70
CCV-M22F5S5	4.5	1.5	±2.5	2.5	1.8	15	36	71
CCV-M25F6S6	8.5	6	±3	6	1.4	14.2	102	72
CCV-M26F13.5S5	18	6	±2.5	7	2.5	25	82	73
CCV-M28F15S8H	45	15	±4	6.1	6.1	30	88	74
CCV-M30F7.5S15	22.5	7.5	±7.5	3	7.5	25.6	95.3	75
CCV-M30F7S15	29.4	7.35	±7.5	7.35	4	25.6	95.3	76
CCV-M31F14S15	41.4	13.8	±2.5	4.5	9	40	114	77
CCV-M31F18S9	45.5	18.5	±4	7.4	6.1	36	105	78
CCV-M38F22S6	89	22.6	±3	6	11.4	/	/	79
CCV-M45F24S40	67	24	±20	5	13.4	/	/	80
CCV-M60F42S25	128	42.2	±12.5	19.2	6.6	215	678	81
CCV-M60F128S55	128	42.3	±27.5	19.2	6.6	142	1312	82
CCV-M72F45S57	135	45	±28.5	20.5	6.6	258	2512	83
CCV-M75F54S75	163	54	±27.5	24.7	6.6	288	2812	84
CCV-M80F71S20	213	71	±10	23.67	9	355	1650	85
CCV-M80F71S30	213	71	±15	17.75	12	245	1469	86
CCV-M80F71S50	213	71	±25	17.75	12	493	2389	87
CCV-M90F105S50	315	105	±25	23.33	13.5	593	2989	88
CCV-M110F283S31	1380	283	±16	56.6	13.5	513	7895	89
CCV-M80F95S10	213	95	±5	38	7.5	/	/	90
CFV-M30F6S35	18	6	±17.5	/	/	/	/	91
CFV-M50F30S80	93	31	±40	6.9	13.5	/	/	92
CCV-M25F3S2	4.2	2.1	±1	1.4	3	12	67	93
CCV-M35F10S3	21.5	9.5	±1.5	3.6	5.9	110	640	94

■ Voice coil motor

■ Voice coil motor

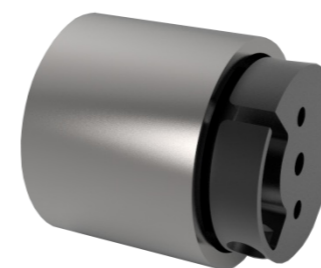
CCV series voice coil motor

CCV series voice coil motor



CCV-M20F5.1S4.5

Thrust • Peak value: 15.3N
• Continuous: 5.1N



CCV-M20F5.1S8

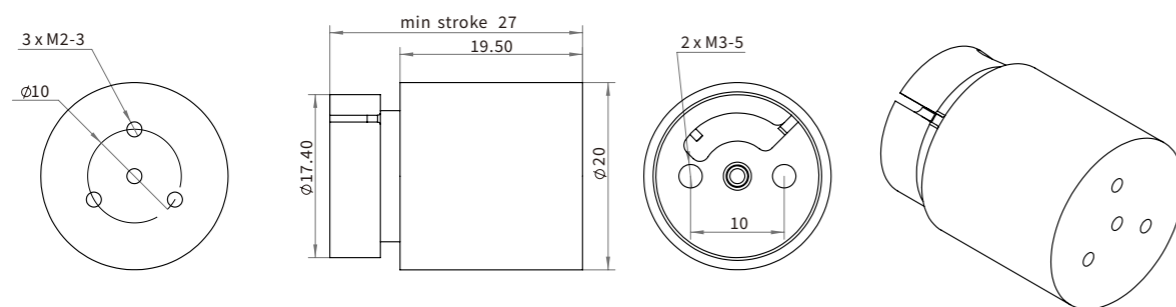
Thrust • Peak value: 15.3N
• Continuous: 5.1N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	5.1	N
Peak thrust	15.3	N
Continuous power	3.6	W
Peak power	32.4	W
Travel stroke	±2.25	mm
Motor parameter		
Continuous current	1	A
Thrust constant	5.1	N/A
Peak current	3	A
Back electromotive force	5.1	V/m/s
Motor constant	2.3	Nm/√W
Inductance	0.5	mH
Resistor	3.6	Ω
Electrical time constant	0.3	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



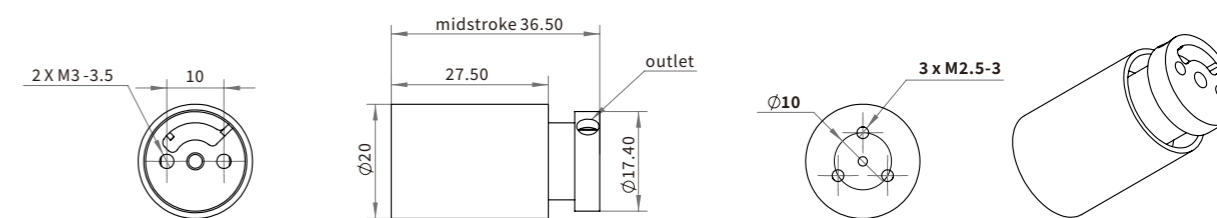
1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	5.1	N
Peak thrust	15.3	N
Continuous power	4.8	W
Peak power	95.5	W
Travel stroke	±4	mm
Motor parameter		
Continuous current	1.5	A
Thrust constant	3.4	N/A
Peak current	4.5	A
Back electromotive force	3.4	V/m/s
Motor constant	6.2	Nm/√W
Inductance	1.3	mH
Resistor	2.6	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

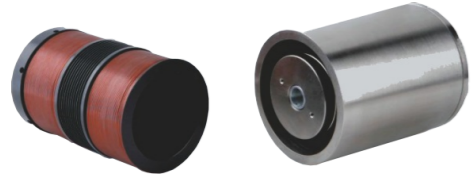
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M22F5S5

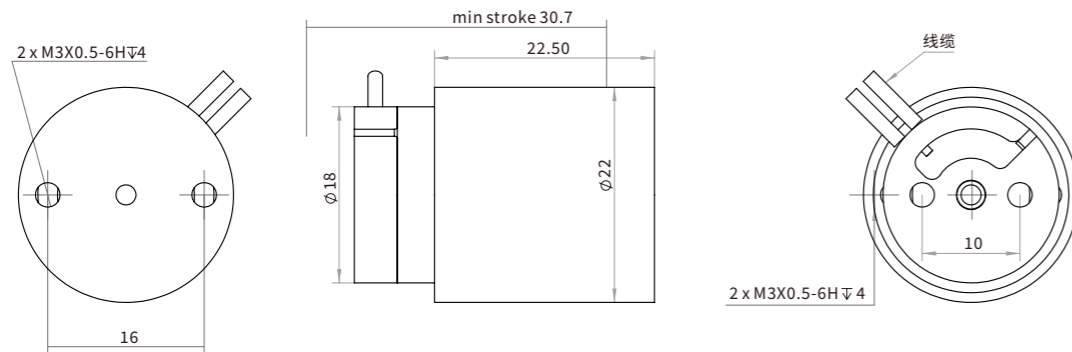
Thrust • Peak value: 4.5N
• Continuous: 1.5N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	1.5	N
Peak thrust	4.5	N
Continuous power	3.6	W
Peak power	32.4	W
Travel stroke	±2.5	mm
Motor parameter		
Continuous current	0.6	A
Thrust constant	2.5	N/A
Peak current	1.8	A
Back electromotive force	2.5	V/m/s
Motor constant	2.3	Nm/√W
Inductance	3.9	mH
Resistor	9	Ω
Electrical time constant	0.3	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M25F6S6

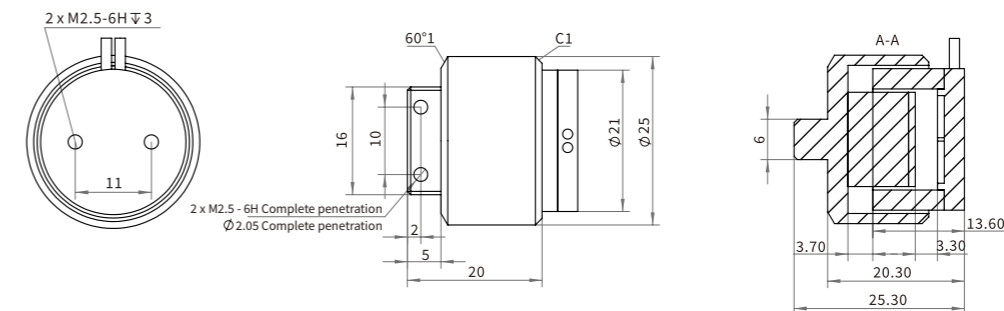
Thrust • Peak value: 8.5N
• Continuous: 6N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	6	N
Peak thrust	8.5	N
Continuous power	9.4	W
Peak power	44.2	W
Travel stroke	±3	mm
Motor parameter		
Continuous current	1	A
Thrust constant	6	N/A
Peak current	1.4	A
Back electromotive force	9.85	V/m/s
Motor constant	2.3	Nm/√W
Inductance	1.5	mH
Resistor	6.5	Ω
Electrical time constant	0.23	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

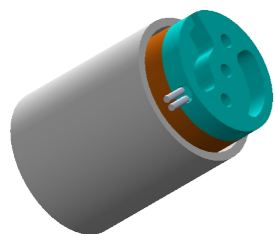
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M26F13.5S5

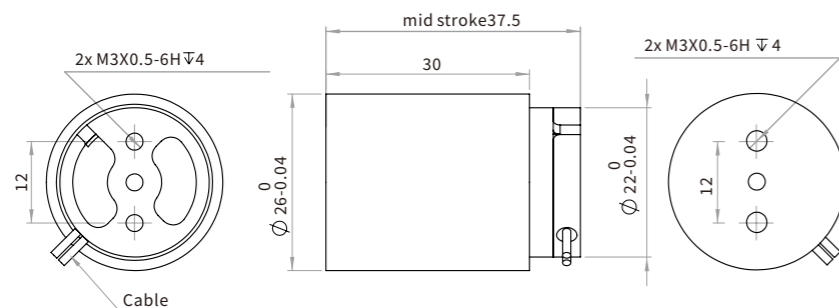
Thrust • Peak value: 18N
• Continuous: 6N

■ Motor parameter

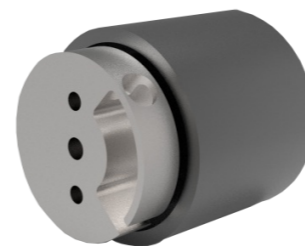
Coil constant	Numerical value	Unit
Continuous thrust	6	N
Peak thrust	18	N
Continuous power	20	W
Peak power	98	W
Travel stroke	±2.5	mm
Motor parameter		
Continuous current	0.85	A
Thrust constant	7	N/A
Peak current	2.5	A
Back electromotive force	7	V/m/s
Motor constant	1.8	Nm/√W
Inductance	3.9	mH
Resistor	11.4	Ω
Electrical time constant	0.25	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M28F15S8H

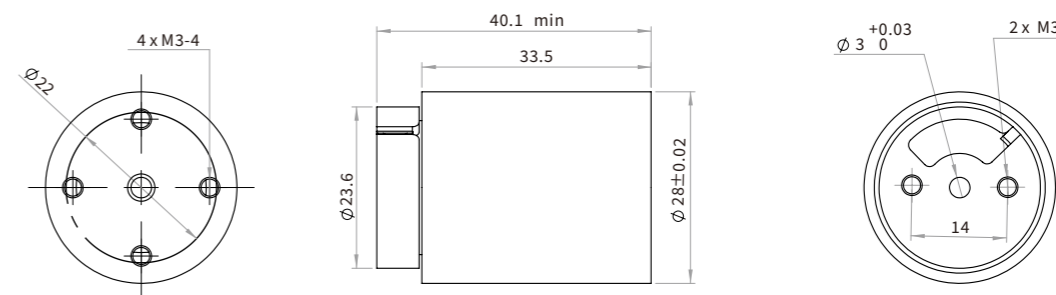
Thrust • Peak value: 45N
• Continuous: 15N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	15	N
Peak thrust	45	N
Continuous power	13.6	W
Peak power	122.5	W
Travel stroke	±4	mm
Motor parameter		
Continuous current	2.5	A
Thrust constant	6	N/A
Peak current	6.1	A
Back electromotive force	6	V/m/s
Motor constant	4.8	Nm/√W
Inductance	0.5	mH
Resistor	2.3	Ω
Electrical time constant	0.35	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

■ Voice coil motor

■ Voice coil motor

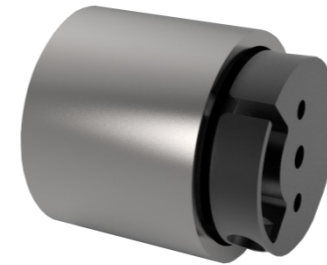
CCV series voice coil motor

CCV series voice coil motor



CCV-M30F7.5S15

Thrust • Peak value: 22.5N
• Continuous: 7.5N



CCV-M30F7S15

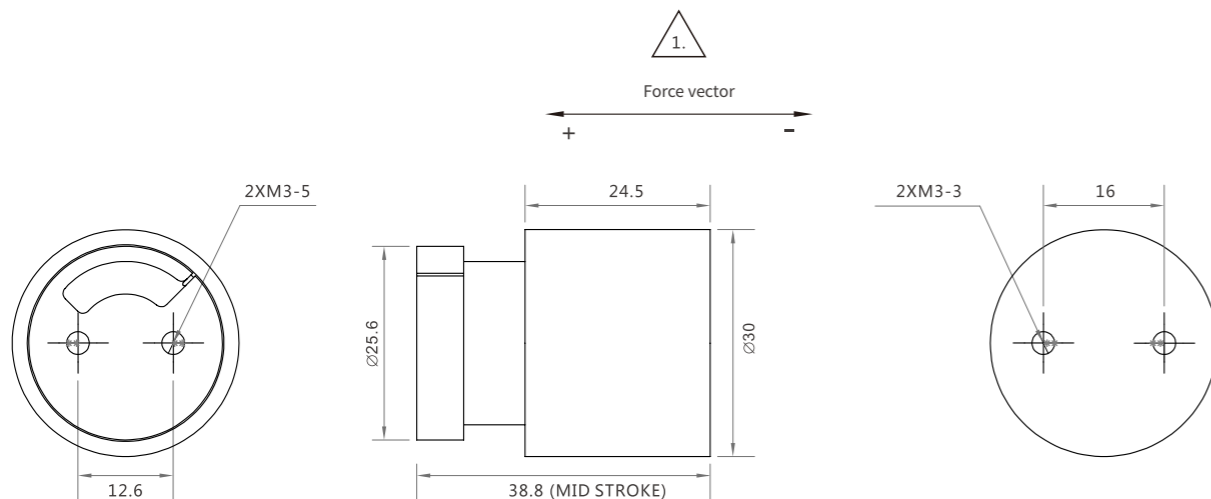
Thrust • Peak value: 29.4N
• Continuous: 7.35N

■ Motor parameter

Coil constant	Numerical value	单位
Continuous thrust	7.5	N
Peak thrust	22.5	N
Continuous power	35	W
Peak power	163.5	W
Travel stroke	±7.5	mm
Motor parameter		
Continuous current	2.5	A
Thrust constant	3	N/A
Peak current	7.5	A
Back electromotive force	3	V/m/s
Motor constant	4	Nm/√W
Inductance	1.8	mH
Resistor	10	Ω
Electrical time constant	1.8	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



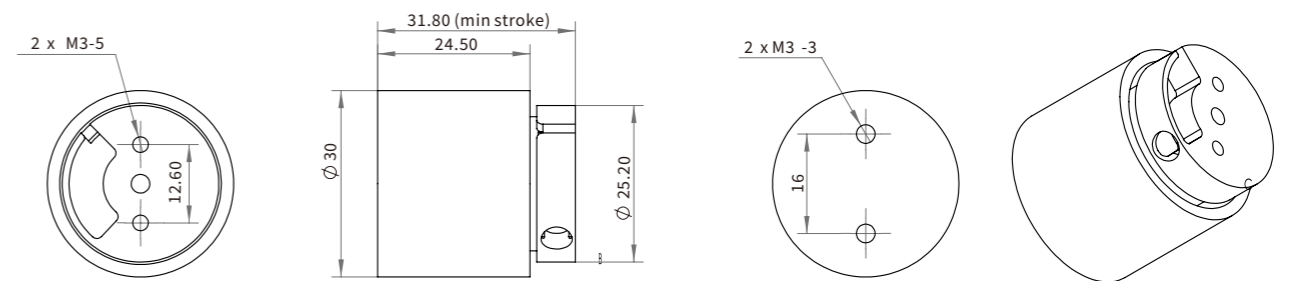
1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	7.35	N
Peak thrust	29.4	N
Continuous power	35	W
Peak power	163.5	W
Travel stroke	±7.5	mm
Motor parameter		
Continuous current	1	A
Thrust constant	7.35	N/A
Peak current	4	A
Back electromotive force	7.35	V/m/s
Motor constant	2.3	Nm/√W
Inductance	2.63	mH
Resistor	10.2	Ω
Electrical time constant	0.3	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

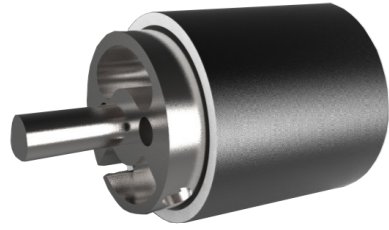
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M31F14S5

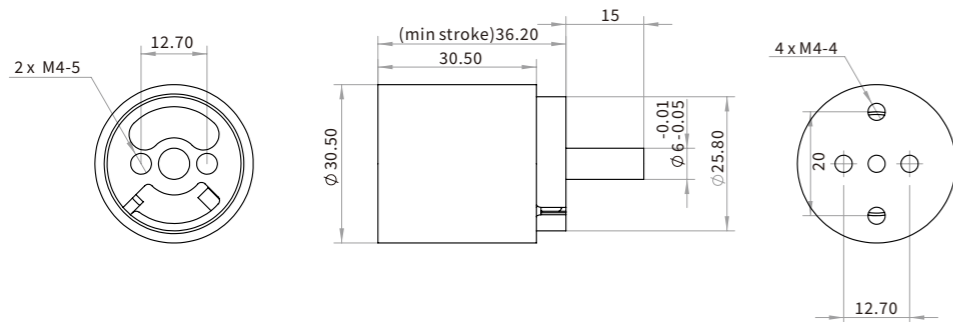
Thrust • Peak value: 41.4N
• Continuous: 13.8N

■ Motor parameter

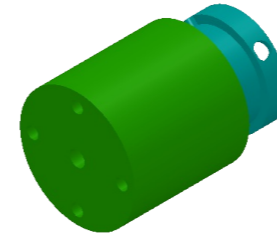
Coil constant	Numerical value	Unit
Continuous thrust	13.8	N
Peak thrust	41.4	N
Continuous power	35	W
Peak power	178	W
Travel stroke	±2.5	mm
Motor parameter		
Continuous current	3	A
Thrust constant	4.5	N/A
Peak current	9	A
Back electromotive force	6	V/m/s
Motor constant	6.2	Nm/√W
Inductance	1.3	mH
Resistor	2.6	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M31F18S9

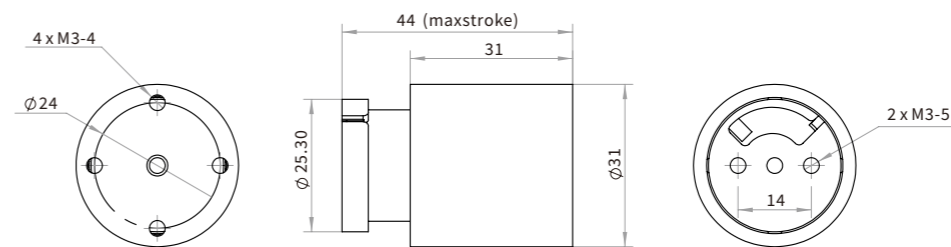
Thrust • Peak value: 45.5N
• Continuous: 18.5N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	18.5	N
Peak thrust	45.5	N
Continuous power	13.6	W
Peak power	122.4	W
Travel stroke	±4	mm
Motor parameter		
Continuous current	2.5	A
Thrust constant	7.4	N/A
Peak current	6.1	A
Back electromotive force	7.4	V/m/s
Motor constant	15.5	Nm/√W
Inductance	1	mH
Resistor	2	Ω
Electrical time constant	0.35	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

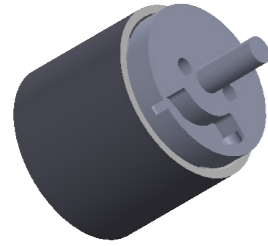
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M38F22S6

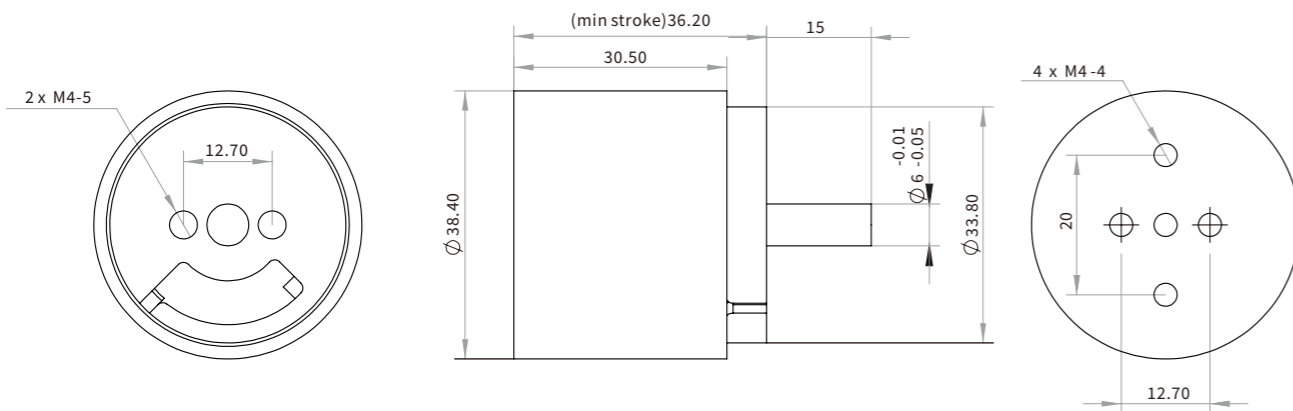
Thrust • Peak value: 89N
• Continuous: 22.6N

■ Motor parameter

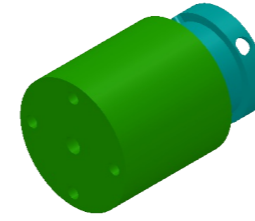
Coil constant	Numerical value	Unit
Continuous thrust	22.6	N
Peak thrust	89	N
Continuous power	32	W
Peak power	108	W
Travel stroke	±3	mm
Motor parameter		
Continuous current	3.8	A
Thrust constant	6	N/A
Peak current	11.4	A
Back electromotive force	6	V/m/s
Motor constant	6.2	Nm/√W
Inductance	0.6	mH
Resistor	1.3	Ω
Electrical time constant	0.21	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M45F24S40

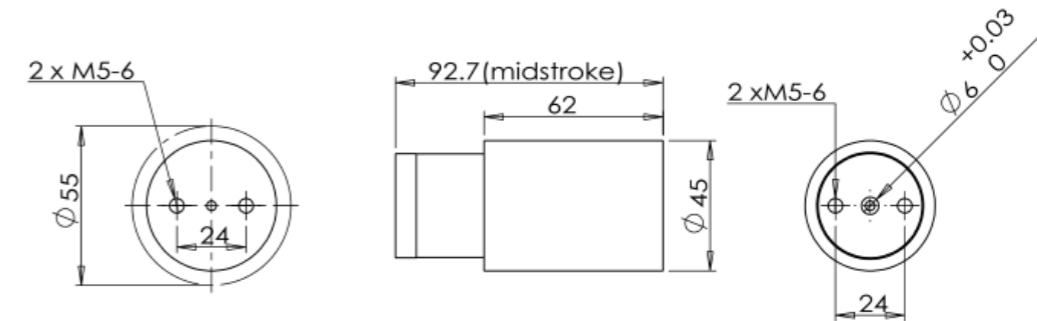
Thrust • Peak value: 24N
• Continuous: 24N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	24	N
Peak thrust	24	N
Continuous power	60	W
Peak power	190	W
Travel stroke	±20	mm
Motor parameter		
Continuous current	4.8	A
Thrust constant	5	N/A
Peak current	13.4	A
Back electromotive force	5	V/m/s
Motor constant	4.0	Nm/√W
Inductance	0.53	mH
Resistor	1.7	Ω
Electrical time constant	/	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

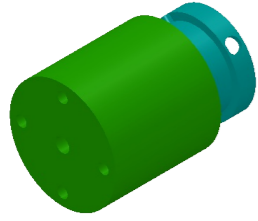
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M60F42S25

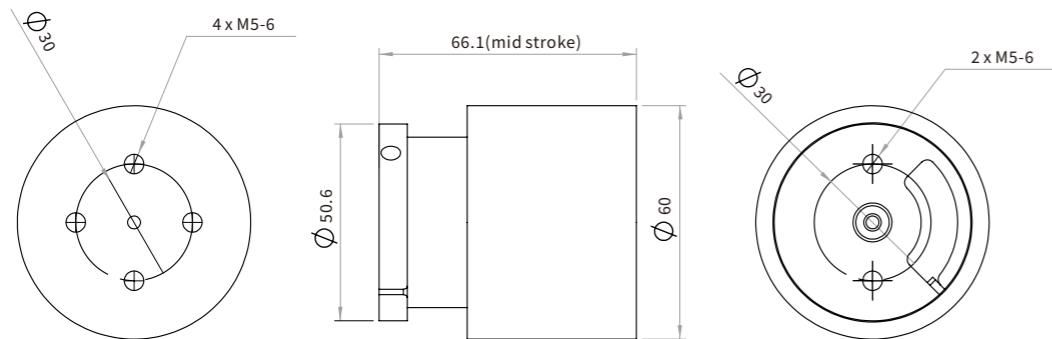
- Thrust
- Peak value: 128N
 - Continuous: 42.2N

■ Motor parameter

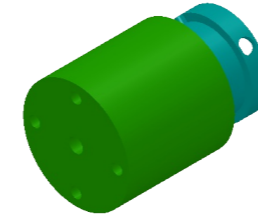
Coil constant	Numerical value	Unit
Continuous thrust	42.2	N
Peak thrust	128	N
Continuous power	15	W
Peak power	273	W
Travel stroke	±12.5	mm
Motor parameter		
Continuous current	2.2	A
Thrust constant	19.2	N/A
Peak current	6.6	A
Back electromotive force	19.2	V/m/s
Motor constant	8.5	Nm/√W
Inductance	3.3	mH
Resistor	5.2	Ω
Electrical time constant	0.5	ms

- * Ambient temperature 25°C, 10 seconds of operation, coil 150°C
- ** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
- *** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M60F128S55

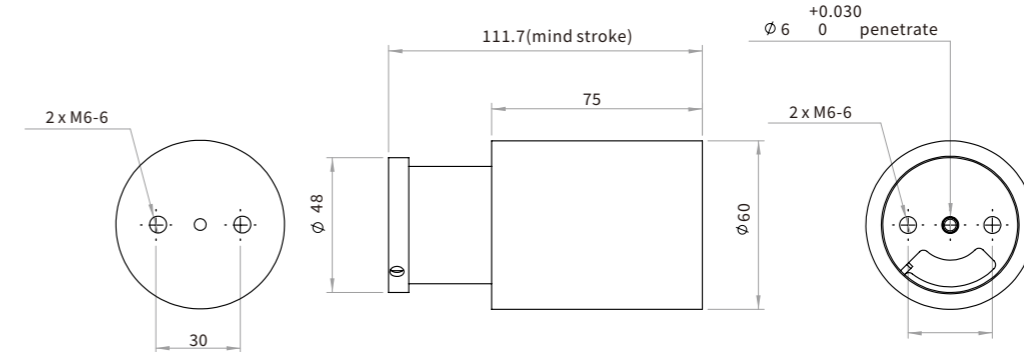
- Thrust
- Peak value: 128N
 - Continuous: 42.3N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	42.3	N
Peak thrust	128	N
Continuous power	66	W
Peak power	310	W
Travel stroke	±27.5	mm
Motor parameter		
Continuous current	2.2	A
Thrust constant	19.2	N/A
Peak current	6.6	A
Back electromotive force	19.2	V/m/s
Motor constant	25	Nm/√W
Inductance	5.6	mH
Resistor	9.8	Ω
Electrical time constant	0.5	ms

- * Ambient temperature 25°C, 10 seconds of operation, coil 150°C
- ** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
- *** Atmospheric environment

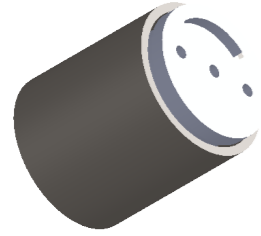
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M72F45S57

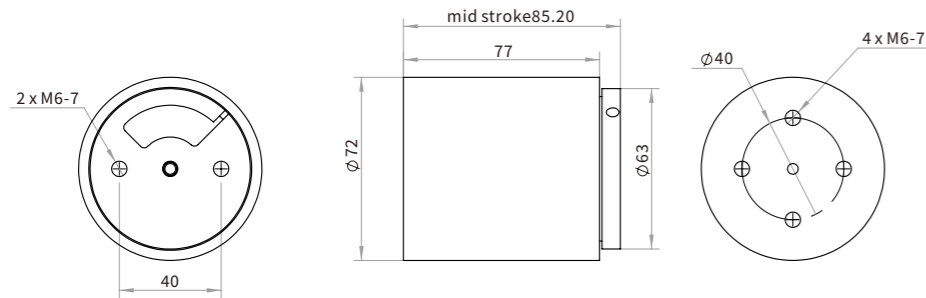
Thrust • Peak value: 135N
• Continuous: 45N

■ Motor parameter

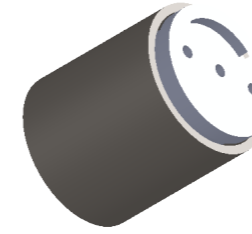
Coil constant	Numerical value	Unit
Continuous thrust	45	N
Peak thrust	135	N
Continuous power	110	W
Peak power	810	W
Travel stroke	±28.5	mm
Motor parameter		
Continuous current	2.2	A
Thrust constant	20.5	N/A
Peak current	6.6	A
Back electromotive force	20.5	V/m/s
Motor constant	25	Nm/√W
Inductance	4	mH
Resistor	8.5	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M75-F54-S75

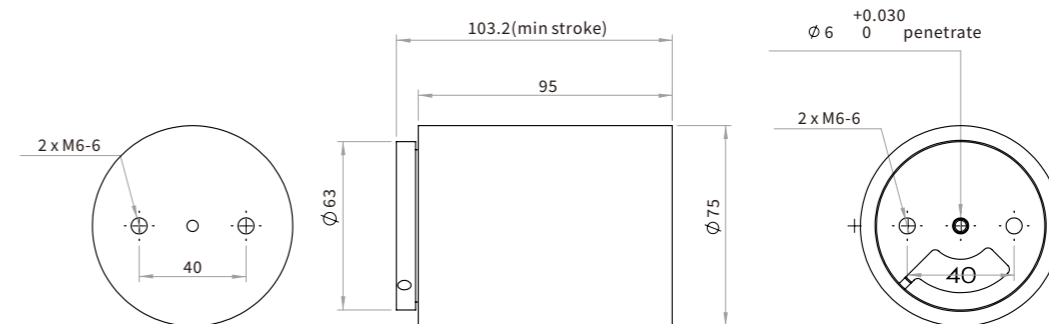
Thrust • Peak value: 163N
• Continuous: 54N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	54	N
Peak thrust	163	N
Continuous power	110	W
Peak power	810	W
Travel stroke	±27.5	mm
Motor parameter		
Continuous current	2.2	A
Thrust constant	24.7	N/A
Peak current	6.6	A
Back electromotive force	24.7	V/m/s
Motor constant	25	Nm/√W
Inductance	8.5	mH
Resistor	17.1	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

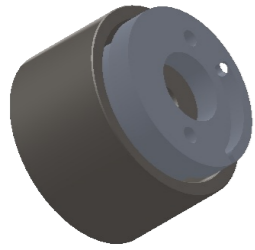
■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M80F71S20

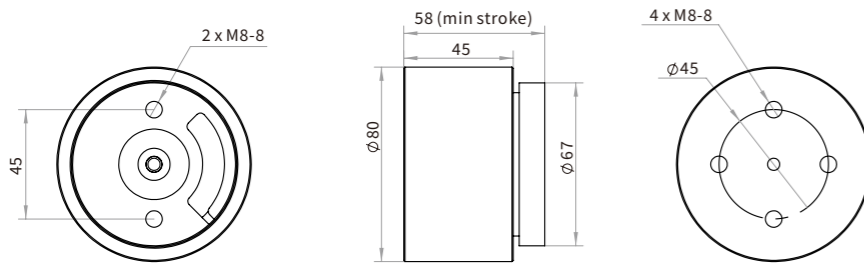
Thrust • Peak value: 213N
• Continuous: 71N

■ Motor parameter

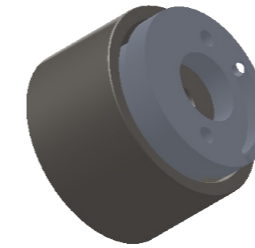
Coil constant	Numerical value	Unit
Continuous thrust	71	N
Peak thrust	213	N
Continuous power	142	W
Peak power	426	W
Travel stroke	±10	mm
Motor parameter		
Continuous current	3	A
Thrust constant	23.67	N/A
Peak current	9	A
Back electromotive force	23.67	V/m/s
Motor constant	2.8	Nm/√W
Inductance	2.52	mH
Resistor	5.1	Ω
Electrical time constant	0.3	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M80F71S30

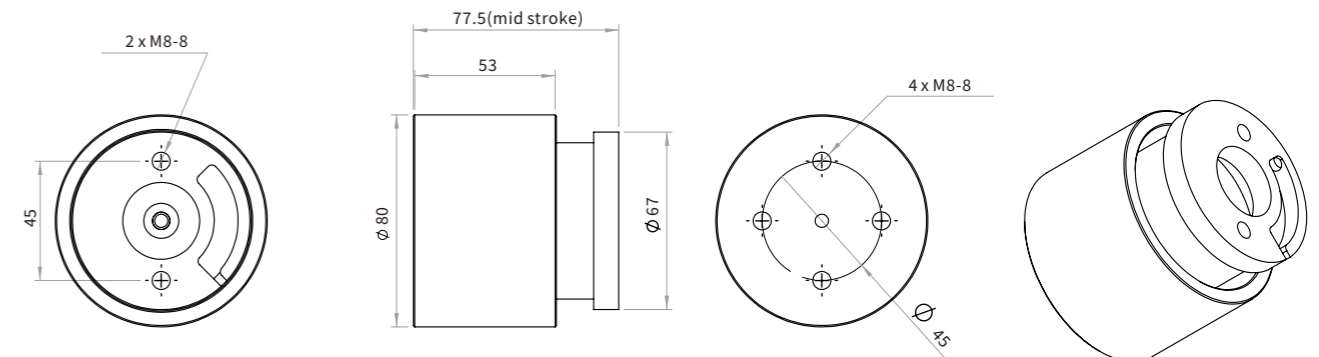
Thrust • Peak value: 213N
• Continuous: 71N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	71	N
Peak thrust	213	N
Continuous power	142	W
Peak power	426	W
Travel stroke	±15	mm
Motor parameter		
Continuous current	4	A
Thrust constant	17.75	N/A
Peak current	12	A
Back electromotive force	17.75	V/m/s
Motor constant	30	Nm/√W
Inductance	8.5	mH
Resistor	1.5	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



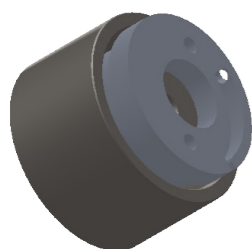
1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

Voice coil motor

Voice coil motor

CCV series voice coil motor

CCV series voice coil motor



CCV-M80F71S50

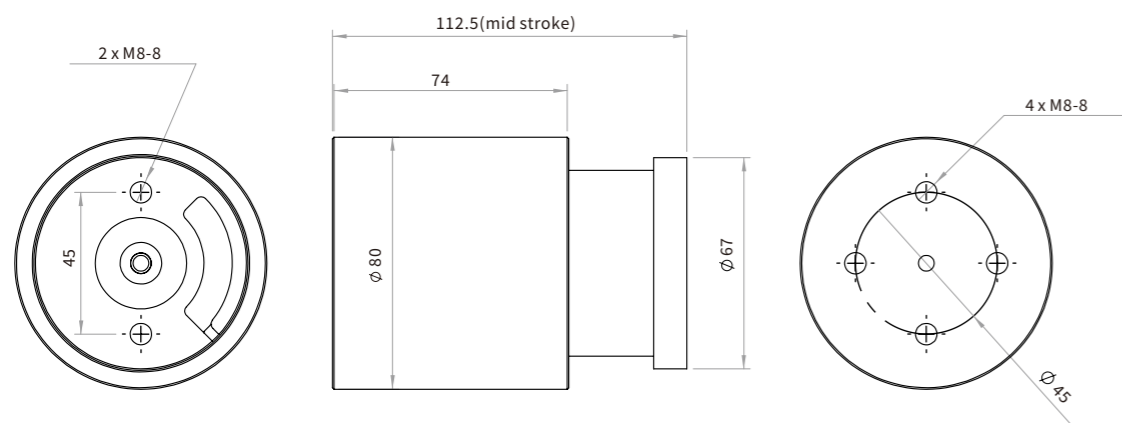
Thrust • Peak value: 213N
• Continuous: 71N

Motor parameter

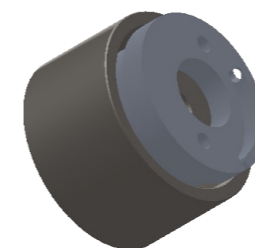
Coil constant	Numerical value	Unit
Continuous thrust	71	N
Peak thrust	213	N
Continuous power	286	W
Peak power	2760	W
Travel stroke	±25	mm
Motor parameter		
Continuous current	4	A
Thrust constant	17.75	N/A
Peak current	12	A
Back electromotive force	17.75	V/m/s
Motor constant	30	Nm/√W
Inductance	8.5	mH
Resistor	1.5	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M90F105S50

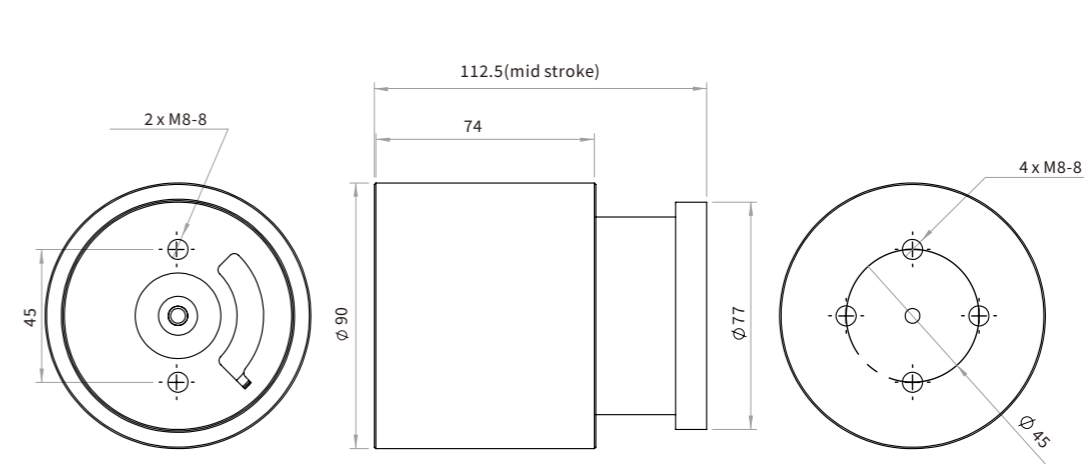
Thrust • Peak value: 345N
• Continuous: 105N

Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	105	N
Peak thrust	345	N
Continuous power	212	W
Peak power	636	W
Travel stroke	±25	mm
Motor parameter		
Continuous current	4.5	A
Thrust constant	23.33	N/A
Peak current	13.5	A
Back electromotive force	23.33	V/m/s
Motor constant	30	Nm/√W
Inductance	8.5	mH
Resistor	2.5	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

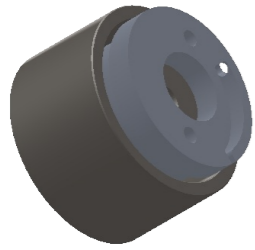
Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

LCVC series voice coil motor



CCV-M110F283S31

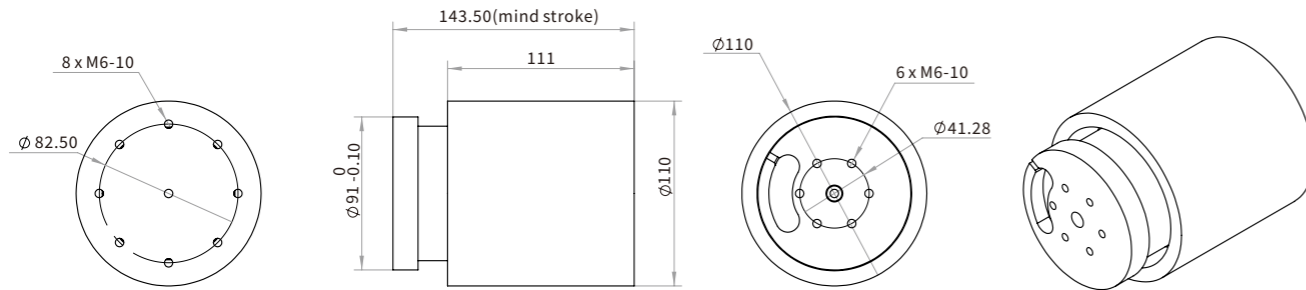
Thrust • Peak value: 1380N
• Continuous: 283N

■ Motor parameter

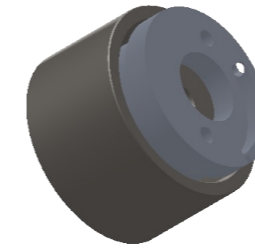
Coil constant	Numerical value	Unit
Continuous thrust	283	N
Peak thrust	1380	N
Continuous power	560	W
Peak power	1930	W
Travel stroke	±16	mm
Motor parameter		
Continuous current	5	A
Thrust constant	56.6	N/A
Peak current	13.5	A
Back electromotive force	56.6	V/m/s
Motor constant	32.3	Nm/√W
Inductance	8.5	mH
Resistor	3.8	Ω
Electrical time constant	0.5	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



LCVC-S80-F10

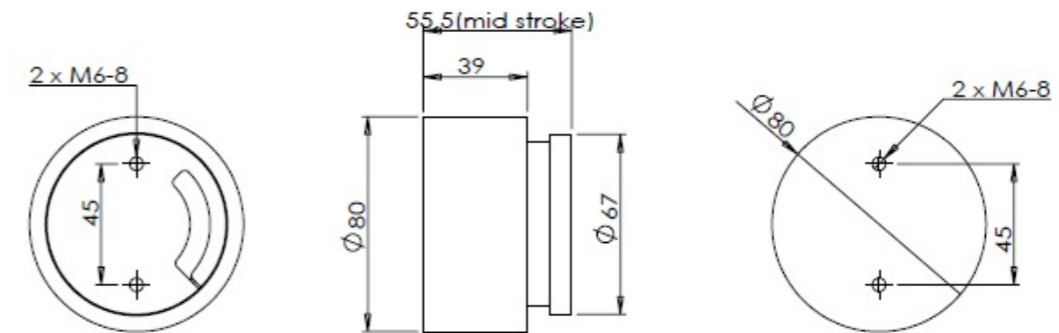
Thrust • Peak value: 213N
• Continuous: 95N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	95	N
Peak thrust	213	N
Continuous power	38.2	W
Peak power	342	W
Travel stroke	±5	mm
Motor parameter		
Continuous current	2.5	A
Thrust constant	38	N/A
Peak current	7.5	A
Back electromotive force	38	V/m/s
Motor constant	90	Nm/√W
Inductance	1.3	mH
Resistor	4.8	Ω
Electrical time constant	/	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



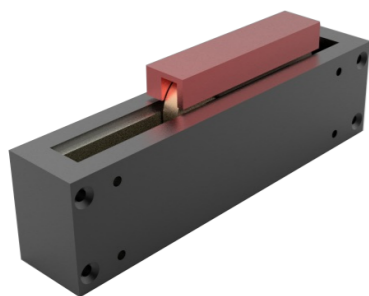
1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

■ Voice coil motor

■ Voice coil motor

CVF series voice coil motor

CVF series voice coil motor



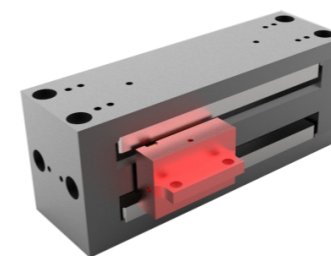
CVF-M30F6S35

- Thrust
- Peak value: 18N
 - Continuous: 6N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	6	N
Peak thrust	18	N
Continuous power	/	W
Peak power	/	W
Travel stroke	±17.5	mm
Motor parameter		
Continuous current	2.5	A
Thrust constant	/	N/A
Peak current	/	A
Back electromotive force	/	V/m/s
Motor constant	/	Nm/√W
Inductance	/	mH
Resistor	/	Ω
Electrical time constant	/	ms

- * Ambient temperature 25°C, 10 seconds of operation, coil 150°C
- ** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
- *** Atmospheric environment



CVF-M50F30S80

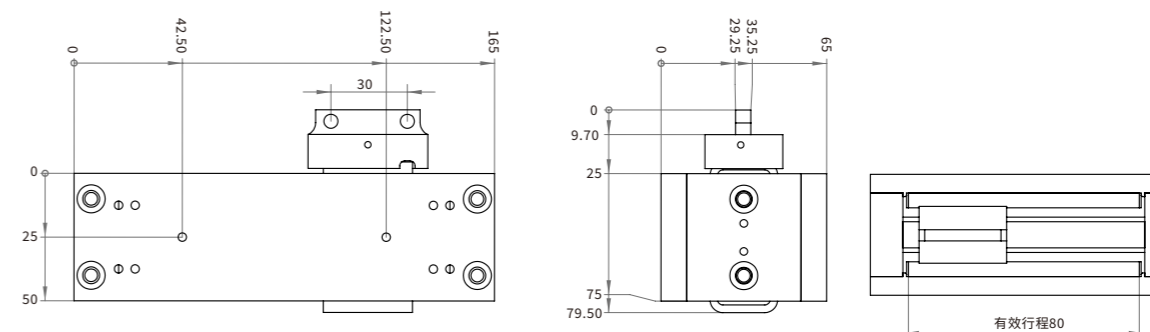
- Thrust
- Peak value: 93N
 - Continuous: 31N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	31	N
Peak thrust	93	N
Continuous power	/	W
Peak power	/	W
Travel stroke	±40	mm
Motor parameter		
Continuous current	4.5	A
Thrust constant	6.9	N/A
Peak current	13.5	A
Back electromotive force	/	V/m/s
Motor constant	/	Nm/√W
Inductance	1.3	mH
Resistor	0.9	Ω
Electrical time constant	1.44	ms

- * Ambient temperature 25°C, 10 seconds of operation, coil 150°C
- ** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
- *** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

CCV series voice coil motor

CCV series voice coil motor



CCV-M25F3S2
(Flexible vibrating disk special)

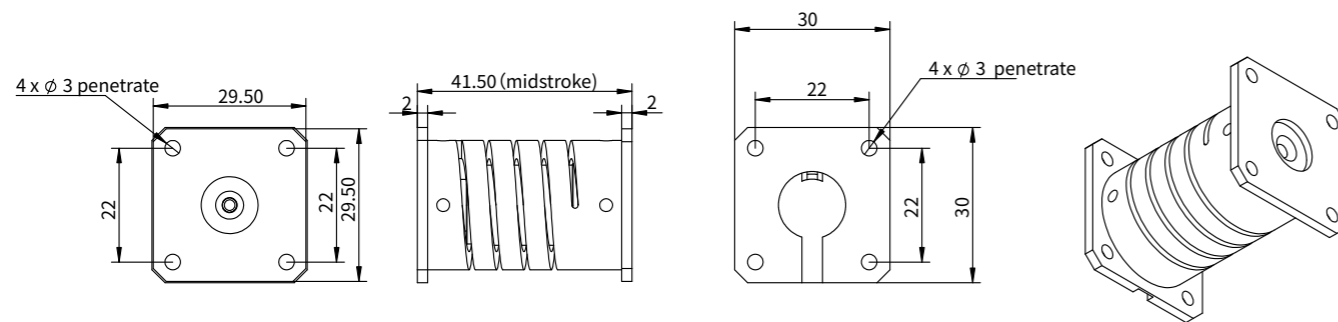
Thrust • Peak value: 4.2N
• Continuous: 2.1N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	2.1	N
Peak thrust	4.2	N
Continuous power	/	W
Peak power	/	W
Travel stroke	±1	mm
Motor parameter		
Continuous current	1.5	A
Thrust constant	1.4	N/A
Peak current	3	A
Back electromotive force	1.4	V/m/s
Motor constant	/	Nm/√W
Inductance	0.4	mH
Resistor	9.3	Ω
Electrical time constant	0.04	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

■ Overall dimension (Unit:mm)



1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.



CCV-M35F10S3
(Flexible vibrating disk special)

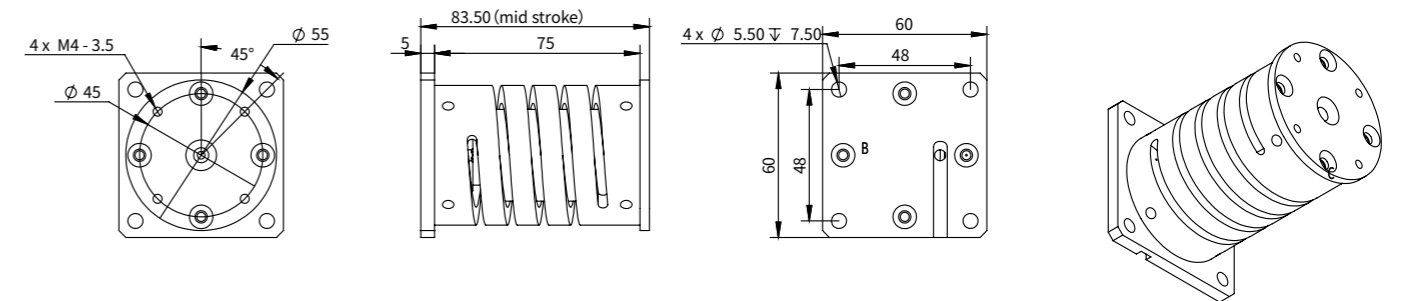
Thrust • Peak value: 21.5N
• Continuous: 9.5N

■ Motor parameter

Coil constant	Numerical value	Unit
Continuous thrust	9.5	N
Peak thrust	21.5	N
Continuous power	/	W
Peak power	/	W
Travel stroke	±1.5	mm
Motor parameter		
Continuous current	2.6	A
Thrust constant	3.6	N/A
Peak current	5.9	A
Back electromotive force	3.6	V/m/s
Motor constant	/	Nm/√W
Inductance	1.3	mH
Resistor	10.2	Ω
Electrical time constant	0.1	ms

* Ambient temperature 25°C, 10 seconds of operation, coil 150°C
** The ambient temperature is 25 ° C and the coil temperature is 150 ° C
*** Atmospheric environment

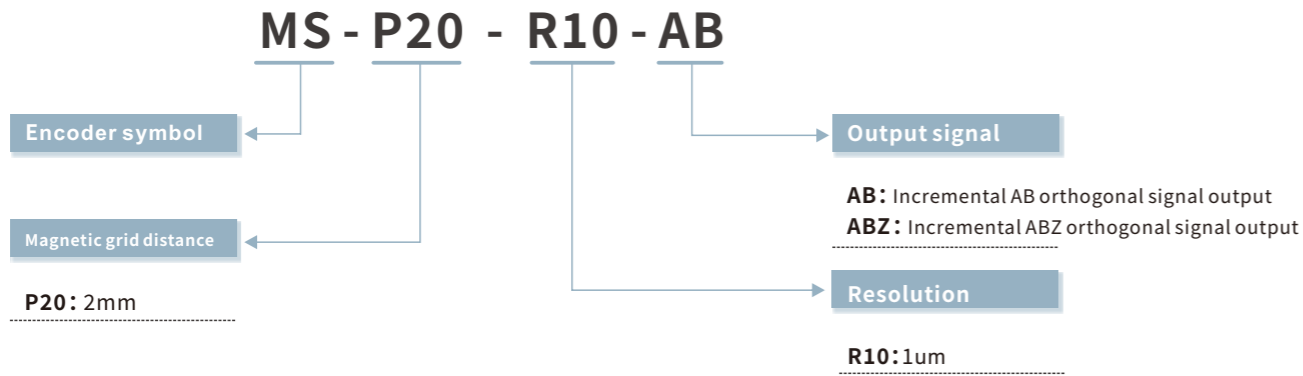
■ Overall dimension (Unit:mm)



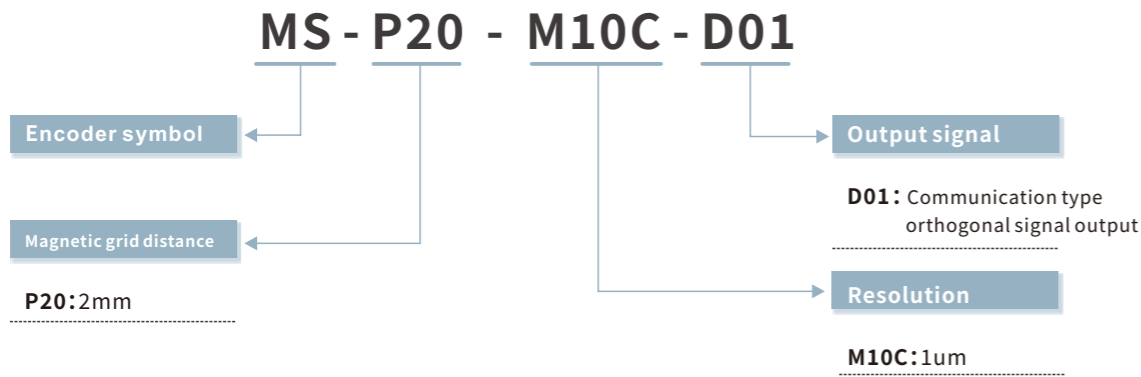
1. Apply (+) voltage to the red line to produce a force that causes the coil to move in the (+) direction.
2. The insulation resistance is greater than 100 mΩ under 500 V DC.

Naming convention of the reading head

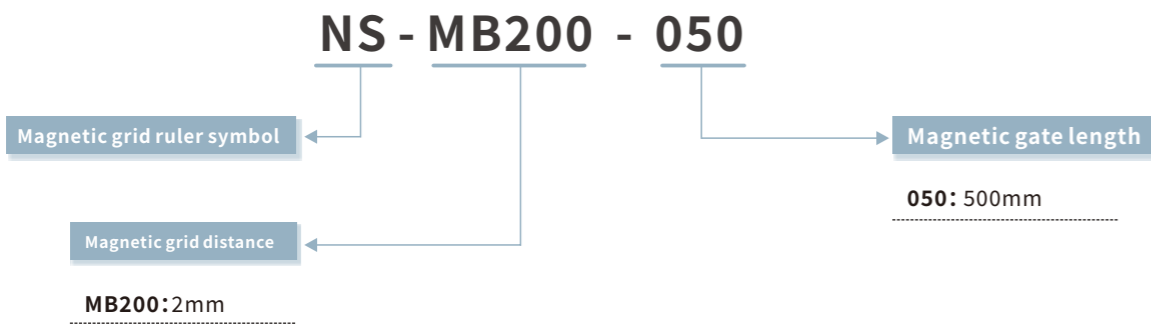
Naming convention of the incremental reading head



Naming convention of the communicative reading head



Naming convention of magnetic grating ruler



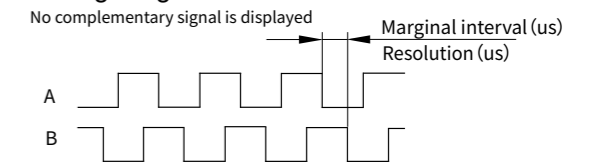
Technical Parameters of Magnetic Grating Reading Head

Item	Specification
Max. measuring length	50 m (100 m for special customization)
Polar distance	2mm
Output resolution	1um
Sinusoidal period length	2mm
Max. speed	3m/s
Precision class	+ 40 um/m
Linear expansion coefficient	~17 times 10 ⁻⁶ /K
Repeatability	Plus or minus 1 um
Posterior	< 3 um when the gap reaches 0.2 mm
Operating voltage	5VDC ± 5%
Energy consumption (no load)	< 35 mA for digital output type
Output signal	A+ A- B+ B-
Operating temperature	-10°C to +80°C
Storage	-40°C to +85°C
Sealing level	IP6
Relative humidity	100%

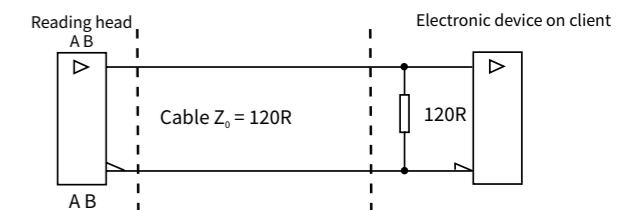
Digital output signal of magnetic grating reading head

Item	Specification
Power voltage	4.5 V to 5.5 V for loop protection
Incremental signal	Two square wave signals A, B and their counter signals A- and B-
Signal level	Differential linear drivers comply with the Electronic Industry Association (EIA) standard RS422. $U_H \geq 2.5V$ when $-I_H = 20mA$ $U_L \leq 0.5V$ when $I_L = 20mA$
Allowable load	$Z_0 \geq 100 \Omega$ between associated outputs; $I_L \leq 20 mA$ for the maximum load per output; Capacitive load $\leq 1000 pF$
Alarm	The output lines A, B, A-, and B- are high impedance.
Switching time (10-90%)	t_+ and $t_- < 30 ns$ (with 1 m cable and using the recommended input circuit)
Cable	Up to 100 m

Timing Diagram



Recommended signal terminal



* Pay attention to the voltage drop when using a long cable.

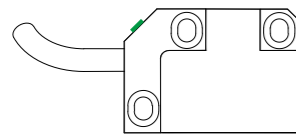
Note: When the signal is weak, the installation indicator blinks red and green alternately.

Definition of Output Lines of Magnetic Grating Reading Head

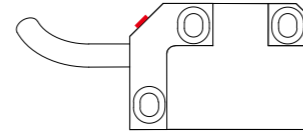
Signal	Color	9 pin D type
5V	Red	5
GND	Blue	9
A+	Brown	4
A-	Green	8
B+	Grey	3
B-	Yellow	7

LED Installation Indicator

After the magnetic grating is installed, the LED installation indicator can be used for adjustment on the machine.



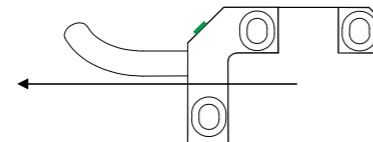
Green LED: good magnetic field strength/correct installation



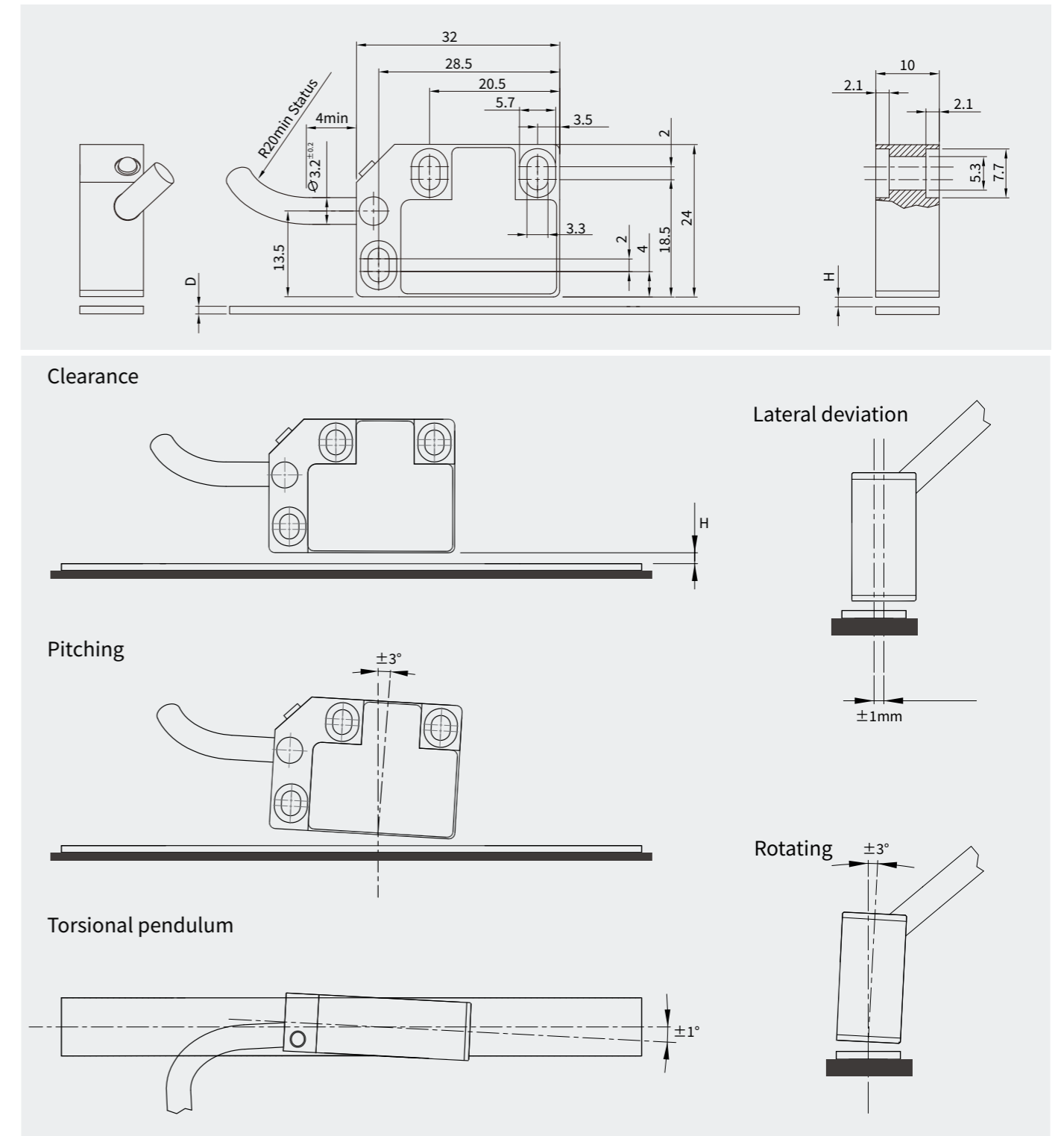
Indicator light blinking red and green alternately = insufficient magnetic field strength - need to be adjusted
A, B, A-, B- outputs become high impedance

Forward

Digital output signal - A is ahead of B



Dimension unit (mm)



	Magnetic grating thickness (D)	Clearance (H)
Without cover strip	1.4	0.5 - 1.0
With cover strip	1.55	0.5 - 0.9

Magnetic grid reading head

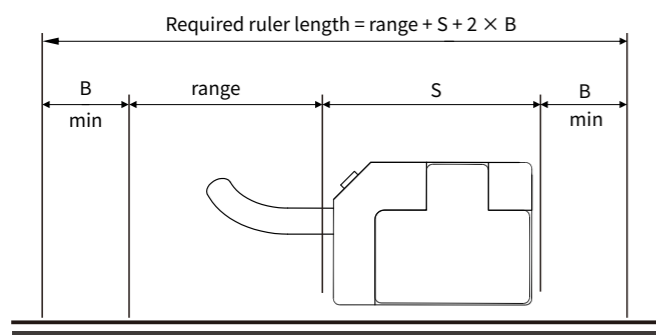
Technical Parameters of Magnetic Grating Ruler

Item	Technical Parameter	Remarks
Magnetic grating width	2mm	
Measuring length	Unlimited	No cover strip
Ruler width	10mm	
Thickness	The 1.4 mm	Spring steel
Precision level	50um	
Temperature coefficient	$(11 \pm 1) \times 106 / K$	
Operating temperature	-20°C... + 70 °C	Allow condensation
Storage temperature	-40°C... + 70 °C	Bond with pre-installed double-sided tape
Humidity	100%rh	
Installation method	Adhesive bonding	
Cover strip material	Stainless steel	

Determination of the Length of the Magnetic Grating Ruler

(Represented by a Symbolic Reading Head)

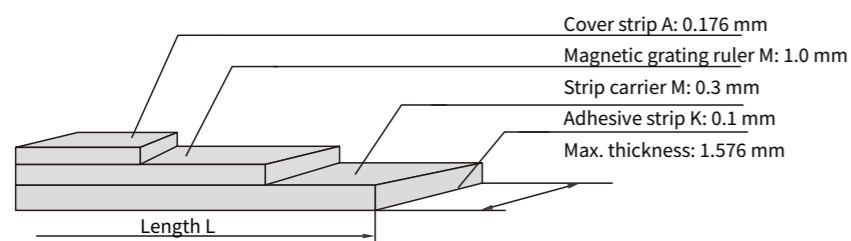
Calculating the Length of an Ordinary Magnetic Grating Ruler



Order

The required magnetic grid ruler length is calculated as follows:
 range + reading head length "s" + (2 x reserved in and out lengths "B").
 The length of the reading head can be found in the specified reading head drawing, and the in-and-out reserved length "B" is equal to 10 mm.

Schematic diagram of the magnetic grating ruler structure

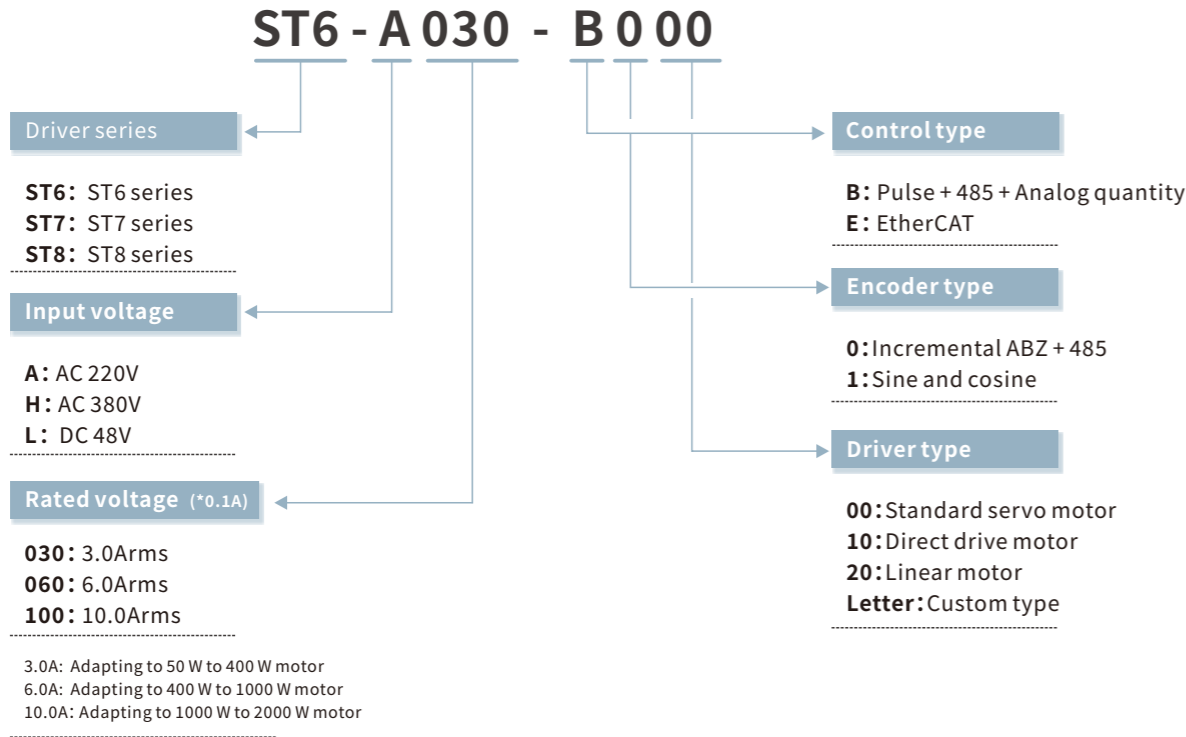


MEMO

Driver selection

Driver selection

Driver Naming Convention



Specification table of the driver

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST6	ST6-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A030-E000	220	3	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A060-E000	220	6	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A100-E000	220	10	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST6-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A030-E010	220	3	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A060-E010	220	6	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A100-E010	220	10	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST6-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST6-A030-E020	220	3	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST6-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST6-A060-E020	220	6	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
ST6-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors	
ST6-A100-E020	220	10	EtherCAT	Incremental ABZ/Absolute value	Linear Motors	
ST7	ST7-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST7-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST7-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST7-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
ST7-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors	



Specification table of the driver(continued)

Series	Specification Model	Voltage (V)	Rated Current (A)	Control Type	Encoder Type	Driver Type
ST8	ST8-A030-B000	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A030-E000	220	3	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A060-B000	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A060-E000	220	6	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A100-B000	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A100-E000	220	10	EtherCAT	Incremental ABZ/Absolute value	Standard servo motor
	ST8-A030-B010	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A030-E010	220	3	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A060-B010	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A060-E010	220	6	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A100-B010	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A100-E010	220	10	EtherCAT	Incremental ABZ/Absolute value	Direct drive motor
	ST8-A030-B020	220	3	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A030-E020	220	3	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST8-A060-B020	220	6	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A060-E020	220	6	EtherCAT	Incremental ABZ/Absolute value	Linear Motors
	ST8-A100-B020	220	10	Pulse/Modbus/Analog quantity	Incremental ABZ/Absolute value	Linear Motors
	ST8-A100-E020	220	10	EtherCAT	Incremental ABZ/Absolute value	Linear Motors

Driver application environment

Item	Specifications	
Temperature	Working temperature	0~55°C
	Storage temperature	-20~65°C
Humidity	Working humidity	20% to 85% RH or below (no condensation)
	Storage humidity	20% to 85% RH or below (no condensation)
Air in storage environment	Indoor (no direct sunlight), no corrosive gas, no flammable gas, no oil mist, no dust	
Altitude	Below 1000 m altitude	
Vibration	10 to 60 Hz below 5.8 m/s ² (0.6 G) (cannot be used continuously at the resonance frequency)	
Dielectric voltage withstand	AC 1500 V for 1 minute between the primary stage and FG	

Driver Function Parameters

Function	ST6	ST7	ST8
1M low-speed pulse input	√	√	√
4M high-speed pulse input	√	√	√
Analog quantity control input	√	√	√
Modbus communication	√	√	√
Modbus control	Developing	Developing	√
EtherCAT control	√	×	√
Position control mode	√	√	√
Speed control mode	√	√	√
Torque control mode	√	√	√
Assignable I/O	√	√	√
Pulse frequency-division output	×	√ Hardware-level	√ Software-level
Self-tuning	×	Developing	√
Disturbance torque compensation	Developing	Developing	√
Notch filter	√	√	√
Oscillation suppression	Developing	Developing	√
Dynamic braking function	√	√	√
Inertia identification	√	√	√
Rigidity ranking list	√	√	√
Bode diagram analysis	√	√	√
Absolute position compensation	Developing	Developing	√
FFT analysis	√	√	√

Item	Model		
	ST6	ST7	ST8
Carrier frequency	16KHZ	8KHZ	20KHZ
Current loop sampling	16KHZ	16KHZ	40KHZ
Speed loop sampling	8KHZ	8KHZ	20KHZ
Position loop sampling	8KHZ	8KHZ	20KHZ
Maximum speed loop bandwidth	3.2KHZ	2.3KHZ	6.4KHZ
Current range	3A/6A/10A		
Adaptable motor	Absolute-value feedback rotary servo motor, absolute-value feedback torque motor, communication feedback linear motor, ABZ incremental feedback linear motor	Absolute-value feedback rotary servo motor, absolute-value feedback torque motor, communication feedback linear motor	Absolute-value feedback rotary servo motor, ABZ incremental feedback torque motor, absolute-value feedback torque motor, communication feedback linear motor, ABZ incremental feedback linear motor

Driver selection

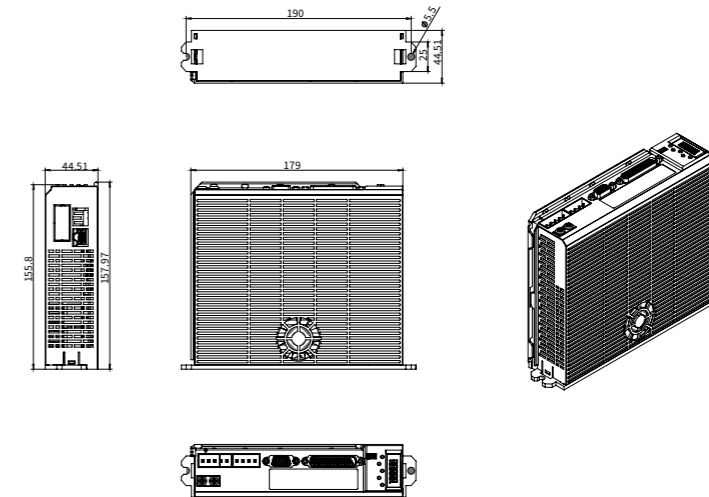
Driver selection

Performance Parameter Table

Item		Specification			
		ST6	ST7	ST8	
Position control	Pulse input	Open-collector pulse input: frequency not more than 900 KHz, pulse width not less than 2.5 us			
		Differential normal pulse input: frequency not more than 1000 KHz, pulse width not less than 1 us			
		Differential high-speed pulse input: frequency not more than 4000 KHz, pulse width not less than 1 us			
	Input pulse logic mode	Pulse + direction, A phase + B phase, CW + CCW			
	Electronic gear ratio setting	Electronic gear ratio: A/B times, qualification condition (encoder resolution/10000000 < A/B < encoder resolution/2.5)			
Pulse output	Instruction filter	FIR filter	Smoothing filter, FIR filter, mean filter		
	Output pulse function	Developing	Available		
	Frequency division ratio	Developing	Arbitrary even frequency division ratio	Arbitrary frequency division ratio	
	Output pulse shape	Developing	ABZ quadrature encoder pulse signal		
Internal position mode function		Internal path planning of sections 1 to 16			
Speed control	Control mode	External analog instruction control/DI terminal signal combination to achieve internal speed selection in sections 1 to 16/Communication specified			
	Analog quantity input voltage range	DC ± 10 V [corresponding to rated speed at ±10 V] (full-function model)			
	Torque limit function	Internal parameter setting or analog input (full-function model)			
Torque control	Control mode	External analog instruction control (full-function model)/Internal parameters/DI terminal switching (analog quantity/internal parameters)/Communication specified			
	Analog quantity input voltage range	DC ± 10 V [corresponding to rated torque at ±10 V] (full-function model)			
	Speed limit function	Internal parameter setting or analog input (full-function model)			
Common functions	Control signal	Input/Output	5IN/OUT	5IN/OUT	(5IN/5OUT)/9IN/8OUT
	Analog quantity signal	Input/Output	2IN ± 10V		
	STO		N/A		
	Speed observer function		Available		
	Damping control function		Available		
	Adaptive notch filter		Available		
	Automatic adjustment function		Available		
	Encoder output frequency division		N/A	Available	Available
	Dynamic braking		Available		
	Regeneration function		External regenerative resistor (30 Ω to 50 Ω, 100 W to 300 W)		
	Protection function		Overvoltage, power supply anomaly, overcurrent, overtemperature anomaly, overload, encoder anomaly, overspeed, excessive position deviation, and abnormal parameters		
	Communication function	USB	Used for PC communication (for "Servostudio" connection)		
		Machine type	RS485/EtherCAT	RS485	RS485/EtherCAT

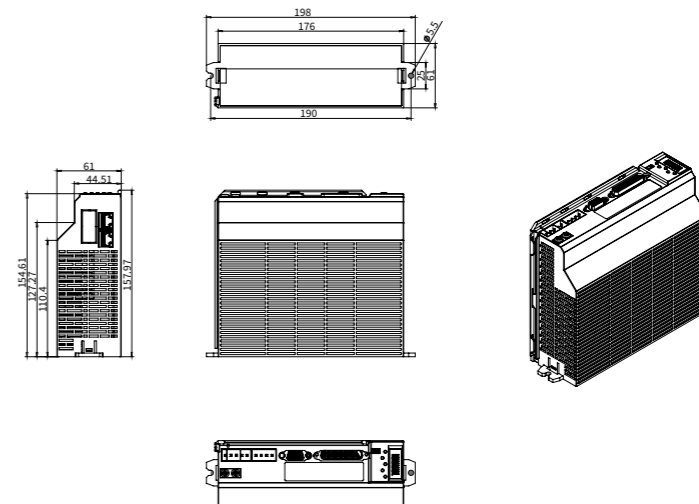
Dimensions of Drivers (Unit:mm)

ST5/6/7/8-A030/A060-BXXX series & ST6/8-A030/A060-EXXX series



Driver series	Specification Model	Length (mm)	Width (mm)	Height (mm)	Installation Hole Spacing (mm)	Installation Hole Diameter (mm)
ST6/7/8	A030-BXXX	179	44.51	157.97	190	5.5
	A060-BXXX					
ST6/8	A030-EXXX	179	44.51	157.97	190	5.5
	A060-EXXX					

ST6/7/8-A100-BXXX series & ST6/8-A100-EXXX series



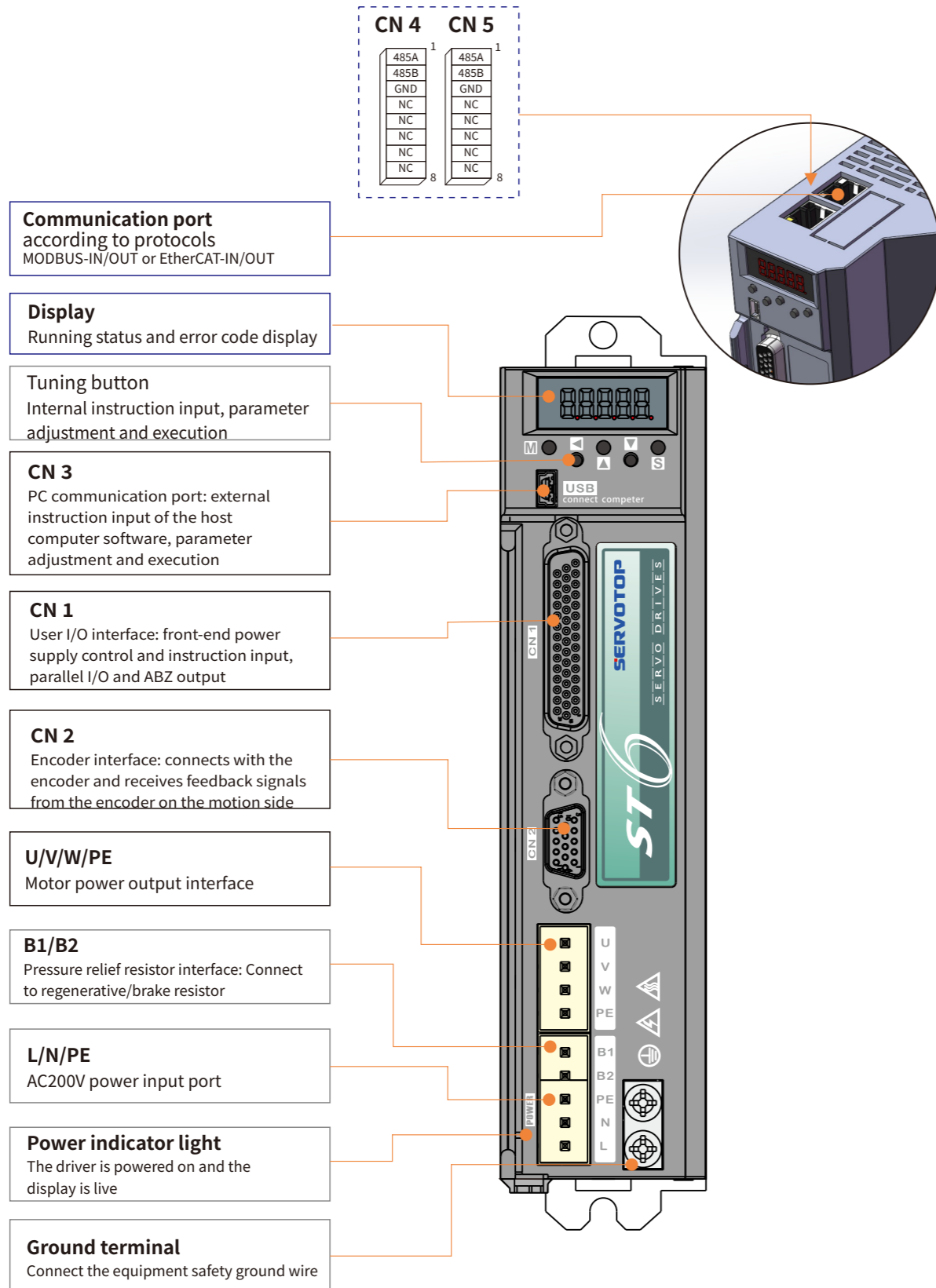
Driver series	Specification Model	Length (mm)	Width (mm)	Height (mm)	Installation Hole Spacing (mm)	Installation Hole Diameter (mm)
ST6/7/8	A100-BXXX	176	61	157.97	190	5.5
ST6/8	A100-EXXX					

Driver selection

Driver selection

Driver panel interface description

Driver connector terminal arrangement

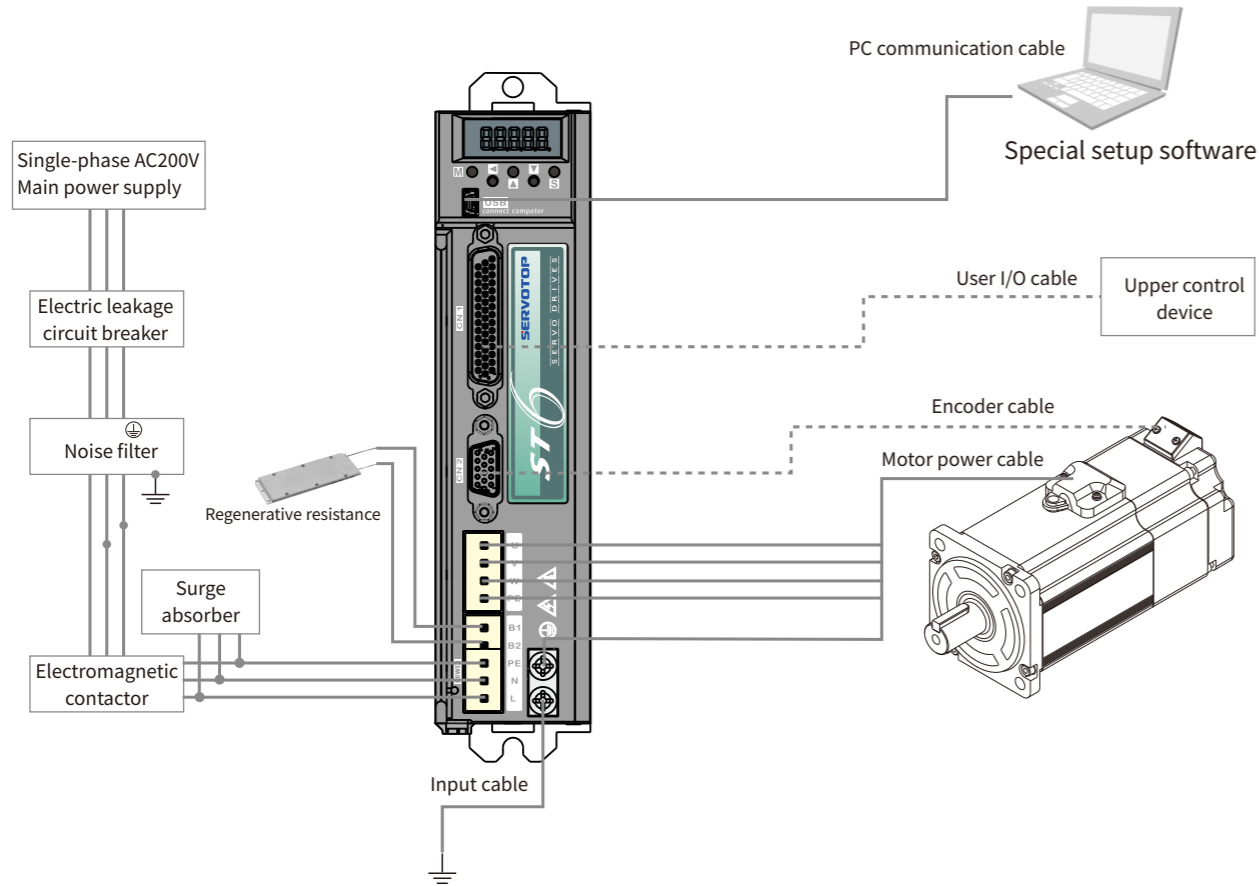


Name	Mark	Terminal number	Signal Name	Content
Regenerative resistor connection	B1/B2	1	B1	B1 interface for regenerative resistor connection
		2	B2	B2 interface for regenerative resistor connection
Unidirectional AC 200 V inputon	PE	3	PE	Grounding
	L/N	4	Power	L/N
	5			
Electric power input	U/V/W	1	U	Motor power U-phase output
		2	V	Motor power V-phase output
		3	W	Motor power W-phase output
Encoder	CN2	1	B+	Incremental encoder phase B +
		2	B-	Incremental encoder phase B -
		3	PS+(485+)	Absolute-value encoder +
		4	PS- (485-)	Absolute-value encoder -
		5	MA-	
		6	MA+	
		7	GND	Internal power supply GND
		8	A+	Incremental encoder phase A +
		9	A-	Incremental encoder phase A -
		10	Z+	Incremental encoder phase Z +
		11	Z-	Incremental encoder phase Z -
		12	SL+	
		13	SL-	
		14	+5V	Internal power supply +5 V (max. load current 500 mA)
		15	GND	Internal power supply GND
PC communication	CN3	1	VBUS	USB power supply
		2	D-	USB data -
		3	D+	USB data +
		4	NC	—
		5	GND	USB signal grounding
User I/O	CN1	For details, see "Cabling Instructions for User Control Terminal (CN1)" (P113-114)		
Communication port according to protocols	CN4/CN5	1	485A	485 communication port
		2	485B	
		3	GND	Internal power supply GND

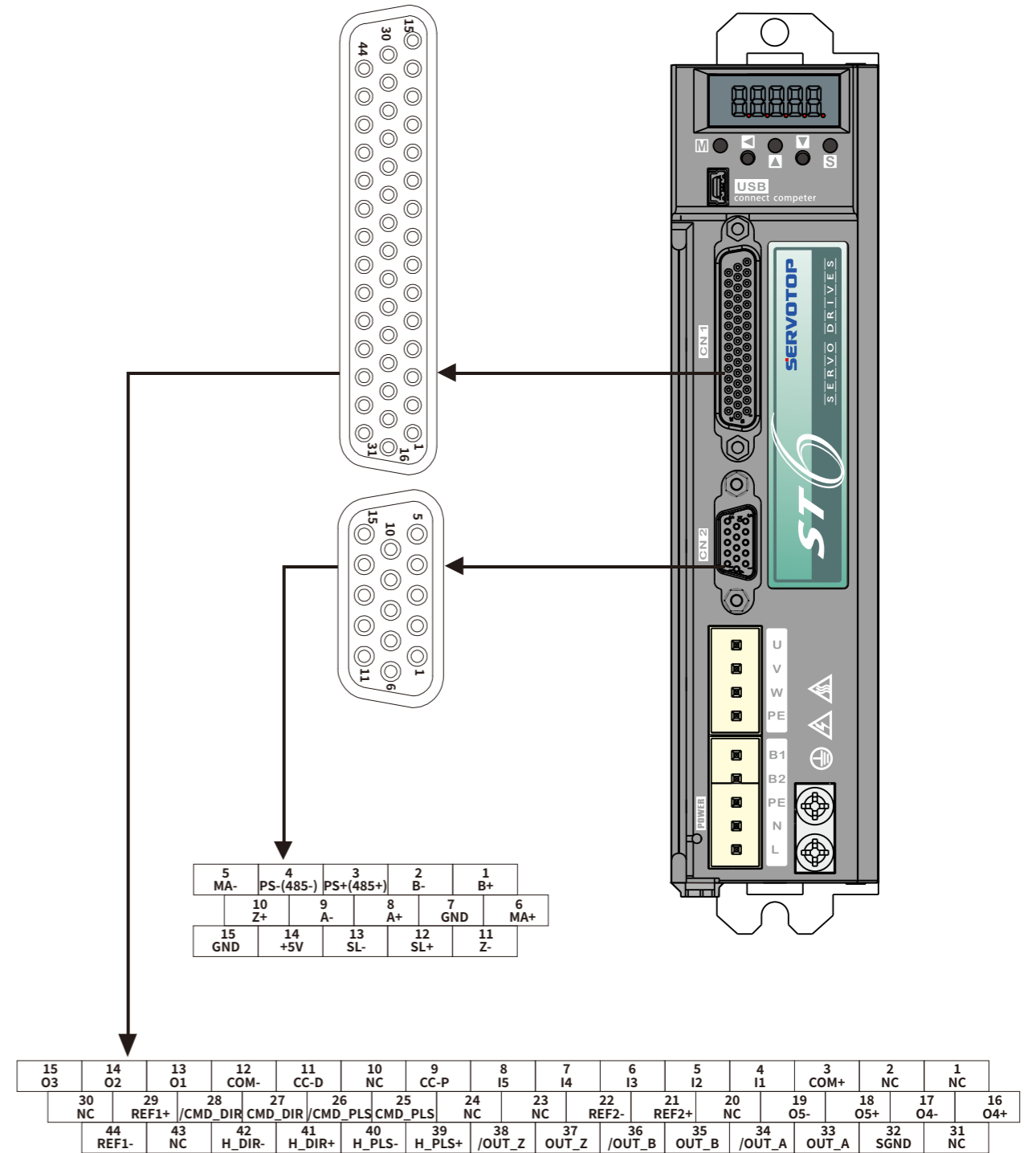
Driver selection

Driver selection

System cabling diagram



Cabling for connecting panel terminals (CN1/CN2)



【Key points of correct cabling】

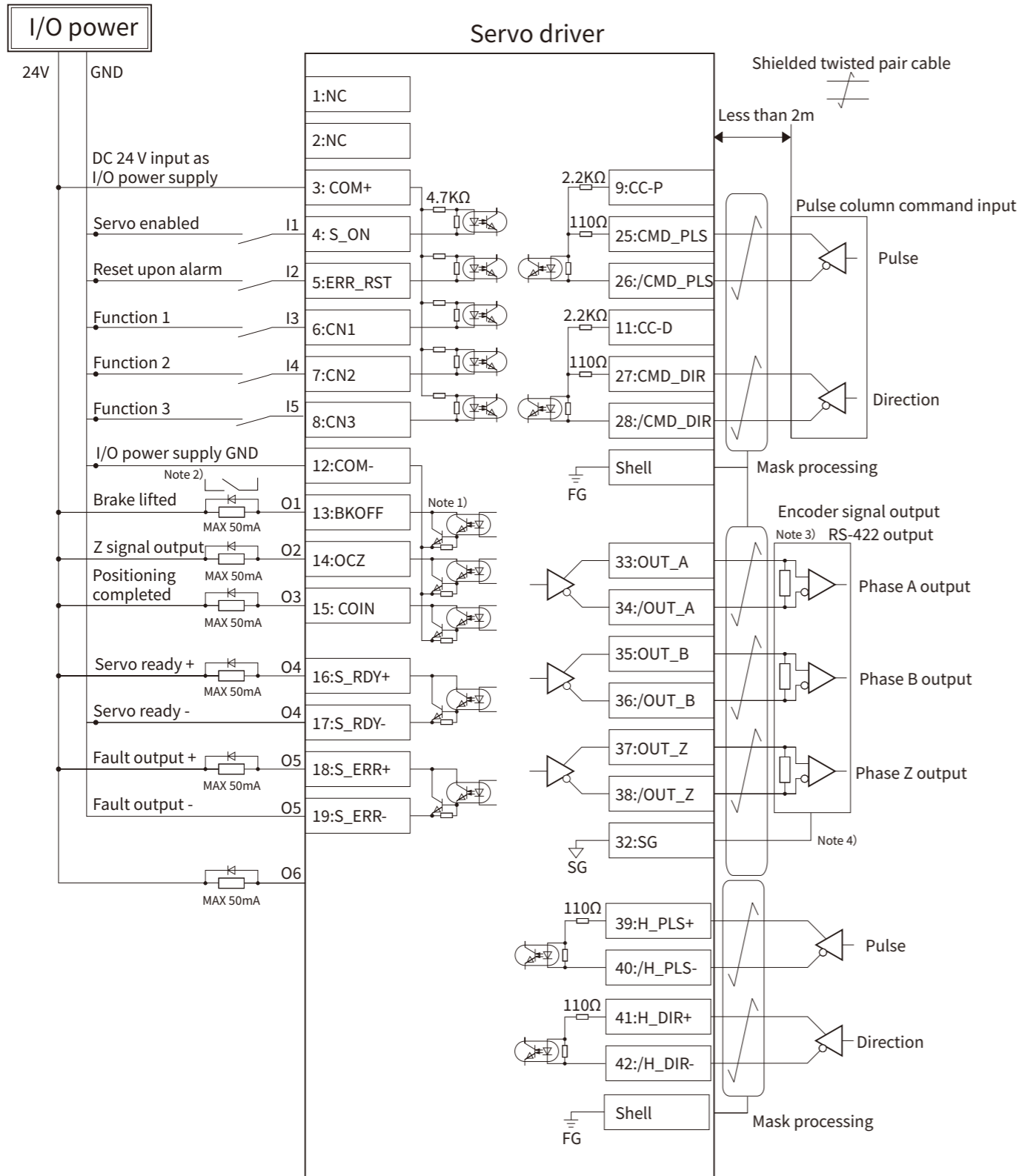
- ※ Use a twisted pair with shielded wire when a user's I/O cable is longer than 50 cm.
- ※ The encoder cable shall be shorter than 15 m.



Note

1. There is a high voltage in the circuit in the solid part of the cabling diagram. Exercise caution when performing cabling operations or using the system.
2. The dotted part of the cabling diagram indicates a non-hazardous voltage circuit.

Differential input of pulse commands



Differential input of pulse commands

Note 1: When driving loads with inductive components such as relays, connect the protection circuit (diode).

Note 2: The output circuit adopts the Darlington transistor output mode of the open-collector, which is connected to the relay or optocoupler. When the transistor status is ON, the voltage between the open-collector and the emitter is about VCE (SAT) 1 V, which cannot meet the VIL voltage requirements of TTL level IC. Do not connect the output circuit directly.

Note 3: The differential pulse output and the differential signal connection terminal of the 485 communication circuit need to be connected to the terminal resistor.

Note 4: The signal ground wire of the upper control device that connects to the encoder output signal of the driver is connected. The signal grounding and the GND connection of the control power supply may cause misoperation.

※The DI function can be flexibly configured by a function code. DI is effective when it is turned on by default, and its positive-negative logic can be modified by using the function code.
 ※The DO function can be flexibly configured by a function code. DO is turned on when it is effective by default, and its positive-negative logic can be modified by using the function code.

Cabling Instructions for User Control Terminal (CN1)

Name	Terminal number	Signal Name	Content
User control I/O	1	NC	Reserved
	2	NC	Reserved
	3	COM+	I/O power input 24 V+ (connected when using input signal)
	4	I1	Servo enabled S_ON (configurable)
	5	I2	Alarm reset ERR_RST (configurable)
	6	I3	Position torque switching (origin input signal, combination function 1) (configurable)
	7	I4	Combined function 2 (positive over-travel P_OT) (configurable)
	8	I5	Combined function 3 (negative over-travel N_OT) (configurable)
	9	CC-P	Collector pulse command input PLS power supply (24 V)
	10	NC	Reserved
	11	CC-D	Collector pulse command input DIR power supply (24 V)
	12	COM-	IO power input GND (connected when using output signal)
	13	O1	Brake lifting BKOFF (configurable)
	14	O2	OCZ encoder Z-phase signal output (open-collector) (configurable)
	15	O3	Positioning completed (configurable)
	16	O4+	Servo ready + S_RDY+ (configurable)
	17	O4-	Servo ready - S_RDY- (configurable)
	18	O5+	Fault output + S_ERR+ (configurable)
	19	O5-	Fault output - S_ERR- (configurable)
	20	NC	Reserved
	21	REF2+	Analog quantity input AI2+ (torque)
	22	REF2-	Analog quantity input AI2- (torque)
	23	NC	Reserved
	24	NC	Reserved
	25	CMD_PLS	Pulse command input 5V
	26	/CMD_PLS	Pulse command input PLS+ (≤ 1 MHz)
	27	CMD_DIR	Direction command input 5V
	28	/CMD_DIR	Direction command input PLS- (≤ 1 MHz)
	29	REF1+	Analog quantity input AI1+ (speed)
	30	NC	Reserved
	31	NC	Reserved
	32	SGND	Internal power supply GND
	33	OUT_A	Encoder signal pulse regenerative output A+
	34	/OUT_A	Encoder signal pulse regenerative output A-

Cabling Instructions for User Control Terminal (CN1)

Name	Terminal number	Signal Name	Content
User control I/O	35	OUT_B	Encoder signal pulse regenerative output B+
	36	/OUT_B	Encoder signal pulse regenerative output B-
	37	OUT_Z	Encoder signal pulse regenerative output Z+
	38	/OUT_Z	Encoder signal pulse regenerative output Z-
	39	H_PLS+	High-speed pulse signal input 5V
	40	H_PLS-	High-speed pulse signal input PLS- (≤ 4 MHz)
	41	H_DIR+	High-speed direction signal input 5V
	42	H_DIR-	High-speed direction signal input DIR- (≤ 4 MHz)
	43	NC	Reserved
	44	REF1-	Analog quantity input 1- (speed)

Driver connector terminal arrangement

Name	Terminal number	Signal Name	Content
Encoder	1	B+	Incremental encoder phase B +
	2	B-	Incremental encoder phase B -
	3	PS+(485+)	Absolute-value encoder +
	4	PS-(485-)	Absolute-value encoder -
	5	MA-	
	6	MA+	
	7	GND	Internal power supply GND
	8	A+	Incremental encoder phase A +
	9	A-	Incremental encoder phase A -
	10	Z+	Incremental encoder phase Z +
	11	Z-	Incremental encoder phase Z -
	12	SL+	
	13	SL-	
	14	+5V	Internal power supply +5 V (max. load current 500 mA)
	15	GND	Internal power supply GND