

HM6 Series Servo System

Power Solutions

- ☐ Telecom Power
- ☐ Server Power
- ☐ Electric Power
- ☐ Medical Power
- ☐ Display Power
- ☐ LED Power
- ☐ Laser Power
- ☐ OA Power
- ☐ Flat Panel Power
- ☐ Bi-directional Inverters for Portable Power
- ☐ Solar & BESS & EV Charging Solution

Industry Automation

- ☒ Servo System
- ☐ Control System
- ☐ Elevator Controller
- ☐ Linear Motors
- ☐ IOT Solution
- ☐ Encoder
- ☐ Variable Frequency Drive
- ☐ Internal Gear Pump

New Energy Solutions

- ☐ Multiplexed EV Charging System(OBC & DC-DC)
- ☐ Power Electronic Unit(2-in-1, 3-in-1)
- ☐ E-Compressor
- ☐ TV EDU
- ☐ Motor Control Unit
- ☐ Construction Machinery Controller
- ☐ Intelligent Active Hydraulic Suspension (i-AHS)
- ☐ Railway A/C Controller
- ☐ Railway VFD
- ☐ Light Electric Vehicle Controller
- ☐ Thermal Mgmt. System

Home Appliance Control Solutions

- ☐ Residential A/C Controller
- ☐ Commercial A/C Controller
- ☐ Heat Pump Controller
- ☐ Vehicle A/C Controller
- ☐ Solar A/C Controller
- ☐ Mini Compressor Controller
- ☐ Refrigerator Controller
- ☐ Washer/Dryer Controller
- ☐ Residential Microwave
- ☐ Industrial Microwave
- ☐ Smart Bidet
- ☐ RF Thawing System

Precision Connection

- ☐ FFC
- ☐ FPC
- ☐ Coaxial Cable
- ☐ CCS
- ☐ Litz Wire
- ☐ Peek Wire

SHENZHEN MEGMEET ELECTRICAL CO., LTD.

Add: 5th Floor, Block B, Unisplendour Information Harbor,
Langshan Rd., Science & Technology Park, Nanshan District,
Shenzhen, 518057, China

Version: 202506

Megmeet reserves the right to modify the technical parameters and
appearance of the products in this catalogue without prior advice to the users.

FOLLOW US

Q Megmeet



ABOUT MEGMEET

MEGMEET is a comprehensive solution provider for hardware and software R&D, production, sales, and service in the field of electrical automation. With power electronics and automation control at its core, MEGMEET's main businesses include Power Solutions, Industrial Automation, New Energy Solutions, Intelligent Equipment, Home Appliance Control Solutions, and Precision Connection.

MEGMEET has established a robust R&D, manufacturing, marketing, and service platform, with over 7,600 employees, including more than 2,800 R&D staff worldwide. MEGMEET's global presence includes R&D Centers in China, the United States, and Germany; Manufacturing Centers in Thailand, India, the United States, and China; and Regional Offices across North America, South America, Europe, Central Asia, Northeast Asia, Southeast Asia, India, the Middle East, Oceania, and Africa.

MEGMEET is committed to creating a cleaner living environment for all human beings through more efficient energy utilization and improved manufacturing efficiency. MEGMEET aims to become the world leader in electrical automation and achieve the goal of MEGMEET EVERYWHERE.



2800+

R&D Staff



10

R&D Centers



9

R&D Manufacturing Bases



7600+

Total Employees



1990+

No. of Patents & IP Rights

R&D CAPABILITY

Sustainable R&D Investment

R&D Investment

R&D Employees

>2800



Percentage of Total Employees

36%



Percentage of Total Sales

>11%



Patents & Industry Standards

No. of Patents & IP Rights

1990+

 400+ new in 2024

National & International standards

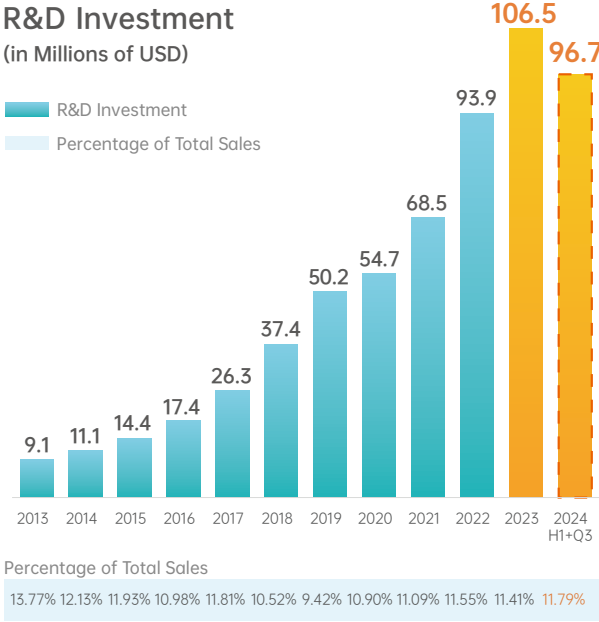
32

• 9 lead author

Industry Standards Drafted

38

• 28 lead author



Testing Capabilities & Management System



MEGMEET's testing capabilities and management system have been certified by CNAS, TUV, UL-WTDP, and UL-CTF. MEGMEET's test results are recognized globally.



Introduction

Megmeet's new-generation HM6 series servo system is featured with high response, high precision and high synchronization, and equipped with advanced functions such as online inertia identification, gain auto-tuning, vibration suppression, and quadrant compensation. Together with the intelligent Megmeet host controller, HM6 is able to meet market requirements for mechanical equipment by high precision, high stability, high efficiency and ease of use.

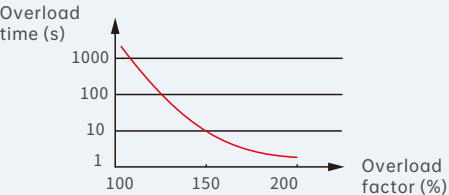
High response

- Speed loop bandwidth 2.0 kHz
- High current loop and speed loop refresh frequency
- Faster response to commands
- High stiffness



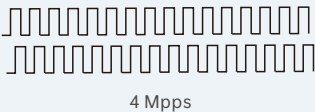
High overload

- 2 times overload capacity



High bandwidth

- Input and output pulse up to 4 Mpps
- Supports differential and open-collector input
- Three pulse modes: A/B orthogonal, direction + pulse and CW/CCW



Integrated interface for encoders

23-bit multi-turn absolute encoder

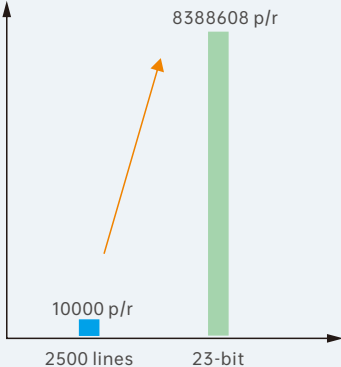
- High resolution, 8388608 p/r, 65535 turns of absolute position for maximum record
- The low-speed torque is more stable and the positioning is more accurate
- The motor still remains in its position after the servo unit is powered off

Incremental encoder

- Economical, easy wiring
- Accurate angle identification

Sin/Cos encoder

- Internal 16-bit A/D subdivision
- Improved positioning accuracy and low-speed stability



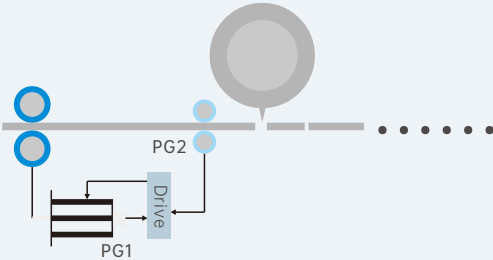
Fully closed-loop control

Fully closed-loop control to reduce control errors caused by defects such as mechanical clearance and elasticity and improve control accuracy and system stiffness

Support three kinds of encoder interfaces

- Sin/Cos encoder
- ABZ incremental encoder
- Absolute encoder

Fully closed-loop control with the local encoder



Important Functions

Inertia identification

Both offline and online inertia identification can be performed. Through inertia identification, the load inertia ratio can be accurately obtained, which is helpful to complete the commissioning quickly and achieve the best control effect.

Gain adjustment

- Automatic gain adjustment: By selecting the stiffness level, matching gain parameters are automatically generated to meet the requirements of rapidity and stability.
- Manual gain adjustment: Manually fine-tune the gain to optimize the control effect.
- Speed feedforward: The function is used in the position control mode to reduce position following errors.
- Torque feedforward: In the position control mode, it can reduce the position deviation during acceleration and deceleration; and in the speed control mode, it can reduce the speed deviation when the speed is fixed.
- Multiple gain switchover modes

Torque disturbance observation

In a non-torque control mode, by detecting and estimating the external disturbance torque received by the system, the torque reference can be compensated to reduce the influence of external disturbance on the servo so as to reduce vibration.

High-frequency mechanical resonance suppression

Automatically search for high-frequency mechanical resonance frequency points, and reduce the gain at a specific frequency through 4 sets of traps, which can suppress mechanical resonance.

Low-frequency mechanical resonance suppression

For long-end mechanical loads, the low-frequency resonance suppression function can effectively reduce the end jitter caused by positioning completion or emergency stop.

Friction compensation

For loads with high friction, such as drive shafts of belts, friction compensation can shorten positioning time and reduce machining errors caused by friction.

Quadrant compensation

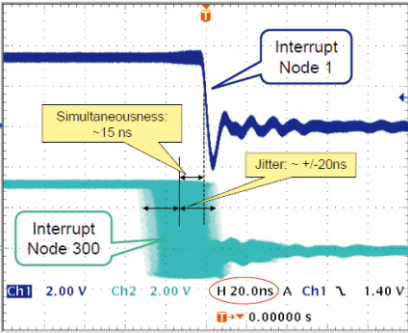
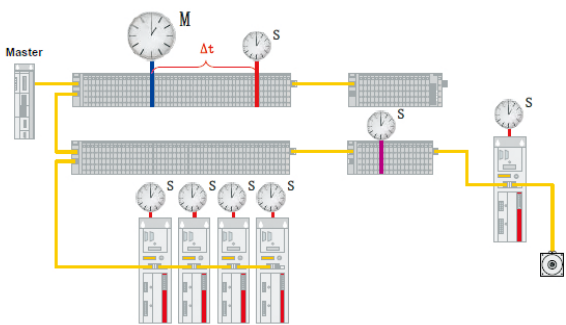
In the application of arc trajectory interpolation with more than 2 axes, quadrant compensation can reduce the arc distortion caused by friction non-linearity (the trajectory protrusion at the alternation of the four quadrants), and increase the accuracy of servo system control and the uniformity of motion.

HM6-N Communication Specifications

Communication standard	
IEC 61158 Type12, IEC 61800-7 CiA402 Drive Profile (CoE)	
Physical layer	
Transmission protocol	100 BASE-TX (IEEE 802.3)
Transmission distance	Less than 100 m between two nodes
Interface	CN1 (RJ45): EtherCAT Signal IN CN2 (RJ45): EtherCAT Signal OUT
Cable	Category 5 twisted pair
Application layer	
SDO	SDO request, SDO response
PDO	Mutable PDO mapping
CiA402 Drive Profile	Profile Position Mode
	Profile Velocity Mode
	Homing Mode
	Interpolated Position Mode
	Cyclic Synchronous Position Mode
	Cyclic Synchronous Velocity Mode
Sync mode	
Distributed clock (DC) mode	

Network Synchronization

- The EtherCAT network selects the first slave clock as the reference clock, and the clocks of all other devices (including master and slave) are synchronized with this reference clock.
- Through the synchronization signal (SYNC), all EtherCAT devices can use the same system clock to control the synchronous task execution of each device, and realize the synchronization of local tasks of each device with the reference clock.
- The system can achieve a jitter of 20 ns and a synchronization error of 15 ns, even though 300 nodes are between two devices with the cable length up to 120 m.

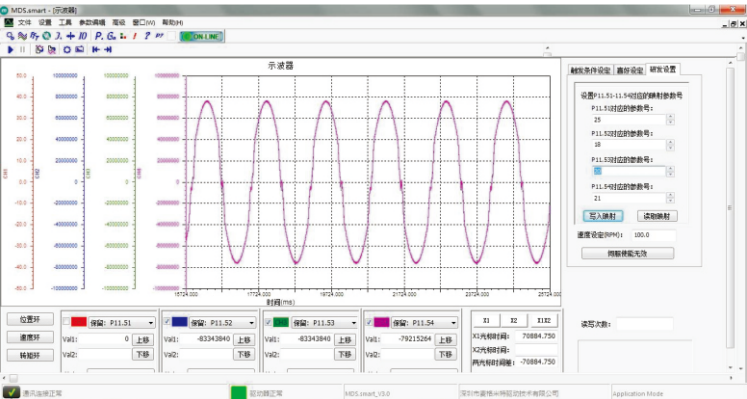
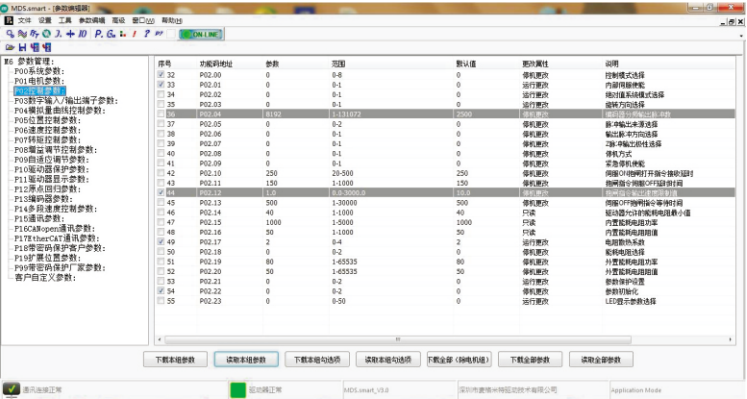


Specifications

Basic specification	
Main circuit power supply	Three-phase 380 to 480 V, -15% to +10%, 50/60 HZ
Control mode	IGBT, PWM control, and sine wave current drive mode
First encoder	Absolute, incremental, and Sin/Cos encoders supported
Second encoder	Absolute, incremental, and Sin/Cos encoders supported
Interface	
Button	5 buttons
LED display	Five 7-segment LEDs
Power indicator	CHARGE indicator
Fully closed-loop interface	Fully closed-loop function
IO	
DI (various functions defined by parameters)	9 general inputs, optocoupler isolation, NPN and PNP inputs available Input voltage range 20 to 30 V, input impedance 2.4 to 4.7 K
DO (various functions defined by parameters)	5 general outputs, optocoupler isolation, NPN and PNP outputs available Maximum operating voltage 30 V, maximum current 100 mA
AI (functions configured according to modes)	2 analog inputs, +/-10 V, 16 bits for AI1, 12 bits for AI2 Input impedance: AI1 impedance 12 K, AI2 impedance 14 K Signal delay: AI1 delay 100 uS, AI2 delay 70 uS
Communication function	
EtherCAT	CoE communication protocols, in compliance with CiA402 profile, only for the HM6-N series
USB	Connect the computer and the servo drive for commissioning and relevant tuning
General function	
Auto-adjustment	The host computer issues an action command to run the motor, during which the load moment of inertia ratio is estimated in real time and the stiffness level is automatically set
Switchover of multiple control modes	Position mode; Speed mode; Torque mode; Position/Speed mode switchover; Speed/Torque mode switchover; Position/Torque mode switchover; Fully closed-loop control; EtherCAT mode
Pulse frequency division	Arbitrary frequency division
Protection function	Overvoltage, undervoltage, overcurrent, overspeed, stall, overheat, overload, encoder abnormality, input phase loss, output phase loss, excessive position deviation
High-frequency vibration suppression	4 sets of notch filters, suppressing the vibration from 0 to 4000 Hz; 1 set of speed reference notch filter from 0 to 1000 Hz
End vibration suppression	2 sets of filters, suppressing the end low-frequency from 1 Hz to 100 Hz
Homing mode	Multiple homing modes
Gantry control	Gantry synchronization function

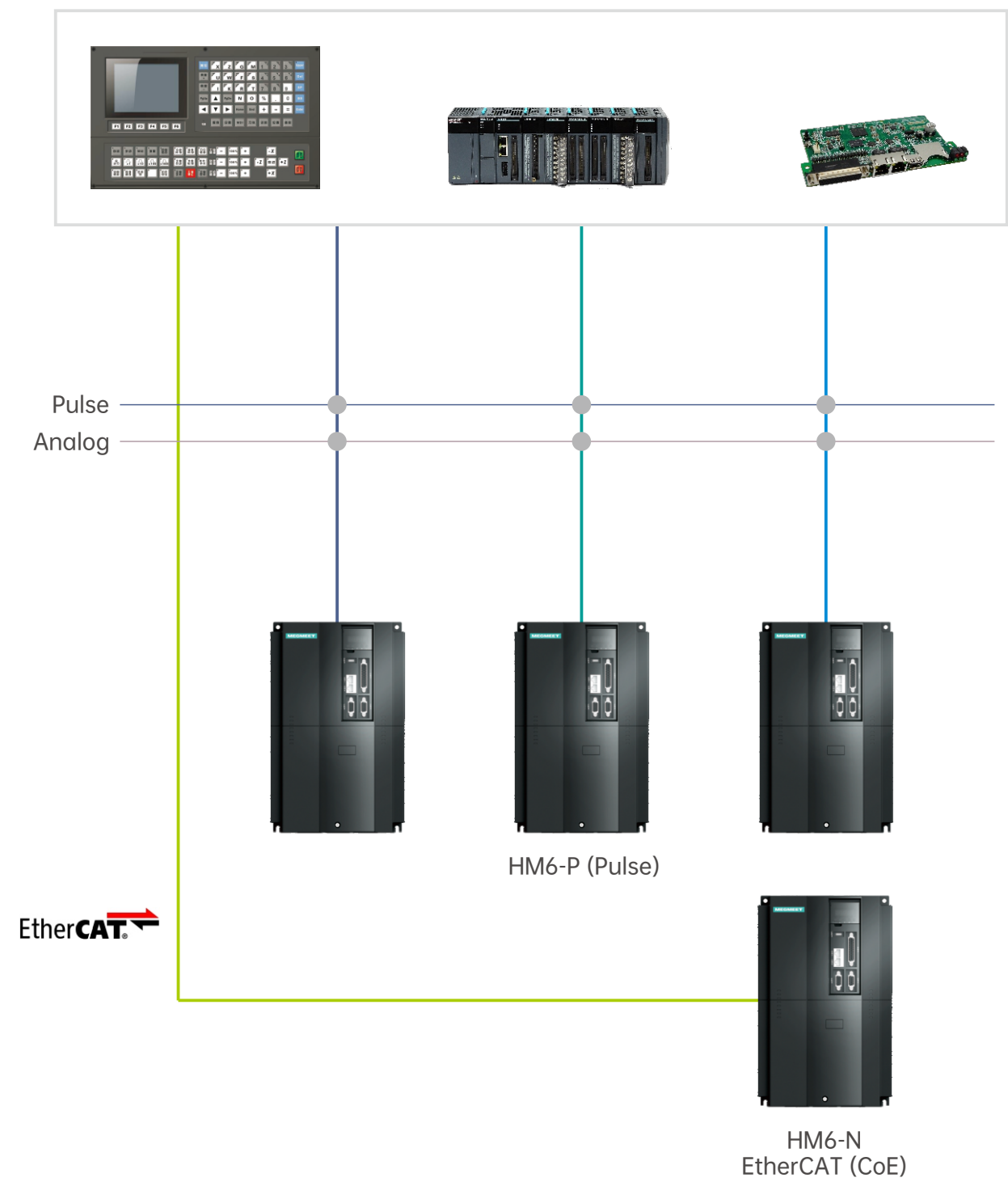
General function	
Reverse clearance compensation	Used to improve the response delay that occurs when the traveling direction of the machine is reversed
Mechanical analyzer	Used to analyze frequency features of the mechanical system through the host computer software
Inertia identification	Offline and online system inertia identification
Torque observer	Load torque observation and compensation
Friction compensation	System friction compensation

Host Computer Software



- Parameter auto-tuning
- Friendly HMI
- Shared USB port for firmware upgrade and host computer communication
- Centralized management: parameter upload & download and firmware upgrade of multiple drives
- Innovative power supply, parameter output and fault check through USB
Blind matching supported for Type-C
- Real-time online data monitoring with 32 bit * 4-channel real-time oscilloscope display and sampling frequency up to 16 K
- Input and output of 30 s data

System Overview



Servo Drive Model

HM6 - N T 032 A X
1 2 3 4 5 6

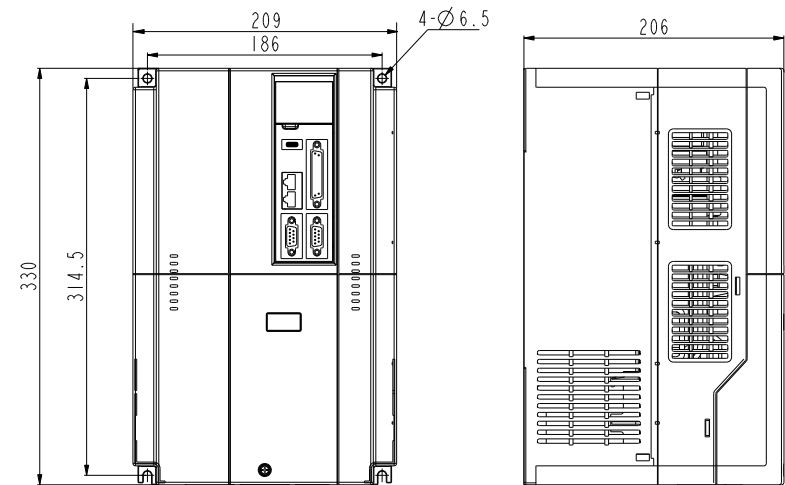
1 Product series HM6 series servo	3 Voltage class S: 220V T: 380V	5 Hardware version A: Standard version B: Small size version
2 Drive type P: Pulse type N: EtherCAT F: PROFINET	4 Rated current (32 A to 304 A) 032: 32 A 037: 37 A 045: 45 A	6 Software version

Servo Drive
Electrical Specifications

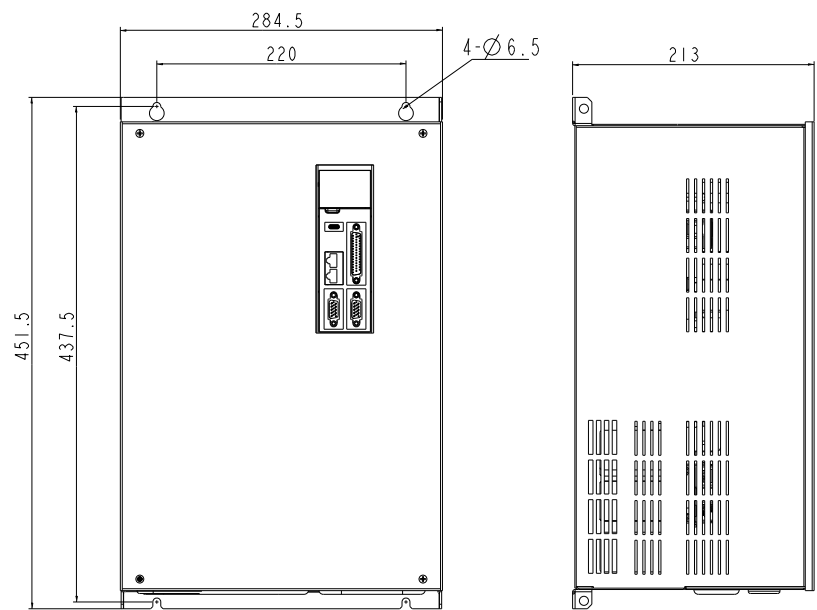
Model	Enclosure	Material	Rated input current (A)	Rated output current (A)	Max. output current (A)	Applicable motor power (kW)	Braking unit	Recommended braking resistor (W, Ω)
Three-phase 380 to 440 V, -15% to +10%, 50/60 Hz								
HM6-*T032AX	R4	Plastic	35	32	64	15	Built-in braking unit	4800, 32
HM6-*T037AX			38.5	37	74	18.5		4800, 32
HM6-*T045AX			46.5	45	90	22		4800, 27.2
HM6-*T060AX			62	60	120	30		6000, 20
HM6-*T075AX	R5	Sheet metal	76	75	150	37		9600, 16
HM6-*T090AX			92	90	180	45		9600, 13.6
HM6-*T110AX	R6		113	110	220	55		6000, 20*2
HM6-*T152AX			157	152	304	75		9600, 13.6*2
HM6-*T176AX	R7		180	176	352	90		9600, 13.6*2
HM6-*T210AX	R7P		214	210	420	110	No built-in braking unit	6000, 20*3
HM6-*T253AX			256	253	506	132		9600, 13.6*3
HM6-*T304AX			307	304	608	160		40000, 3.4

Servo Drive Dimensions

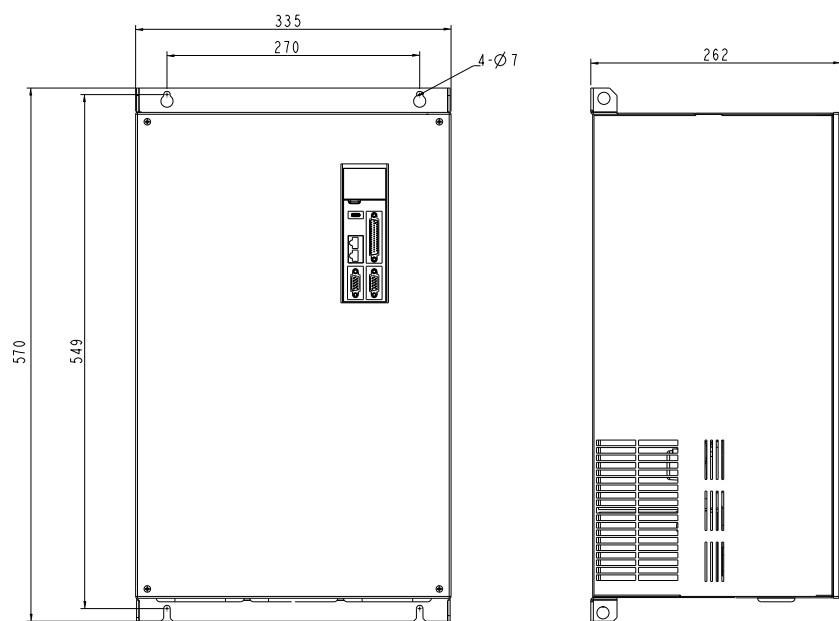
R4



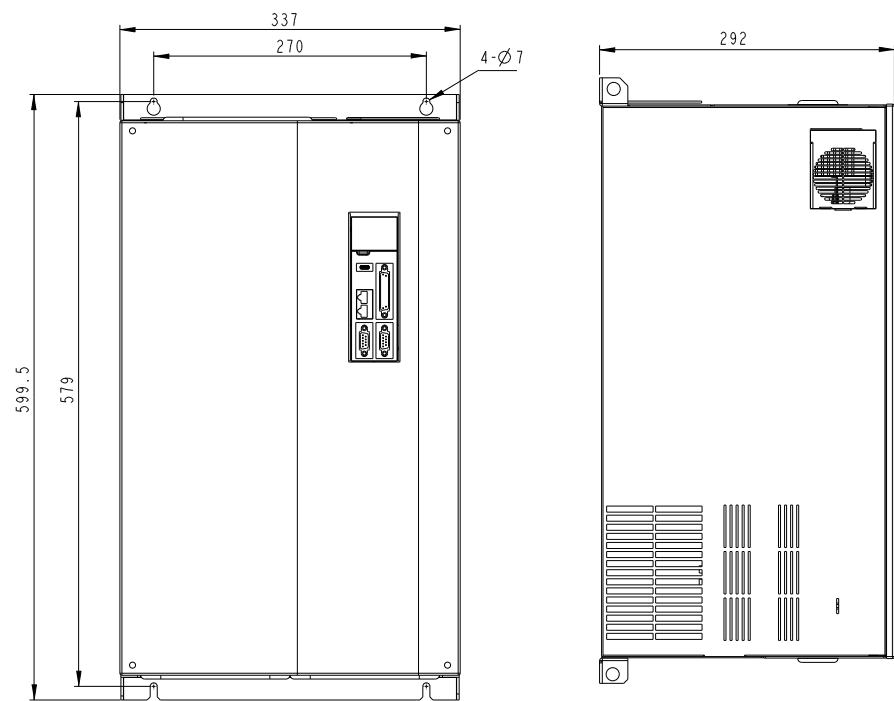
R5



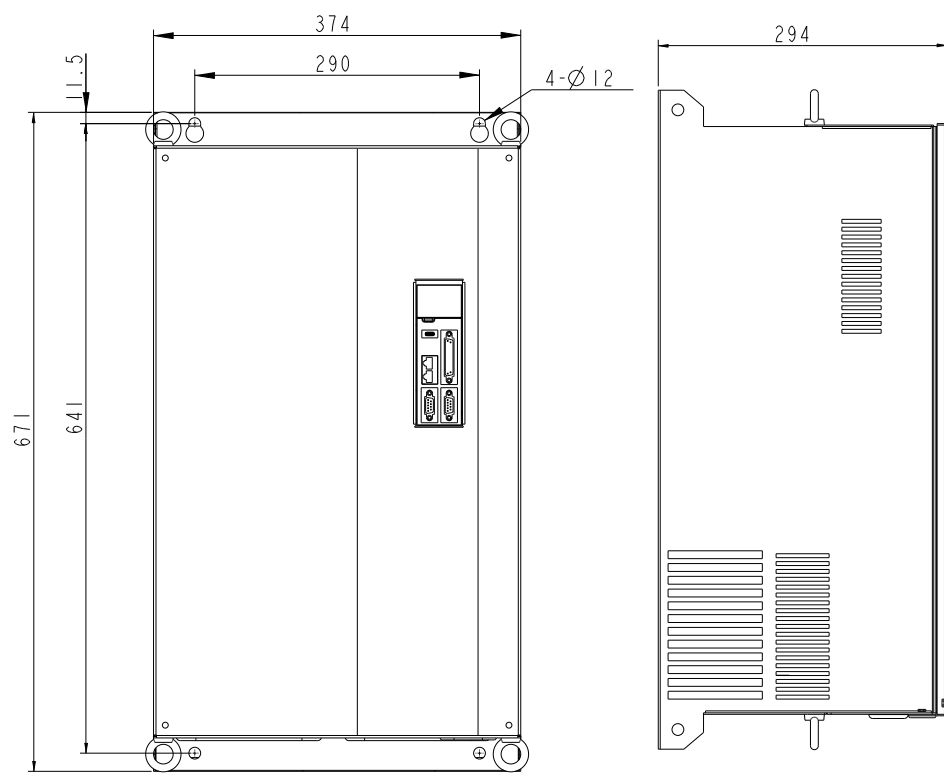
R6



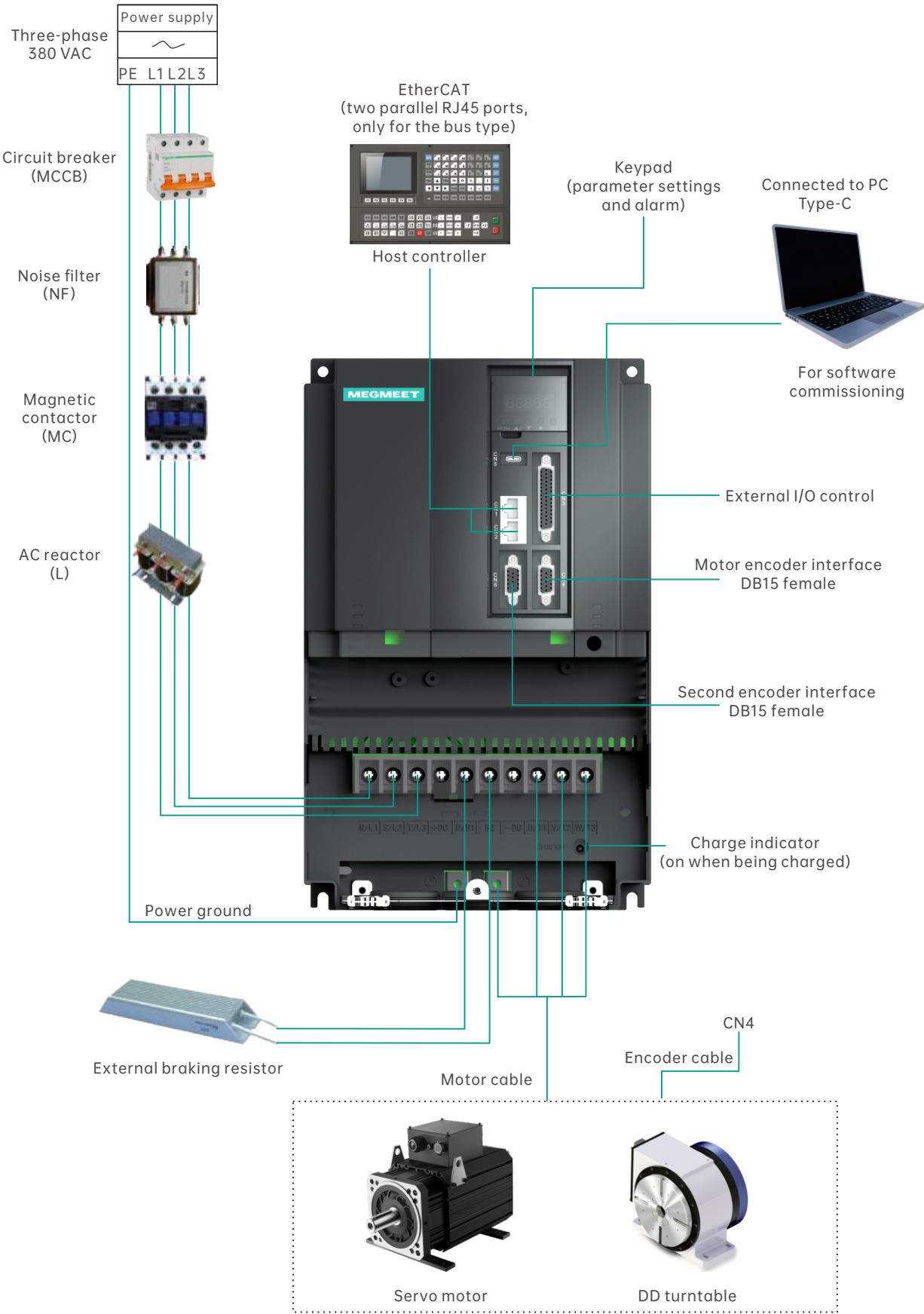
R7



R7P



Drive Wiring



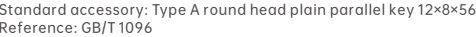
Servo Motor Model

SPM - T I B 20 15D - F B - J
1 2 3 4 5 6 7 8 9

1 Product series SPM: SPM series servo motor	4 Encoder type B: 23-bit multi-turn optical encoder	7 Cooling method F: Air cooling Y: Liquid cooling A: Self cooling
2 Rated voltage S: 220 V T: 380 V	5 Frame dimensions 20: 200*200 mm 26: 264*264 mm 36: 365*365 mm	8 Brake None: Without brake B: With brake
3 Rated speed D: 1500 rpm E: 2000 rpm I: 1700 rpm	6 Rated motor power (number & letter) A: Number × 1 B: Number × 10 C: Number × 100 D: Number × 1000 E: Number × 10000	9 Design version J: Version J



200*200 frame



Standard accessory: Type A round head plain parallel key 14×9×90
Reference: GB/T 1096

HM6 Series Servo System P16

Servo Motor Parameters

Motor model	Rated power (kW)	Rated speed (rpm)	Peak speed (rpm)	Rated torque (N·m)	Peak torque (N·m)	Rated current (A)	Peak current (A)	Inertia (10 ⁻³ kg·m ²)
SPM-TDB2009D-F-J	8.6	1500	2200	55	88	16.3	27.5	6
SPM-TDB2013D-F-J	13.2	1500	2200	84	145	24.6	45	7.5
SPM-TDB2017D-F-J	17	1500	2200	108	195	31.8	63	9
SPM-TDB2020D-F-J	20.4	1500	2200	130	248	39.2	83	10.5
SPM-TDB2025D-F-J	24.5	1500	2200	156	300	44.7	104	12
SPM-TDB2028D-F-J	28.3	1500	2200	180	345	52	120	13.7
SPM-TDB2032D-F-J	32.2	1500	2200	205	420	61.8	140	15
SPM-TIB2010D-F-J	9.8	1700	2500	55	89	18.5	32.5	6
SPM-TIB2015D-F-J	15	1700	2500	84	147	28.3	54	7.5
SPM-TIB2019D-F-J	18.7	1700	2500	105	202	35.3	74	9
SPM-TIB2023D-F-J	23	1700	2500	129	247	44.8	89	10.5
SPM-TIB2028D-F-J	27.8	1700	2500	156	302	53.3	110	12
SPM-TIB2031D-F-J	31.3	1700	2500	176	375	61.5	138	13.7
SPM-TIB2037D-F-J	36.5	1700	2500	205	425	70	157	15
SPM-TEB2011D-F-J	11.3	2000	2600	54	88	21	36	6
SPM-TEB2017D-F-J	17.4	2000	2600	82	145	31.6	62	7.5
SPM-TEB2022D-F-J	21.8	2000	2600	104	194	38.3	80	9
SPM-TEB2027D-F-J	26.8	2000	2600	128	248	51.3	110	10.5
SPM-TEB2033D-F-J	32.5	2000	2600	155	310	60.9	140	12
SPM-TEB2036D-F-J	36.4	2000	2600	174	355	66.8	154	13.7
SPM-TEB2041D-F-J	40.8	2000	2600	195	400	74	185	15
SPM-TDB2635D-F-J	35.4	1500	2200	225	445	66	152	29.6
SPM-TDB2647D-F-J	47.2	1500	2200	300	520	89.5	180	36.8
SPM-TDB2659D-F-J	58.8	1500	2200	375	600	112	228	43.4
SPM-TDB2669D-F-J	69.1	1500	2200	440	675	129	230	50
SPM-TDB2679D-F-J	79	1500	2200	503	750	149	260	57.6
SPM-TDB2688D-F-J	87.9	1500	2200	560	830	170	292	64
SPM-TIB2640D-F-J	39.7	1700	2500	223	440	75.8	162	29.6
SPM-TIB2645D-F-J	44.5	1700	2500	250	430	67.6	123	34.5
SPM-TIB2653D-F-J	52.7	1700	2500	296	510	99.3	180	36.8
SPM-TIB2666D-F-J	65.9	1700	2500	370	600	128	225	43.4
SPM-TIB2677D-F-J	77.4	1700	2500	435	670	149	255	50
SPM-TIB2689D-F-J	89	1700	2500	500	755	173	280	57.6
SPM-TIB2699D-F-J	98.6	1700	2500	554	840	206	340	64
SPM-TEB2646D-F-J	46	2000	2600	220	440	86.7	200	29.6
SPM-TEB2662D-F-J	61.6	2000	2600	294	510	109	222	36.8
SPM-TEB2677D-F-J	77	2000	2600	368	595	146	273	43.4
SPM-TEB2690D-F-J	90	2000	2600	430	670	170	308	50
SPM-TEB2610E-F-J	104	2000	2600	498	755	187	330	57.6
SPM-TEB2612E-F-J	115	2000	2600	550	810	206	345	64

System Configuration

Motor model	Rated motor power (kW)	Power cable (mm²)	Encoder cable	Drive model
SPM-TDB2009D-F-J	8.6	2.5	SPL-E0D-XX	HM6-*T032AX
SPM-TDB2013D-F-J	13.2	4	SPL-E0D-XX	HM6-*T032AX
SPM-TDB2017D-F-J	17	6	SPL-E0D-XX	HM6-*T032AX
SPM-TDB2020D-F-J	20.4	10	SPL-E0D-XX	HM6-*T045AX
SPM-TDB2025D-F-J	24.5	10	SPL-E0D-XX	HM6-*T045AX
SPM-TDB2028D-F-J	28.3	16	SPL-E0D-XX	HM6-*T060AX
SPM-TDB2032D-F-J	32.2	16	SPL-E0D-XX	HM6-*T075AX
SPM-TIB2010D-F-J	9.8	2.5	SPL-E0D-XX	HM6-*T032AX
SPM-TIB2015D-F-J	15	6	SPL-E0D-XX	HM6-*T032AX
SPM-TIB2019D-F-J	18.7	6	SPL-E0D-XX	HM6-*T037AX
SPM-TIB2023D-F-J	23	10	SPL-E0D-XX	HM6-*T045AX
SPM-TIB2028D-F-J	27.8	16	SPL-E0D-XX	HM6-*T060AX
SPM-TIB2031D-F-J	31.3	16	SPL-E0D-XX	HM6-*T075AX
SPM-TIB2037D-F-J	36.5	25	SPL-E0D-XX	HM6-*T075AX
SPM-TEB2011D-F-J	11.3	2.5	SPL-E0D-XX	HM6-*T032AX
SPM-TEB2017D-F-J	17.4	6	SPL-E0D-XX	HM6-*T032AX
SPM-TEB2022D-F-J	21.8	10	SPL-E0D-XX	HM6-*T045AX
SPM-TEB2027D-F-J	26.8	16	SPL-E0D-XX	HM6-*T060AX
SPM-TEB2033D-F-J	32.5	16	SPL-E0D-XX	HM6-*T075AX
SPM-TEB2036D-F-J	36.4	16	SPL-E0D-XX	HM6-*T075AX
SPM-TEB2041D-F-J	40.8	25	SPL-E0D-XX	HM6-*T090AX
SPM-TDB2635D-F-J	35.4	16	SPL-E0D-XX	HM6-*T075AX
SPM-TDB2647D-F-J	47.2	35	SPL-E0D-XX	HM6-*T090AX
SPM-TDB2659D-F-J	58.8	50	SPL-E0D-XX	HM6-*T152AX
SPM-TDB2669D-F-J	69.1	50	SPL-E0D-XX	HM6-*T152AX
SPM-TDB2679D-F-J	79	70	SPL-E0D-XX	HM6-*T152AX
SPM-TDB2688D-F-J	87.9	95	SPL-E0D-XX	HM6-*T176AX
SPM-TIB2640D-F-J	39.7	25	SPL-E0D-XX	HM6-*T090AX
SPM-TIB2645D-F-J	44.5	16	SPL-E0D-XX	HM6-*T075AX
SPM-TIB2653D-F-J	52.7	35	SPL-E0D-XX	HM6-*T110AX
SPM-TIB2666D-F-J	65.9	35	SPL-E0D-XX	HM6-*T152AX
SPM-TIB2677D-F-J	77.4	70	SPL-E0D-XX	HM6-*T152AX
SPM-TIB2689D-F-J	89	95	SPL-E0D-XX	HM6-*T176AX
SPM-TIB2699D-F-J	98.6	95	SPL-E0D-XX	HM6-*T210AX
SPM-TEB2646D-F-J	46	25	SPL-E0D-XX	HM6-*T090AX
SPM-TEB2662D-F-J	61.6	50	SPL-E0D-XX	HM6-*T110AX
SPM-TEB2677D-F-J	77	70	SPL-E0D-XX	HM6-*T152AX
SPM-TEB2690D-F-J	90	95	SPL-E0D-XX	HM6-*T176AX
SPM-TEB2610E-F-J	104	95	SPL-E0D-XX	HM6-*T210AX
SPM-TEB2612E-F-J	115	120	SPL-E0D-XX	HM6-*T210AX