SV2 系列

EtherCAT 总线型交流伺服系统

SV2 series

EtherCAT bus type AC servo system

P SERIES ETHERCAT TYPE BUS FIELD AC SERVO SYSTEM

P系列ETHERCAT型总线现场交流伺服系统

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EtherCAT 总线型交流伺服系统概述

Overview of EtherCAT bus AC servo systems

产品特点介绍

Product features introduction

集成EtherCAT总线，适用于自动化的工业以太网标准

Integrated EtherCAT bus applicable to industrial Ethernet standards for automation

微秒级通信周期，位置控制更精准顺滑

Microsecond communication cycle, more accurate and smooth position control

理论位置Theoretical position

位置指令Position command

EtherCAT总线驱动器采用标准的RJ45接口，只需1根网线即可实时传递驱动器的指令、以及电机/驱动器等的状态反馈信息。该方案提供了更加可靠的组网方案，并极大降低了系统的复杂性。

EtherCAT bus drive adopts the standard RJ45 interface, and only one network cable is required to transmit the drive’s instructions and the status feedback information of the motor/drive in real time.This solution provides a more reliable networking solution and greatly reduces the complexity of the system.

通信周期Communication cycle

X轴X-axis

Y轴Y-axis

数据传输双向100Mbps, 支持1ms通信周期，小于1ms情况下支持250us的整数倍(通信周期与上位机规格有关),位置控制更精准顺滑适用于雕刻机。光纤机等实时性要求高的场合。

Data transmission is 100Mbps in both directions, supports 1ms communication cycle, and supports an integer multiple of 250us if the communication cycle is less than 1ms (the communication cycle is related to the specifications of the host computer), more accurate and smooth position control. EtherCAT bus drive is suitable for application scenarios with high real-time requirements such as engraving machine and optical fiber machines.

精准同步Precise synchronization

脉冲指令(非同步) Pulse command (asynchronous)

X轴伺服X-axis servo

Y轴伺服Y-axis servo

Z轴伺服Z-axis servo

推置位置指令（不同步L…） Send position command (out of sync L...)

EtherCAT指令(同步）EtherCAT Command (Synchronization)

X轴伺服X-axis servo

Y轴伺服 Y-axis servo

Z轴伺服 Z-axis servo

接受位置指令(同步)Accept position command (synchronized)

通过EtherCAT 分布时钟的精准调整，同步误差低于15ns, 同步抖动± 20ns, 实现多轴的同步通信，适用于同步精度较高的机械装置。

Through the precise adjustment of the EtherCAT distributed clock, the synchronization error is less than 15ns, and the synchronization jitter is ±20ns, realizing multi-axis synchronous communication, suitable for mechanical devices with high synchronization accuracy.

实时位置捕捉Real-time position capture

捕获伺服电机瞬时位置信息Capture instantaneous position information of servo motor

通过具有探针功能的高速输入信号(EXT1/EXT2), 可瞬间获取并记录电机的实时位置信息。

With high-speed input signal (EXT1/EXT2) with a probe function, real-time position information of the motor can be acquired and recorded instantaneously.

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**总线型交流伺服驱动器规格介绍Specifications of Bus-Type AC Servo Drive**

**驱动器参数规格Technical Specification of Drive**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | | **SV2-ES2R8** | **SV2-ES3R5** | **SV2-ES7R6** | **SV2-ET014** **SV2-ET018** |
| Output power | | 0.1KW~0.4KW | 0.75KW~1KM | 1KW~2KW | SV2-ET014:2KW~4.5KW SV2-ET018:4.5KW~7.5KW |
| Main circuit input power | | Single phase AC220V - 15%~+10% 50/60Hz | | Single /three-phase  AC220V-15%~+10% 50/60Hz | Three phase 220V/three phase  AC380V 15%～+10%  50/60Hz |
| Monitoring features | | Speed/current position/command pulse accumulation/position deviation/motor torque/motor current/operating status, etc. | | | |
| Control mode | | Position control mode/speed control mode/test operation control mode/JOG control mode/torque control mode | | | |
| Protection function | | Overspeed/main power supply overvoltage and undervoltage/overcurrent/overload/encoder abnormality/control power supply abnormality/position out-of-tolerance, etc | | | |
| Control input | | 1: Negative limit 2: Positive limit 3: Origin signal 4: CCW drive disabled 5: CW drive disabled  6: Deviation counter clear 7: Command pulse disabled 8: CCW torque limit 9: CW torque limit | | | |
| Energy consumption brake | | Built-in/External | | | |
| Applicable load | | Less than 3 times the motor inertia | | | |
| Display Operation | | 5-digit LED digital tube display, 4 operation buttons | | | |
| Input Output Signal | Digital input signal | 8 channel DI signals can be used to change the signal distribution: servo enable, alarm clear, forward/reverse drive disable, zero-speed box position, zero command, reverse command, speed selection, torque selection, pulse input disable, homing signal, probe, positive  limit, negative limit, etc. | | | |
| Digital output signal | 6 channel DO signals can be used to change the signal distribution; the servo ready, alarm zero speed, positioning complete, arrival speed, arrival torque, electromagnetic brake, servo running, positioning proximity, torque limit, speed limit, etc. | | | |
| Position control | | Input method | Bus-type communication | | |
| Input electronics Gear H | Load axis resolution: 1-2097152 | | |
| Motor encoder resolution: 21 bit absolute encoder | | |

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驱动器机械尺寸Drive mechanical dimensions

单位：Unit:

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系统接线模型System wiring model

●以下接线图适用于SV2-ES3R5系列驱动器：The following wiring diagram applies to SV2-ES3R5 series drives:

EtherCAT总线通讯线缆EtherCAT bus communication cable

注2 主电源Note 2 Main power supply

单相AC220V Single-phase AC220V

空气断路器Air circuit breaker

用于保护电源线，出线过流时切断电路。Protect the power cable and cut off the circuit in case of overcurrent.

噪音滤波器Noise filter

用于防止来自电源线外部的噪音。 Prevent noise outside the power wire.

制动电阻Braking resistor

默认内置制动电阻Default built-in braking resistor

当母线电压不足时 P-C端子连接外部制动电阻。When the bus is undervoltage, the P-C terminal is connected to the external brake resistor.

抱闸电源Brake power supply

24VDC电压源，在伺服电机带有制动器时使用。24VDC voltage source, used when the servo motor has a brake.

电磁接触器Electromagnetic contactor

打开/关闭制动器电源时，需安装浪涌抑制器。When turning on/off the brake power supply, a surge suppressor needs to be installed.

备注1：外接制动电阻时，请拆下伺服驱动器P-D端子间的短接片后再进行连接。

Note 1: Before connecting an external brake resistor if any, please remove the short-circuit plate between the P-D terminals of the servo drive.

备注2：本图例为单相220V驱动器图例。

Note 2: It is illustrated with single-phase 220V drive.

注意：EthernetCAT通讯信号必须严格遵守CN3进入CN4输出，不可调换顺序。

Note: The EthernetCAT communication signal must strictly abide by the CN3 input and CN4 output, and the order cannot be exchanged.

上位机信号电缆Host computer signal cable

数控系统，可编程控制器或其他装置。CNC system, programmable controller or other device.

编码器电缆Encoder cable

电机动力电缆Motor power cable

交流伺服电机AC servo motor

24VDC

EX S 注意：EthernetCAT通讯信号必须严格遵守CN3进入CN4输出，不可调换顺序。

Note: The EthernetCAT communication signal must strictly abide by the CN3 input and CN4 output, and the order cannot be exchanged.

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驱动器接口说明Drive interface description

适用型号Applicable models

CN3:EtherCAT 总线输入端子

CN3: EtherCAT bus input terminal

CN4:EtherCAT 总线输出端子

CN4: EtherCAT bus output terminal

SV2-ES2R8

伺服驱动器前面板介绍

SV2-ES2R8 servo drive front panel introduction

CN1：输入输出控制信号端子

CN1: Input and output control signal terminal

L 1 、 L 2 ; 主电源输入端子L 1 , L 2 ; Main power input terminal

CHARGE: 母线电压指示灯，用于指示母线电容处于有电荷状态。指示灯亮时，即使主回路电源关闭，伺服单元内部电容器仍有电荷。因此，灯亮时请勿触摸电源端子，以免触电

CHARGE: Bus voltage indicator, indicating that the bus capacitor is electrified. When the indicator is on, the internal capacitor of the servo unit still has a charge even if the main circuit power is cut off. Therefore, do not touch the power terminals to avoid electric shock when the indicator is on.

CN 2:编码器信号端子，与绝对值编码器电机相连

CN 2: Encoder signal terminal, connected to the absolute encoder motor

P .D .C ,N;

内部母线及制动电阻连接

Internal bus and brake resistor connection

U,V,W;

伺服电机连接端子，与 U,V,W相连接

U,V,W;

Servo motor connection terminals, connected to U, V, W

驱动器面板状态指示Drive panel status indication

控制模式Control model

1:轮廓位置控制( PP) 1:Profile position control ( PP )

3:轮廓速度控制( PV ) 3:Profile speed control (PV)

4:轮廓转矩控制( PT )3:Profile torque control (PV)

6:回零模式(HM)6:Homing mode(HM)

8:周期同步位置模式( CSP):Cyclic synchronous position mode(CSP)

9:周期同步速度模式( CSV): Cyclic synchronous speed mode (PV)

A:周期同步转矩模式( CST )A: Cyclic synchronous torque mode (CST)

端口 (ECATIN)连接指示 Port (ECATIN) connection indication

端口(ECAT OUT)连接指示Port (ECAT OUT) connection indication

通信状态Communication status

1:初始化状态1：Initialization status

2:预运行状态 2：Pre - running status

4:安全运行状态4: Safe operation status

8:运行状态8: Operating status

伺服状态 Servo status

nr:未准备好 nr: Not ready

ry:准备好 ry: Ready

m: 运行 m: Run

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适用型号Applicable model

SV2-ES7R6

SVA2-ES7R6伺服驱动器前面板介绍

SVA2-ES7R6 Servo Drive Front Panel Introduction

CN1：输入输出控制信号端子CN1: Input and output control signal terminals

CN3:EtherCAT 总线输入端子CN3:EtherCAT bus input terminal

CN4:EtherCAT 总线输出端子CN4:EtherCAT bus output Terminal

L 1 . L 2 ; 主电源输入端子Main power input terminal

CHARGE: 母线电压指示灯，用于指示母线电容处于有电荷状态。指示灯亮时，即使主回路电源关闭，伺服单元内部电容器仍有电荷。因此，灯亮时请勿触摸电源端子，以 免 触 电

CHARGE: Bus voltage indicator, indicating that the bus capacitor is electrified. When the indicator is on, the internal capacitor of the servo unit still has a charge even if the main circuit power is cut off. Therefore, do not touch the power terminals to avoid electric shock when the indicator is on.

CN 2:编码器信号端子，与绝对值编码器电机相连

CN 2: Encoder signal terminal, connected to the absolute encoder motor

P .D .C ,N;

内部母线及制动电阻连接

P .D .C ,N; Internal bus and brake resistor connection

U,V,W;

伺服电机连接端子，与 U,V,W相连接

U,V,W; Servo motor connection terminals, connected to U, V, W

新一代交流伺服电机

New generation AC servo motor

**DB系列电机**

**DB40 系列伺服电机参数表**

**DB60 系列伺服电机参数表**

**DB80 系列伺服电机参数表**

**DB110 系列伺服电机参数表**

**DB130 系列伺服电机参数表**

**DB180 系列伺服电机参数表**

DB series motor

Technical specifications of DB40 series servo motor

Technical specifications of DB60 series servo motor

Technical specifications of DB80 series servo motor

Technical specifications of DB110 series servo motor

Technical specifications of DB130 series servo motor

Technical specifications of DB180 series servo motor

**DN 系列电机**

**DN110 系列伺服电机参数表**

**DN130 系列伺服电机参数表**

**DN150 系列伺服电机参数表**

**DN180 系列伺服电机参数表**

DN series motor

Technical specifications of DN110 series servo motor

Technical specifications of DN130 series servo motor

Technical specifications of DN150 series servo motor

Technical specifications of DN180 series servo motor

**伺服电机介绍**

**Servo motor introduction**

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AC Servo Motor

伺服电机(servo motor)是指在伺服系统中控制机械原件运转的发动机，是一种补助马达间接变速装置。伺服电机可以控制速度，位置精度非常准确，可以将电压信号转化为转矩和转速以驱动控制对象。伺服电机转子转速受输入信号控制，并能快速反应，在自动控制系统中，用作执行元件，且具有机电 时间常数小、线性度高等特性，可把所收到 的电信号转换成电动机轴上的角位移或角速度输出。其主要特点是当信号电压为零时无自转现象，转速随着转矩的增加而匀速下降。

AC Servo Motor

Servo motor refers to the engine that controls the operation of mechanical components in a servo system, and is an indirect transmission device that assists the motor.The servo motor can control speed, offers high position accuracy and can convert the voltage signal into torque and speed to drive the control objects.The rotor speed of the servo motor is controlled by the input signal and responds quickly. It is used as an actuator in the automatic control system. It has the characteristics of small electromechanical time constant and high linearity. It can convert the received electrical signal into an angular displacement or angular velocity output on the motor shaft. Specially, when the signal voltage is zero, the motor will not revolve on its own axis and the speed decreases at a uniform speed as the torque increases.

伺服电机基本构造

Basic structure of servo motor

新一代交流伺服电机

New generation AC servo motor

铝压铸后端盖加强了电机的抗干扰性，来适应复杂的工作环境。

Aluminum die-casting rear end cover strengthens the motor’s immunity to interference to adapt to complex working environments.

多种编码器选项保证了电机的性能和精度。

Multiple encoder options ensure the performance and accuracy of the motor.

出轴端采用铝压铸端盖，加轴承钢套，有效增加了径向负荷能力，及电机寿命。

Aluminum die-casting end caps are used at the shaft end, with bearing steel bushings, effectively increase the radial load capacity and prolong motor life.

后轴承固定，最大限度地减小了电机 轴向窜动，使得电机运行更加平稳。

The rear bearing is fixed to minimize the axial movement of the motor, enabling the motor run more smoothly.

转子设计：Rotor design:

高磁能级磁钢有效提高电机输出转矩。High magnetic energy magnets efficiently increase the motor output torque.

分段错位磁钢结构，有效减少齿槽转矩，使电机运行平稳 易于速度控制和精确定位。

The segmented and staggered magnet steel structure substantially reduce cogging torque, making the motor run smoothly and facilitating speed control and precise positioning.

转子平衡块使得电机高速运转更平稳。

Equipped with rotor balancing block, the motor runs more smoothly at high speed.

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**电机命名规则 Naming rules for motor**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **①** | Equipped with series drive | **③** | **Flange** | **⑦** | Connector type |
| **SM2** | Equipped with SV2 motor | **40** | **40mm** | **A** | Amp plug |
| **②** | Motor type | **60** | **60mm** | **H** | Aviation plug |
| **DN** | DN Series 220VAC Motor (4 pair poles) | **80** | **80mm** | **HZ** | Aviation plug |
| **DB** | DB Series 220VAC Motor (5 pair poles) | **110** | **110mm** |  |  |
| **DHN** | DN Series 380VAC Motor (4 pair poles) | **130** | **130mm** | **⑧** |  |
| **DHB** | DB Series 380VAC Motor (5 pair poles) | **150** | **150mm** | **B** | With brake |
| **④** | Rated torque(\*0.1N.m) | **180** | **180mm** | **blank** | Without brake |
| **024** | The rated torque is 2.4N.m |  |  |  |  |
| **⑤** | Rated speed (RPM) |  |  | **⑥** | Encoder resolution |
| **30** | **3000** |  |  | **I2** | 2500 wire incremental encoder |
| **20** | **2000** |  |  | **A1** | Multiple cycles absolute 17 bit encoder |
| **10** | **1000** |  |  | **A7** | Single cycle absolute 21 bit encoder |
|  |  |  |  | **B4** | Multiple cycles absolute 23 bit encoder |

**电机功率范围 Motor power range**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Flange | 40mm | 60mm | 80mm | 110mm | 130mm | 150mm | 180mm |
|  | Rated power | 0.1KW | 0.2KW 0.4KW 0.6KW | 0.75KW 1.0KW | 0.6KW 0.88KW 0.8KW 1.1KW 1.2KW 1.2KW 1.3KW 1.5KW 1.8KW | 1.0KW  1.13KW 1.34KW 1.3KW 1.57KW 1.5KW 1.76KW 2.0KW  2.3KW 2.4KW 2.6KW 3.1KW 3.8KW | 3.0KW 3.6KW 3.8KW 4.7KW 5.5KW | 2.7KW 2.9KW 3.0KW 3.7KW 4.3KW 4.4KW 4.5KW 5.5KW 7.5KW |

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**DB系列伺服电机** DB series servo motor

**DB40 系列电机规格 Technical specifications of DB40 series motor**

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| **SM2-DB40-00330A7-A** | **80.8** | **114** |

**备注：电机尺寸略有差异，最终以实物为准。**

**Note: The motor size is slightly different, and the equipment delivered shall prevail.**

|  |  |
| --- | --- |
| **Motor model** | **SM2-DB40-00330A7-A** |
| Rated power(KW) | 0.1 |
| Rated voltage (V) | 220 |
| Rated current(A) | 1.1 |
| Instantaneous maximum current (A) | 3.5 |
| Rated torque(N.m) | 0.318 |
| Instantaneous maximum torque(N.m) | 0.954 |
| Rated speed (rpm) | 3000 |
| Peak speed (rpm) | 6000 |
| Back EMF (V/1000rpm.) | 23 |
| Torque constant(Nm/A) | 0.29 |
| Wire resistance (hms) | 20.6 |
| Winding (interwire) inductance (mH) | 10.3 |
| Electrical time constant (ms) | 1.1 |
| Rotor inertia (kg·m) | 0.066×10-⁴ |
| Number of pole pairs | 5 |
| Insulation rating | F(155℃) |

电机尺寸图Motor dimension drawing

电机线Motor wires

胶壳Rubber shell

端子针Terminal pin

编码器线Encoder wire

胶壳Rubber housing

端子针Terminal pins

剖面Section

比例1:1 Scale 1:1

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

编码器类型可选Optional encoder type

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

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**DB60** **系列电机规格**

**Technical specification of DB60 series motors**

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DB60-00630A7-A | 75 | 104.5 |
| SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |

备注：电机尺寸略有差异，最终以实物为准。

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |
| --- | --- | --- | --- |
| **Motor model** | **SM2-DB60-00630A7-A** | **SM2-DB60-01330A7-A** | **SM2-DB60-01930A7-A** |
| Rated power(KW) | 0.2 | 0.4 | 0.6 |
| Rated voltage(V) | 220 | 220 | 220 |
| Rated current(A) | 1.7 | 2.5 | 3.6 |
| Maximum current at phosphorus(A) | 5.7 | 7.5 | 11.2 |
| Rated torque(N,m) | 0.64 | 1.27 | 1.91 |
| Instantaneous maximum torque(N,m) | 1.91 | 3.81 | 5.73 |
| Rated speed speed(rpm) | 3000 | 3000 | 3000 |
| Peak speed(rpm) | 6000 | 6000 | 6000 |
| Reverse potential(V/Krpm) | 23 | 31 | 35 |
| Torque constant(N.m/A) | 0.38 | 0.51 | 0.53 |
| Wire resistance(Ohms) | 4.57 | 3.24 | 2.2 |
| Winding inductance(mH) | 4.3 | 5.8 | 4.3 |
| Rotor inertia(kg -m²) | 0.28×10-⁴ | 0.52×10-⁴ | 0.76×10-⁴ |
| Number of pole pairs | 5 | | |
| Insulation class | F(155℃) | | |

电机尺寸图Motor dimension drawing

电机线Motor wires

胶壳Rubber shell

端子针Terminal pin

编码器线Encoder wire

端子针Terminal pins

剖面A-A Section A-A

比例1:1 Scale 1:1

编码器类型可选Optional encoder type

|  |  |
| --- | --- |
| **Symbol code** | Same code type |
| I2 | 2500 wire incremental encoder |
| I5 | 10000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

**【安装注意】**

**1.安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。 2.尽量防止轴座振动，以防止轴承的损坏。**

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

|  |  |  |
| --- | --- | --- |
| part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.2. Prevent the shaft base from vibrating to avoid damaging bearings. | L不带抱闸(mm) | L带抱闸(mm) |
| SM2-DB60-00630A7-A | 75 | 104.5 |
| SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |
| **Motor model** | **L不带抱闸(mm)** | **L带抱闸(mm)** |
| SM2-DB60-00630A7-A | 75 | 104.5 |
| SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |
| **Motor model** | **L不带抱闸(mm)** | **L带抱闸(mm)** |
| SM2-DB60-00630A7-A | 75 | 104.5 |
| SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |

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DB系列伺服电机 DB series servo motor

**DB80** **系列电机规格**

**Technical specifications of DB80 series motor**

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DB80-02430A7-A | 98.5 | 128.5 |
| SM2-DB80-03230A7-A | 111.5 | 145.5 |

备注：电机尺寸略有差异，最终以实物为准。

Note: The motor size is slightly different, and the equipment delivered shall prevail!

|  |  |  |
| --- | --- | --- |
| Motor model | SM2-DB80-02430A7-A | SM2-DB80-03230A7-A |
| Rated power (KW.) | 0.75 | 1.0 |
| Rated voltage (V.) | 220 | 220 |
| Rated current (A.) | 4.7 | 5.8 |
| Instantaneous maximum current (A) | 14.5 | 8.1 |
| Rated torque(N.m) | 2.39 | 3.18 |
| Instantaneous maximum torque (N.m.) | 7.17 | 9.54 |
| Rated speed (rpm.) | 3000 | 3000 |
| Peak rotational speed (rpm | 6000 | 6000 |
| Back EMF (V/1000rpm.) | 33 | 34 |
| Torque constant (Nm/A | 0.51 | 0.55 |
| Winding (inter-wire) resistance (2) | 1.09 | 0.73 |
| Winding (inter-wire) inductance (mH.) | 4.6 | 2.7 |
| Rotor inertia (kg·m.) | 1.48×10-4 | 2.27×10-4 |
| Number of pole pairs | 5 | |
| Insulation rating | F(155℃) | |

电机尺寸图Motor dimension drawing

电机线Motor wires

端子针Terminal pin

编码器线Encoder wire

胶壳Rubber shell

端子针Terminal pins

剖面A-A Section A-A

比例1:2 Scale 1:2

【安装注意】

安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。 2.尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

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DB110 系列电机规格

Technical specifications of DB110 series motors

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DB110-04220A7-H | 160 | 86 |
| SM2-DB110-05420A7-H | 170 | 96 |
| SM2-DB110-06420A7-H | 80 | 206 |

备注：电机尺寸略有差异，最终以实物为准

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | **SM2-DB110-04220A7-H** | | **SM2-DB110-05420A7-H** | | **SM2-DB110-06420A7-H** | |
| Rated power (KW.) | 0.88 | | 1.1 | | 1.3 | |
| Rated voltage (V) | 220 | 380 | 220 | 380 | 220 | 380 |
| Rated current(A) | 3.9 | 3.0 | 5.5 | 3.8 | 6.5 | 4.6 |
| Rated torque(N.m) | 4.2 | | 5.4 | | 6.4 | |
| Instantaneous maximum torque(N.m) | 2.6 | | 6.2 | | 9.2 | |
| Rated speed (rpm) | 2000 | | 2000 | | 2000 | |
| Back EMF (V/Krpm) | 70.5 | 92.2 | 65 | 94 | 65 | 90 |
| Torque constant(N.m/A) | 1.08 | 1.4 | 0.98 | 1.42 | 0.98 | 1.39 |
| Wire resistance (Ohms) | 1.64 | 2.91 | 1.08 | 2.25 | 0.81 | 1.73 |
| Winding (inter-wire) inductance (mH) | 7.6 | 14.3 | 6.15 | 12.8 | 4.98 | 9.5 |
| Electrical time constant (Ms) | 4.63 | 4.91 | 5.7 | | 6.1 | 5.49 |
| Rotor inertia (Kg, m²) | 0.787×10-3 | | 0.916×10-3 | | 1.061×10-3 | |
| Number of pole pairs | 5 | | | | | |
| Insulation rating | Class F | | | | | |

电机尺寸图 Motor dimension drawing

动力线插头Power cord plug

编码器插头Encoder Plug

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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DB130 系列电机规格

Technical specification of DB130 series motor

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DB130-05420A7-H | 155 | 177 |
| SM2-DB130-06420A7-H | 162 | 84 |
| SM2-DB130-07520A7-H | 169 | 191 |
| SM2-DB130-08420A7-H | 175 | 97 |
| SM2-DB130-11520A7-H | 202 | 224 |
| SM2-DB130-14620A7-H | 234 | 256 |

备注：电机尺寸略有差异，最终以实物为准。

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | SM2-DB130-05420A7-H | | SM2-DB130-06420A7-H | | SM2-DB130-07520A7-H | | SM2-DB130-08420A7-H | | SM2-DB130-11520A7-H | | SM2-DB130-14620A7-H | |
| Rated power(KW) | 1.13 | | 1.34 | | 1.57 | | 1.76 | | 2.4 | | 3.1 | |
| Rated voltage (V) | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 |
| Rated current(A) | 6.5 | 3.5 | 7.3 | 4.0 | 9.0 | 4.5 | 9.5 | 4.8 | 17.8 | 6.3 | 23 | 8.3 |
| Rated torque(N.m) | 5.4 | | 6.4 | | 7.5 | | 8,4 | | 11.5 | | 14.6 | |
| Instantaneous maximum torque(N.m) | 6.2 | | 9.2 | | 22.5 | | 25.2 | | 34.5 | | 43.8 | |
| Rotational speed (rpm) | 2000 | | 2000 | | 2000 | | 2000 | | 2000 | | 2000 | |
| Back EMF (V/Krpm) | 57.5 | 110 | 58.9 | 110.5 | 51.5 | 12.3 | 59.5 | 119 | 53.3 | 121 | 41.9 | 121 |
| Torque constant(N.m/A) | 0.83 | 1.54 | 0.88 | 1.6 | 0.83 | 1.67 | 0.88 | 1.85 | 0.65 | .82 | 0.63 | 1.76 |
| Wire resistance (Ohms) | 1.2 | 3.2 | 0.75 | 2.5 | 0.52 | 2.4 | 0.56 | 2.1 | 0.35 | .31 | 0.17 | 0.88 |
| Winding (inter-wire) inductance (mH) | 5.2 | 17 | 4.0 | 13.3 | 2.84 | 13.2 | 3.1 | 11.9 | 1.79 | 8.5 | 0.77 | 6.17 |
| Electrical time constant (Ms) | 4.3 | 5.3 | 5.33 | 5.32 | 5.5 | | 5.5 | 5.67 | 5.1 | 6.49 | 4.5 | 7.0 |
| Rotor inertia (kg·m²) | -3 1.388×10 | | -3 1.604×10 | | -3 1.857×10 | | -3 2.059×10 | | -3 3.015×10 | | -3 4.07×10 | |
| Number of pole pairs | 5 | | | | | | | | | | | |
| Insulation rating | Class F | | | | | | | | | | | |

电机尺寸图 Motor dimension drawing

动力线插头Power cord plug

编码器插头Encoder plug

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **守号代码** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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**DB180 系列电机规格**

**Technical specifications of DB180 series motors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** | **LD(mm)** |
| SM2-DB180-18615A7-H | 211 | 259 | 35 |
| SM2-DB180-28415A7-H | 240 | 288 | 35 |
| SM2-DB180-35015A7-H | 267 | 315 | 42 |
| SM2-DB180-48015A7-H | 310 | 358 | 42 |

**备注：电机尺寸略有差异，最终以实物为准。**

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | SM2-DB180-18615A7-H | | SM2-DB180-28415A7-H | | SM2-DB180-35015A7-H | | SM2-DB180-48015A7-H | |
| Rated power(KW) | 2.9 | | 4.4 | | 5.5 | | 7.5 | |
| Rated voltage (V) | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 |
| Rated current(A) | 11.8 | | 15.7 | | 20.6 | | 25.7 | |
| Rated torque(N.m) | 18.6 | | 28.4 | | 35 | | 48 | |
| Instantaneous maximum torque(N.m) | 55.8 | | 85 | | 87.5 | | 119 | |
| Rotational speed (rpm) | 1500 | | 1500 | | 1500 | | 1500 | |
| Back EMF (V/Krpm) | 108 | | 119 | | 113 | | 123 | |
| Torque constant(N.m/A) | 1.58 | | 1.8 | | 1.7 | | 1.86 | |
| Wire resistance (Ohms) | 0.46 | | 0.31 | | 0.2 | | 0.16 | |
| Winding (inter-wire) inductance (mH) | 9.17 | | 7,52 | | 4.2 | | 4.3 | |
| Electrical time constant (Ms) | 19.9 | | 24.3 | | 21 | | 26.9 | |
| Rotor inertia (kg·m²) | -3 5.68×10 | | -3 7.82×10 | | 10.9×10-3 | | -3 13.0×10 | |
| Number of pole pairs |  | | | | | | | |
| Insulation rating | Clase F | | | | | | | |

**均布 Evenly distributed**

电机尺寸图 Motor dimension drawing

动力线插头Power cord plug

编码器插头Encoder Plug

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1.安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器 2.尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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N系列伺服电机 N series servo motors

DN110 系列电机规格

Technical specifications of DN110 series motors

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DN110-0203012-H | 159 | 215 |
| SM2-DN110-0402012-H | 189 | 245 |
| SM2-DN110-0403012-H | 189 | 245 |
| SM2-DN110-0503012-H | 204 | 260 |
| SM2-DN110-0602012-H | 219 | 275 |
| SM2-DN110-0603012-H | 219 | 275 |

备注：电机尺寸略有差异，最终以实物为准

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SM2-DN110-0203012-H** | **SM2-DN110-0402012-H** | **SM2-DN110-0403012-H** | **SM2-DN110-0503012-H** | **SM2-DN110-06020I2-H** | SM2-**DN110-06030I2-H** |
| Rated power(KW) | 0.6 | 0.8 | 1.2 | 1.5 | 1.2 | 1.8 |
| Rated voltage (V) | 220 | 220 | 220 | 220 | 220 | 220 |
| Rated current (A.) | 2.5 | 3.5 | 5.0 | 6.0 | 4.5 | 6.0 |
| Rated torque(N.m) | 2.0 | 4.0 | 4.0 | 5.0 | 6.0 | 6.0 |
| Instantaneous maximum torquer(N.m) | 6.0 | 12 | 12 | 15 | 12 | 18 |
| Rated speed (rpm) | 3000 | 2000 | 3000 | 3000 | 2000 | 3000 |
| Back EMF (V/Krpm) | 56 | 79 | 54 | 62 | 83 | 60 |
| Torque constant (N.m/A) | 0.8 | 1.14 | 0.8 | 0.83 | 1.3 | 1.0 |
| Wire resistance (Ohms) | 3.6 | 2.4 | 1.09 | 1.03 | 1.46 | 0.81 |
| Winding (inter-wire) inductance (mH) | 8.32 | 7.3 | 3.3 | 3.43 | 4.7 | 2.59 |
| Electrical time constant (Ms) | 2.3 | 3.0 | 3.0 | 3.33 | 3.2 | 3.2 |
| Rotor inertia (kg ·m² ) | -3 0.31×10 | -3 0.54×10 | -3 0.54×10 | -3 0.63×10 | -3 0.76×10 | -3 0.76×10 |
| Weight (Kg) | 4.5 | 6.0 | 6.0 | 6.8 | 7.9 | 7.9 |
| Insulation rating | Class F | | | | | |

电机尺寸图 Motor dimension drawing

编码器可选 Optional encoder type

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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DN130系列电机规格

Technical specifications of DN130 series motors

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)** | **L with brake(mm)** |
| SM2-DN130-0402512-H | 166 | 236 |
| SM2-DN130-0502512-H | 171 | 241 |
| SM2-DN130-0602512-H | 179 | 249 |
| SM2-DN130-0772512-H | 192 | 262 |
| SM2-DN130-1001012-H | 213 | 283 |
| SM2-DN130-1001512-H | 213 | 283 |
| SM2-DN130-1002512-H | 209 | 279 |
| SM2-DN130-1501512-H | 241 | 311 |
| SM2-DN130-1502512-H | 231 | 301 |

备注：电机尺寸略有差异，最终以实物为准。 Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | SM2-  DN130-0402512-H | SM2-  DN130-0502512-H | SM2-  DN130-0602512-H | SM2-  DN130-077252-H | SM2-  DN130-1001012-H | SM2-  DN130-1001512-H | SM2-  DN130-1002512-H | SM2-  DN130-150152-H | SM2-  DN130-15025-H |
| Rated power (KW.) | 1.0 | 1.3 | 1.5 | 2.0 | 1.0 | 1.5 | 2.6 | 2.3 | 3.8 |
| Rated voltage (V) | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 |
| Rated current (A.) | 4.0 | 5.0 | 6.0 | 7.5 | 4.5 | 6.0 | 10 | 9.5 | 3.5 |
| Rated torque (N.m.) | 4.0 | 5.0 | 6.0 | 7.7 | 10 | 10 | 10 | 15 | 15 |
| Instantaneous maximum torque (N.m| | 12 | 15 | 18 | 22 | 20 | 25 | 25 | 30 | 30 |
| Rated speed (rpm) | 2500 | 2500 | 2500 | 2500 | 1000 | 1500 | 2500 | 1500 | 2500 |
| Back EMF (V/Krpm | 72 | 68 | 65 | 68 | 140 | 03 | 70 | 114 | 67 |
| Torque constant (N.m/A | 1.0 | 1.0 | 1.0 | 1.03 | 2.2 | 1.6 | 1.0 | 1.58 | 1.11 |
| Wire resistance (Ohms) | 2.76 | 1.84 | 1.21 | 1.01 | 2.7 | 1.5 | 0.73 | 1.1 | 0.49 |
| Winding (inter-wire) inductance (mH) | 6,42 | 4.9 | 3.87 | 2.94 | 8.8 | 4.37 | 2.45 | 4.45 | 1.68 |
| Electrical time constant (Ms | 2.32 | 2.66 | 3.26 | 2.91 | 3.26 | 2.91 | 3.36 | 4.05 | 3.43 |
| Rotor inertia (kg ·m) | -3 0.85×10 | -3 1,.06×10 | -3 1.26×10 | -3 1.53×10 | -3 1.94×10 | -3 1.94×10 | -3 1.94×10 | -3 2.77×10 | -3 2.77×10 |
| Weight (Kg.) | 6.2 | 6.6 | 7.4 | 8.3 | 10.2 | 10.2 | 9.8 | 12.6 | 11.7 |
| Insulation rating | Class F | | | | | | | | |

电机尺寸图 Motor dimension drawing

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Radial single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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N系列伺服电机 N series servo motor

**DN150 系列电机规格**

**Technical specification of DN150 series motor**

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)(mm)** | **L带抱闸(mm)** |
| SM2-DN150-15020I2-H | 230 | 303 |
| SM2-DN150-15025I2-H | 230 | 303 |
| SM2-DN150-1802012-H | 248 | 321 |
| SM2-DN150-2302012-H | 278 | 351 |
| SM2-DN150-27020I2-H | 302 | 375 |

**备注：电机尺寸略有差异，最终以实物为准。**

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | **SM2-DN150-15020I2-H** | | **SM2-DN150-15025I2-H** | | **SM2-DN150-18020I2-H** | | **SM2-DN150-23020I2-H** | | **SM2-DN150-27020I2-H** | |
| Rated power (KW.) | 3.0 | | 3.8 | | 3.6 | | 4.7 | | 5.5 | |
| Rated voltage (V) | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 |
| Rated current (A.) | 14 | 6.8 | 17 | 9.5 | 17 | 8.5 | 21 | 12 | 27 | 14.5 |
| Rated torque (N.m.) | 15 | | 15 | | 18 | | 23 | | 27 | |
| Maximum torque during condensation (N.m.) | 30 | | 30 | | 36 | | 46 | | 54 | |
| Rated speed (rpm.) | 2500 | | 2500 | | 2000 | | 2000 | | 2000 | |
| Back EMF (V/Krpm | 70 | 141 | 59 | 106 | 71 | 141 | 72 | 126 | 64 | 127 |
| Torque constant (N, m/A) | 1.07 | 2.2 | 0.88 | 1.58 | 1.05 | 2.12 | 1.09 | 1.91 | 1.0 | 1.86 |
| Wire resistance (Ohms) | 0.34 | 1.38 | 0.23 | 0.8 | 0.255 | 1.024 | 0.2 | 0.63 | 0.125 | 0.5 |
| Winding (inter-wire) inductance (mH) | 1.55 | 6.32 | 1.08 | 3.55 | 1.3 | 5.19 | 1.06 | 3.25 | 0.7 | 2.8 |
| Electrical time constant (Ms) | 4.56 | 4.58 | 4.7 | 4.44 | 5.1 | 5.068 | 5.3 | 5.16 | 5.6 | 5.6 |
| Rotor inertia (kg·m².) | 3.88×10-3 | | 3.88×10-3 | | 4.6×10-3 | | 5.8×10-3 | | 6.8×10-3 | |
| Weight (Kg.) | 17 | 17.2 | 15 | 15.2 | 17 | 17.2 | 20.4 | 21 | 22.7 | 23.5 |
| Insulation rating | Class F | | | | | | | | | |

**电机尺寸图 Motor dimension drawing**

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

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DN180系列电机规格 DN180 series motor specifications

|  |  |  |
| --- | --- | --- |
| **Motor model** | **L without brake (mm)(mm)** | **L带抱闸(mm)** |
| SM2-DN180-1721512-H | 226 | 226 |
| SM2-DN180-1901512-H | 232 | 232 |
| SM2-DN180-2152012-H | 243 | 243 |
| SM2-DN180-27010I2-H | 262 | 262 |
| SM2-DN180-2701512-H | 262 | 262 |
| SM2-DN180-3501012-H | 292 | 292 |
| SM2-DN180-3501512-H | 292 | 292 |
| SM2-DN180-4801512-H | 346 | 346 |

**备注：电机尺寸略有差异，最终以实物为准。**

Note: The motor size is slightly different, and the equipment delivered shall prevail.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor model** | SM2-  DN180-1721512-H | | SM2-  DN180-1901512-H | | SM2-  DN180-2152012-H | | SM2-  DN180-27010I2-H | | SM2-  DN180-2701512-H | | SM2-  DN180-350102-H | | SM2-  DN180-3501512-H | | SM2-  DN180-4801512 | |
| Rated power (KW.) | 2.7 | | 3.0 | | 4.5 | | 2.9 | | 4.3 | | 3.7 | | 5.5 | | 7.5 | |
| Rated voltage (V) | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 | 220 | 380 |
| Rated current (A.) | 0.5 | 6.5 | 12 | 7.5 | 16 | 9.5 | 12 | 7.5 | 16 | 10 | 16 | 10 | 24 | 12 | 32 | 20 |
| Rated torque (N.m.) | 17.2 | | 19 | | 21.5 | | 27 | | 27 | | 35 | | 35 | | 48 | |
| Maximum torque (N.m) | 43 | | 47 | | 53 | | 67 | | 67 | | 70 | | 70 | | 96 | |
| New fixed speed (rpm | 1500 | | 1500 | | 2000 | | 1000 | | 1500 | | 1000 | | 1500 | | 1500 | |
| Back EMF (V/Krpm | 112 | 167 | 97 | 170 | 184 | 140 | 138 | 224 | 103 | 72 | 134 | 223 | 90 | 81 | 94 | 56 |
| Torque constant(N.m/A) | 1.64 | 2.65 | 1.58 | 2.5 | 1.34 | 2.26 | 2.25 | 3.6 | 1.69 | 2.7 | 2.2 | 3.5 | 1.45 | 2.9 | 1.5 | 2.4 |
| Wire resistance (Ohms) | 0.7 | 1.47 | 0.4 | 1.23 | 0.24 | 0.71 | 0.48 | 0.71 | 0.28 | 0.796 | 0.31 | 0.93 | 0.14 | 0.62 | 0.104 | 0.273 |
| Winding (inter-wire) inductance (mH) | 3.5 | 7.8 | 2.42 | 7.3 | 1.45 | 4.0 | 3.26 | 4.0 | 1.74 | 4.83 | 3.28 | 9.1 | 1.0 | 4.0 | 0.77 | 2.14 |
| Electrical time constant (Ms | 5.0 | 5.3 | 6.0 | 5.93 | 6.0 | 5.6 | 6.79 | 6.27 | 6.2 | 6.0 | 10.58 | 9.78 | 7.14 | 6.45 | 7.4 | 7.8 |
| Rotor inertia (kg·m²) | 3.4×10-3 | | 3.8×10-3 | | 4.7×10-3 | | 6.1×10-3 | | 6.1×10-3 | | 8.6×10-3 | | 8.6×10-3 | | 16.72×10-3 | |
| Weight (Kg) | 9.5 | | 20.5 | | 22.2 | | 25.5 | | 25.5 | | 30.5 | | 30.5 | | 40 | |
| Insulation rating | Class F | | | | | | | | | | | | | | | |

**电机尺寸图 Motor dimension drawing**

**编码器类型可选Optional encoder type**

|  |  |
| --- | --- |
| **Symbol code** | **Encoder type** |
| I2 | 2500 wire incremental encoder |
| I5 | 10,000 wire incremental encoder |
| A1 | Economical multiple cycles absolute 17 bit encoder |
| A3 | Economical multiple cycles absolute 21 bit encoder |
| A6 | Economical single cycle absolute 17 bit encoder |
| A7 | Economical single cycle absolute 21 bit encoder |
| B1 | High performance multiple cycles absolute 17 bit encoder |
| B4 | High performance multiple cycles absolute 23 bit encoder |
| B6 | High performance single cycle absolute 17 bit encoder |
| B9 | High performance single cycle absolute 23 bit encoder |

【安装注意】

1. 安装/拆卸部位到电机轴末端时，请不要用力敲打轴，以防止敲坏轴另一端的编码器。
2. 尽量防止轴座振动，以防止轴承的损坏。

[Installation Note]

1.When installing/disassembling the end part of the motor shaft, do not hammer the shaft to prevent from damaging the encoder at the other end of the shaft.

2. Prevent the shaft base from vibrating to avoid damaging bearings.

配件介绍 Accessories introduced

Accessories

配件介绍 Accessories introduced

配件一览表List of accessories

配线信息Wiring information

伺服配线一览表Servo wiring list

适配选型表Adaptation selection table

经济型绝对值编码器系列Economical absolute encoder series

增量式编码器系列 Incremental encoder series

配件介绍Accessories introduced

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配件介绍Accessories introduced

配件一览表List of accessories

到货检查 Arrival inspection

P系列伺服驱动器标准附件包括 Standard accessories for P series servo drives include

(1)主电源输入插头一个 One main power input plug

(2)44PIN DB公头1套 One set of 44PIN DB male connector

(3)塑料按压棒1支 One plastic press bar

(4)内部电阻刹车片 Internal resistance brake pads

供选配配件Optional accessories

动力线 Power wire

* 提供3米及5米两种常备库存线长
* 有塑插和航插接头两种类型
* 针对客户需求，另外提供独立接头配件
* Supply stocks of wires 3 meters and 5 meters long;
* Supply two types of connectors: plastic plug and aviation plug;
* Supply independent connector accessories according to customer needs;

编码器线

提供3米及5米两种常备库存线长

有塑插和航插接头两种类型

针对客户需求，另外提供独立接头配件

Encoder wire

Supply stocks of wires 3 meters and 5 meters long;

Supply two types of connectors: plastic plug and aviation plug;

Supply independent connector accessories according to customer needs;

刹车线(仅配套带抱闸器电机时选配

根据客户控制要求，有抱闸器和无抱闸器两种类型伺服电机

有塑插和航插接头两种类型

针对客户需求，另外提供独立接头配件

Brake cable (only optional for motors with brake);

Supply stocks of wires 3 meters and 5 meters long;;

Supply two types of connectors: plastic plug and aviation plug;

Supply independent connector accessories according to customer needs;

RS-485/EtherCAT通讯配件(选配)

提供RS-485/EtherCAT通讯线

0.1米、0.2米及0.3米等线长可选

针对客户需求，另外提供独立接头配件

RS-485/EtherCAT communication accessories (optional)

Provide RS-485/EtherCAT communication wire

0.1m, 0.2m and 0.3m wires are optional

Provide independent connector accessories according to customer needs;

电池盒

仅供多圈绝对值编码器使用 型号：LADCH-3.6V

Battery box

Only for multiple cycles absolute encoder model: LADCH-3.6V

备注：动力线、编码器线、刹车线， 我司提供3米/5米常备库存，若客户有其它线长需求，请提前和我公司销售部门联系。

Notes: For power cables, encoder cables, and brake cables, our company provides stocks of cables with length of 3m/5m. If customers demand for cables with other lengths, please contact our company's sales department in advance.

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配线信息Wiring information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol ➀ | Definition |  | Symbol④ | Definition |
| P | Power wire |  | G | High flexible wire |
| E | Encoder wire |  | C | Normal flexible wire |
| C | Control wire |  | H | Ultra flexible wire |
| B | Brake wire |  |  |  |
|  |  |  | Symbol⑤ | Abbreviation of the corresponding motor type |
| Symbol➁ | Definition |  |  |  |
| 100P | For 1kw drive |  | Symbol⑥ | Definition |
| 200P | For 2kw series drive |  | 2PA | 2 hole amp plug |
| 500P | For 7.5kw drive |  | 4PA | 4 hole amp plug |
|  |  |  | 4PH | 4 hole aviation head |
| Symbol➂ | Definition |  | 4PDH | 4 hole large air plug |
| Any value | Wire length, in meters, 03 indicates 3 meters. |  | 4PHZ | 4 pin aviation straight plug |
|  |  |  | 7PH | 7 hole aviation plug |
|  |  |  | 7PHZ | 7 pin aviation straight plug |
|  |  |  | 9PA | 3 hole amp plug |
|  |  |  | 10PXH | 10 hole small air plug |
|  |  |  | 15PA | 15 hole amp plug |
|  |  |  | 15PH | 15 hole aviation plug |

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**伺服配线一览表Servo wiring list**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Serial number** | **Classification** | **Picture** | **Model** | **Remarks** |
| 1 |  |  | P100P-XX-G-X-4PA | Applicable DB series 40, 60 and 80 frame single/multiple ring absolute servo motors. |
| 2 | Power cable |  | P100P-XX-G-X-4PHZ | Applicable to DN series 40, 60, 80, and 90 frame multiple ring absolute servo motors. |
| 3 |  | P200P-XX-G-X-4PH | Applicable to DN series 110 and 130 frame single/multiple cycles absolute servo motors. |
| 4 | Encoder wire |  | E100P-XX-G-X-9PA | Applicable to DB series 40, 60 and 80 frame single /multiple ring absolute servo motors. |
| 5 | O 〇 O | E100P-XX-G-X-7PHZ | Applicable to DN series 40, 60 and 80 frame single /multiple ring absolute servo motors. |
| 6 |  | ES200-XX-G-NA-15PH | Applicable to DN series 110, 130, 150 and 180 frame 2500 wire incremental servo motors. |
| 7 | O O O | E200P-XX-G-X-7PL | Applicable to DN series 110 and 130 frame single / multiple ring absolute servo motors. |

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交流伺服电机和驱动器适配表

配件介绍

AC servo motor and drive adaptation table

经济型绝对值编码器系列 Economical absolute encoder series

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Servo motor | | | | Servo drive | | | Matching wire | |
| Rated power Kw | Model | Flange mm | Rated torque (N.M) | Pulse type | | EtherCAT type | Power extension wire | Encoder extension wire |
| Economy | High performance |
| 0.1 | SM2-DB40-00330A7-A | 40 | 0.32 |  |  | SV1-ES1R6 | P100P-XX-G-X-4PA | E100P-XX-G-X-9PA |
| 0.2 | SM2-DB60-00630A7-A | 60 | 0.64 |
| 0.4 | SM2-DB60-01330A7-A | 60 | 1.27 |
| 0.6 | SM2-DB60-01930A7-A | 60 | 1.91 |
| 0.75 | SM2-DB80-02430A7-A | 80 | 2.39 |  |  | SV1-ES2R8 |
| 1.0 | SM2-DB80-03230A7-A | 80 | 3.18 |
| 0.88 | SM2-DB110-04220A7-H | 110 | 4.2 |  |  | SV1-ES7R6 | P200P-XX-G-X-4PH | E200P-XX-G-X-7PH |
| 1.1 | SM2-DB110-05420A7-H | 110 | 5.4 |
| 1.3 | SM2-DB110-06420A7-H | 110 | 6.4 |
| 1.13 | SM2-DB130-05420A7-H | 130 | 5.4 |
| 1.34 | SM2-DB130-06420A7-H | 130 | 6.4 |
| 1.57 | SM2-DB130-07520A7-H | 130 | 7.5 |
| 1.76 | SM2-DB130-08420A7-H | 30 | 8.4 |
| 2.4 | SM2-DB130-11520A7-H | 30 | 11.5 |  |  | SV1-ET014 | P500P-XX-G-X-4PH |
| 3.1 | SM2-DB130-14620A7-H | 30 | 14.6 |
| 2.9 | SM2-DB180-1861512-H | 180 | 18.6 |  |  | SV1-ET014 | P500P-XX-G-X-4PDH |
| 4.4 | SM2-DB180-2841512-H | 180 | 28.4 |
| 5.5 | SM2-DB180-3501512-H | 180 | 35 |  |  | SV1-ET018 | P500P-XX-G-X-4PDH |
| 7.5 | SM2-DB180-4801512-H | 180 | 48 |

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**增量式编码器系列 Incremental encoder series**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Servo motor** | | | | **Servo drive** | | | **Matching wire** | |
| Rated power Kw | Model |  | Rated torque (N.M) | Pulse type | | EtherCAT type | Power extension cable | Encoder extension cable |
| Economy | High Performance |
| 0.6 | SM2-DN110-0203012-H | 110 | 2 |  |  | SV2-ES7R6 | P200P-XX-G X-4PH | ES200-XX-G -NA-15PH |
| 0.8 | SM2-DN110-0402012H | 110 | 4 |
| 1.0 | SM2-DN130-0402512-H | 130 | 4 |
| 1.0 | SM2-DN130-1001012-H | 130 | 10 |
| 1.2 | SM2-DN110-0403012-H | 110 | 4 |
| 1.2 | SM2-DN110-0602012H | 110 | 6 |
| 1.5 | SM2-DN110-0503012-H | 110 | 5 |
| 1.8 | SM2-DN110-06030I2-H | 110 | 6 |
| 1.3 | SM2-DN130-0502512-H | 130 | 5 |
| 1.5 | SM2-DN130-06025I2-H | 130 | 6 |
| 1.5 | SM2-DN130-10015I2-H | 130 | 10 |
| 2.0 | SM2-DN130-0772512H | 130 | 7.7 |
| 2.3 | SM2-DN130-1501512-H | 130 | 15 |  |  | SV2-ET014 | P300P-XX-G -X-4PH |
| 2.6 | SM2-DN130-10025I2-H | 130 | 10 |
| 3.8 | SM2-DN130-1502512H | 130 | 15 |
| 3.0 | SM2-DN150-1502012-H | 150 | 15 |
| 3.6 | SM2-DN150-1802012-H | 150 | 18 |
| 3.8 | SM2-DN150-1502512H | 150 | 15 |  |  | SV2-ET018 | P500P-XX-G -X-4PDH |
| 4.7 | SM2-DN150-2302012-H | 150 | 23 |
| 5.5 | SM2-DN150-2702012-H | 150 | 27 |
| 2.7 | SM2-DN180-1721512H | 180 | 17.2 |
| 2.9 | SM2-DN180-2701012-H | 180 | 27 |
| 3.0 | SM2-DN180-1901512-H | 180 | 19 |
| 3.7 | SM2-DN180-3501012H | 180 | 35 |
| 4.3 | SM2-DN180-2701512H | 180 | 27 |
| 4.5 | SM2-DN180-2152012H | 180 | 21.5 |
| 5.5 | SM2-DN180-3501512-H | 180 | 35 |
| 7.5 | SM2-DN180-4801512H | 180 | 48 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| **DB110** **系列电机规格**  SM2-DB60-00630A7-A | 75 | 104.5 |
| **DB80** **系列电机规格**SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |
| **电机型号** | **L不带抱闸(mm)** | **L带抱闸(mm)** |
| SM2-DB60-00630A7-A | 75 | 104.5 |
| SM2-DB60-01330A7-A | 92 | 121.5 |
| SM2-DB60-01930A7-A | 109 | 138.5 |