FINGER CNC

Open Designs Customize The Future

Servo Selection Manual

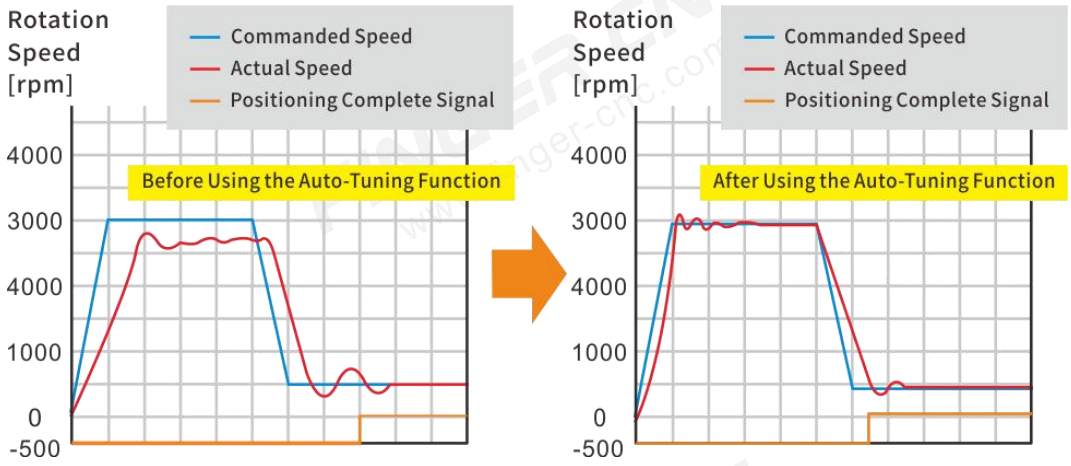
Version No: F202309SS-CN

Guangzhou Finger Technology Co., Ltd

CONTENTS

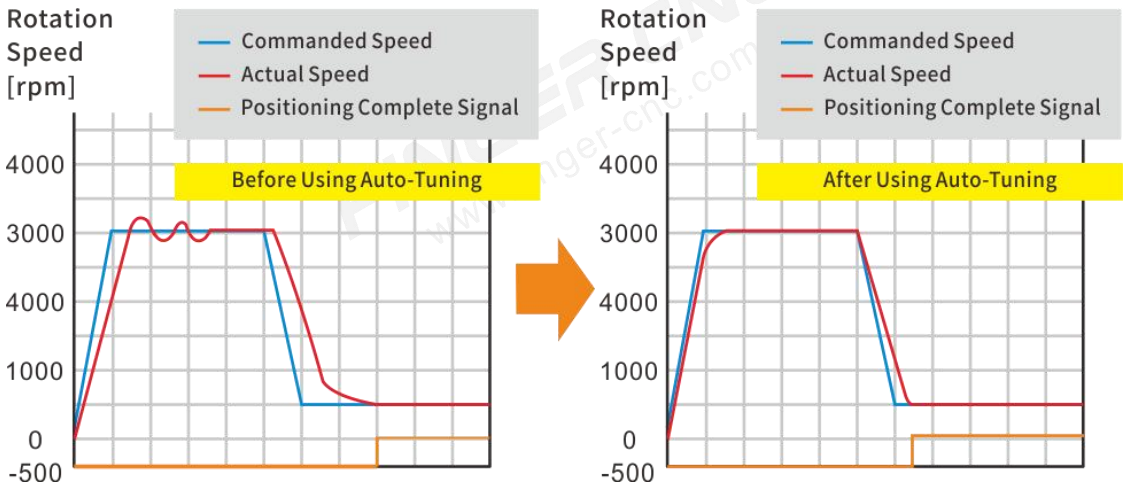
Part 1.Product Features

1.1 Zero Adjustment Function



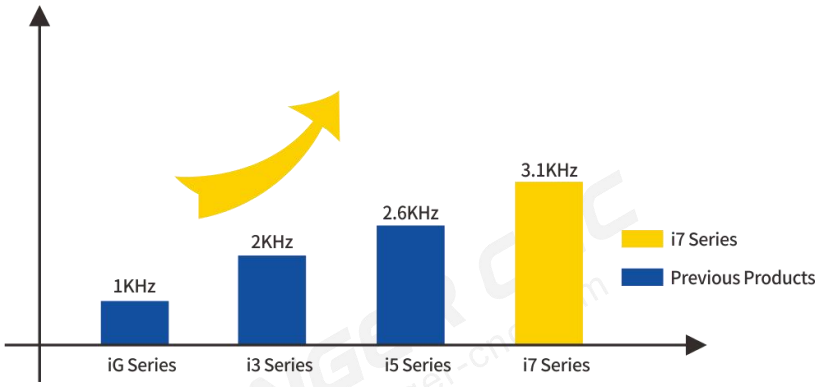
- Using the "Zero Adjustment Function," you can achieve rapid and stable operation with a single click for automatic tuning.
- No need to have a deep understanding of servo tuning principles; the tuning process becomes simpler.
- Even if there are changes in the load during operation, the equipment can continue to operate stably.

1.2 Auto-Tuning Function



- Based on the servo's auto-tuning algorithm, it continuously and automatically identifies changes in load inertia, adjusts gain parameters, and sets vibration suppression and notch filter frequencies in real-time.
- By using automatic tuning of parameters, it significantly reduces the debugging cycle, enhances system responsiveness, and improves equipment production efficiency.

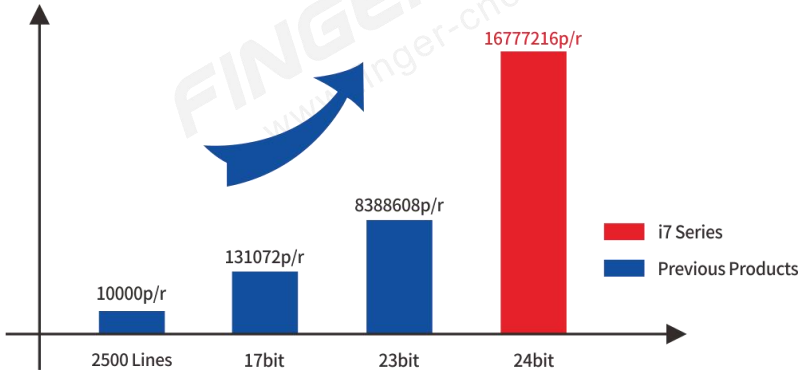
1.3 Significant improvement in speed response



Thanks to enhanced hardware performance and optimized control algorithms,

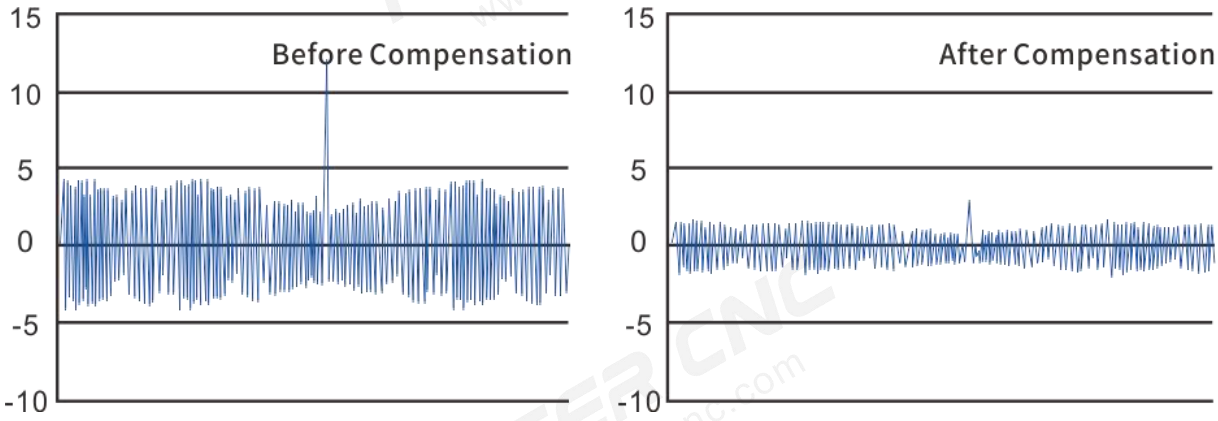
- The i7 series products have increased their speed response frequency to 3.1 kHz,
- Resulting in a significant improvement in product responsiveness.

1.4 Supports a variety of encoders



- Supports multiple types of encoders.
- The i7 series products can accommodate high-resolution encoders with up to 24 bits.
- The encoder's single-turn resolution reaches 16,777,216 p/r.
- With higher encoder resolution, the system achieves greater precision and more accurate positioning.

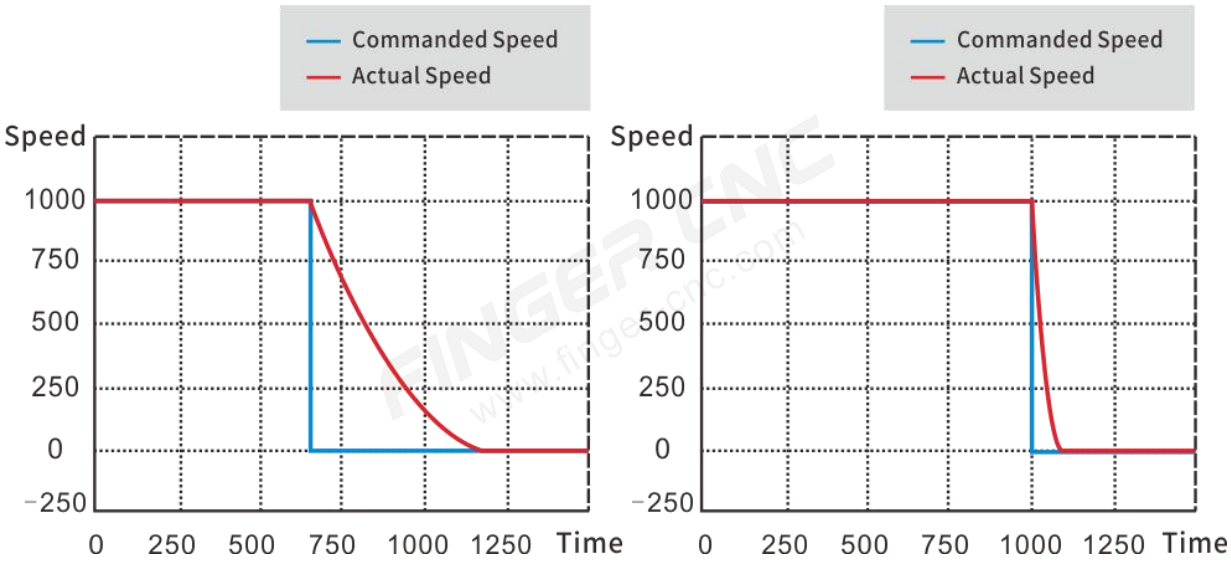
1.5 Friction Compensation and Backlash Compensation



Enabling Compensation Function

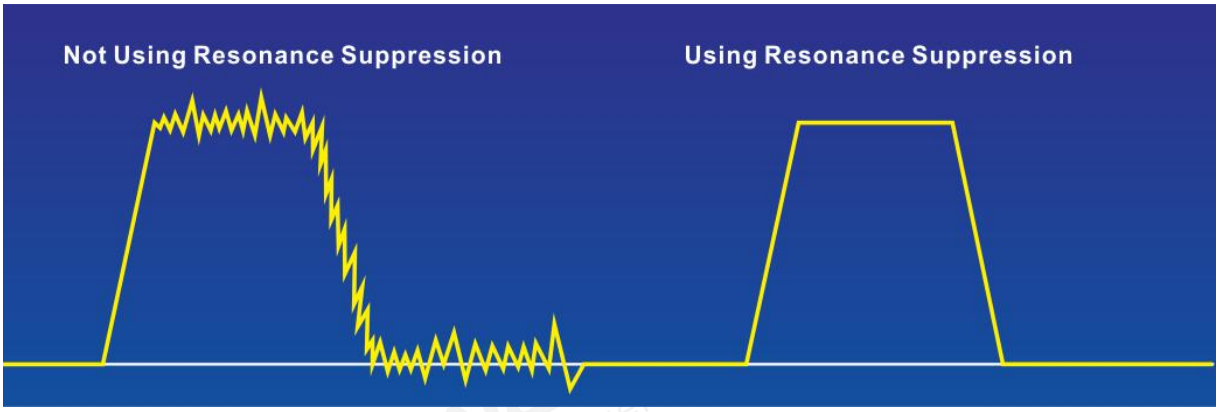
- Effectively reduces switching deviation, enhancing machining precision.
- Improves stability during low-speed operation.

1.6 Dynamic Braking Function

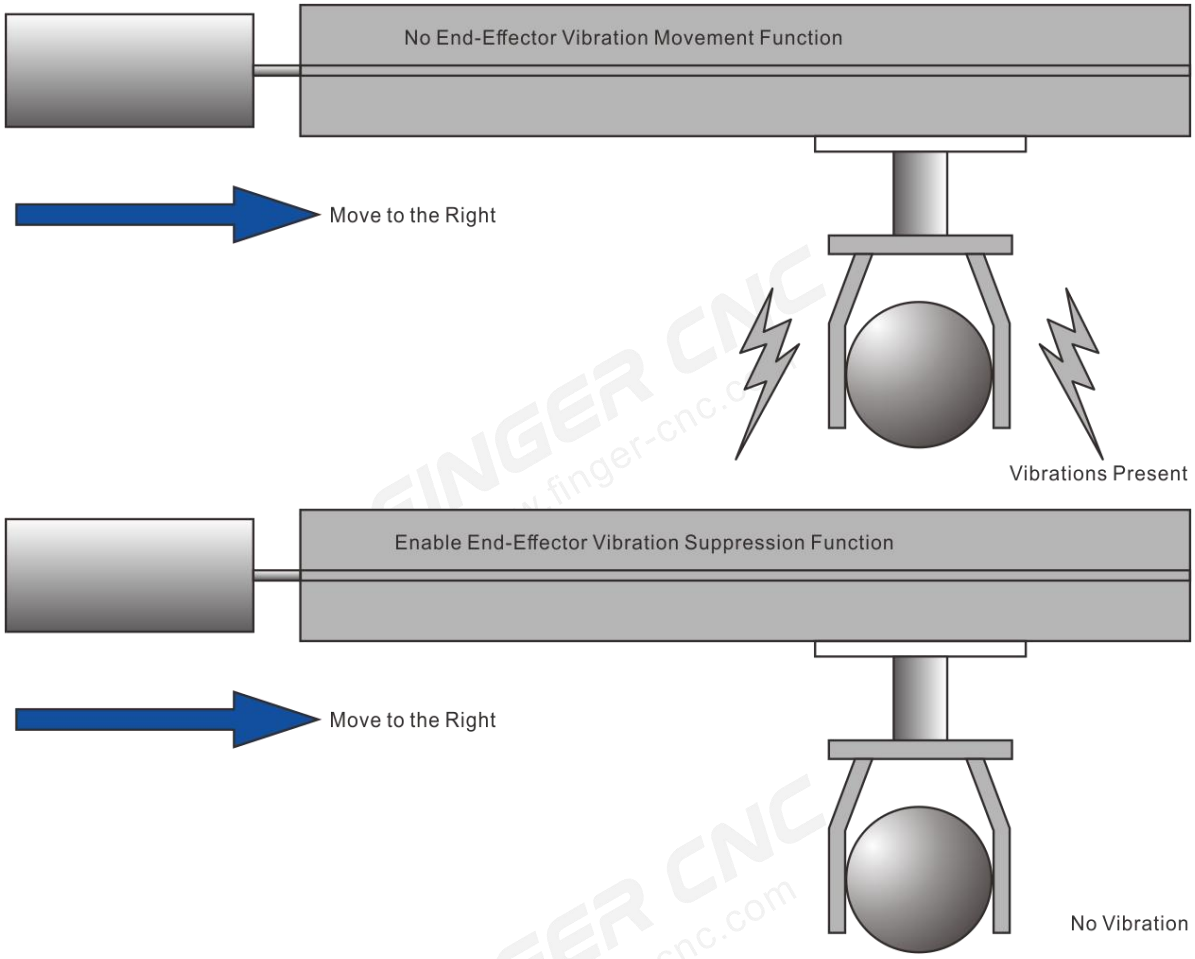


Dynamic braking involves quickly short-circuiting all three phases of the motor in emergency situations to bring it to a rapid stop, ensuring the safety of both personnel and equipment.

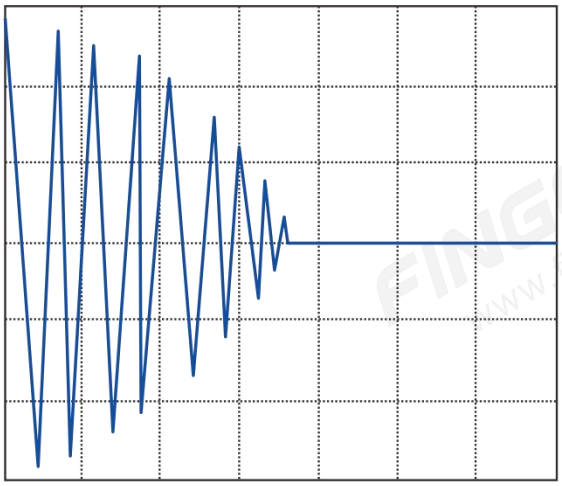
1.7 Vibration Suppression Function



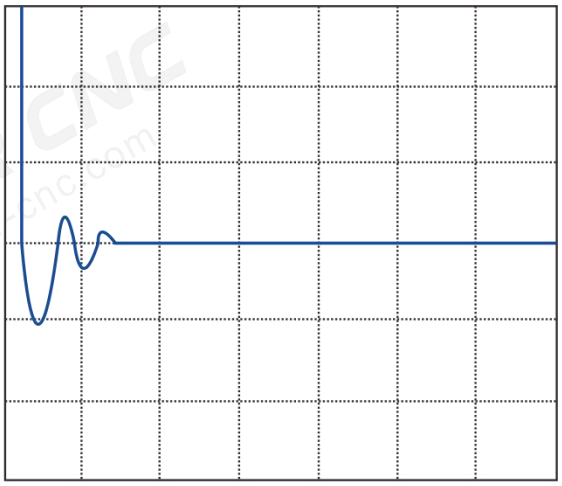
- Built-in with 5 notch filters,Effectively suppresses mechanical resonance.
- Suppresses high-frequency vibrations above 500Hz.



- Enhanced end-point vibration suppression function effectively reduces mechanical end-point vibrations.
- Suppresses low-frequency vibrations in the range of 0.5-300Hz.

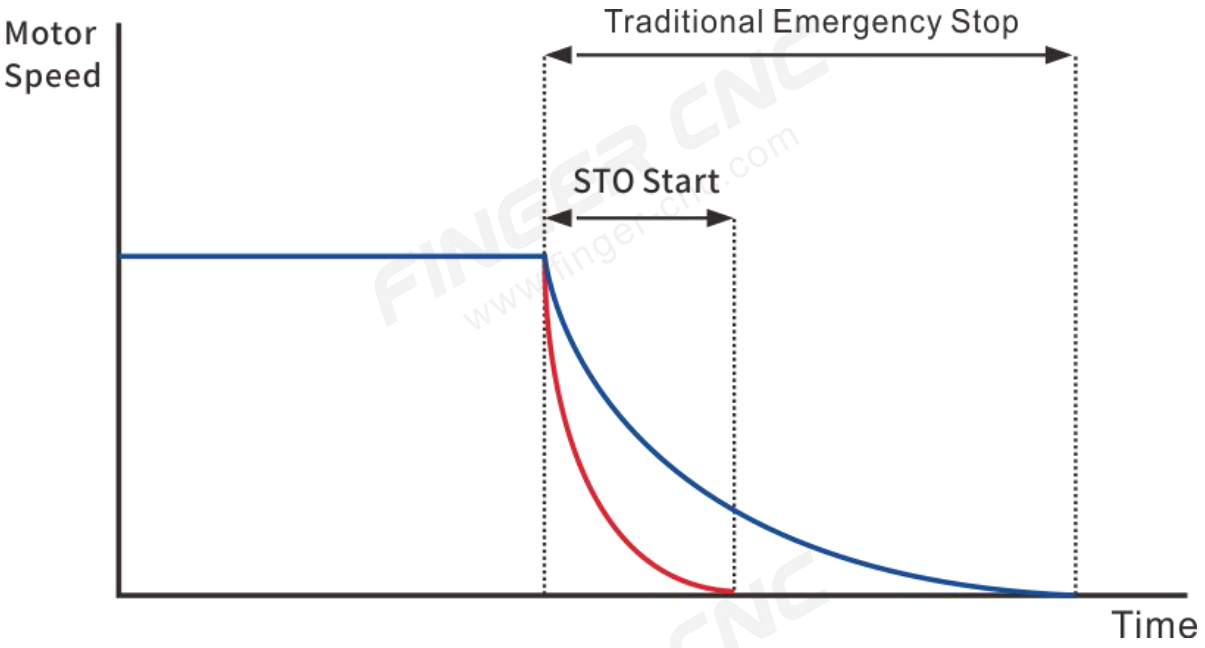


Positioning Curve with No End-Effector Vibration Suppression Function



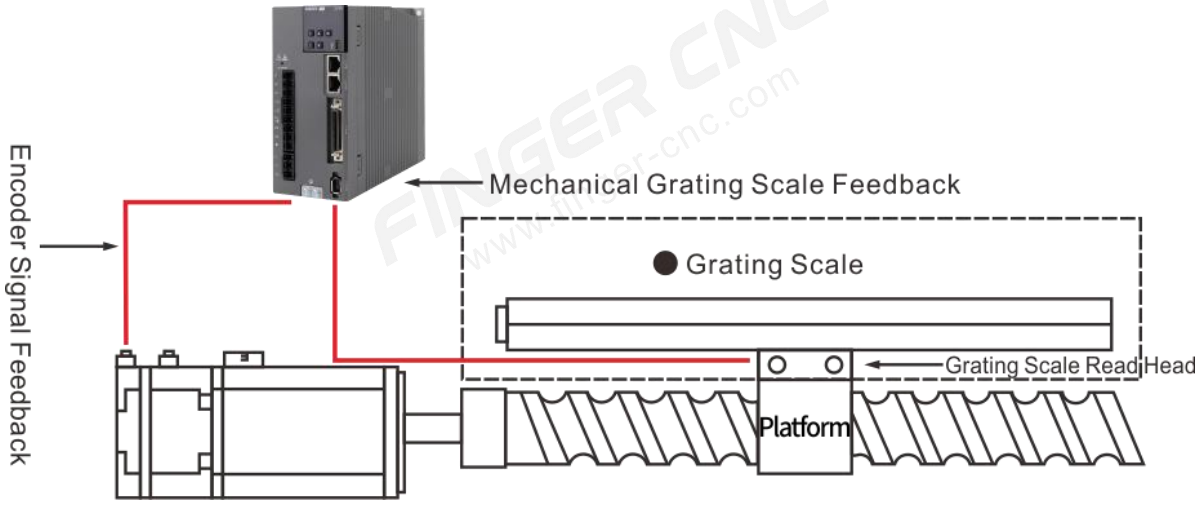
Positioning Curve with End-Effector Vibration Suppression Function Enabled

1.8 Safety Stop Function (STO)



- Supports Safe Torque Off (STO) Function (Product does not come with STO by default; it can be customized).
- Ensures that when STO is activated, the servo system rapidly stops without disconnecting power, ensuring the safety of both personnel and equipment.

1.9 High-Performance Closed-Loop Control



- Full closed-loop control can be externally connected to an optical grating ruler or encoder, allowing for high-precision position control by reading the terminal's position feedback signal.

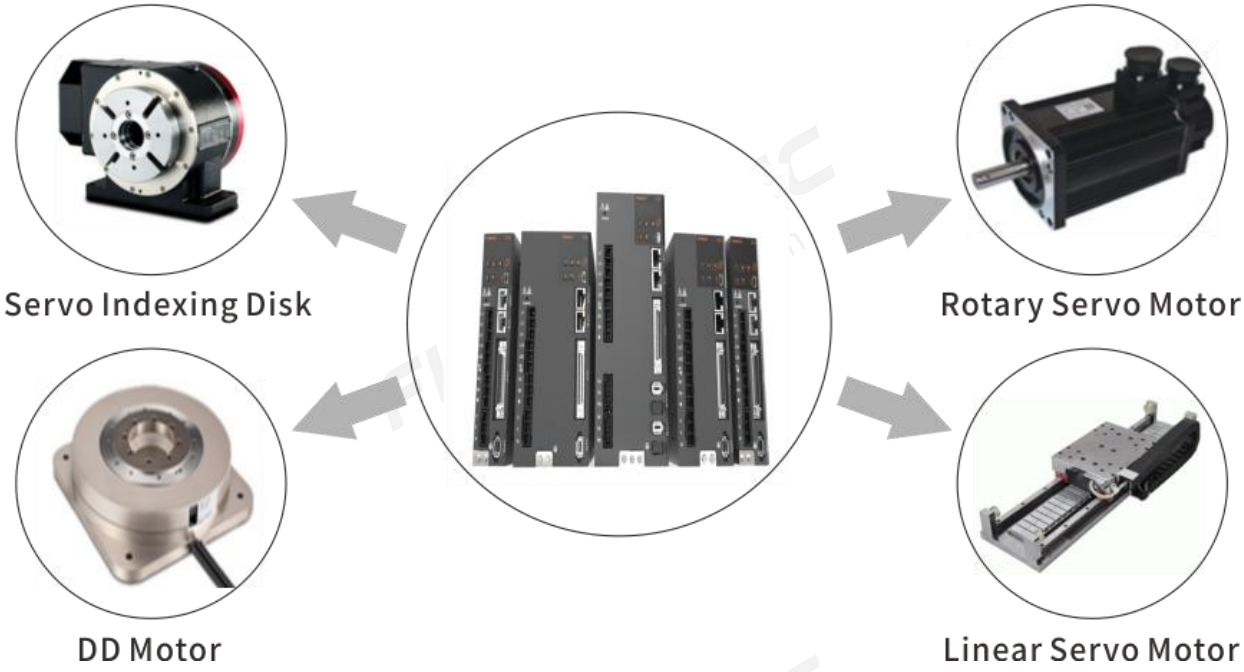
1.10 Supports multiple communication interfaces, enabling high-speed and high-precision control

Supports communication interfaces:

- Mini-USB communication interface for convenient and fast upper computer debugging.
- RS485 universal bus using the Modbus standard communication protocol.
- MECHATROLINK-III bus with a data transfer rate of up to 100Mbps.
- EtherCAT bus with a data transfer rate of up to 100Mbps.

Utilizing the EtherCAT communication method, the i7 series products achieve an impressive sync cycle as fast as 125 microseconds, which is eight times shorter than the previous generation, meeting the demands of high-speed, high-precision control.

1.11 Adaptable to a Wide Range of Motors



Supports a Variety of Motor Types

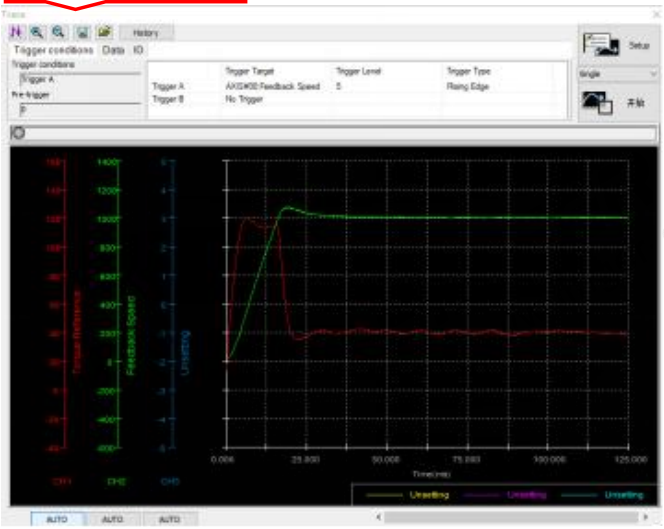
- Rotary motors, linear motors, DD motors, etc.
- Supports Multiple Motor Feedback Types: Optical encoders, magnetic encoders, gratings, etc.
- Supports Encoders with Communication Protocols such as Biss-C and ENDAT 2.2.
- Convenient adaptation interface, allowing users to freely match non-standard motors."

1.12 Efficient and User-Friendly Debugging Software

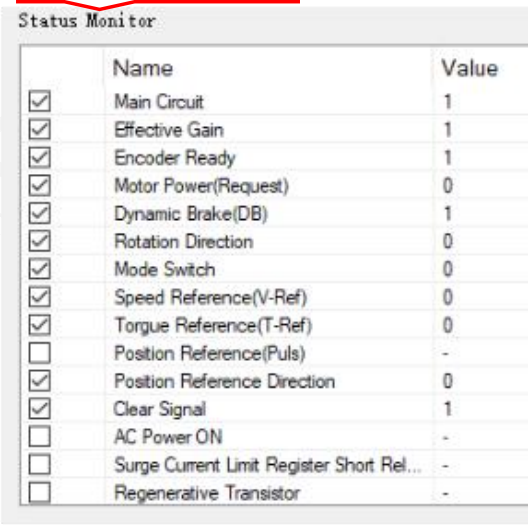
Parameter Management

Auxiliary Debugging

Data Sampling



Status Monitoring



- Using the iWatch+ upper computer software, you can access a variety of practical functions, including parameter management, status monitoring, sample tracking, and auxiliary debugging.
- It features a user-friendly interface for quick and easy operation.

Part 2.High Performance Servopack——iF/i7 Series

2.1 i7 Series Single Axis Servopack——iF/i7DS

2.1.1 Model Designation

iF/i7DS	-	10	-	A	-	00	-	DB
i7 Series Single Axis Servopack		Continuous Output Current		Rated Input Voltage		Interface Type		Functional Type

2.1.2 Parameter Specifications

Continuous Output Current		Power Supply Voltage		Interface Type		Functional Type	
03	3 A	A	220VAC	00	Pulse train reference	Null	Standard configuration
06	6 A						
				20	MECHATROLINK-Ⅲ Communications	SF	Suppor the function of Safe Torque
08	8 A						
						F1	Support full closed-loop (TTL encoder of Second channel)
10	10 A			30	EtherCAT Communications		
16	16 A					F2	Support full closed-loop （BISS-C encoder of Second channel）
25	25 A						
						DB	Support DB stop function
06	6 A	D	380VAC				
10	10 A					DD	Special for direct drive motor（orts BISS-C ENDAT2.2）
21	21 A						
28	28 A						
40	40 A						

- The maximum continuous output current for the iFDS driver is 25A.
- If the interface type ends with "0" and is 2, it means that the driver has a power-off hold function.

2.2 i7 Series Dual-Axis Servo Drive - iF/i7DW

2.2.1 Model Description

iF/i7DW	-	10	-	A	-	00
i7 Series Dual-Axis Servo Drive		Continuous Output Current		Rated Input Voltage		Interface Type

2.2.2 Parameter Specifications

Continuous Output Current	
03	3 A
06	6 A
08	8 A
10	10 A

Rated Input Voltage	
A	220VAC

Interface Type	
00	Pulse train reference
20	MECHATROLINK-III Communications
30	EtherCAT Communications

- The maximum specification for Continuous Output Current for the dual-axis drive is 10A.
- When the Interface Type ends with "2," it means that the driver has a power-off hold function.

2.3 i7 Series Three-Axis Servo Drive - i7D3

2.3.1 Model Description

i7D3	-	03	-	A	-	30
i7 Series Three-Axis Servo Drive		Continuous Output Current		Rated Input Voltage		Interface Type

2.3.2 Parameter Specifications

Continuous Output Current	
03	3 A
06	6 A

Rated Input Voltage	
A	220VAC

Interface Type	
30	EtherCAT Communications

2.4 i7 Series Four-Axis Servo Drive - i7D4

2.4.1 Model Description

i7D4	-	06	-	A	-	30
i7 Series Four-Axis Servo Drive		Continuous Output Current		Rated Input Voltage		Interface Type

2.4.2 Parameter Specifications

Continuous Output Current	
03	3 A
06	6 A

Rated Input Voltage	
A	220VAC

Interface Type	
30	EtherCAT Communications

2.5 Ratings

2.5.1 iF/i7DS Machine Model 220VAC

Model			iF/i7DS-03A□□	iF/i7DS-06A□□	iF/i7DS-08A□□	iF/i7DS-10A□□	iF/i7DS-16A□□	iF/i7DS-25A□□
Continuous Output Current [Arms]			3	6	8	10	16	25
Maximum Instantaneous Output Current [Arms]			10	14	21	23	50	63
Main Circuit	Power Supply		Single-Phase AC220V			Three-Phase AC220 V，-15% to +10%,50 Hz / 60 Hz		
	Input Current[Arms]		1.9	3.9	5.4	6.3	10.1	15.7
Control Power Supply			Single-Phase AC220 V，-15% to +10%,50 Hz / 60 Hz					
Input Power Capacity [kVA]			1.3	1.7	2.4	2.8	4.0	5.9
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	——	40	40	40	32	32
		Capacity[W]	——	80	80	80	150	150
	Allow External Resistor Minimum Resistance Value [Ω]"		30	15	12	12	12	10
Overvoltage Category			III					

2.5.2 i7DS Machine Model 380VAC

Model			i7DS-06D□□	i7DS-10D□□	i7DS-21D□□	i7DS-28D□□	i7DS-40D□□
Continuous Output Current [Arms]			6	10	21	28	40
Maximum Instantaneous Output Current [Arms]			14	25	50	63	100
Main Circuit	Power Supply		Three-Phase AC380 V，-15% to +10%,50 Hz / 60 Hz				
	Input Current[Arms]		5.9	9.7	18.7	24.8	36.0
Control Power Supply			DC24V，-10% to +10% 20W			Single-Phase AC380 V，-15% to +10%,50 Hz / 60 Hz	
Input Power Capacity [kVA]			3.9	7.8	14.8	19.8	28.8
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	40	40	32	Null	Null
		Capacity[W]	80	80	150	Null	Null
	Allow External Resistor Minimum Resistance Value [Ω]"		30	30	20	15	10
Overvoltage Category			III				

2.5.3 iF/i7DW Machine Model

Model			iF/i7DW-03A□□	iF/i7DW-06A□□	iF/i7DW-08A□□	iF/i7DW-10A□□
Continuous Output Current [Arms]			3	6	8	10
Maximum Instantaneous Output Current [Arms]			10	14	21	23
Main Circuit	Power Supply		Three-Phase AC220 V -15% to +10%,50 Hz / 60 Hz			
	Input Current[Arms]		5.1	10.3	14.3	16.8
Control Power Supply			Single-Phase AC220 V -15% to +10%,50 Hz / 60 Hz			
Input Power Capacity [kVA]			2.1	4.2	5.8	6.8
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	40	40	40	40
		Capacity[W]	80	80	80	80
	Allow External Resistor Minimum Resistance Value [Ω]"		15	15	15	15
Overvoltage Category			III			

2.5.4 i7D3/i7D4 Machine Model

Model			i7D3-03A□□	i7D3-06A□□	i7D4-03A□□	i7D4-06A□□
Continuous Output Current [Arms]			3	6	3	6
Maximum Instantaneous Output Current [Arms]			10	13	10	12
Main Circuit	Power Supply		Three-Phase AC220 V，-15% to +10%,50 Hz / 60 Hz			
	Input Current[Arms]		7.8	15.7	10.0	20.2
Control Power Supply			Single-Phase AC220 V，-15% to +10%,50 Hz / 60 Hz			
Input Power Capacity [kVA]			3.3	6.5	4.1	8.3
Regenerative Resistor	Built-In Regenerative Resistor	Resistance [Ω]	40	40	40	40
		Capacity[W]	150	150	150	150
	Allow External Resistor Minimum Resistance Value [Ω]"		10	10	10	10
Overvoltage Category			III			

Part 3. General-Purpose Servo Drive——C7 Series

3.1 C7 Series Single-Axis Servo Drive——C7DS

3.1.1 Model Description

C7DS	-	10	-	A	-	00	-	DD
C7 Series Single-Axis Servo Drive		Continuous Output Current		Rated Input Voltage		Interface Type		Functional Type

3.1.2 Parameter Specifications

Continuous Output Current		Rated Input Voltage		Interface Type		Functional Type	
06	6 A	A	220VAC	00	Pulse train reference	Null	Standard configuration
10	10 A						
				30	EtherCAT Communications	DD	Special for direct drive motor （TTL encoder）

3.2 C7 Series Dual-Axis Servo Drive——C7DW

3.2.1 Model Description

C7DW	-	10	-	A	-	00
C7 Series Dual-Axis Servo Drive		Continuous Output Current		Rated Input Voltage		Interface Type

3.2.2 Parameter Specifications

Continuous Output Current		Rated Input Voltage		Interface Type	
03	3 A	A	220VAC	00	Pulse train reference
06	6 A				
				30	EtherCAT Communications
10	10 A				

3.3 Ratings

3.3.1 C7DS Machine Model

Model			C7DS-06A□□	C7DS-10A□□
Continuous Output Current [Arms]			6	10
Maximum Instantaneous Output Current [Arms]			14	23
Main Circuit	Power Supply		Three-Phase AC220 , -15% to +10%,50 Hz / 60 Hz	
	Input Current[Arms]		3.9	6.3
Control Power Supply			AC220 V，-15% to +10%， 50 Hz / 60 Hz	
Input Power Capacity [kVA]			1.7	2.8
Regenerative Resistor	Built-In Regenerative Resistor	Resistance[Ω]	40	40
		Capacity[W]	80	80
	Allow External Resistor Minimum Resistance Value [Ω]"		15	15
Overvoltage Category			III	

3.3.2 C7DW Machine Model

Model			C7DW-03A□□	C7DW-06A□□	C7DW-10A□□
Continuous Output Current [Arms]			3	6	10
Maximum Instantaneous Output Current [Arms]			10	14	23
Main Circuit	Power Supply		Three-Phase AC220 V，-15% to +10%,，50 Hz / 60 Hz		
	Input Current[Arms]		5.1	10.3	16.8
Control Power Supply			AC220 V，-15% to +10%,，50 Hz / 60 Hz		
Input Power Capacity [kVA]			2.1	4.2	6.8
Regenerative Resistor	Built-In Regenerative Resistor	Resistance[Ω]	40	40	40
		Capacity[W]	80	80	80
	Allow External Resistor Minimum Resistance Value [Ω]"		15	15	15
Overvoltage Category			III		

3.4 Specifications

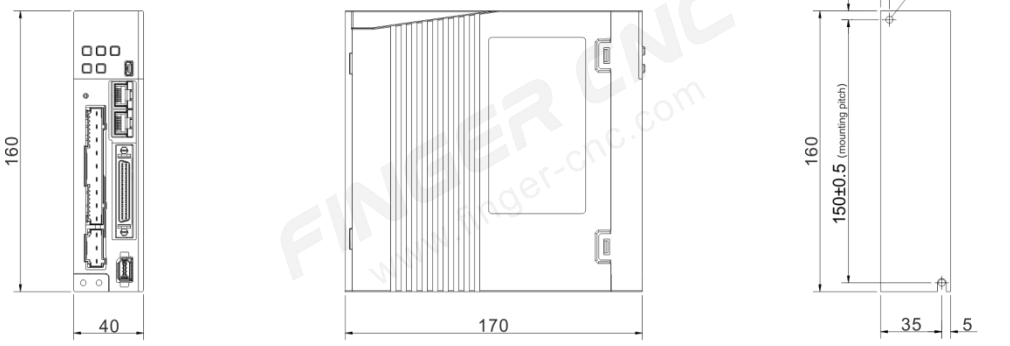
Items		Specification
Control Method		IGBT-based PWM control, sine wave current drive
Feedback		• Serial encoder：23 bits or 24 bits (incremental encoder/absolute encoder) • 2500P/R Standard or Wire-saving
Operating Conditions	Surrounding Air Temperature	0～＋50℃
	Storage Temperature	－20～＋85℃
	Surrounding Air Humidity	95% relative humidity max. (With no freezing or condensation)
	Storage Humidity	95% relative humidity max. (With no freezing or condensation)
	Vibration Resistance	4.9 m/s^2
	Shock Resistance	19.6 m/s^2
	Protection Class	IP20
	Pollution Degree	2 • Must be no corrosive or flammable gases. • Must be no exposure to water, oil, or chemicals. • Must be no dust, salts, or iron dust.
	Altitude	1000 m or less
	Others	Do not use SERVOPACKs in the following locations： Locations subject to static electricity noise, strong electromagnetic / magnetic fields, radioactivity
Applicable Standards		EN 50178, EN 61800-5-1, EN55011 group 1 class A, EN 61000-6-2, EN 61000-6-4, EN 61800-3,IEC 61508-1 to 4, IEC 61800-5-2, IEC 62061 and IEC 61326-3-1
Mouning		Standard: Base-mounted
Performance	Speed Control Range	1:5000 (The lower limit of the speed control range must be lower than the point at which the rated Torque does not cause the servomotor to stop.)
	Coefficient of Speed Fluctuation	±0.01% of rated speed max. (for a load fluctuation of 0% to 100%)
		0% of rated speed max. (for a voltage fluctuation of ±10%)
		±0.1% of rated speed max. (for a temperature fluctuation of 25°C±25°C)
	Torque Control Tolerance (Repeatability)	1%
	Soft Start Time Setting	0 to 10 s (can be set individually for acceleration and deceleration.)
Displays / Indicators		CHARGE indicator and five-digit seven-segment display
Panel Operator		Five push switches

Items			Specification
I/O Signal	Encoder Output Pulses		Phase A, phase B, phase C：line driver output； Number of divided output pulses: Any setting is allowed。
	Sequence Input	Input Signals That Can Be Allocated	Allowable voltage range: 24 VDC ±20%，Number of input points: 8 / 12
			Input method: Sink inputs or source inputs，Input signals: • Servo Enable (/S-ON) • Proportional Action (/P-CON) • Disable Forward Drive (/P-OT) • Disable Reverse Drive (/N-OT) • Clear Alarm (/ALM-RST) • Clear Position Deviation (/CLR) • External Torque Limit on Forward Side (/P-CL) • External Torque Limit on Reverse Side (/N-CL) • Internal Set Speed Switching (/SPD-A) • Gain Switching (/G-SEL) • Zero Clamp Position (/ZCLAMP) • Motor Rotation Direction Switching (/SPD-D) • Rotation Detection (/TGON) • Control Mode Switching (/C-SEL) • Inhibit Command Pulse Input (/INHIBIT) • Force Stop Input (/FSTP) • External Interlock Input (/EXT) • Command Pulse Input Scaling Switch (/P-SEL) • Origin Reset Deceleration Switch Input (/DEC) A signal can be allocated and the positive and negative logic can be changed.
	Sequence Output	Output Signals That Can Be Allocated	Allowable voltage range: 5 VDC to 30 VDC，Number of output points: 6 / 8
			Output Signals: • Position Complete (/COIN) • Speed Limit Detection (/VLT) • Brake (/BK) • Speed Consistency Detection (/V-CMP) • Servo Ready (/S-RDY) • Rotation Detection (/TGON) • Torque Limit Detection (/CLT) • Near Position Output (/NEAR) • Servo Alarm (/ALM) • Servo Warning (/WARN) • Command Pulse Input Scaling Output (/PSELA) • Encoder C Pulse Output (/PGC) A signal can be allocated and the positive and negative logic can be changed.
Communications	RS-485 Communications	Communications Standard	MODBUS
		1:N Commu`nications	Up to N = 50 stations possible for RS-485 port
		Axis Address Setting	Set with parameters

Items				Specification
Communications		CAN Communications	Communications Standard	CANOpen (DS301＋DS402)
			1:N Communications	N=127 max. available
			Axis Address Setting	Set with parameters
Control	Position Control	Feedforward Compensation		0 to 100%
		Positioning Completed Width Setting		0 to 1,073,741,824 reference units
		Input Signals	Reference pulses	Reference Pulse Form	One of the following is selected: Sign + pulse train、CW + CCW pulse train、or two-phase pulse train with 90°phase differential
				Input Form	Line driver or open collector
				Maximum Input Frequency	• Line driver Sign + pulse train or CW + CCW pulse train：500kpps Two-phase pulse train with 90°phase differential：500kpps • Open Collector Sign + pulse train or CW + CCW pulse train：200kpps Two-phase pulse train with 90°phase differential：200kpps
	Speed Control	Soft Start Time Setting			0 to 10 s (can be set individually for acceleration and deceleration.)
		Input Signals	Reference Voltage		• Max. input voltage：±10 V (forward speed reference with positive reference) • 150(r/min)/V (default setting)；Input gain setting can be changed.
			Input Impedance		Approx. 20 KΩ
			Circuit Time Constant		47μs
		Internal Set Speed Control	Rotation Direction Selection		With Proportional Control signal
			Speed Selection		With forward/reverse external Torque limit signal (speed 1 to 3 selection). Servomotor stops or another control method is used when both are OFF.
	Torque Control	Input Signals	Reference Voltage		• Maximum input voltage: ±10 V (forward Torque output for positive reference). • 3.3 VDC at rated Torque (default setting); Input gain setting can be changed.
			Input Impedance		Approx. 20 KΩ
			Circuit Time Constant		47μs
Regenerative Processing					Built-in or external regenerative resistors (options)
Overtravelling (OT) Prevention					Dynamic brake stop at P-OT or N-OT, deceleration to a stop, or free run to a stop
Protective Functions					Overcurrent, Overvoltage, low voltage, overload, regeneration error , etc.
Utility Functions					Gain adjustment, alarm history, JOG operation, etc.

3.5 External Dimensions

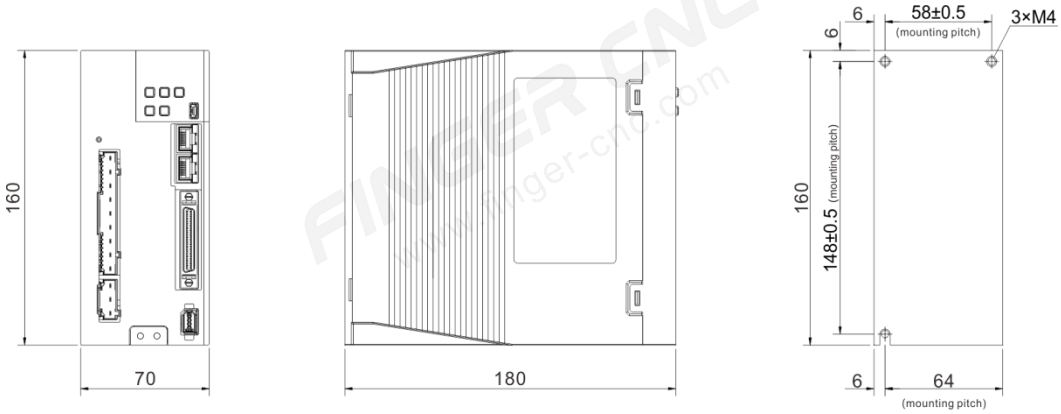
3.5.1 iF/i7DS-03A□□



Unit : mm

Mounting Hole Diagram

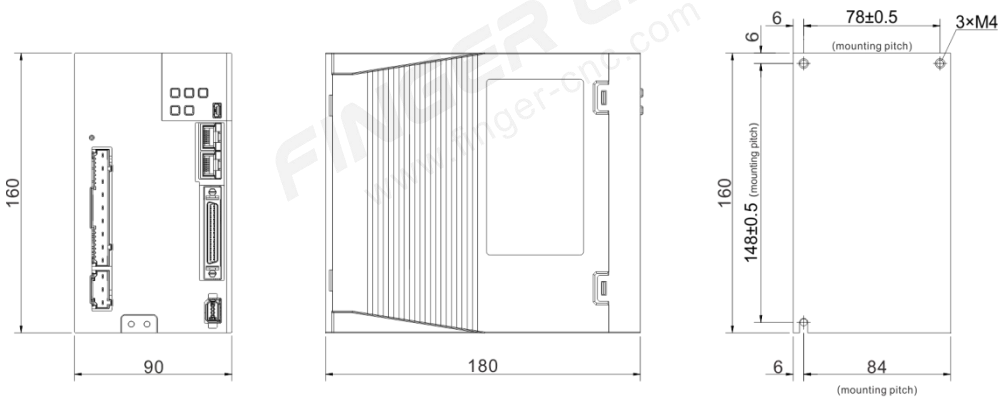
3.5.2 iF/i7DS-06A□□ C7DS-06/10A□□



Unit : mm

Mounting Hole Diagram

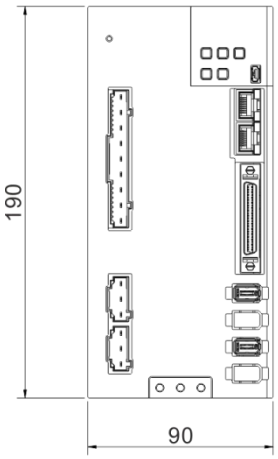
3.5.3 iF/i7DS-08/10A□□ i7DS-06/10D□□

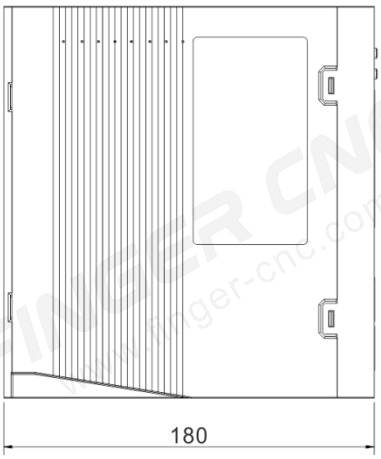


Unit : mm

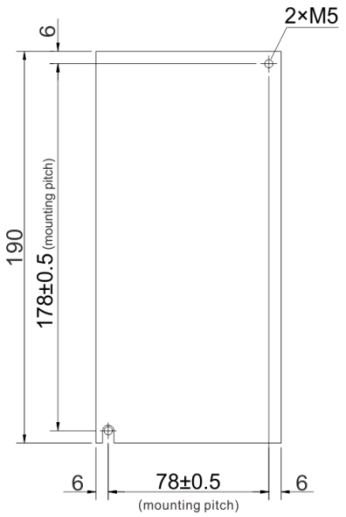
Mounting Hole Diagram

3.5.4 iF/i7DW-03/06/08/10A□□ C7DW-03/06/10A□□



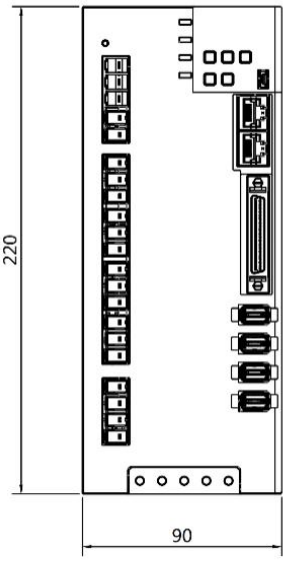


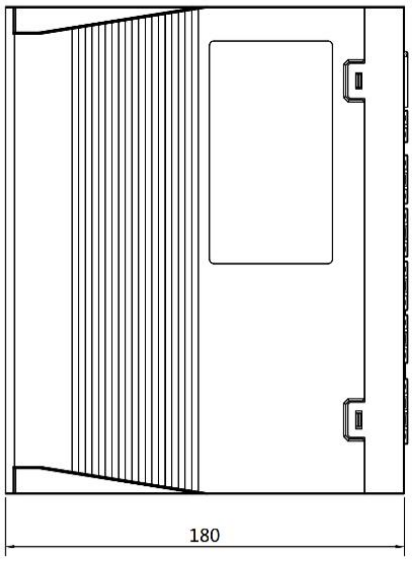
Unit : mm



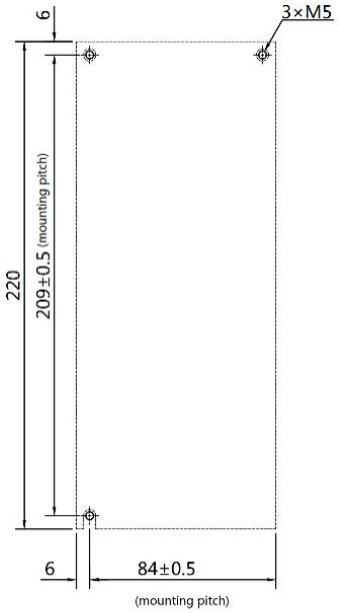
Mounting Hole Diagram

3.5.5 i7D3-03/06A□□ i7D4-03/06A□□



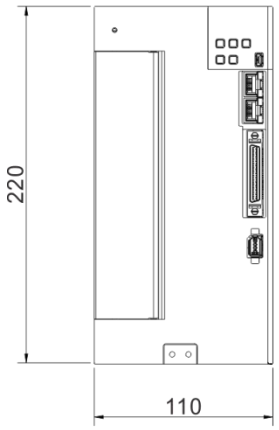


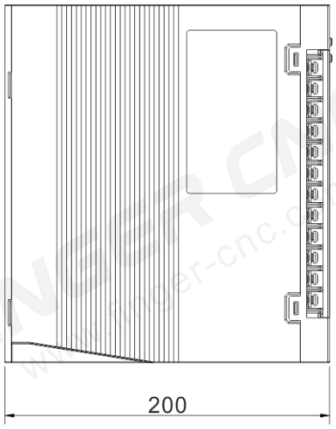
Unit : mm



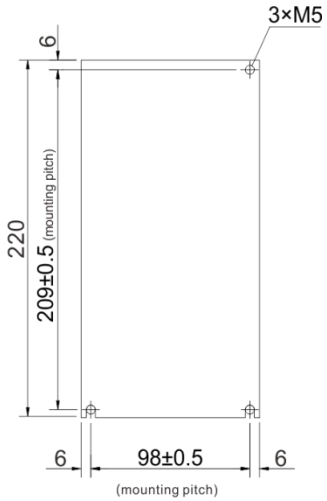
Mounting Hole Diagram

3.5.6 iF/i7DS-16/25A□□ i7DS-21D□□



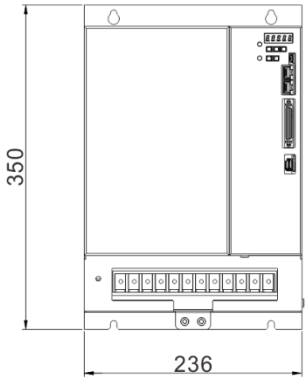


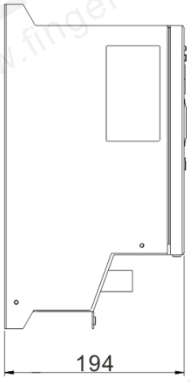
Unit : mm



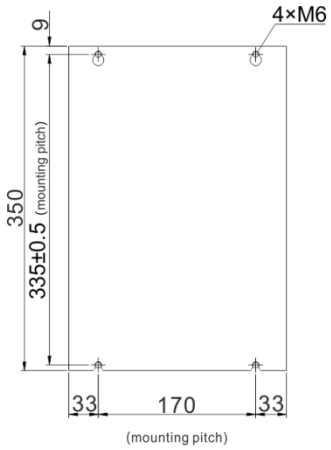
Mounting Hole Diagram

3.5.7 i7DS-28/40D□□





Unit : mm



Mounting Hole Diagram

Part 4. High-Performance Servomotor——HA Series

4.1 HA Series Servomotos

4.1.1 Model Description

HA	060	_	006	30	E	A	D	1	_	W	1
HA Series Servomotos	Flange Dim.		Rated Torque	Rated Speed	Inertia	Power Voltage	Serial Encoder	Shaft End		Protection rating	Custom

4.1.2 Parameter Specifications

Flange Dim.		Rated Torque		Rated Speed		Inertia		Power Voltage		Serial Encoder		Shaft End		Protection rating		Custom	
40	40mm	003	0.32N.m	15	1500rpm	S	Low Inertia	A	220 VAC	C	2500Linear Increment	1	With Key, Without Brake	W	IP67	1	With Step
60	60mm	006	0.64N.m	20	2000rpm												
80	80mm	013	1.27N.m	25	2500rpm	E	High Inertia	B	380 VAC	D	23-bit Multi-Turn Absolute Value Integrated Type	2	Without Key, Without Brake	Null	IP65		
110	110mm	024	2.39N.m	30	3000rpm												
130	130mm	032	3.18N.m	40	4000rpm					Y	23-bit Multi-Turn Absolute Value Split Type	3	With Key, With Brake				
180	180mm	042	4.2 N.m														
		048	4.77N.m							G	24-bit Multi-Turn Absolute Value Split Type	4	Without Key, With Brake				
		054	5.39N.m														
		064	6.4 N.m														
		072	7.16N.m														
		083	8.34N.m														
		096	9.55N.m														
		100	10.0N.m														
		115	11.5N.m														
		143	14.32N.m														
		186	18.6N.m														
		284	28.4N.m														
		350	35.0N.m														
		480	48.0N.m														

- Special Note:
  When the model ends with "-1," it indicates that this motor comes with a step feature.

4.2 Model List

4.2.1 Standard Motor Selection Table

Model	Rated Torque	Rated Speed	Max Speed	Rated Current	Rated Power	Driver Type
HA040-00330EAY1-W	0.32 N.m	3000 rpm	6000 rpm	0.93 A	0.1 KW	iF/ i7D□-03A□□
HA040-00330EAY3	0.32 N.m	3000 rpm	6000 rpm	0.93 A	0.1 KW	iF/ i7D□-03A□□
HA060-01330EAY□	1.27 N.m	3000 rpm	5000 rpm	2.5 A	0.4 KW	iF/ i7D□-03A□□
HA080-02430EAY☐	2.39 N.m	3000 rpm	5000 rpm	4.8 A	0.75 KW	iF/ i7D□-06A□□
HA080-03230EAY☐	3.18 N.m	3000 rpm	5500 rpm	5.9 A	1.0 KW	iF/ i7D□-06A□□
HA060-01330EAD□-W	1.27 N.m	3000 rpm	6000 rpm	2.3 A	0.4 KW	iF/ i7D□-03A□□
HA080-02430EAD□-W	2.39 N.m	3000 rpm	6000 rpm	4.4 A	0.75 KW	iF/ i7D□-06A□□
HA080-03230EAD☐-W	3.18 N.m	3000 rpm	4500 rpm	4.9 A	1.0 KW	iF/ i7D□-06A□□
HA130-05415EAD□-W	5.39 N.m	1500 rpm	3000 rpm	6.9 A	0.85 KW	iF/ i7D□-08A□□
HA130-08315EAD□-W	8.34 N.m	1500 rpm	3000 rpm	10.5 A	1.3 KW	iF/i7DS-16A□□
HA130-11515EAD□-W	11.5 N.m	1500 rpm	3000 rpm	16.5 A	1.8 KW	iF/i7DS-16A□□
HA130-05415EBD□-W	5.39 N.m	1500 rpm	3000 rpm	3.5 A	0.85 KW	i7DS-06D□□
HA130-08315EBD□-W	8.34 N.m	1500 rpm	3000 rpm	5.4 A	1.3 KW	i7DS-06D□□
HA130-11515EBD□-W	11.5 N.m	1500 rpm	3000 rpm	8.4 A	1.8 KW	i7DS-10D□□
HA130-14315EBD□-W	14.32 N.m	1500 rpm	3000 rpm	10.0 A	2.3 KW	i7DS-10D□□
HA180-18615EBD□	18.6 N.m	1500 rpm	3000 rpm	11.9 A	2.9 KW	i7DS-21D□□
HA180-28415EBD□	28.4 N.m	1500 rpm	3000 rpm	16.5 A	4.4 KW	i7DS-21D□□
HA180-35015EBD□	35.0 N.m	1500 rpm	3000 rpm	20.8 A	5.5 KW	i7DS-21D□□
HA180-48015EBD□	48.0 N.m	1500 rpm	3000 rpm	25.7 A	7.5 KW	i7DS-28D□□

4.2.2 Custom Motor Selection Table

Model	Rated Torque	Rated Speed	Max Speed	Rated Current	Rated Power	Driver Type
HA060-01330EAC□	1.27 N.m	3000 rpm	6000 rpm	2.5 A	0.4 KW	C7DW-03A□□ C7D□-06A□□
HA080-02430EAC□	2.39 N.m	3000 rpm	5000 rpm	4.0 A	0.75 KW	C7D□-06A□□
HA080-03230EAC□	3.18 N.m	3000 rpm	5000 rpm	6.0 A	1.0 KW	C7D□-06A□□
HA060-00630SAG□-W	0.64 N.m	3000 rpm	6000 rpm	2.1 A	0.2 Kw	iF/ i7D□-03A□□
HA060-01330SAG□-W	1.27 N.m	3000 rpm	6000 rpm	3.2 A	0.4 Kw	iF/ i7D□-03A□□
HA080-02430SAG□-W	2.39 N.m	3000 rpm	6000 rpm	4.8 A	0.75 Kw	iF/ i7D□-06A□□
HA110-04230EAD□-W	4.2 N.m	3000 rpm	3500 rpm	4.7 A	1.3 KW	iF/ i7D□-06A□□
HA110-06430EAD□-W	6.4 N.m	3000 rpm	3500 rpm	7.1 A	2.0 KW	iF/ i7D□-08A□□
HA110-04230EBD□-W	4.2 N.m	3000 rpm	4000 rpm	3.0 A	1.3 KW	i7DS-06D□□
HA110-06430EBD□-W	6.4 N.m	3000 rpm	4000 rpm	4.6 A	2.0 KW	i7DS-06D□□
HA130-05415EAC□	5.39 N.m	1500 rpm	3000 rpm	6.9 A	0.85 KW	C7D□-10A□□
HA130-08315EAC□	8.34 N.m	1500 rpm	3000 rpm	10.0 A	1.3 KW	C7D□-10A□□
HA130-14320EBD□-W	14.32 N.m	2000 rpm	4000 rpm	12.0 A	3.0 KW	i7DS-21D□□
HA130-10040EBD□-W	10.0 N.m	4000 rpm	5000 rpm	12.0 A	4.2 KW	i7DS-21D□□
HZA130-04820DADC□	4.77 N.m	2000 rpm	3000 rpm	6.0 A	1.0 KW	iF/ i7D□-06A□□
HZA130-07220DADC□	7.16 N.m	2000 rpm	3000 rpm	8.2 A	1.5 KW	iF/ i7D□-10A□□
HZA130-09620DADC□	9.55 N.m	2000 rpm	3000 rpm	10.0 A	2.0 KW	iF/ i7D□-10A□□
HZA130-14320DADC□	14.3 N.m	2000 rpm	3000 rpm	13.8 A	3.0 KW	iF/ i7DS-16A□□

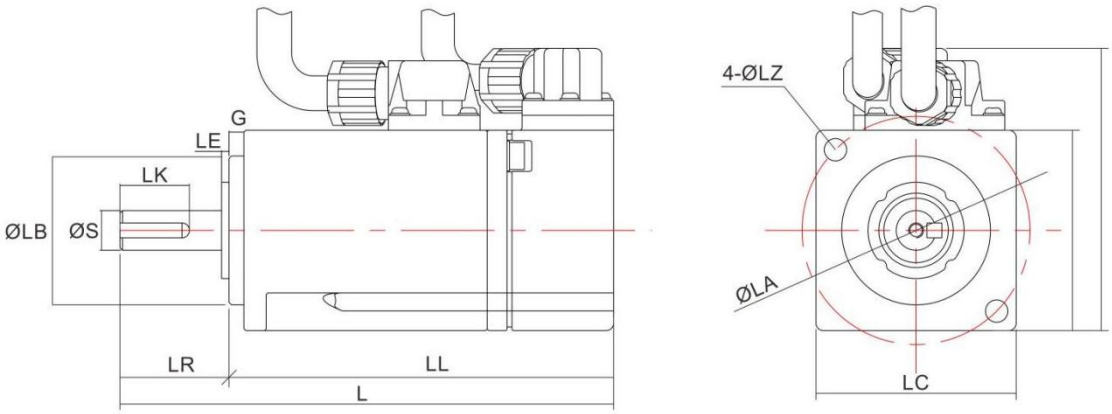
- **Note:**

1. When the motor model ends with "1," it means that the motor does not have a brake. When it ends with "3," it means the motor comes with a brake.
2. If the driver model starts with "S," it is a single-axis driver. If it starts with "W," it is a dual-axis driver.
3. The second and third characters in the driver model, such as "00," represent the interface type as Pulse. "20" represents MECHATROLINK-Ⅲ Communications, and "30" represents EtherCAT Communications.

4.3 Parameters and Dimensions

4.3.1 HA Series 40 Machine Base (Standard Motor)

Motor Model	HA040-00330EAY1-W	HA040-00330EAY3
Rated Power	0.1 KW	0.1 KW
Rated Voltage	220 VAC	220 VAC
Rated Torque	0.32 N.m	0.32 N.m
Rated Speed	3000 rpm	3000 rpm
Maximum Speed	6000 rpm	6000 rpm
Rated Current	0.93 A	0.93 A
Rotor Inertia	0.067 Kgm2×10-4	0.072 Kgm2×10-4
Maximum Current	3.1 A	3.1 A
Maximum Torque	0.96 N.m	0.96 N.m



Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA040-00330EAY1-W	99.6	74.6	25	1.5	3	40	46	4.5	8	0 -0.011	30	0 -0.03	-	-	-	12.5	M3*6
HA040-00330EAY3	125.6	100.6	25	1.5	3	40	46	4.5	8	0 -0.011	30	0 -0.03	-	-		12.5	M3*6

- Note: The values in parentheses indicate the motor length with the power-off brake.

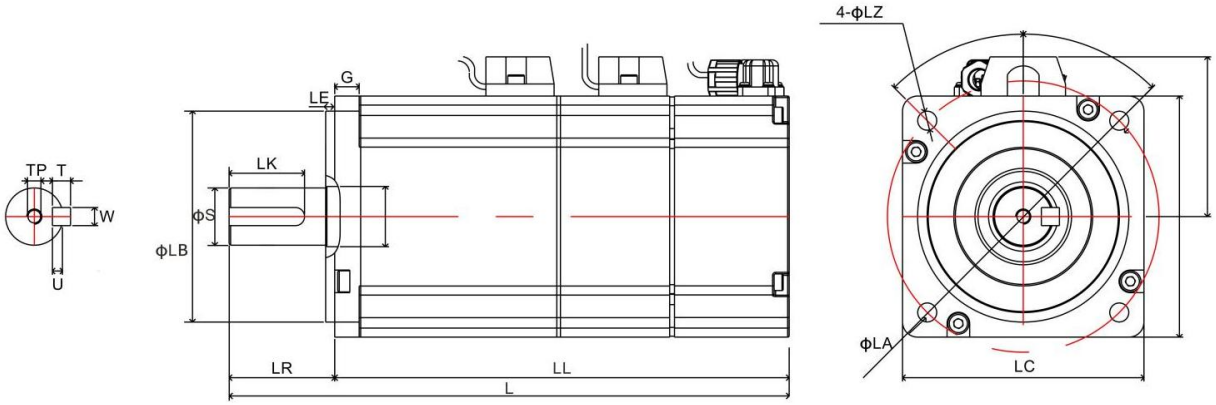
4.3.2 HA Series 60/80 Machine Base (Standard Motor)

Motor Model	HA060-01330EAY□	HA080-02430EAY□	HA080-03230EAY□
Rated Power	0.4 KW	0.75 KW	1.0 KW
Rated Voltage	220 VAC	220 VAC	220 VAC
Rated Torque	1.27 N.m	2.39 N.m	3.18 N.m
Rated Speed	3000 rpm	3000 rpm	3000 rpm
Maximum Speed	5000 rpm	5000 rpm	5500 rpm
Rated Current	2.5 A	4.8 A	5.9 A
Rotor Inertia	0.49 $Kgm^2\times10^{-4}$ (0.51 $Kgm^2\times10^{-4}$)	1.51 $Kgm^2\times10^{-4}$ (1.71 $Kgm^2\times10^{-4}$)	2.01 $Kgm^2\times10^{-4}$ （2.21$Kgm^2\times10^{-4}$）
Maximum Current	8.8 A	14.5 A	17.8 A
Maximum Torque	4.4 N.m	8.4 N.m	9.5 N.m

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.

Motor Model	HA060-01330EAD□-W	HA080-02430EAD□-W	HA080-03230EAD□-W
Rated Power	0.4 KW	0.75 KW	1.0 KW
Rated Voltage	220 VAC	220 VAC	220 VAC
Rated Torque	1.27 N.m	2.39 N.m	3.18 N.m
Rated Speed	3000 rpm	3000 rpm	3000 rpm
Maximum Speed	6000 rpm	6000 rpm	4500 rpm
Rated Current	2.3A	4.4 A	4.9 A
Rotor Inertia	0.58 $Kgm^2\times10^{-4}$ （0.60 $Kgm^2\times10^{-4}$）	1.70 $Kgm^2\times10^{-4}$ （1.80 $Kgm^2\times10^{-4}$）	2.38 $Kgm^2\times10^{-4}$ （2.48$Kgm^2\times10^{-4}$）
Maximum Current	8.2 A	15.4 A	14.7 A
Maximum Torque	3.81 N.m	7.17 N.m	9.54 N.m

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



型号	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA060-01330EAY□	120 (152)	90 (122)	30	3	7.5	60	70	5.5	14	0 -0.013	50	0 -0.02	5	-	5	20	M4*12
HA080-02430EAY□	136 (170)	101 (135)	35	3	8	80	90	6	19	0 -0.018	70	0 -0.03	6	-	6	25	M5*20
HA080-03230EAY□	150 (181)	115 (146)	35	3	8	80	90	6	19	0 -0.018	70	0 -0.03	6	-	6	25	M5*20
HA060-01330EAD□-W	136.8 (169.8)	106.8 (139.8)	30	3	6.5	60	70	5	14	0 -0.011	50	0 -0.03	5	-	5	25	M5*10
HA080-02430EAD□-W	145.8 (183.8)	110.8 (148.8)	35	3	8	80	90	6	19	0 -0.013	70	0 -0.03	6	-	6	25	M5*10
HA080-03230EAD□-W	170 (207.5)	135 (172.5)	35	2.5	8	80	90	6	19	0 -0.013	70	0 -0.03	6	-	6	25	M5*10

- Note: The values in parentheses indicate the motor length with the power-off brake.

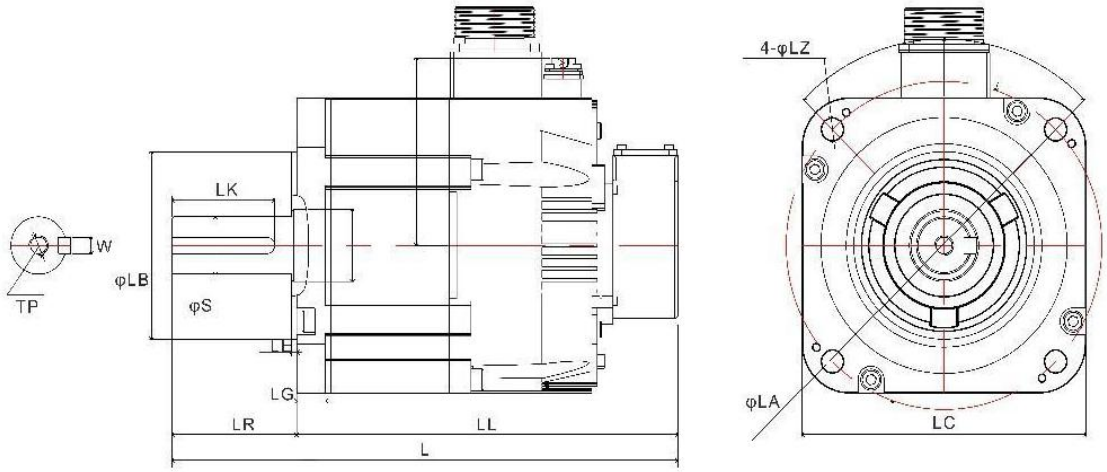
4.3.3 HA Series 130 Machine Base (Standard Motor)

Motor Model	HA130-05415EAD□-W	HA130-08315EAD□-W	HA130-11515EAD□-W
Rated Power	0.85 KW	1.3 KW	1.8 KW
Rated Voltage	220 VAC	220 VAC	220 VAC
Rated Torque	5.39 N.m	8.34 N.m	11.5 N.m
Rated Speed	1500 rpm	1500 rpm	1500 rpm
Maximum Speed	3000 rpm	3000 rpm	3000 rpm
Rated Current	6.9 A	10.5 A	16.5 A
Rotor Inertia	13.9 $Kgm^2\times10^{-4}$ (15.9 $Kgm^2\times10^{-4}$)	19.9 $Kgm^2\times10^{-4}$ (21.9 $Kgm^2\times10^{-4}$)	26.0 $Kgm^2\times10^{-4}$ (28.0 $Kgm^2\times10^{-4}$)
Maximum Current	17.0 A	28.0 A	42.0 A
Maximum Torque	14.2 N.m	23.3 Nm	28.7 Nm

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.

Motor Model	HA130-05415EBD□-W	HA130-08315EBD□-W	HA130-11515EBD□-W	HA130-14315EBD□-W
Rated Power	0.85 KW	1.3 KW	1.8 KW	2.3 KW
Rated Voltage	380 VAC	380 VAC	380 VAC	380 VAC
Rated Torque	5.39 N.m	8.34 N.m	11.5 N.m	14.32 Nm
Rated Speed	1500 rpm	1500 rpm	1500 rpm	1500 rpm
Maximum Speed	3000 rpm	3000 rpm	3000 rpm	3000 rpm
Rated Current	3.5 A	5.4 A	8.4 A	10.0 A
Rotor Inertia	13.9 $Kgm^2\times10^{-4}$ (15.9 $Kgm^2\times10^{-4}$)	19.9 $Kgm^2\times10^{-4}$ (21.9 $Kgm^2\times10^{-4}$)	26.0 $Kgm^2\times10^{-4}$ (28.0 $Kgm^2\times10^{-4}$)	32.2 $Kgm^2\times10^{-4}$ (34.2 $Kgm^2\times10^{-4}$)
Maximum Current	10.0 A	15.8 A	22.6 A	26.1 A
Maximum Torque	14.2 N.m	23.3 N.m	28.7 N.m	43.0 Nm

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.

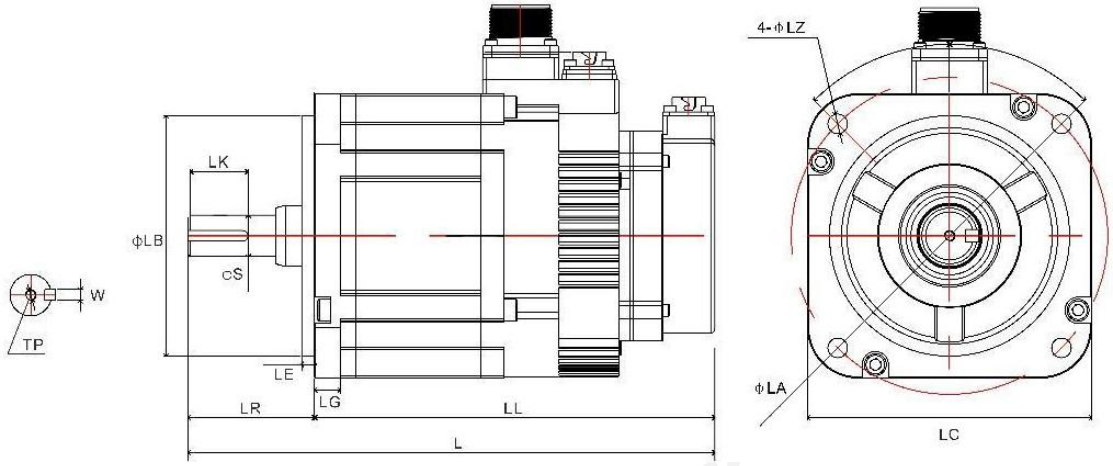


Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA130-05415EAD□-W	205.7 (236.5)	147.7 (178.5)	58	6	12	130	145	9	19	0 -0.013	110	0 -0.022	-	-	5	27.5	M5*15
HA130-08315EAD□-W	223.7 (254.5)	165.7 (196.5)	58	6	12	130	145	9	22	0 -0.013	110	0 -0.022	-	-	6	28	M5*15
HA130-11515EAD□-W	245.7 (276.5)	187.7 (218.5)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	-	-	8	29	M5*15
HA130-05415EBD□-W	205.7 (236.5)	147.7 (178.5)	58	6	12	130	145	9	19	0 -0.013	110	0 -0.022	-	-	5	27.5	M5*15
HA130-08315EBD□-W	223.7 (254.5)	165.7 (196.5)	58	6	12	130	145	9	22	0 -0.013	110	0 -0.022	-	-	6	28	M5*15
HA130-11515EBD□-W	245.7 (276.5)	187.7 (218.5)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	-	-	8	29	M5*15
HA130-14315EBD□-W	264.9 (297.4)	206.9 (239.4)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	-	-	8	29	M5*15

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.4 HA Series 180 Machine Base (Standard Motor)

Motor Model	HA180-18615EBD□	HA180-28415EBD□	HA180-35015EBD□	HA180-48015EBD□
Rated Power	2.9 KW	4.4 KW	5.5 KW	7.5 KW
Rated Voltage	380 VAC	380 VAC	380 VAC	380 VAC
Rated Torque	18.6 N.m	28.4 N.m	35.0 N.m	48.0 N.m
Rated Speed	1500 rpm	1500 rpm	1500 rpm	1500 rpm
Maximum Speed	3000 rpm	3000 rpm	3000 rpm	3000 rpm
Rated Current	11.9 A	16.5 A	20.8 A	25.7 A
Rotor Inertia	46.0 $Kgm^2\times10^{-4}$ (54.5 $Kgm^2\times10^{-4}$)	67.5 $Kgm^2\times10^{-4}$ (75.4 $Kgm^2\times10^{-4}$)	89.0 $Kgm^2\times10^{-4}$ (97.5 $Kgm^2\times10^{-4}$)	125.0 $Kgm^2\times10^{-4}$ (134.0 $Kgm^2\times10^{-4}$)
Maximum Current	28 A	40.5 A	52.0 A	65.0 A
Maximum Torque	45.1 N.m	71.1 Nm	87.6 Nm	119.0 Nm



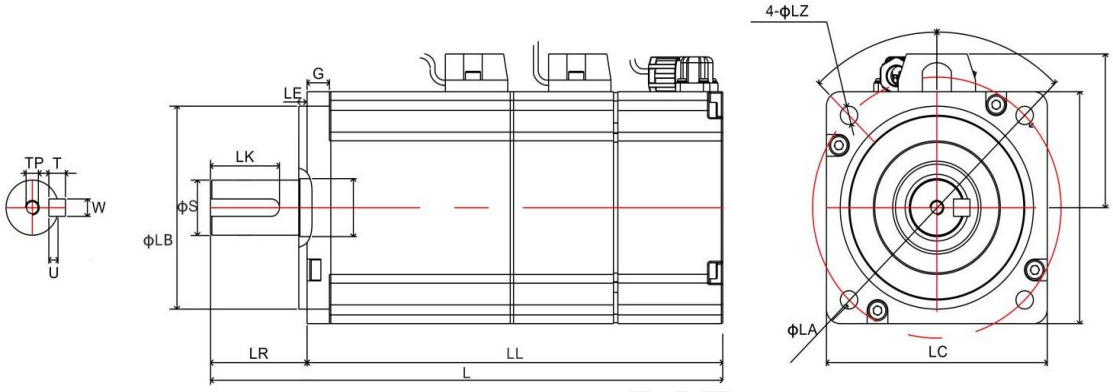
Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA180-18615EBD□	252.3 (310.0)	173.3 (231.0)	79	3.2	18	180	200	13.5	35	0 -0.01	114.3	0 -0.025	-	-	10	65	M12*25
HA180-28415EBD□	276.3 (334.0)	197.3 (255.0)	79	3.2	18	180	200	13.5	35	0 -0.01	114.3	0 -0.025	-	-	10	65	M12*25
HA180-35015EBD□	349.3 (391.0)	236.3 (278.0)	113	3.2	18	180	200	13.5	42	0 -0.016	114.3	0 -0.025	-	-	12	96	M16*32
HA180-48015EBD□	395.3 (437.0)	282.3 (324.0)	113	3.2	18	180	200	13.5	42	0 -0.016	114.3	0 -0.025	-	-	12	96	M16*32

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.5 HA Series 60/80 Machine Base (Incremental Motor)

Motor Model	HA060-01330EAC□	HA080-02430EAC□	HA080-03230EAC□
Rated Power	0.4 KW	0.75 KW	1.0 KW
Rated Voltage	220 VAC	220 VAC	220 VAC
Rated Torque	1.27 N.m	2.39 N.m	3.18 N.m
Rated Speed	3000 rpm	3000 rpm	3000 rpm
Maximum Speed	6000 rpm	5000 rpm	5000 rpm
Rated Current	2.5A	4.0 A	6.0 A
Rotor Inertia	0.56 $Kgm^2×10^{-4}$ (0.58 $Kgm^2×10^{-4}$)	1.56$Kgm^2×10^{-4}$ (1.66 $Kgm^2×10^{-4}$)	2.03 $Kgm^2×10^{-4}$ (2.13$Kgm^2×10^{-4}$)
Maximum Current	7.5 A	12.0 A	18.0 A
Maximum Torque	3.81 N.m	7.17 N.m	9.54 N.m

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



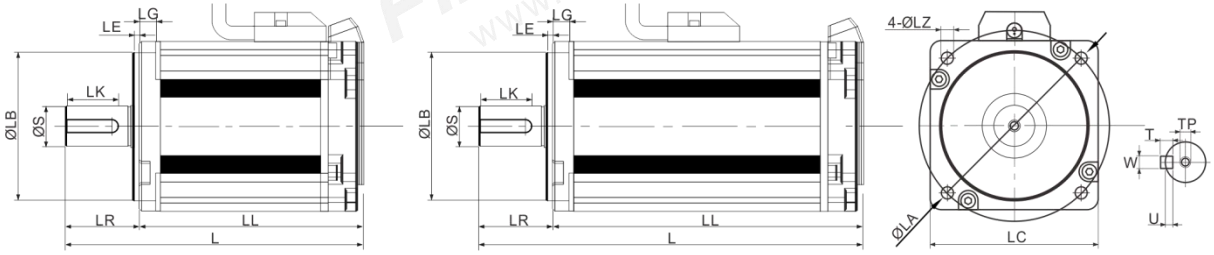
Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA060-01330EAC□	140.7 (167.2)	110.7 (137.2)	30	3	6.5	60	70	4.5	14	0 -0.011	50	0 -0.03	5	-	5	25	M5*12
HA080-02430EAC□	157.4 (185.6)	122.4 (150.6)	35	3	6.5	80	90	6.3	19	0 -0.013	70	0 -0.03	6	-	6	25	M5*12
HA080-03230EAC□	171.4 (199.6)	136.4 (164.6)	35	3	6.5	80	90	6.3	19	0 -0.013	70	0 -0.03	6	-	6	25	M5*12

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.6 HA Series 60/80 Machine Base (Custom Motor)

Motor Model	HA060-00630SAG□-W	HA060-01330SAEG□-W	HA080-02430SAG□-W
Rated Power	0.2 KW	0.4 KW	0.75 KW
Rated Voltage	220 VAC	220 VAC	220 VAC
Rated Torque	0.64 Nm	1.27 Nm	2.39 Nm
Rated Speed	3000 rpm	3000 rpm	3000 rpm
Maximum Speed	6000 rpm	6000 rpm	6000 rpm
Rated Current	2.1 A	3.2 A	4.8 A
Rotor Inertia	0.15 $Kgm^2\times10^{-4}$ (0.17 $Kgm^2\times10^{-4}$)	0.27 $Kgm^2\times10^{-4}$ (0.29 $Kgm^2\times10^{-4}$)	0.9 $Kgm^2\times10^{-4}$ (1.1 $Kgm^2\times10^{-4}$)
Maximum Current	6.3 A	9.6 A	13.4 A
Maximum Torque	1.92 Nm	3.81 Nm	7.2 Nm

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



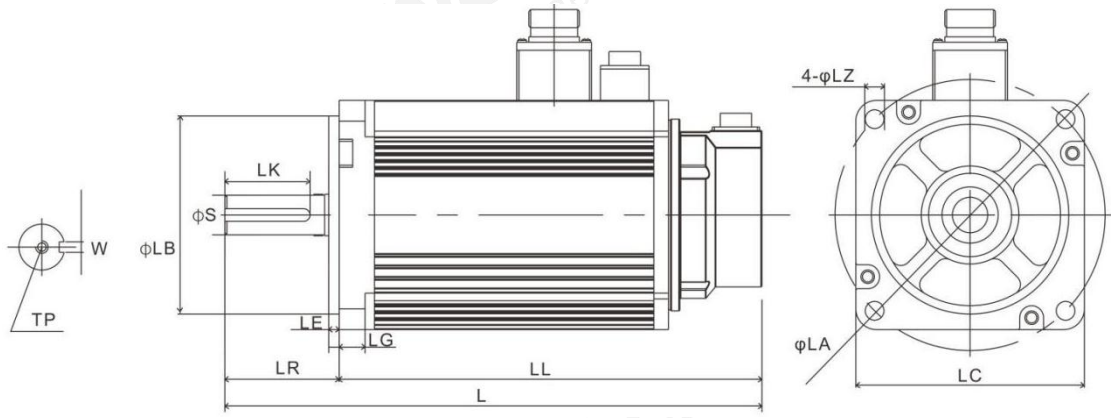
Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA060-00630SAG□-W	108.7 (146.7)	78.7 (116.7)	30	3	6.5	60	70	5	14	0 -0.013	50	0 -0.021	5	-	5	25	M5*10
HA060-01330SAG□-W	128.7 (166.7)	98.7 (136.7)	30	3	6.5	60	70	5	14	0 -0.013	50	0 -0.021	5	-	5	25	M5*10
HA080-02430SAG□-W	141.2 (182.2)	106.2 (147.2)	35	2.5	8	80	90	6	19	0 -0.013	70	0 -0.021	6	-	6	25	M5*10

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.7 HA Series 110 Machine Base (Custom Motor)

Motor Model	HA110-04230EAD□-W	HA110-06430EAD□-W	HA110-04230EBD□-W	HA110-06430EBD□-W
Rated Power	1.3 KW	2.0 KW	1.3 KW	2.0 KW
Rated Voltage	220 VAC	220 VAC	380 VAC	380 VAC
Rated Torque	4.2 N.m	6.4 N.m	4.2 N.m	6.4 N.m
Rated Speed	3000 rpm	3000 rpm	3000 rpm	3000 rpm
Maximum Speed	3500 rpm	3500 rpm	4000 rpm	4000 rpm
Rated Current	4.7 A	7.1 A	3.0 A	4.6 A
Rotor Inertia	7.87 $Kgm^2\times10^{-4}$ （8.51 $Kgm^2\times10^{-4}$）	10.61 $Kgm^2\times10^{-4}$ （11.25 $Kgm^2\times10^{-4}$）	7.87 $Kgm^2\times10^{-4}$ （8.51 $Kgm^2\times10^{-4}$）	10.61 $Kgm^2\times10^{-4}$ （11.25 $Kgm^2\times10^{-4}$）
Maximum Current	14.1 A	21.3 A	9.0 A	13.8 A
Maximum Torque	12.6 N.m	19.2 N.m	12.6 N.m	19.2 N.m

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



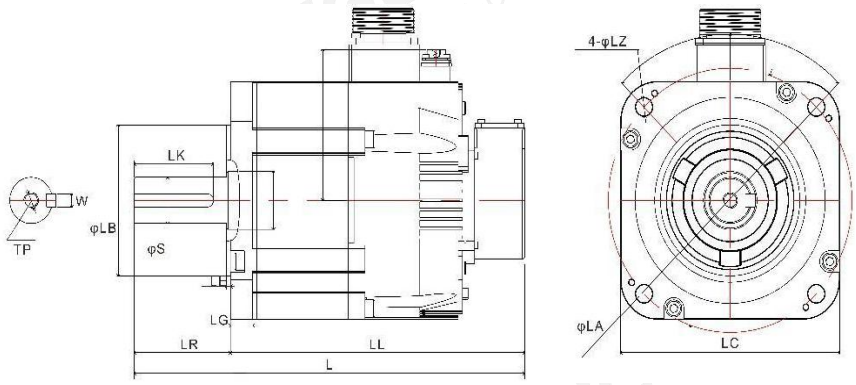
Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA110-04230EAD□-W HA110-04230EBD□-W	209 (238)	154 (183)	55	5	12.5	110	130	9	19	0 -0.013	95	0 -0.035	6	-	6	41	M6*15
HA110-06430EAD□-W HA110-06430EBD□-W	229 (258)	174 (203)	55	5	12.5	110	130	9	19	0 -0.013	95	0 -0.035	6	-	6	41	M6*15

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.8 HA Series 130 Machine Base (Incremental & Custom Motor)

Motor Model	HA130-05415EAC□	HA130-08315EAC□	HA130-14320EBD □-W	HA130-10040EBD□ -W
Rated Power	0.85 KW	1.3 KW	3.0 KW	4.2 KW
Rated Voltage	220 VAC	220 VAC	380 VAC	380 VAC
Rated Torque	5.39 N.m	8.34 N.m	14.32 Nm	10.0 N.m
Rated Speed	1500 rpm	1500 rpm	2000 rpm	4000 rpm
Maximum Speed	3000 rpm	3000 rpm	4000 rpm	5000 rpm
Rated Current	6.9 A	10.0 A	12.0 A	12.0 A
Rotor Inertia	13.95 $Kgm^2\times10^{-4}$ （16.1 $Kgm^2\times10^{-4}$）	19.95 $Kgm^2\times10^{-4}$ （22.1 $Kgm^2\times10^{-4}$）	32.2 $Kgm^2\times10^{-4}$ （34.2$Kgm^2\times10^{-4}$）	26.1 $Kgm^2\times10^{-4}$ （28.1 $Kgm^2\times10^{-4}$）
Maximum Current	17.0 A	28.0 A	31.3 A	36.0 A
Maximum Torque	14.2 N.m	23.3 Nm	37.4 Nm	30.0 Nm

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



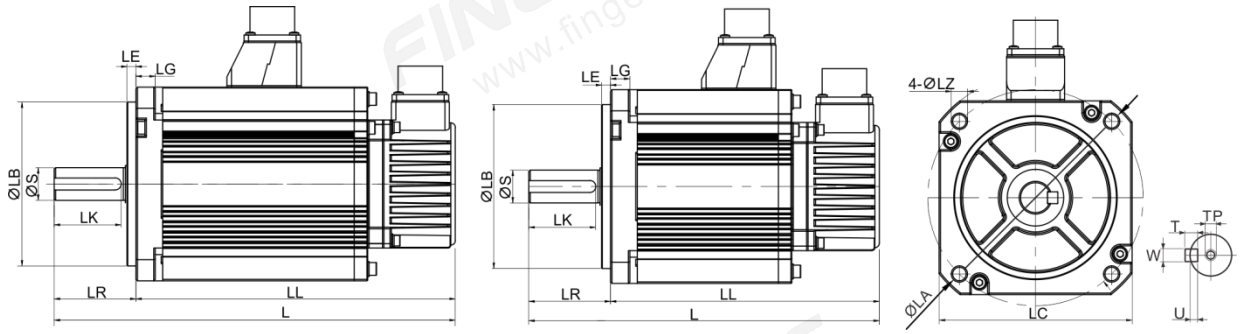
Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA130-05415EAC□	208.9 (241.4)	150.9 (183.4)	58	6	12	130	145	9	19	0 -0.013	110	0 -0.022	5	-	5	27.5	M5*15
HA130-08315EAC□	224.9 (257.4)	166.9 (199.4)	58	6	12	130	145	9	22	0 -0.013	110	0 -0.022	6	-	6	28	M5*15
HA130-14315EBD□-W	264.9 (297.4)	206.9 (239.4)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	8	-	8	29	M5*15
HA130-10040EBD□-W	242.9 (275.4)	184.9 (217.4)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	8	-	8	29	M5*15

- Note: The values in parentheses indicate the motor length with the power-off brake.

4.3.9 HZA Series 130 Machine Base (Custom Motor)

Motor Model	HZA130-04820DADC□	HZA130-07220DADC□	HZA130-09620DADC□	HZA130-14320DADC□
Rated Power	1.0 KW	1.5 KW	2.0 KW	3.0 KW
Rated Voltage	220 VAC	220 VAC	220 VAC	220 VAC
Rated Torque	4.77 N.m	7.16 N.m	9.55 N.m	14.3 Nm
Rated Speed	2000 rpm	2000 rpm	2000 rpm	2000 rpm
Maximum Speed	3000 rpm	3000 rpm	3000 rpm	3000 rpm
Rated Current	6.0 A	8.2 A	10.0 A	13.8 A
Rotor Inertia	4.6 Kgm²×10⁻⁴ (6.6 Kgm²×10⁻⁴)	6.7 Kgm²×10⁻⁴ (8.7 Kgm²×10⁻⁴)	8.7 Kgm²×10⁻⁴ (10.7 Kgm²×10⁻⁴)	15.1 Kgm²×10⁻⁴ (17.1 Kgm²×10⁻⁴)
Maximum Current	18.0 A	24.6 A	31.5 A	41.4 A
Maximum Torque	14.3 N.m	21.5 N.m	28.65 N.m	42.9 Nm

- Note: The values in parentheses indicate the rotor inertia with the power-off brake.



Model	L	LL	LR	LE	LG	LC	LA	LZ	S		LB		T	U	W	LK	TP
HA130-05415EAC□	208.9 (241.4)	150.9 (183.4)	58	6	12	130	145	9	19	0 -0.013	110	0 -0.022	5	-	5	27.5	M5*15
HA130-08315EAC□	224.9 (257.4)	166.9 (199.4)	58	6	12	130	145	9	22	0 -0.013	110	0 -0.022	6	-	6	28	M5*15
HA130-14315EBD□-W	264.9 (297.4)	206.9 (239.4)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	8	-	8	29	M5*15
HA130-10040EBD□-W	242.9 (275.4)	184.9 (217.4)	58	6	12	130	145	9	24	0 -0.013	110	0 -0.022	8	-	8	29	M5*15

- Note: The values in parentheses indicate the motor length with the power-off brake.

FINGER CNC

Guangzhou Finger Technology Co.,Ltd

Hotline：020-39389901
Repair Helpline：18127931302
Fax：020-39389903
Postal Code：511495
E-mail：finger@fingercnc.com
Website：www.finger-cnc.com
Address：201,No. 8, Chengding Street, Zhongcun Street, Panyu District, Guangzhou City, Guangdong Province

Official Website

Official Wechat