- ☆ Leading the nation in after-sales response time
- ☆ Leading the nation in dealer profit margins
- ☆ Leading the nation in network influence

German Quality

Chinese Price

△5 Series

Frunze (Shenzhen) Technology Co., Ltd.
Contact: 18575545694 Website: www.frunze.com.cn
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Nanshan District, Shenzhen, China

FRUNZE

Frunze (Shenzhen) Technology Co., Ltd.

Company Profile

Frunze, Frunze (Shenzhen) Technology Co., Ltd., is a technology-driven company focused on the research, development, manufacturing, sales, and application integration of industrial automation products. Our R&D headquarters is in the Ruhr region of Germany, the birthplace of German industrial automation.

We bring to the table advanced German servo technology. We specialize in adapting high-performance, fully functional German servo systems to the local context. Our product portfolio finds extensive applications across various sectors including robots, 3C, lithium batteries, textiles, printing and packaging, and metal cutting and bending.

To better serve the market and meet the growing demands of China's automation sector, Frunze has established a production base in China, equipped with a professional technical application team. We have service points and warehouses in various locations to ensure efficient, fast, and considerate service.

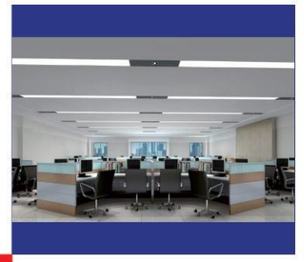
"German Technology, Local Service" is the cornerstone of our operations. We continuously refine our standard production processes and maintain strict technical control to tailor German technology servo products to better suit the local market needs in China. Our goal is to alleviate the challenges faced by the Chinese automation sector by transitioning from "high performance, high cost" to "cost-effective and performance compliant."

Once Signed, Ten Years of Assurance. Frunze is dedicated to deep market cultivation, recognizing that our customers' success fuels our growth. We are steadfast in our original mission to produce high-quality domestic products imbued with a craftsman’s spirit, thus contributing to the prowess of China’s industrial sector.

Company Profile

Mission

Replace imports empower Chinese private enterprises with Chinese-made servos (featuring German technology)

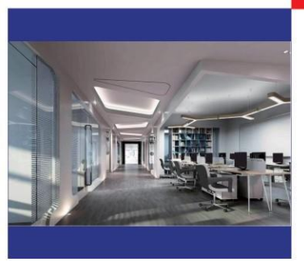


Our Vision

Simplify manufacturing and enhance precision control

Values

Dedication to continuous improvement, efficiency, craftsmanship, and focus



FRUNZE 孚朗茨

Quality policy

Quality first, customer supreme: Quality is the lifeblood of Frunze, the bottom line we adhere to, and the bridge for mutual development with our customers.

Continual improvement, full participation: We believe there is always room for improvement, today's best performance is tomorrow's baseline. Every Frunze employee is committed to this ethos to uphold the highest quality standards.

Product features:

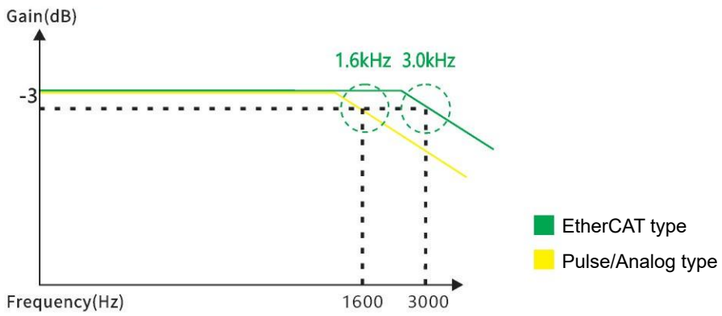
1. Performance: Fast, Precise, User-Friendly:

A. Speed:

a) Supports synchronization of 100 axes within 1 ms

b) Velocity loop bandwidth up to 3 kHz

c) Innovative current and velocity loop algorithms enhance servo control frequency, reduce system response and positioning time, and maximize the control performance of mechanical equipment

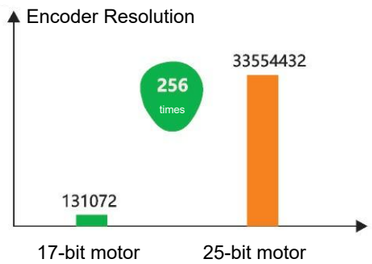


Remarks: Velocity loop bandwidth refers to the frequency at which the servo system can respond to the fastest speed command.

B. Precision:

a) High precision: 33,554,432 P/R, which is 256 times greater than a standard 17-bit magnetic encoder motor.

b) Delta Series 5 servo motors are equipped with a 25-bit single-turn/multi-turn absolute encoder, significantly enhancing equipment repeatability and absolute positioning accuracy for more precise, smoother low-speed operation.



C. Ease of Use

a) Auto-tuning feature: allowing the system to adapt automatically to system friction, load disturbances, and low-frequency vibrations with real-time adjustments.

b) One-click tuning

c) Self-tuning: Thanks to self-optimization and resonance suppression features, the system automatically adapts to mechanical loads without needing deep servo technology expertise from application engineers.

d) Powerful PC-based tuning software is intuitive and facilitates capturing and in-depth analysis of motion waves, ideal for advanced engineers working on complex, high-precision motion control systems.

2. Full Featured:

A. Self-Learning:

a) Disturbance Suppression: Real-time observation and quick adjustment of load disturbances enhance the servo system's disturbance resistance;

b) Friction Compensation: Automatically adjusts for changes in viscous friction due to temperature fluctuations, device deviations, and aging, ensuring system stability and reliability.

c) Vibration Suppression: Suppresses vibrations caused by machine movement during positioning, particularly low-frequency vibrations (swaying) around 1-100 Hz.

B. Feedforward Speed Control: Enhances velocity loop response

C. Model Following Function: Enhances the response of velocity and position loops.

Servo Driver Product Overview
Naming Rule:

FZ-Δ5①-30②-P③-A④F⑤

① Product Family △ Series 5: △ Series 5 Servo Drivers	③ Product Category P: Pulse Type E: Ether CAT bus type C: CAN Open bus type	⑤ Product Type F: Standard C: Custom
② Drive Rated Output Current 05：5A 75：75A	④ Voltage Level: A: 220V D: 380V	

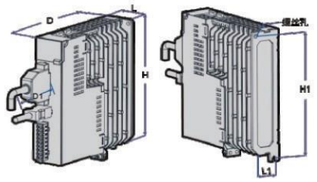
Electrical Specifications: Single-phase/Three-phase 220V class servo drivers

Size types	SIZE-A			SIZE-B	SIZE-C	
Driver Models △5 Series 5 P/E/C/N	05	15	20	30	40	50
Continuous Output Current (ARMS)	1.5	2.8	5.5	7.6	1 3.8	19.2
Maximum Output Current (ARMS)	5.8	9.8	16.9	22.8	34.5	48.5
Main Circuit Power Supply	Single-phase/Three-phase AC200V240V, -15%+10%, 50/60Hz					
Control Circuit Power Supply	Busbar power, shared power supply input, and rectification			Single-phase AC200V240V, -15%+10%, 50/60Hz		
Braking discharge function	External braking resistor		Built-in braking resistor	Built-in braking resistor		

Three-phase 380V class servo drivers

Size types	SIZE-B	SIZE-C		SIZE-D		SIZE-E
Driver Models △5 Series 5 P/E/C/N	15	25	35	50	75	100
Continuous Output Current (ARMS)	4.0	8.8	12.5	15.8	21.2	28.9
Maximum Output Current (ARMS)	12.2	22.1	31.2	39.5	52.2	70.7
Main Circuit Power Supply	Three-phase AC380V440V, -15%+10%, 50/60Hz					
Control Circuit Power Supply	Single-phase AC380V440V, -15%+10%, 50/60Hz					
Braking discharge function	Built-in braking resistor					

Exterior dimensions



Screw Holes	L(mm)	H(mm)	D(mm)	L1(mm)	H1(mm)	D1(mm)	Screw Holes	Locking Torque
SIZE A	50	170	176.6	37	160.6	75	2-M4	0.6~1.2
SIZE B	60	170	179	48.5	159.5	75	2-M4	0.6~1.2
SIZE C	85	170	169	73	160	75	2-M4	0.6~1.2
SIZE D	100	280	233	80	269	75	2-M4	0.6~1.2
SIZE E	120	320	233	80	300	75	2-M4	0.6~1.2

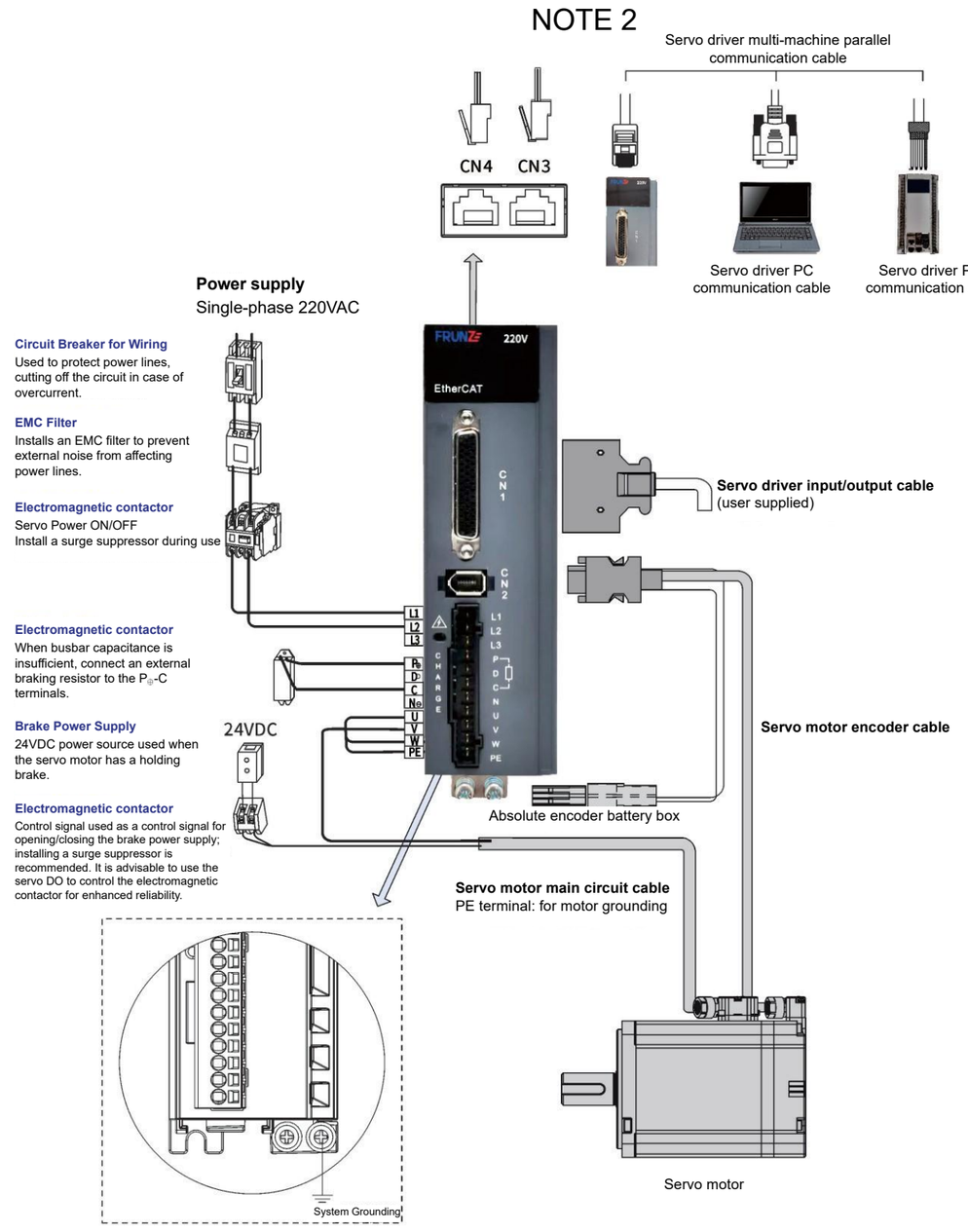
General Specifications for FZ-△ 5 Series Servo Drives

	Item		Description
Input/Output Signals	Digital Input Signal	Signal Distribution Change Possible	7 DI Routes DI1 to DI7 digital signal input with a maximum frequency of 1kHz (reduces when limiting resistance exceeds 2.41kΩ) DI Functions Include: Servo enable, fault reset, gain switching, command switching, zero position fixing enable, pulse prohibition, forward overtravel, reverse overtravel, forward rotation torque limit (Note 4), reverse rotation torque limit, forward jog, reverse jog, walking enable, origin switch, origin enable, interrupt fixed length.
	Digital Output Signal	Signal Distribution Change Possible	4 DO routes, DO carrying capacity 50mA, voltage range 5V to 30V DO Functions Include: Servo ready, Motor in rotation, Zero speed signal, Speed reached, Position reached, Proximity signal for positioning, In torque limitation, In speed limitation, Brake output, Warning, Servo fault, and Alarm code (3-bit output).
Built-In Functions	Overtravel (OT) Energy Prevention		Immediate stop when P-OT, N-OT actions occur
	Electronic Gear Ratio		0.0262144≤B/A≤104857.6
	Protection function		Protection Against Overcurrent, Overvoltage, Undervoltage, Overload, Main Circuit Anomaly, Radiator Overheating, Power Phase Loss, Overspeed, Encoder Anomaly, CPU Anomaly, Parameter Anomaly, and Others
	LED Display Function		Main power CHARGE, 5-digit LED display
	Vibration Suppression Feature		Equipped with 5 notch filters, 50Hz to 4000Hz, two of which are adaptively settable
	Ease of Use Functions		One-touch parameter adjustment, adaptive parameter adjustment, speed observer, model tracking
	Analog Monitoring Function		Built-in connector for monitoring speed and torque command signals
	Communication Function	Connection Devices	RS-232, RS4855; CAN communication as a non-standard option
		Communication protocol	Supports Modbus across all platforms; CANopen (optional)
		1:N communication	maximum of N=32 stations when using RS485.
		Axis Address Setting	Based on user parameter settings
		Function	Displays status, user parameter setting, monitoring, alarm tracking, JOG operation and auto-tuning, mapping of speed and torque command signals
	Other Components		Gain adjustment, Alarm record, JOG operation, Dynamic braking

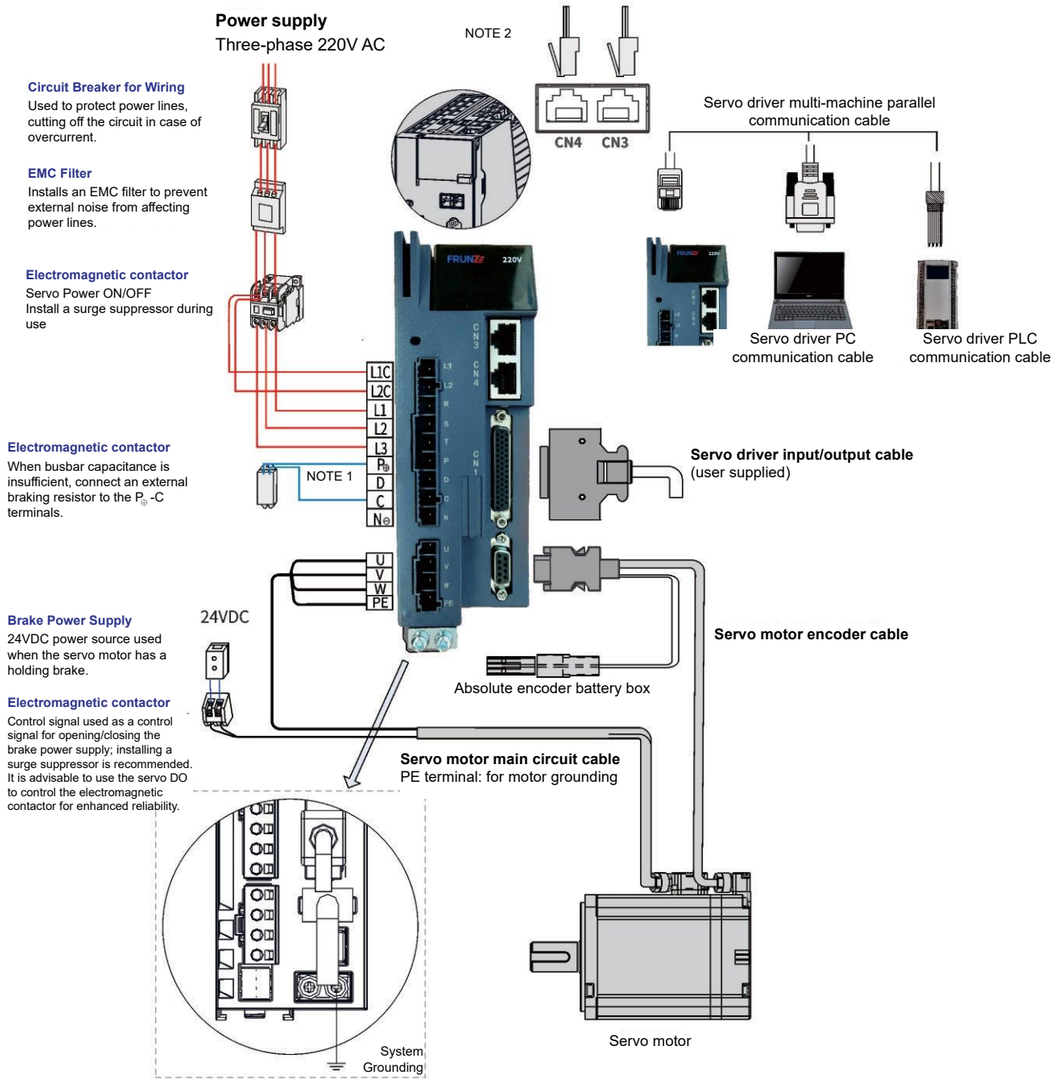
Bus Communication Specifications

Item		Specification
Slave Basic Performance	Communication protocol	EtherCAT protocol
	Support Services	CoE (PDO, SDO)
	Synchronization Mode	DC - Distributed Clock
	Physical Layer	100BASE-TX
	Baud rate	100 Mbit/s (100Base-TX)
	Duplex Mode	Full Duplex
	Topology	Ring, Line
	Transmission Medium	Shield Category 5 or better Ethernet cable
	Transmission Distance	Less than 100m between two nodes (under good environmental conditions and with quality cables)
	Number of Slaves	Protocol supports up to 65535, practically not exceeding 100 units
	EtherCAT Frame Length	44 bytes to 1498 bytes
	Process Data	Single Ethernet frame can carry up to 1486 bytes
	Synchronization method employed.	<1us
	Refresh Time	About 30us for 1000 digital I/O; about 100us for 100 servo axes; varies based on different interface definitions
	Communication Error Rate	10^-10 standard for Ethernet
Configuration Unit	FMMU Unit	8 units
	Storage Synchronization Management Unit	8 units
	Process Data RAM	8KB
	Distributed Clock	64-bit
	EEPROM Capacity	64kbit initializing data written via EtherCAT master

Servo Driver Wiring and Peripheral Equipment Connection SIZE-A

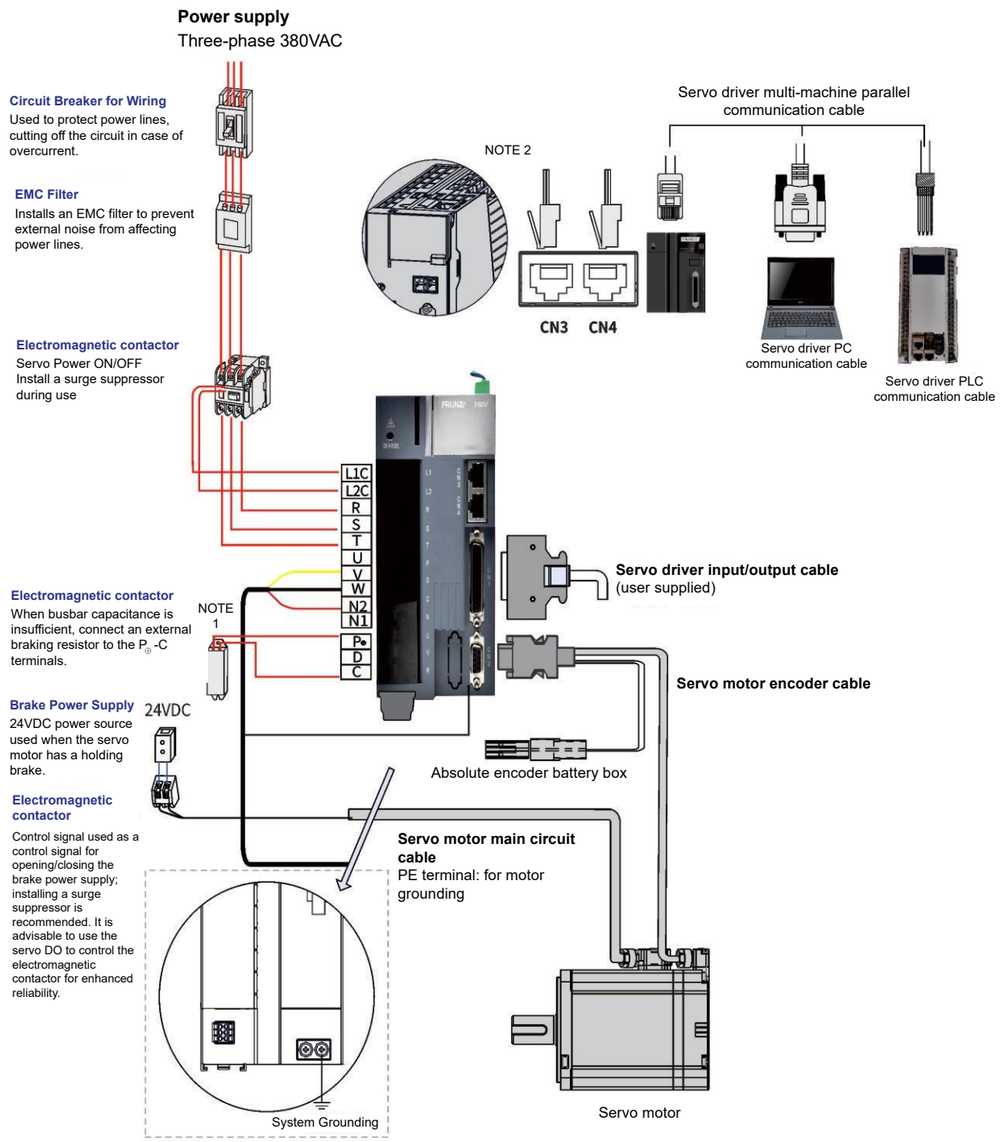


Servo Driver Wiring and Peripheral Equipment Connection SIZE-B



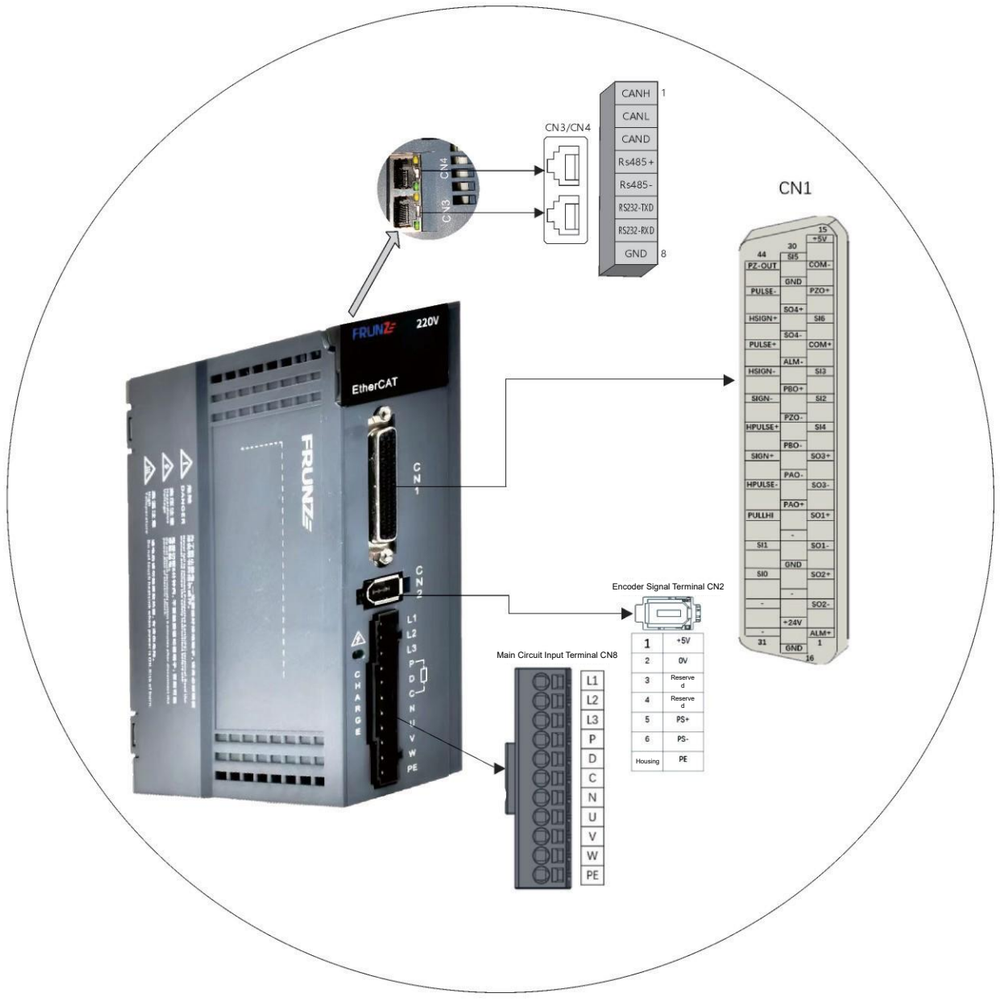
Note 1: When connecting an external braking resistor, please remove the shorting link between the P-D terminals of the servo driver
Note 2: CN3 and CN4 are two communication interfaces with completely identical pin definitions, you can choose to use either one
Note 3: This illustration is for a three-phase 220V system

Servo Driver Wiring and Peripheral Equipment Connection SIZE-C/D/E



Note 1: When connecting an external braking resistor, please remove the shorting link between the P-D terminals of the servo driver
Note 2: CN3 and CN4 are two communication interfaces with completely identical pin definitions, you can choose to use either one
Note 3: This illustration is for a three-phase 380V system

Port Definition



CN1 Control Terminal Definition

Signal name		Pin Number	Function	
Position Command	PULSE+	41	Low-Speed Pulse Command Input Mode: Differential Drive Input Open Collector	Input Pulse Form: Direction + Pulse A, B Phase Quadrature Pulse
	PULSE-	43		
	SIGN+	37		
	SIGN-	39		
	HPULSE+	38	High-Speed Pulse Command	
	HPULSE-	36		
	HSIGN+	42	High-Speed Position Command Symbol	
	HSIGN-	40		
	PL	35	Command Pulse Open Collector Power Input Interface	
	GND(PS)	29	Signal ground	

Signal name	Default Function	Pin Number	Function	
General purpose	PA0+	21	A Phase Frequency Division Output Signal	A, B Quadrature Frequency Division Pulse Output Signal
	PA0-	22		
	PB0+	25	B Phase Frequency Division Output Signal	
	PB0-	23		
	PZ0+	13	Z Phase Frequency Division Output Signal	Origin Pulse Output Signal
	PZ0-	24		
	PZ-0UT	44	Z Phase Frequency Division Output Signal	Origin Pulse Open Collector Output Signal
	GND	29	Origin Pulse Open Collector Output Signal Ground	
	+5V	15	Internal 5V Power Supply, Maximum Output Current 200mA	
	GND	16		
	PE	Enclosure		

Signal name		Default Function	Pin Number	Function
General purpose	SI0	S-ON	33	Servo Enable (Signal ON when enabled)
	SI1	P-CON	34	P Action Command Input (Signal ON when P action)
	SI2		9	Unallocated Function
	SI3		10	Unallocated Function
	SI4	ALM-RST	8	Alarm Reset (Resets when signal is ON)
	SI5	/P-CL	30	External Torque Limit Input for Forward Direction
	SI6	/N-CL	12	External Torque Limit Input for Reverse Direction
	COM+		11	External Control Power Input (12V~24V)
	+24V		17	Internal 24V Power Supply, Voltage Range
	COM-		14	+20~28V, Maximum Output Current 200mA
	ALM+	ALM+	1	Servo Alarm Output
	ALM-	ALM-	26	
	S01+		5	Unallocated Function
	S01-		4	
	S02+	TGON+	3	Rotation Detection Output
	S02-	TGON-	2	
	S03+	S-RDY+	7	Servo Ready Output
	S03-	S-RDY-	6	
	S04+		28	Unallocated Function
	S04-		27	

Main Circuit Terminal Definition (size A)

No.	Name	Terminal Function Description
1	L1、L2、L3 Power Input Terminals	Refer to the nameplate on the device for the input power's rated voltage Note: 750W Drivers are Single-Phase 220V Input, Support Only Power Input Between L1 and L2
2	P⊕、NΘ Servo Busbar Terminals	DC Busbar Terminals, used for multiple servos sharing a DC busbar to distribute power efficiently across devices.
	P⊕、D、C External Braking Resistor Terminals	Default Uses Internal Resistor, P⊕ and D Shorted; If Using External Braking Resistor, Disconnect P⊕ and D, Connect Resistor Between P⊕and C
3	U, V, W Servo Motor Connection Terminals	Connect Servo Motor U, V, W Phases
4	PE Motor Grounding Terminal	Connect to Motor Grounding Terminal for Grounding

Main Circuit Terminal Definition (size-B/C/D/E)

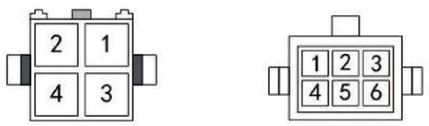
No.	Name	Terminal Function Description
1	L1, L2	Refer to the nameplate on the device for the rated voltage required for the input control circuit power
	R, S, T	Main Circuit Power Input Terminals
2	P⊕、NΘ Servo Busbar Terminals	DC Busbar Terminals, used for multiple servos sharing a DC busbar to distribute power efficiently across devices.
	P⊕、D、C External Braking Resistor Terminals	Default Uses Internal Resistor, P⊕ and D Shorted; If Using External Braking Resistor, Disconnect P⊕and D, Connect Resistor Between P⊕and C
3	U, V, W Servo Motor Connection Terminals	Connect Servo Motor U, V, W Phases
4	PE Motor Grounding Terminal	Connect to Motor Grounding Terminal for Grounding

CN3, CN4, Communication Terminals

Pin Number	Definition	Description
1	CANH	CAN Communication Port for Servo Upper Computer Software Debugging
2	CANL	
3	CGND	
4	RS485+	RS485 Communication Port for Servo Upper Computer Software Debugging
5	RS485-	
6	RS232-TXD	RS232 Communication Port for Servo Upper Computer Software Debugging
7	RS232-RXD	
8	GND	Ground
Enclosure	PE	Shield

Driver Wiring
FZ-△5 Series Servo Driver and Peripheric Equipment Connection

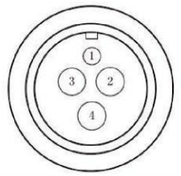
40, 60, 80 Flange Motor Side Terminal Definition (Wire Type: AMP Connector)

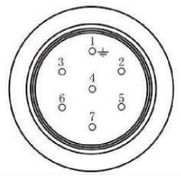


Power Connector Specifications	
Swing	127167-1(AMP)
Pin	170360(AMP)
Socket	172159(AMP)
Hole	170362(AMP)
1	U
2	V
3	W
4	PE

Serial Communication Encoder Wiring Specifications	
Plug	127167-1(AMP)
Pin	170359(AMP)
Socket	172161(AMP)
Hole	170361(AMP)
1	Shield
2	5V
3	Reserved
4	SIGN-
5	0V
6	SIGN+

110, 130, 180 Flange Motor Side Terminal Definition (Wire Type: Aviation Plug)

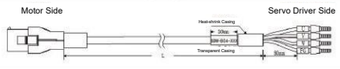
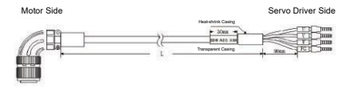
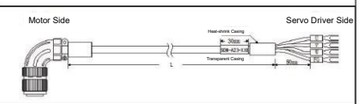
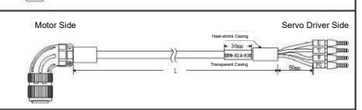
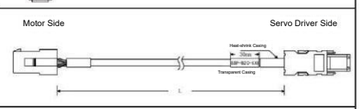
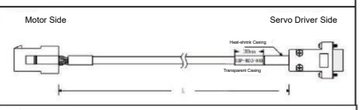
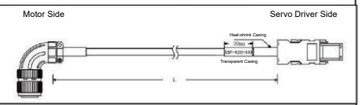
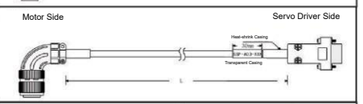
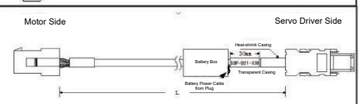
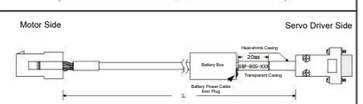
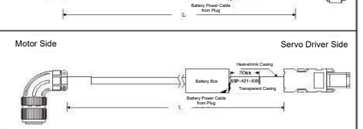
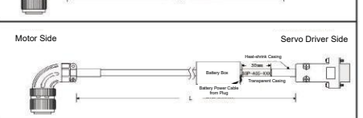




Power Connector Specifications	
Plug (110/130 Flange)	YD28J4A
Plug (110/130 Flange)	YD28K4TSL
Plug (180 Flange)	YD32J4A
Plug (1180 Flange)	YD32K4TSL
1	PE
2	U
3	V
4	W

Serial Communication Encoder Wiring Specifications	
Socket	YD28J15Z
Plug	YD28K15TSL
1	PE
2	BAT-
3	BAT+
4	SIGN-
5	0V
6	SIGN+
7	5V

Cable Selection

Cable Category	Servo Motor Model	Cable Model	Cable
Power Cable	**FZ-XX**-XXX-060-XXXXX-XXX-XX **FZ-XX**-XXX-080-XXXXX-XXX-XX **FZ-XX**-XXX-090-XXXXX-XXX-XX	**SDM-B04-XXX**	
	FZ-XX-XXX-110-XXXXX-XXX-XX **FZ-XX**-XXX-130-XXXXX-XXX-XX	**SDM-A05-XXX**	
	FZ-XX-XXX-180-XXXXX-XXX-XX	**SDM-A23-XXX**	
		SDM-A24-XXX	
Serial Incremental Encoder Cable	**FZ-XX**-XXX-040-XXXXX-XXX-XX **FZ-XX**-XXX-060-XXXXX-XXX-XX **FZ-XX**-XXX-080-XXXXX-XXX-XX **FZ-XX**-XXX-090-XXXXX-XXX-XX	**SSP-B20-XXX**	
		SSP-B03-XXX	
	FZ-XX-XXX-110-XXXXX-XXX-XX **FZ-XX**-XXX-130-XXXXX-XXX-XX **FZ-XX**-XXX-180-XXXXX-XXX-XX	**SSP-A20-XXX**	
		SSP-A03-XXX	
Serial Absolute Encoder Cable	**FZ-XX**-XXX-060-XXXXX-XXX-XX **FZ-XX**-XXX-080-XXXXX-XXX-XX **FZ-XX**-XXX-090-XXXXX-XXX-XX	**SSP-B21-XXX**	
		SSP-B05-XXX	
	FZ-XX-XXX-110-XXXXX-XXX-XX **FZ-XX**-XXX-130-XXXXX-XXX-XX **FZ-XX**-XXX-180-XXXXX-XXX-XX	**SSP-A21-XXX**	
		SSP-A05-XXX	

Servo Motor Product Overview
Naming Rules

FZ①-M5②-75B③-080④-024⑤30⑥-17M⑦-A⑧3⑨

① Product Family
Frunze Series Servo Motor

② Inertia (M), Pole Pair (5)
H: High
M: Medium
S: Low

③ Power (W):
B: ×10 C: ×100
(e.g., 75B: 750W, 15C: 1500W)

④ Seat Size (mm)
080: AMP plug 80 motors
A80: Gecko head 80 motor
B80: Aviation plug (silver) 80 motor
C80: Aviation waterproof 80 motor

⑤ Rated Torque (N.m): ×0.1
Example: 24: 2.4N.m 480: 48N.m

⑤ Rated Speed (rpm): ×100
(e.g., 15: 1500rpm, 30: 3000rpm)

⑦ Encoder Resolution:
17: 17-bit magnetic encoder
23: 23-bit optical encoder
25: 25-bit optical encoder

⑧ Voltage Level (V):
A: 220V
D: 380V

⑨ Options:
0: Standard single-turn absolute
1: Standard multi-turn absolute
2: Standard single-turn absolute with brake
3: Standard multi-turn absolute with brake
4: Standard single-turn absolute with fan
5: Multi-turn absolute with fan
6: Standard single-turn absolute with brake and fan
7: Multi-turn absolute with brake and fan

Motor Specifications - 4 Pole 220V

Model	Rated Output kW	Rated Torque N.m	Instantaneous maximum torque N·m	Rated current Arms	Peak Current Arms	Rated speed min^{-1}	Maximum speed min^{-1}	Torque Parameters N·m/Arms	Rotor Inertia $10^{-4}kg·m^2$
FZ-M4-20B-060-00630-17-A0	0.2	0.637	1.91	1.2	3.6	3000	4000	0.45	0.175
FZ-M4-40B-060-01330-17-A0	0.4	1.27	3.9	2.8	8.4			0.45	0.29
FZ-M4-60B-060-01930-17-A0	0.6	1.91	5.73	3.5	10.5			0.55	0.39
FZ-M4-40B-080-01330-17-A0	0.4	1.27	3.9	2	6			0.64	1.05
FZ-M4-75B-080-02430-17-A0	0.75	2.39	7.1	3	9			0.8	1.82
FZ-M4-73B-080-03520-17-A0	0.73	3.5	10.5	3	9	2000	2500	1.17	2.63
FZ-M4-10C-080-04025-17-A0	1	4	12	4.4	13.2	2500	3000	0.9	2.97
FZ-M4-12C-080-04030-17-A0	1.2	4	12	5.2	15.6	3000	4000	0.9	2.97
FZ-M4-75B-090-02430-17-A0	0.75	2.39	7.1	3	9			0.8	2.45
FZ-M4-73B-090-03520-17-A0	0.73	3.5	10.5	3	9	2000	2500	1.2	3.4
FZ-M4-10C-090-04025-17-A0	1	4	12	4	12	2500	4000	1	3.7
FZ-M4-80B-110-04020-17-A0	0.8	4	12	3.5	10.5	2000	2500	1.14	5.4
FZ-M4-12C-110-04030-17-A0	1.2	4	12	5	15	3000	4000	0.83	5.4
FZ-M4-15C-110-05030-17-A0	1.5	5	15	6	18			0.83	6.3
FZ-M4-12C-110-06020-17-A0	1.2	6	12	4.5	9	2000	2500	1.3	7.6
FZ-M4-18C-110-06030-17-A0	1.8	6	18	6	18	3000	4000	1	7.6
FZ-M4-10C-130-04025-17-A0	1	4	12	4	12	2500	3000	1	8.5
FZ-M4-13C-130-05025-17-A0	1.3	5	15	5	15			1	10.6
FZ-M4-15C-130-06025-17-A0	1.5	6	18	6	18			1	12.6
FZ-M4-20C-130-07725-17-A0	2	7.7	22	7.5	22.5			1.03	15.3
FZ-M4-10C-130-10010-17-A0	1	10	20	4.5	9	1000	1400	2.2	19.4
FZ-M4-15C-130-10015-17-A0	1.5	10	25	6	15	1500	2000	1.67	19.4
FZ-M4-26C-130-10025-17-A0	2.6	10	25	10	25	2500	3000	1	19.4
FZ-M4-23C-130-15015-17-A0	2.3	15	30	9.5	19	1500	2000	1.58	27.7

Motor Specifications - 4 Pole 220V

Model	Rated Output kW	Rated Torque N.m	Instantaneous maximum torque N·m	Rated current Arms	Peak Current Arms	Rated speed min^{-1}	Maximum speed min^{-1}	Torque Parameters N·m/Arms	Rotor Inertia $10^{-4}kg·m^2$
FZ-M4-30C-130-15020-17-A0	3	15	30	11.7	23.5	2000	2500	1.28	27.7
FZ-M4-38C-130-15025-17-A0	3.8	15	30	13.5	27	2500	3000	1.11	27.7
FZ-M4-27C-180-17015-17-A0	2.7	17.2	43	10.5	26.3	1500	2000	1.64	65
FZ-M4-30C-180-19015-17-A0	3	19	47	12	30			1.58	70
FZ-M4-45C-180-21520-17-A0	4.5	21.5	53	16	40	2000	2500	1.37	80
FZ-M4-43C-180-27015-17-A0	4.3	27	67	16	40	1500	2000	1.69	96
FZ-M4-55C-180-35015-17-A0	5.5	35	70	24	48			1.45	122.5
FZ-M4-75C-180-48015-17-A0	7.5	48	96	32	64			1.5	167.2

Motor Specifications - 4 Pole 380V

Model	Rated Output kW	Rated Torque N.m	Instantaneous maximum torque N·m	Rated current Arms	Peak Current Arms	Rated speed min^{-1}	Maximum speed min^{-1}	Torque Parameters N·m/Arms	Rotor Inertia $10^{-4}kg·m^2$
FZ-M4-20C-130-07725-17-D0	2	7.7	22	4.7	14.1	2500	3000	1.64	15.3
FZ-M4-20C-130-10020-17-D0	2	10	25	7.8	19.5	2000	2500	1.28	19.4
FZ-M4-23C-130-15015-17-D0	2.3	15	30	5	10	1500	2000	3	27.7
FZ-M4-30C-130-15020-17-D0	3	15	30	6.8	12.6	2000	2500	2.21	27.7
FZ-M4-36C-130-23015-17-D0	3.6	23	46	7.5	15	1500	2000	3.07	43.7
FZ-M4-27C-180-17015-17-D0	2.7	17.2	43	6.5	16.3			2.65	65
FZ-M4-30C-180-19015-17-D0	3	19	47	7.5	18.8			2.5	70
FZ-M4-45C-180-21520-17-D0	4.5	21.5	53	9.5	23.8	2000	2500	2.26	80
FZ-M4-43C-180-27015-17-D0	4.3	27	67	10	25	1500	2000	2.7	96
FZ-M4-55C-180-35015-17-D0	5.5	35	70	12	24			2.9	122.5
FZ-M4-75C-180-48015-17-D0	7.5	48	96	20	40			2.4	167.2

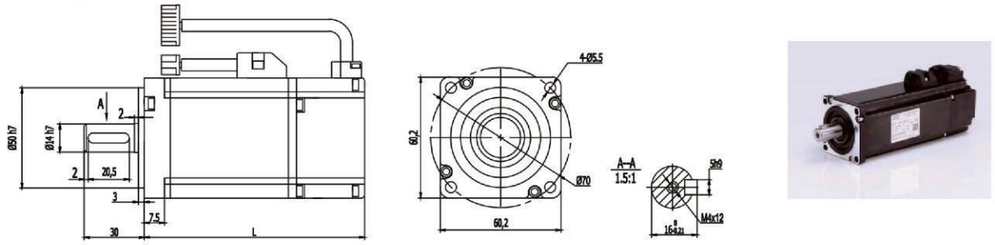
Motor Specifications - 5 Pole 220V

Model	Rated Output kW	Rated Torque N.m	Instantaneous maximum torque N·m	Rated current Arms	Peak Current Arms	Rated speed min^{-1}	Maximum speed min^{-1}	Torque Parameters N·m/Arms	Rotor Inertia $10^{-4}kg·m^2$
FZ-M5-05B-040-00130-17-A0	0.05	0.16	0.48	0.6	1.8	3000	6000	0.2	0.035
FZ-M5-10B-040-00330-17-A0	0.1	0.32	0.96	1	3			0.32	0.05
FZ-M5-20B-060-00630-17-A0	0.2	0.64	1.96	1.4	4.2			0.46	0.29
FZ-M5-40B-060-01330-17-A0	0.4	1.27	3.81	2.8	8.4			0.45	0.53
FZ-M5-60B-060-01930-17-A0	0.6	1.9	6.7	4.2	12.6			0.45	0.81
FZ-M5-75B-080-02430-17-A0	0.75	2.4	7.2	3.8	11.4			0.63	1.62
FZ-M5-10C-080-03230-17-A0	1	3.2	9.6	5.5	16.5			0.6	3.2
FZ-M5-85B-130-05415-17-A0	0.85	5.36	16.17	6.9	20.7			0.78	10.9
FZ-M5-13C-130-08315-17-A0	1.3	8.34	25.02	10.7	32.1	1500	3000	0.78	8
FZ-M5-18C-130-11515-17-A0	1.8	11.5	34.5	13.8	41.4			0.83	9.3

Servo Motor Outline and Mounting Dimensions

60 Series

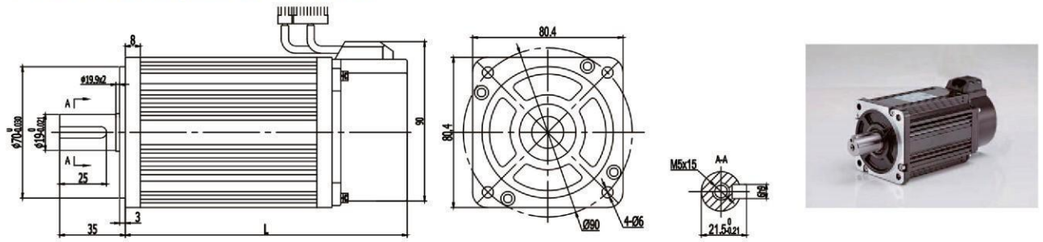
⊙ Outline Drawing/DIMENSION: UNIT=mm



Model	L without Brake	L with Electromagnetic Brake
FZ-M-20B-060-00630-17-A0	116	154
FZ-M-40B-060-01330-17-A0	141	179
FZ-M-60B-060-01930-17-A0	169	207

80 Series

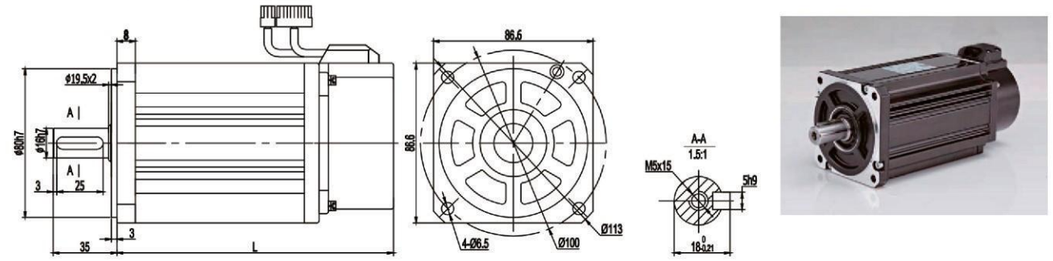
⊙ Outline Drawing/DIMENSION: UNIT=mm



Model	L without Brake	L with Electromagnetic Brake
FZ-M-40B-080-01330-17-A0	124	164
FZ-M-75B-080-02430-17-A0	151	191
FZ-M-73B-080-03520-17-A0	179	219
FZ-M-10C-080-04025-17-A0	191	231

90 Series

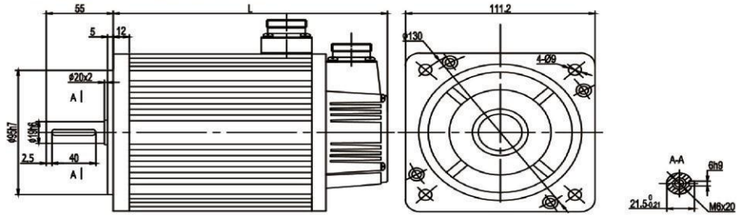
⊙ Outline Drawing/DIMENSION: UNIT=mm



Model	L without Brake	L with Electromagnetic Brake
FZ-M-75B-090-02430-17-A0	150	198
FZ-M-73B-090-03520-17-A0	172	220
FZ-M-10C-090-04025-17-A0	182	230

110 Series

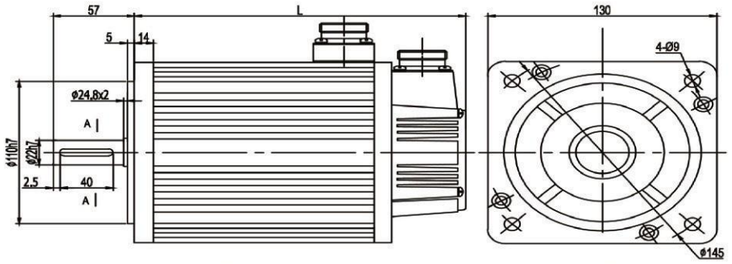
⊙ Outline Drawing/DIMENSION: UNIT=mm



Rated Torque (N.m)	L without Brake	L with Electromagnetic Brake
4	189	263
5	204	278
6	219	293

130 Series

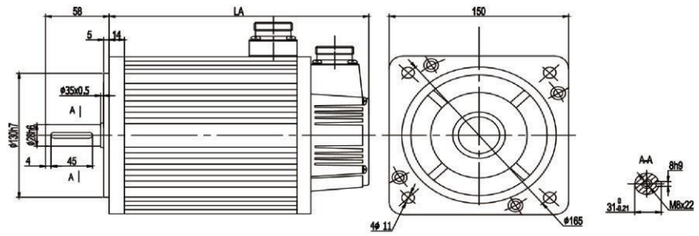
⊙Outline Drawing/DIMENSION: UNIT=mm



Rated Torque (N.m)	L without Brake	L with Electromagnetic Brake
4	166	223
5	171	228
6	179	236
7.7	192	249
10 (1000rpm, 1500rpm)	213	291
10 (2500rpm)	209	290
15 (1000rpm, 1500rpm)	241	322
15 (2500rpm)	231	312

150 Series

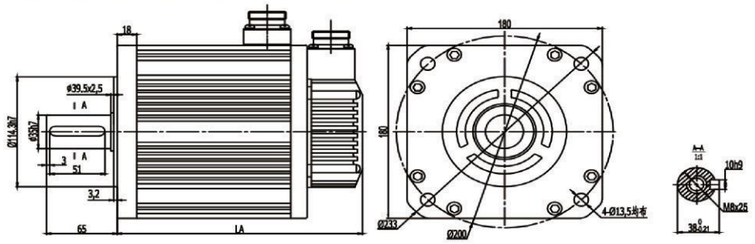
⊙ Outline Drawing/DIMENSION: UNIT=mm



Rated Torque (N.m)	L without Brake	L with Electromagnetic Brake
15	230	303
18	248	321
23	278	351
27	302	375

180 Series

⊙ Outline Drawing/DIMENSION: UNIT=mm



Rated Torque (N.m)	L without Brake	L with Electromagnetic Brake
17.2	226	298
19	232	304
21.5	243	315
27	262	334
35	292	364
48	346	418

Water Jet Loom

The water jet loom is a shuttle-less loom that uses water jets to carry the weft yarn across the fabric. During operation, the pump cam rotates, pulling the plunger to the left, drawing water from the float box into the pump, and then ejecting the water through the nozzle. Simultaneously, the yarn presser opens, releasing the weft yarn, which is carried by the water flow from one side of the fabric to the other. The yarn presser then closes, gripping the weft yarn until the next insertion.

Screen Printing Machine

The silk screen printing machine, often referred to simply as a screen printing machine, generally consisting of a transmission device, printing device, drying device, electrical device, and printing plate device. It is a device that prints ink and other pastes onto products through a screen. It can be divided into vertical screen-printing machines, inclined arm screen printing machines, turntable screen printing machines, four-column screen printing machines, and fully automatic screen-printing machines. It is mainly used in glass printing, industrial printing, PCB printing, and optoelectronic display printing industries.

Tapping Machine

The tapping machine is a machine used to produce nuts, consisting of a power unit mechanism, vibration plate mechanism, indexing plate mechanism, and an electrical control system.

Screw Locking Machine

The automatic screw locking machine is designed to streamline the screw fastening process using electric and pneumatic components. This machine automates screw feeding, tightening, and detection, significantly reducing labor needs and minimizing errors from manual operations. Operation is straightforward: workers simply place the product, and the machine automatically handles the rest, enhancing efficiency and accuracy.

Injection Molding Robot Arm

This mechanical device is specifically designed for automated injection molding production. It alleviates heavy physical labor by mimicking the functions of human upper limbs and can automatically transport products or handle tools based on preset requirements. This automation helps increase production efficiency, stabilize product quality, reduce scrap rates, lower production costs, and enhance enterprise competitiveness. It is extensively used in industries like automotive, electronics, medical products, cosmetics, and more.

Paper Cutter

The paper cutting machine meets the demands of post-printing paper cutting needs, consisting mainly of a paper feeding device, fixing device, and cutting device, used for various paper cutting requirements.

Sock Knitting Machine

The sock knitting machine is a knitting machine for producing socks. The circular sock knitting machine mainly consists of a yarn feeding mechanism, knitting mechanism, needle selection mechanism, control mechanism, transmission mechanism, density adjustment mechanism, and pulling mechanism.

Sewing Machine

Industrial sewing machines are generally classified into flat seam machines, chain stitch machines, quilting machines, overlock machines, and coverstitch machines, with flat seam machines being the most widely used. Generally, a sewing machine consists of four parts: handpiece, base, transmission, and accessories.

Laser cutting machine

The laser cutting machine operates by emitting a laser beam, which is focused into a high-power density laser beam by the optical path system. When the laser beam is irradiated on the surface of the workpiece, the workpiece reaches its melting or boiling point, and the high-pressure gas coaxial with the beam blows away the molten or vaporized metal. As the relative position of the beam and the workpiece moves, the material forms a kerf, achieving the purpose of cutting.

Bending Machine

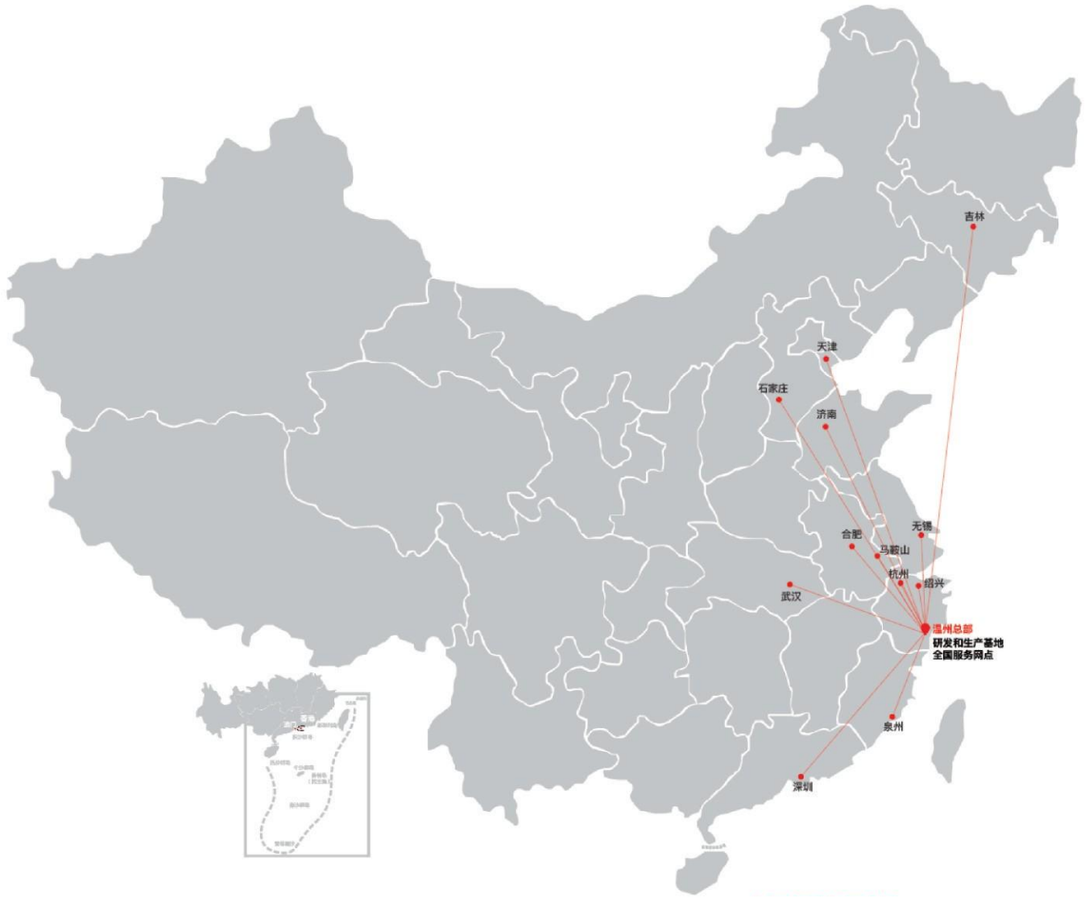
This machine is used for bending sheets of metal and comprises a frame, a workbench, and a clamping plate. The workbench, positioned on the frame, includes a base connected to the clamping plate via hinges. This base contains a seat shell which holds a coil in a recess, covered by a protective cover. The design allows for effective and precise bending operations.

SCARA Robot

The SCARA robot is a robotic arm for assembly operations, with three rotary joints, whose axes are parallel, performing positioning and orientation within a plane. Additionally, the robot includes a mobile joint that facilitates motion perpendicular to this plane.

Pillow Packaging Machine

The pillow packaging machine is a highly versatile continuous packaging machine suitable for various specifications of food and non-food packaging. It can manage various packaging materials, from unbranded to pre-printed rolls featuring trademark designs. The machine's efficiency lies in its ability to process these materials at high speeds, making it ideal for industrial packaging needs.



R&D and Production Bases

Zhejiang
Shenzhen

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National Offices

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Hangzhou
Rui'an
Wuxi
Hefei
Quanzhou
Shenzhen
Shijiazhuang
Jinan
Wuhan
Ningbo

National Service Points

Quanzhou
Hangzhou
Wenzhou
Hefei
Ma'anshan
Wuxi
Jinan
Tianjin
Shijiazhuang
Jilin
Shenzhen
Wuhan
Shaoxing

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