

BONENG

ME永磁同步伺服马达&AN伺服驱动器

ME Permanent Magnet Synchronous Servo Motor & AN Servo Drives



ME永磁同步伺服马
达&AN伺服驱动器

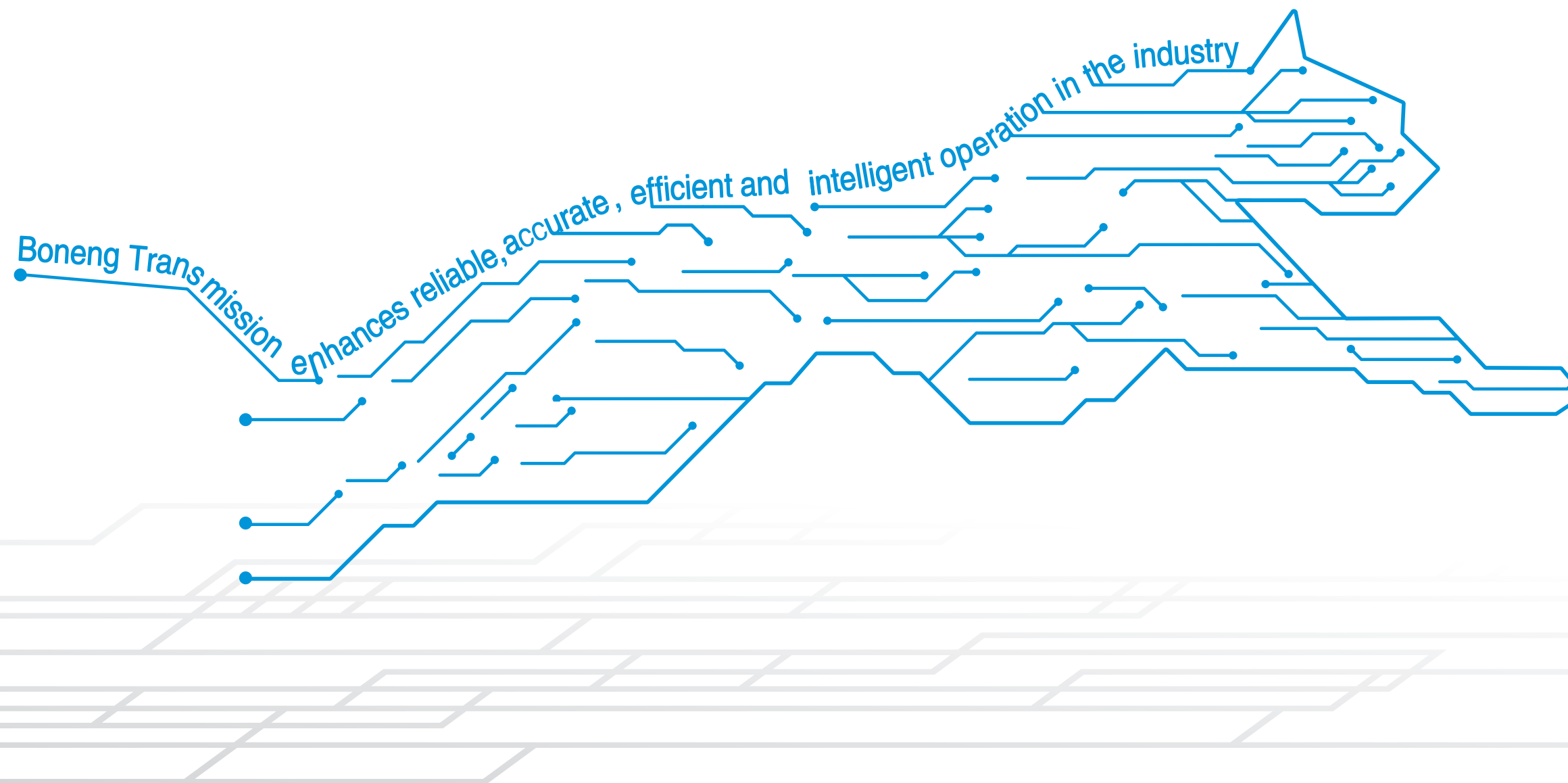
ME Permanent Magnet
Synchronous Servo
Motor & AN Servo Drives

(0.1kW~7.5kW)

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BONENG

Boneng Transmission



控制器/驱动器/马达/
齿轮马达/齿轮箱

Controller/ Drive/ Motor/
Gearmotor/ Gearbox

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伺服马达

1 伺服马达概述

ME系列伺服马达匹配博能AN系列220V伺服驱动器可组成精确定位的伺服系统。
ME伺服马达出厂常用的冷却方式为自然冷却, 适用于连续工作制(S1), 同时也满足大部分断续工作方式(S2-S10)。
ME伺服马达设计生产符合ISO、IEC、GB等相关标准要求。

2 马达优点

- ◆ 法兰机壳一体, 结构强度高
- ◆ IP66防护等级, 防尘防水
- ◆ 轻量化设计, 尺寸短小
- ◆ 优化散热工艺, 温升低
- ◆ 高性能, 可达三倍过载转矩

3 马达应用

- ◆ 包装机械
- ◆ 半导体行业
- ◆ 电子制造行业
- ◆ 锂电行业
- ◆ 贴片机行业
- ◆ 仓储物流

Servo Motor

1 Servo motor overview

ME series servo motor and AN series 220V servo drive can compose a precise positioning servo system.
The commonly used cooling method of the ME series servo motor is natural cooling, making them suitable for continuous duty (S1), while also meeting most intermittent duty modes (S2-S10). The design and production of ME servo motors comply with relevant standards. such as ISO, IEC, GB, and others.

2 Motor advantages

- ◆ Integrated flange casing, high structural strength
- ◆ IP66 degree of protection, dustproof and waterproof
- ◆ Lightweight design and small size
- ◆ Optimized heat dissipation process, low temperature rise
- ◆ High performance, up to three times the overload torque

3 Motor application

- ◆ Packaging machinery
- ◆ Semiconductor industry
- ◆ Electronic manufacturing industry
- ◆ Lithium electricity industry
- ◆ Placement machine industry
- ◆ Warehousing logistics

4 马达技术特征

马达型号	Motor model	永磁同步伺服马达	Permanent magnet synchronous servo motor
磁性材料	Magnetic material	稀土永磁材料	Rare earth permanent magnet material
轴高 (mm)	Shaft height (mm)	20,30,40,55,65,90	20,30,40,55,65,90
额定功率 (kW)	Rated power (kW)	0.1-7.5	0.1-7.5
额定转矩 (N.m)	Rated torque (N.m)	0.32-47.76	0.32-47.76
额定转速 (r/min)	Rated speed (r/min)	1500,2000,3000	1500,2000,3000
绝缘等级	Insulation class	F	F
防护等级	Protection class	IP66	IP66
冷却方式	Cooling method	自然冷却	Natural cooling
振动等级	Vibration level	A级	Class A
噪声 (dB)	Noise (dB)	55-70	55-70
径向圆跳精度、同轴度和断面圆跳精度等级	Runout Accuracy and Concentricity	N	N
安装形式	Installation form	IMB5	IMB5
驱动轴伸	Drive shaft extension	平键轴	Flat key shaft
编码器分辨率	Encoder resolution	17bit	17bit
连接器	Connector	动力和信号连接器	Power and signal connectors
选件	Options	内置电磁失电制动器	Built-in permanent magnet power-off brake

5 马达运行环境

所允许的相对湿度:
-15℃≤T≤20℃:100%
20℃<T≤30℃:95%
30℃<T≤40℃:55%
对于更高的环境温度、以及(或者)高于海拔1000m的地点, 马达的额定功率换算系数为K_{ht}所允许的功率值: P_{n'} = P_n · K_{ht}

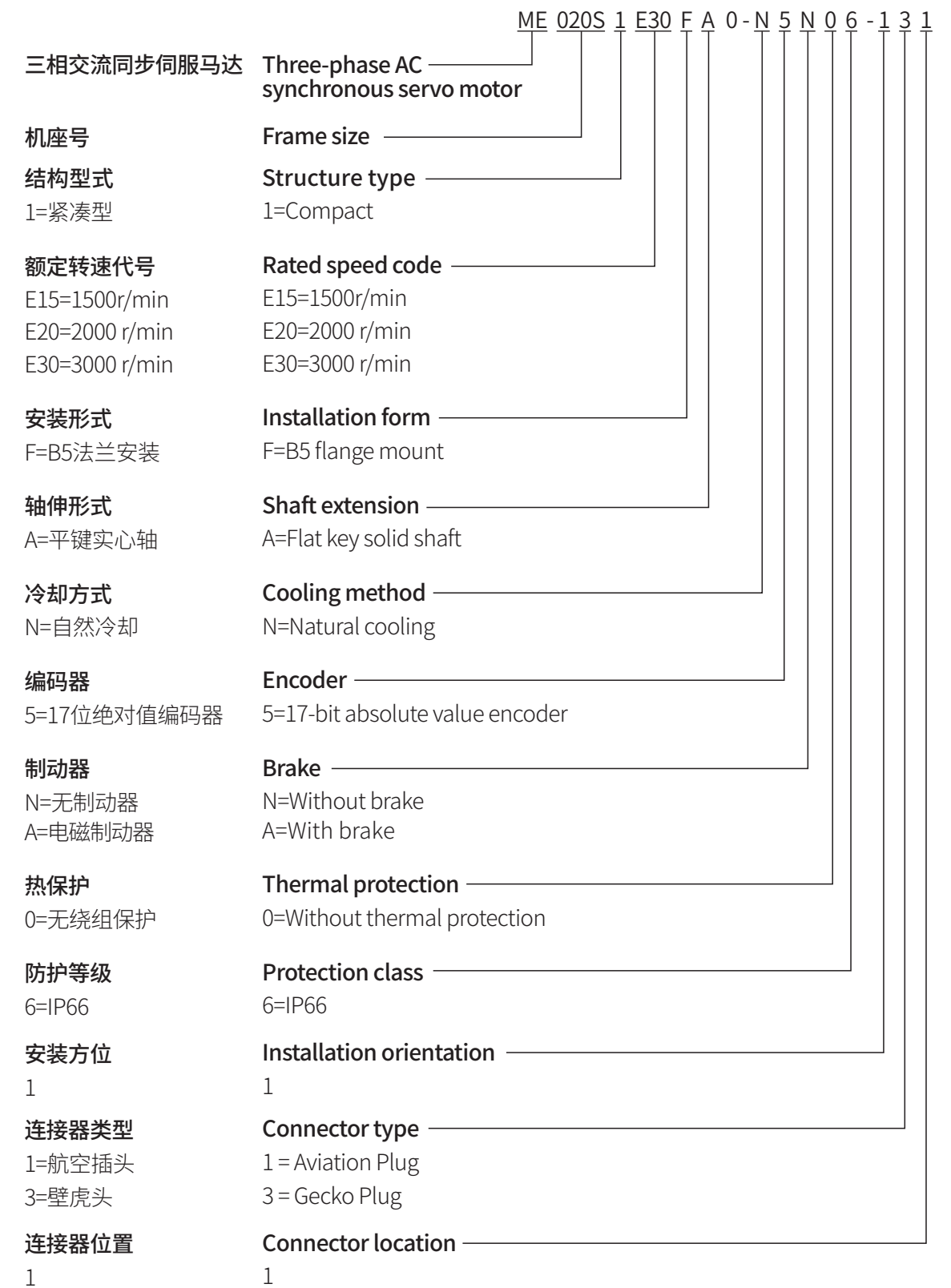
4 Motor technical characteristics

5 Motor operating environment

Allowable relative humidity:
-15℃≤T≤20℃:100%
20℃<T≤30℃:95%
30℃<T≤40℃:55%
For higher ambient temperatures, and above 1000m altitude, the motor's rated power conversion factor is the power value allowed by K_{ht} : P_{n'} = P_n · K_{ht}

对于不同高度和（或）不同 环境温度的功率折算系数 K_{ht}				Power conversion factor for different altitudes and different ambient temperatures K_{ht}		
海拔 高度 Altitude	对应海拔高度的环境温度 Ambient temperature corresponding to altitude					
	<30℃	30~40℃	45℃	50℃	55℃	60℃
1000 m	1.07	1	0.96	0.92	0.87	0.82
1500 m	1.04	0.97	0.93	0.89	0.84	0.79
2000 m	1	0.94	0.9	0.86	0.82	0.77
2500 m	0.96	0.9	0.86	0.83	0.78	0.74
3000 m	0.92	0.86	0.82	0.79	0.75	0.7
3500 m	0.88	0.82	0.79	0.75	0.71	0.67
4000 m	0.82	0.77	0.74	0.71	0.67	0.63

8 Motor model indication method



7 Motor brake parameters

制动器型号	Brake model	BN020	BN030	BN040	BN055-1	BN055-2	BN065	BN090
静摩擦力矩(N.m)	Static friction torque(N.m)	≥0.38	≥1.52	≥3.8	≥8	≥12	≥16	≥48
制动器功率(W)	Brake power(W)	6.1	7.3	8.5	16	17.5	23	31
线圈电阻(Ω)	Coil resistance(Ω)	94.4	78.9	67.8	36	32.9	25	18.6
工作电压(VDC)	Operating voltage(VDC)	24±10%	24±10%	24±10%	24±10%	24±10%	24±10%	24±10%
工作温度(℃)	Operating temperature(℃)	-15~100	-15~100	-15~100	-15~100	-15~100	-15~100	-15~100
制动器吸合时间(ms)	Brake pull-in time(ms)	≤50	≤60	≤60	≤120	≤120	≤80	≤200
制动器释放时间(ms)	Brake release time(ms)	≤20	≤40	≤40	≤60	≤60	≤40	≤100
径向负载(N.m)	Radial load(N.m)	68	246	392	480	480	490	980
轴向负载(N.m)	Axial load(N.m)	58	98	147	90	90	196	392
适配马达机座号	Compatible motor frame size	20	30	40	55S/55M	55L	65	90

9 Selection and order numbers of motor and drives

备注:55S-90S马达无库存, 货期需增加20天。	无制动器	N	EtherCAT	EC
Note: 55S-90S motors are out of stock, and the	电磁制动器	A	PROFINET	PN
delivery time needs to be extended by 20 days.	Without brake	N		
	With brake	A		

无制动器	N	EtherCAT	EC
电磁制动器	A	PROFINET	PN
Without brake	N		
With brake	A		

无制动器 18	B30 长度 3m	不带电池盒 10(20-40)	B30 长度 3m
带制动器 16	B50 长度 5m	12(55-90)	B50 长度 5m
Without brake 18	B70 长度 7m	带电池盒 11(20-40)	B70 长度 7m
With brake 16	C10 长度 10m	13(55-90)	C10 长度 10m
	C15 长度 15m	Without battery 10(20-40)	C15 长度 15m
	C20 长度 20m	12(55-90)	C20 长度 20m
	B30 Length 3m	With battery 11(20-40)	B30 Length 3m
	B50 Length 5m	13(55-90)	B50 Length 5m
	B70 Length 7m		B70 Length 7m
	C10 Length 10m		C10 Length 10m
	C15 Length 15m		C15 Length 15m
	C20 Length 20m		C20 Length 20m

10 马达特性及外形尺寸

10.1 机座号020伺服马达参数、外形尺寸以及特性曲线

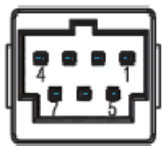
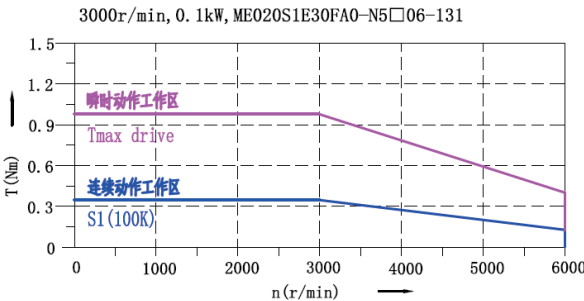
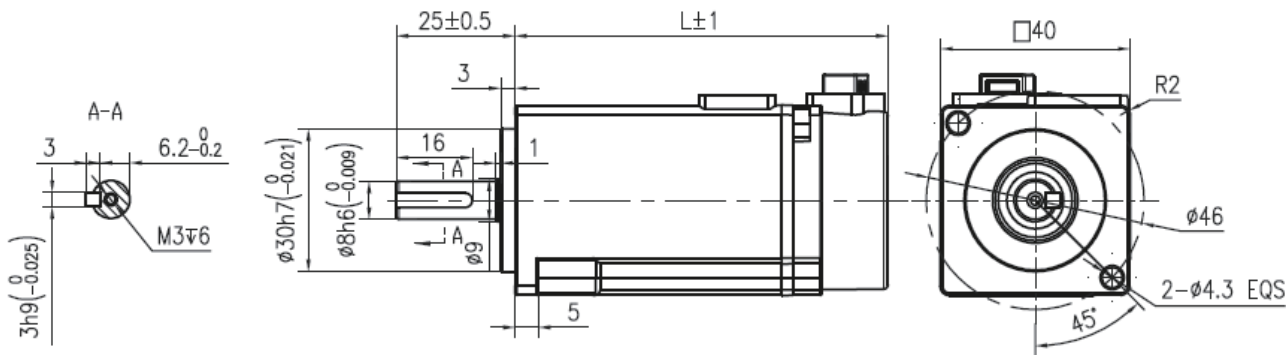
10 Motor characteristics and dimensions

10.1 Frame size 020 servo motor parameters,dimensions and characteristic curve

马达型号	Motor model	ME020S1E30FA0-N5□06-131
额定转速 n_N (r/min)	Rated speed n_N (r/min)	3000
额定功率 P_N (kW)	Rated power P_N (kW)	0.1
额定电流 I_N (A)	Rated current I_N (A)	1.1
额定转矩 T_N (N.m)	Rated torque T_N (N.m)	0.318
最大转速 $n_{\max inv}$ (r/min)	Maximum speed $n_{\max inv}$ (r/min)	6000
最大电流 $I_{\max inv}$ (A)	Maximum current $I_{\max inv}$ (A)	3.5
最大转矩 $T_{\max inv}$ (N.m)	Maximum torque $T_{\max inv}$ (N.m)	0.954
转动惯量 J (10^{-4}kg.m^2)	Moment of inertia J (10^{-4}kg.m^2)	0.066(0.07)
重量 m (kg)	Weight m (kg)	0.4(0.6)
整机长度 L (mm)	Overall length L (mm)	78.8(112)

注：括号内为带抱闸的数据

Note:The data in parentheses are with brake



动力及抱闸电源线 Power and brake power cables						
插座编号 Socket No.	1	2	3	4	A	B
绕组定义 Winding definition	U	V	W	PE	BRK+	BRK-

编码器反馈线 Encoder feedback cable							
插座编号 Socket No.	1	2	3	4	5	6	7
信号定义 Signal definition	5V	0V	SD+	SD-	PE	E+	E-

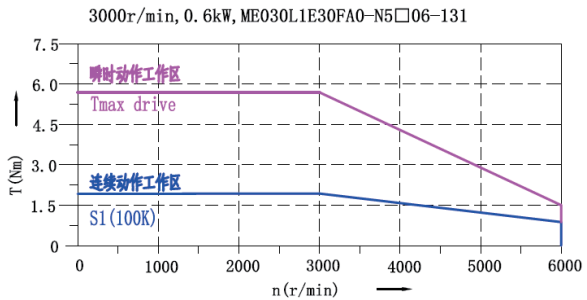
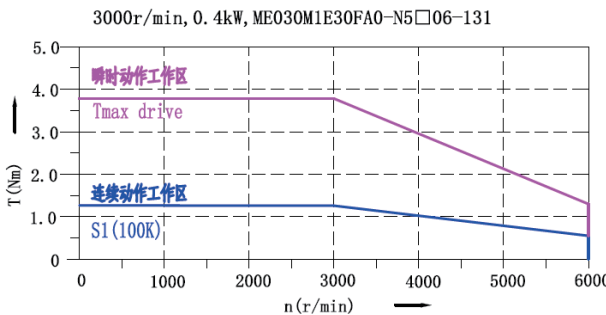
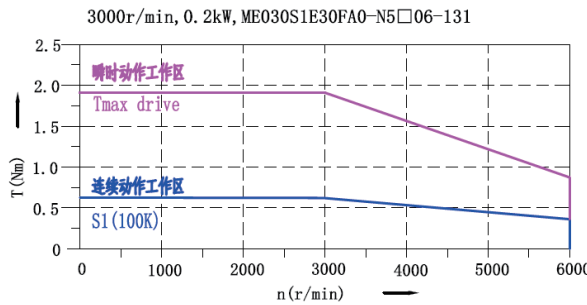
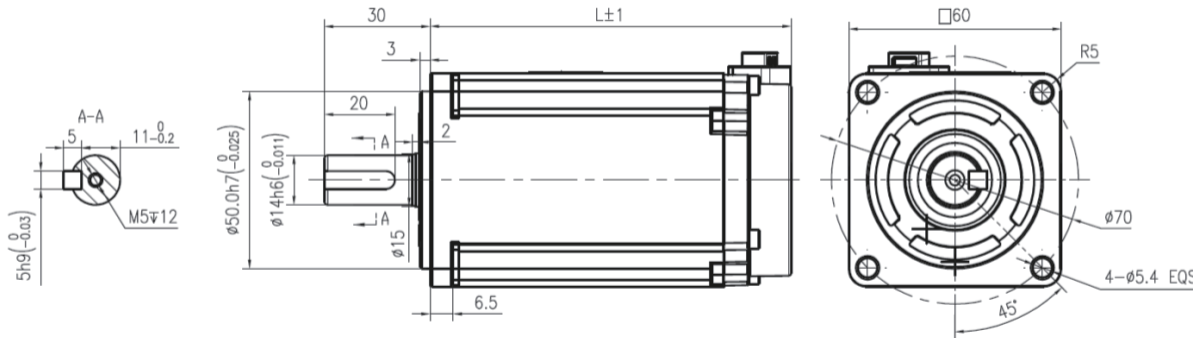
10.2 机座号030伺服马达参数、外形尺寸及特性曲线

10.2 Frame size 030 servo motor parameters,dimensions and characteristic curve

马达型号	Motor model	ME030S1E30FA0-N5□06-131	ME030M1E30FA0-N5□06-131	ME030L1E30FA0-N5□06-131
额定转速 n_N (r/min)	Rated speed n_N (r/min)	3000	3000	3000
额定功率 P_N (kW)	Rated power P_N (kW)	0.2	0.4	0.6
额定电流 I_N (A)	Rated current I_N (A)	1.7	2.5	3.6
额定转矩 T_N (N.m)	Rated torque T_N (N.m)	0.64	1.27	1.91
最大转速 $n_{\max inv}$ (r/min)	Maximum speed $n_{\max inv}$ (r/min)	6000	6000	6000
最大电流 $I_{\max inv}$ (A)	Maximum current $I_{\max inv}$ (A)	5.7	8.4	11.2
最大转矩 $T_{\max inv}$ (N.m)	Maximum torque $T_{\max inv}$ (N.m)	1.92	3.81	5.73
转动惯量 J (10^{-4}kg.m^2)	Moment of inertia J (10^{-4}kg.m^2)	0.28 (0.38)	0.52 (0.62)	0.76 (0.86)
重量 m (kg)	Weight m (kg)	0.8 (1.1)	1.1 (1.4)	1.4 (1.7)
整机长度 L (mm)	Overall length L (mm)	73 (102.5)	90 (119.5)	107 (136.5)

注：括号内为带抱闸的数据

Note:The data in parentheses are with brake



动力及抱闸电源线 Power and brake power cables						
插座编号 Socket No.	1	2	3	4	A	B
绕组定义 Winding definition	U	V	W	PE	BRK+	BRK-

编码器反馈线 Encoder feedback cable							
插座编号 Socket No.	1	2	3	4	5	6	7
信号定义 Signal definition	5V	0V	SD+	SD-	PE	E+	E-

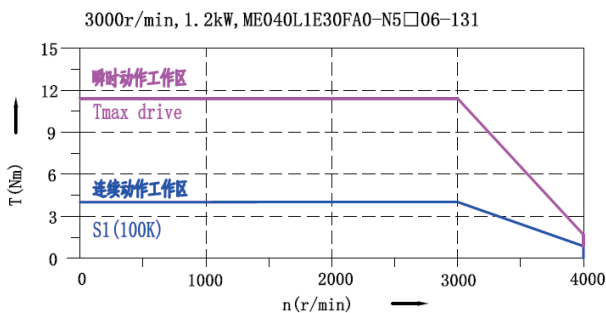
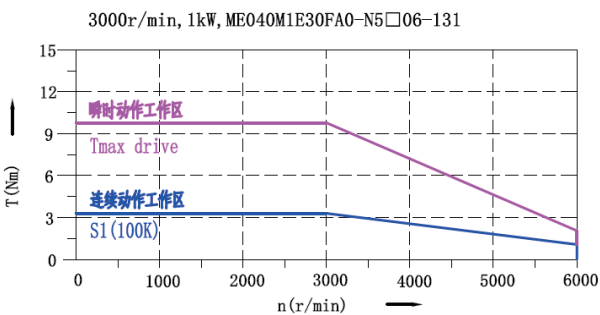
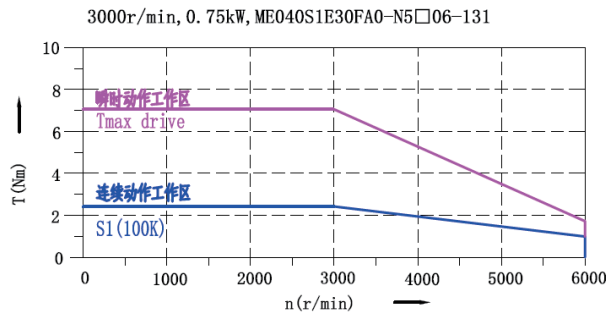
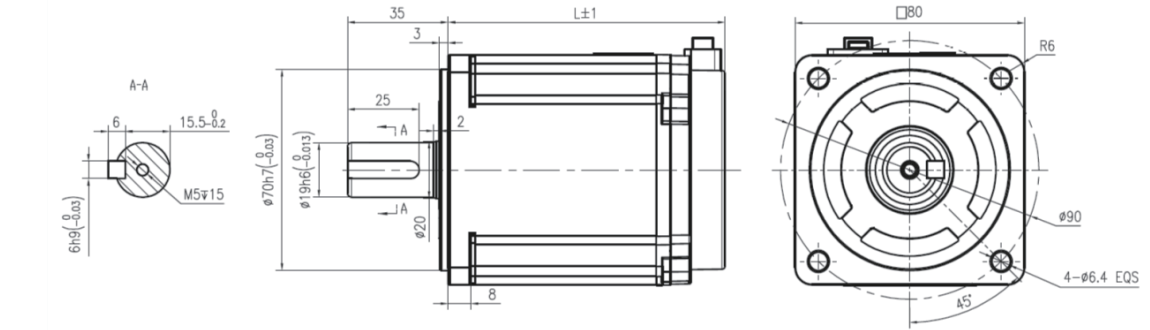
10.3 机座号040伺服马达参数、外形尺寸及特性曲线

10.3 Frame size 040 servo motor parameters, dimensions and characteristic curve

马达型号	Motor model	ME040S1E30FA0 -N5□06-131	ME040M1E30FA0 -N5□06-131	ME040L1E30FA0 -N5□06-131
额定转速 n_N (r/min)	Rated speed n_N (r/min)	3000	3000	3000
额定功率 P_N (kW)	Rated power P_N (kW)	0.75	1	1.2
额定电流 I_N (A)	Rated current I_N (A)	4.4	5.8	5.7
额定转矩 T_N (N.m)	Rated torque T_N (N.m)	2.39	3.18	3.82
最大转速 $n_{\max inv}$ (r/min)	Maximum speed $n_{\max inv}$ (r/min)	6000	6000	4000
最大电流 $I_{\max inv}$ (A)	Maximum current $I_{\max inv}$ (A)	13.8	18.1	17.1
最大转矩 $T_{\max inv}$ (N.m)	Maximum torque $T_{\max inv}$ (N.m)	7.17	9.54	11.46
转动惯量 J ($10^{-4}\text{kg}\cdot\text{m}^2$)	Moment of inertia J ($10^{-4}\text{kg}\cdot\text{m}^2$)	1.48 (1.78)	2.27 (2.5)	2.6 (2.78)
重量 m (kg)	Weight m (kg)	2.1 (2.8)	2.5 (3.2)	3.1 (3.8)
整机长度 L (mm)	Overall length L (mm)	96.5 (130.5)	109.5 (143.5)	128.5 (162.5)

注：括号内为带抱闸的数据

Note: The data in parentheses are with brake



动力及抱闸电源线 Power and brake power cables					
插座编号 Socket No.	1	2	3	4	A B
绕组定义 Winding definition	U	V	W	PE	BRK+ BRK-

编码器反馈线 Encoder feedback cable						
插座编号 Socket No.	1	2	3	4	5	6 7
信号定义 Signal definition	5V	0V	SD+	SD-	PE	E+ E-

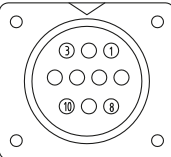
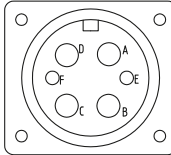
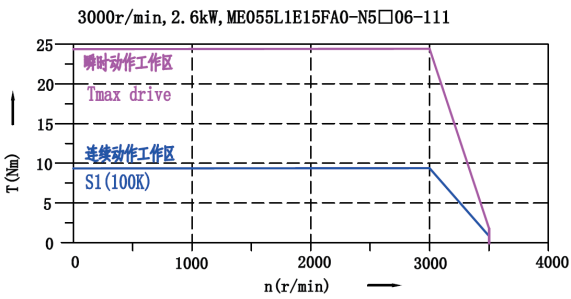
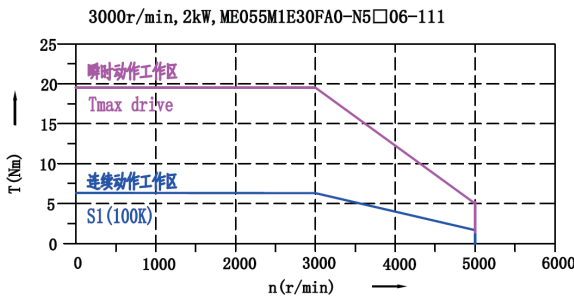
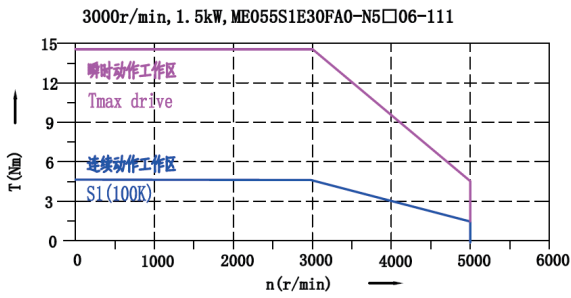
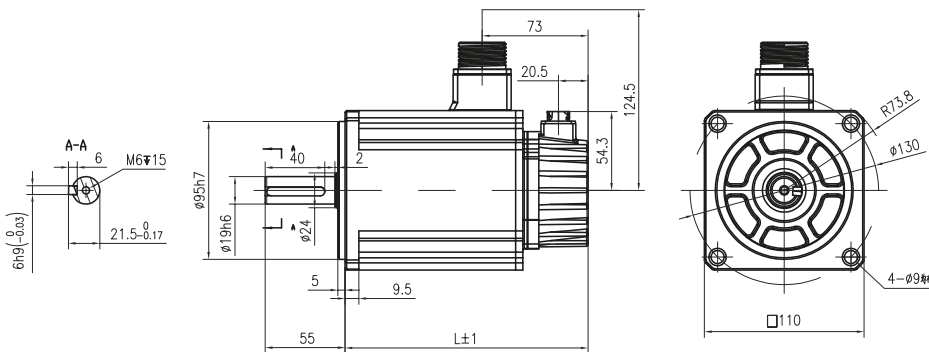
10.4 机座号055伺服马达参数、外形尺寸及特性曲线

10.4 Frame size 055 servo motor parameters, dimensions and characteristic curve

马达型号	Motor model	ME055S1E30FA0 -N5□06-111	ME055M1E30FA0 -N5□06-111	ME055L1E30FA0 -N5□06-111
额定转速 n_N (r/min)	Rated speed n_N (r/min)	3000	3000	3000
额定功率 P_N (kW)	Rated power P_N (kW)	1.5	2	2.6
额定电流 I_N (100K) (A)	Rated current I_N (100K) (A)	7	9.5	9.5
额定转矩 T_N (100K) (N.m)	Rated torque T_N (100K) (N.m)	4.8	6.4	8.3
最大转速 $n_{\max inv}$ (r/min)	Maximum speed $n_{\max inv}$ (r/min)	5000	5000	3500
最大电流 $I_{\max inv}$ (A)	Maximum current $I_{\max inv}$ (A)	21	28.5	28.5
最大转矩 $T_{\max inv}$ (N.m)	Maximum torque $T_{\max inv}$ (N.m)	14.4	19.2	24.9
转动惯量 J ($10^{-4}\text{kg}\cdot\text{m}^2$)	Moment of inertia J ($10^{-4}\text{kg}\cdot\text{m}^2$)	6.6 (7.2)	9.5 (10.1)	10.4 (11)
重量 m (kg)	Weight m (kg)	5.5 (6.5)	7.7 (8.8)	8.2 (9.4)
整机长度 L (mm)	Overall length L (mm)	154.5 (195.5)	167.5 (208.5)	167.5 (208.5)

注：括号内为带抱闸的数据

Note: The data in parentheses are with brake



动力及抱闸电源线 Power and brake power cables					
插座编号 Socket No.	A	B	C	D	E F
绕组定义 Winding definition	U	V	W	PE	BK+ BK-

编码器反馈线 Encoder feedback cable						
插座编号 Socket No.	2	3	4	5	6 7	10
信号定义 Signal definition	E-	E+	SD-	0V	SD+	5V PE

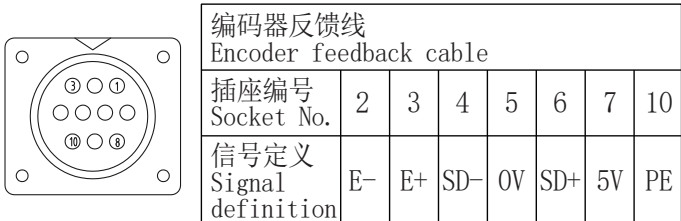
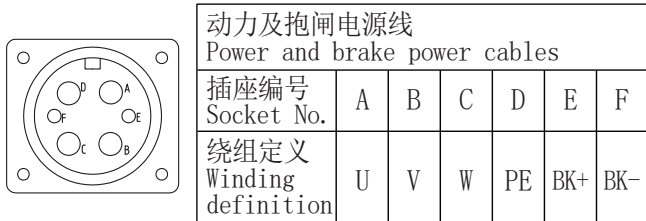
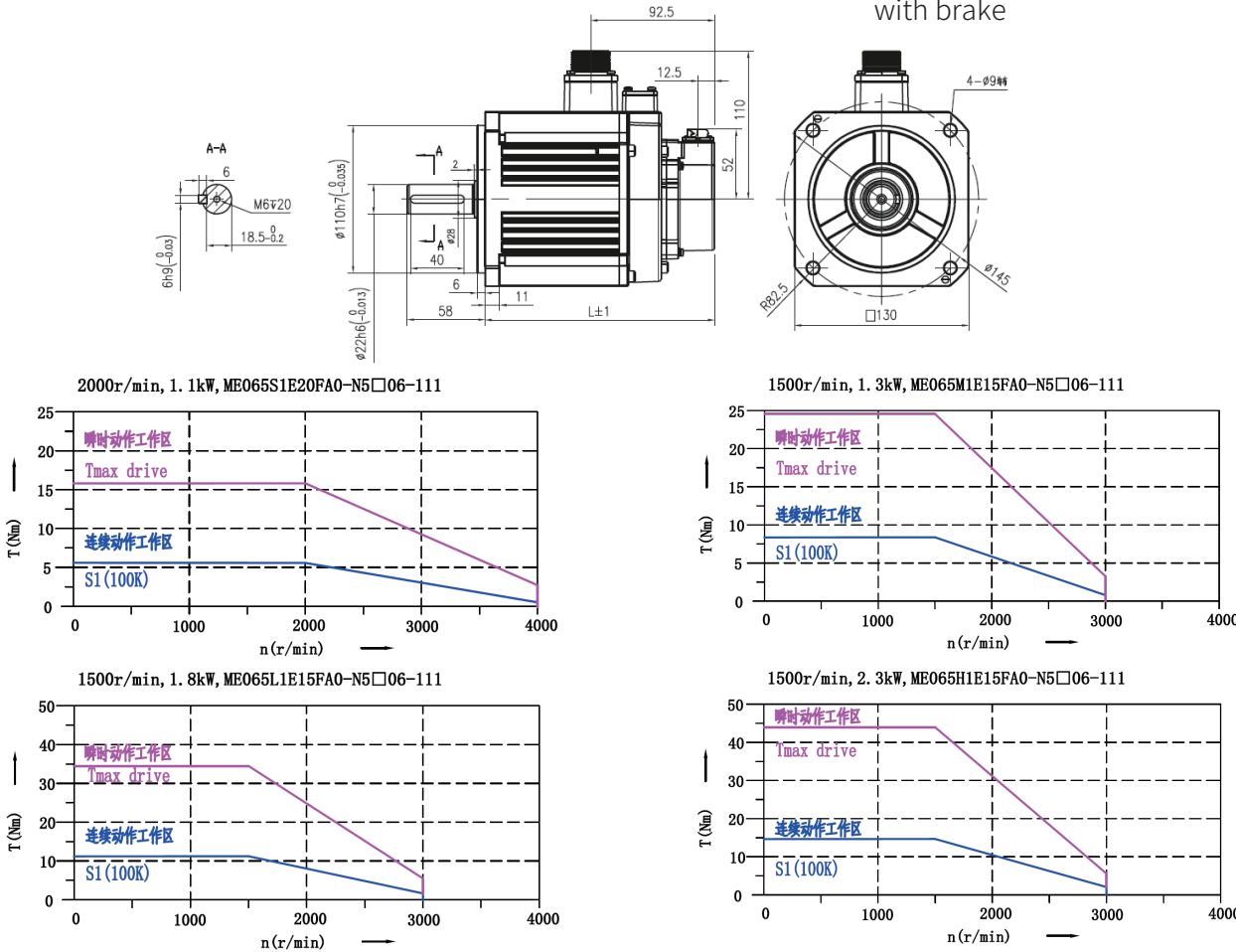
10.5 机座号065伺服马达参数、外形尺寸及特性曲线

10.5 Frame size 065 servo motor parameters, dimensions and characteristic curve

马达型号	Motor model	ME065S1E20FA0 -N5□06-111	ME065M1E15FA0 -N5□06-111	ME065L1E15FA0 -N5□06-111	ME065H1E15FA0 -N5□06-111
额定转速 n_N (r/min)	Rated speed n_N (r/min)	2000	1500	1500	1500
额定功率 P_N (kW)	Rated power P_N (kW)	1.1	1.3	1.8	2.3
额定电流 I_N (100K) (A)	Rated current I_N (100K) (A)	6	7.7	9.8	12.4
额定转矩 T_N (100K) (N.m)	Rated torque T_N (100K) (N.m)	5.25	8.28	11.46	14.64
最大转速 $n_{max inv}$ (r/min)	Maximum speed $n_{max inv}$ (r/min)	4000	3000	3000	3000
最大电流 $I_{max inv}$ (A)	Maximum current $I_{max inv}$ (A)	18.5	23.7	30.2	38.4
最大转矩 $T_{max inv}$ (N.m)	Maximum torque $T_{max inv}$ (N.m)	15.75	24.84	34.38	43.92
转动惯量 J (10^{-4} kg.m ²)	Moment of inertia J (10^{-4} kg.m ²)	12.1 (14.1)	17.5 (19.5)	23.7 (25.7)	31.2 (33.2)
重量 m (kg)	Weight m (kg)	5.2 (6.7)	6.6 (7.8)	8 (9.5)	10 (11.5)
整机长度 LL (mm)	Overall length L (mm)	130 (155.5)	146 (171.5)	164 (189.5)	186 (211.5)

注：括号内为带抱闸的数据

Note: The data in parentheses are with brake



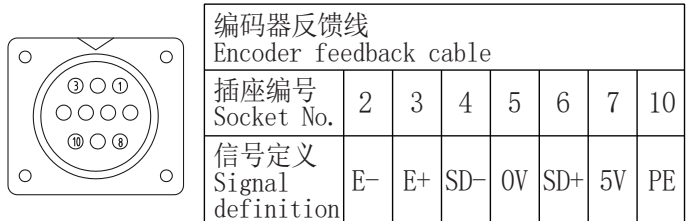
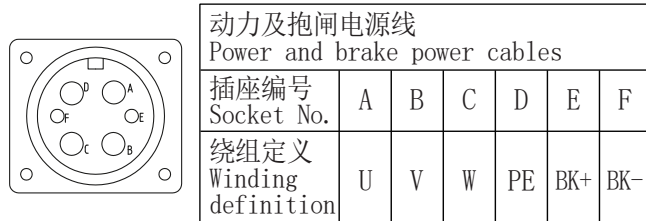
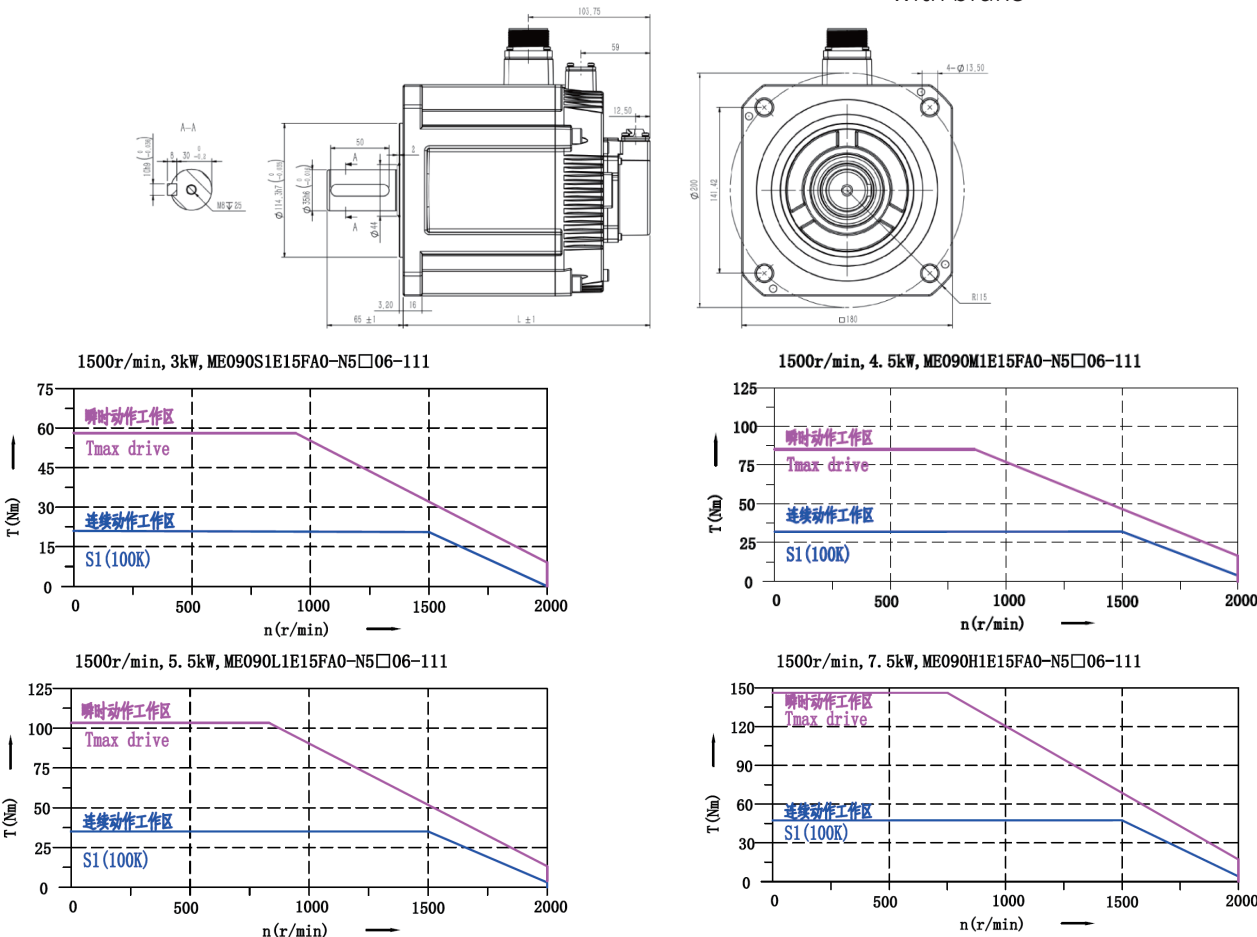
10.6 机座号090伺服马达参数、外形尺寸及特性曲线

10.6 Frame size 090 servo motor parameters, dimensions and characteristic curve

马达型号	Motor model	ME090S1E15FA0 -N5□06-111	ME090M1E15FA0 -N5□06-111	ME090L1E15FA0 -N5□06-111	ME090H1E15FA0 -N5□06-111
额定转速 n_N (r/min)	Rated speed n_N (r/min)	1500	1500	1500	1500
额定功率 P_N (kW)	Rated power P_N (kW)	3	4.5	5.5	7.5
额定电流 I_N (100K) (A)	Rated current I_N (100K) (A)	11	15.9	20.2	25.8
额定转矩 T_N (100K) (N.m)	Rated torque T_N (100K) (N.m)	19.1	28.65	35	47.76
最大转速 $n_{max inv}$ (r/min)	Maximum speed $n_{max inv}$ (r/min)	2000	2000	2000	2000
最大电流 $I_{max inv}$ (A)	Maximum current $I_{max inv}$ (A)	37.4	51.7	64.6	82.5
最大转矩 $T_{max inv}$ (N.m)	Maximum torque $T_{max inv}$ (N.m)	57.3	85.95	105	143.3
转动惯量 J (10^{-4} kg.m ²)	Moment of inertia J (10^{-4} kg.m ²)	47.2 (58.2)	69.3 (80.3)	94.1 (105.1)	135.6 (146.6)
重量 m (kg)	Weight m (kg)	12.9 (17.2)	16.6 (20.9)	21.1 (25.4)	28.4 (32.7)
整机长度 LL (mm)	Overall length L (mm)	156 (193)	180 (217)	205 (242)	250 (287)

注：括号内为带抱闸的数据

Note: The data in parentheses are with brake



经济型AN系列伺服驱动器

AN general servo drive

11 伺服驱动器概述

11 Servo drive preface

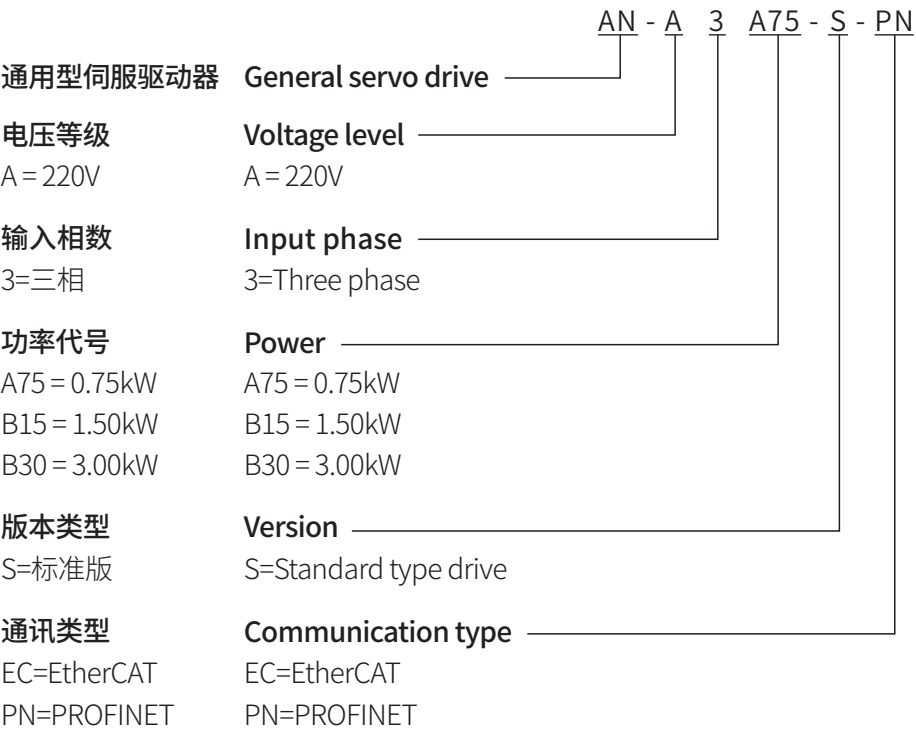
AN系列伺服驱动器是支持Ether-CAT/PROFINET工业以太网的220V伺服驱动器，可支持单相或三相220V供电，支持STO安全转矩关断，采用端子型接线方式，接线更便捷。调试接口采用常用USB接口，方便用户接线调试。

The AN series servo drive is a 220V servo drive that supports Ether-CAT/PROFINET industrial Ethernet. It can operate with single-phase or three-phase 220V power supply and supports STO (Safe Torque Off) function. It adopts a terminal-type wiring method, making wiring more convenient. The debugging interface uses the commonly used USB interface, facilitating user wiring and debugging.



11.1 伺服驱动器型号表示方法

11.1 Model indication method



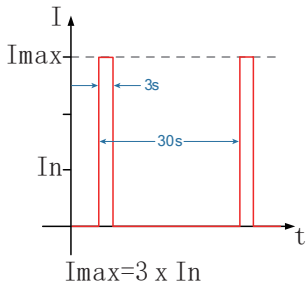
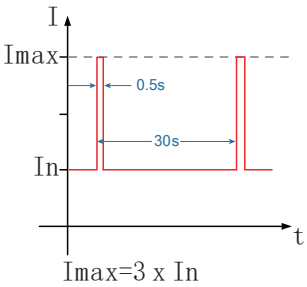
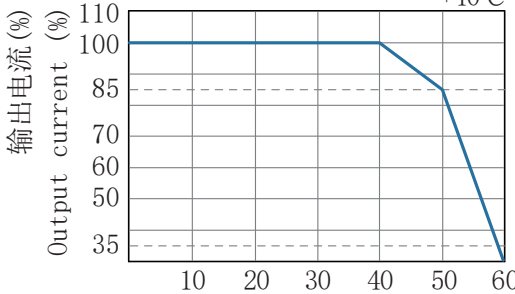
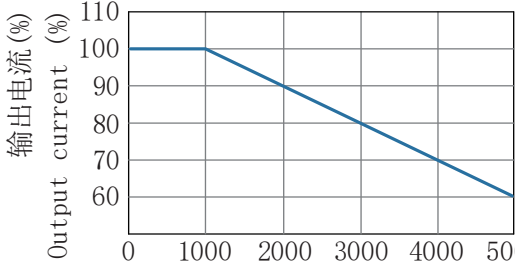
11.2 伺服驱动器订货数据

11.2 Ordering Data

200...240V AC输入		200...240V AC input	
额定数据 rated data		外形尺寸 Dimensions	型号 Order number
额定功率 (kW) Power (kW)	额定电流 (A) Current (A)		
0.75	6.0	N0	AN-A3A75-S-EC
0.75	6.0	N0	AN-A3A75-S-PN
1.50	7.6	N1	AN-A3B15-S-EC
1.50	7.6	N1	AN-A3B15-S-PN
3.00	12.4	N2	AN-A3B30-S-EC
3.00	12.4	N2	AN-A3B30-S-PN

11.3 伺服驱动器通用技术数据

11.3 general data of AN general servo drive

参数Parameter		描述Description
过载能力Overload capacity		300% 
		
电磁兼容性Electromagnetic compatibility		符合IEC 61800-3According to IEC 61800-3
环境条件Ambient condition		
运行环境Operating environment		室内(无阳光直射)、无腐蚀性气体、易燃气体、油气或灰尘 In door, without corrosive gases, flammable gases, dust
环境温度Ambient temperature	运行Operating	-20℃~+40℃:无功率降额 +40℃~+55℃:有功率降额 -20℃~+40℃:Without current derating +40℃~+55℃:With current derating  输出电流 (%) Output current (%) 运行环境温度(℃) Operating ambient temperature(℃)
	存储Storage	-40℃ ~ +70℃-40℃ ~ +70℃
环境湿度Relative humidity		<95% (无凝露)<95% (Without ripping water)
海拔Installation altitude		≤1000m(无功率降额) ≤1000m (Without current derating)  输出电流 (%) Output current (%) 安装海拔高度(m) Installation altitude(m)
振动Vibration		符合 IEC 60068-2-6 10Hz~58Hz:0.075mm偏转 58Hz~200Hz:1g振动 According to IEC 60068-2-6 10Hz~58Hz:0.075mm deflection 58Hz~200Hz:1g vibration
冲击Impact		符合 IEC 60068-2-27 峰值加速度:10g 冲击数量:每方向上3个x6个方向 冲击持续时间:11ms According to IEC 60068-2-27 Peak acceleration:10g impact quantity:six impacts on 3 axes in each direction Impact duration:11ms

参数Parameter	描述Description
污染等级Pollution	等级2degree of pullution 2
噪音排放Noise intensity	小于60dB<69dB
防护等级Protection level	IP20IP20
输入输出信号Input and output signals	
数字量输入信号Digital input signal	5路公共端子COM的DI 电气隔离 支持Source和Sink模式 最大电压:DC 30V "1"信号电压:>15V "0"信号电压:<5V 24V典型电流:4mA DI of 5-way common terminal COM Electrical isolation supports Source and Sink modes maximum voltage:DC 30V "1"Signal voltage:>15V "0" Signal voltage:<5V 24V Typical current:4mA
数字量输出信号Digital output signal	3路开集电极DO输出 最大电压:DC 30V 最大电流:开集电极输出为50mA 3-way open collector DO maximum voltage:DC 30V maximum current:open collector output 50mA
LED显示功能LED display function	主电源带电指示, 5位LED显示 Main power supply live indication, 5-digit LED display
调试Debug	通过USB调试参数 Debugging parameters through USB

11.4 伺服驱动器特定技术数据

11.4 Technical data for servo drives

AN系列AN series servo drive		0.75kW	1.50kW	3.00kW
		A3A75	A3B15	A3B30
主电源Main power supply	电压Voltage	1AC/3AC 200V~240VAC, ±10%	3AC 200V~240V, ±10%	3AC 200V~240V, ±10%
	频率Frequency	47Hz~63Hz	47Hz~63Hz	47Hz~63Hz
输入电流(A)Input current (A)		4.3 (3AC)/8.4 (1AC)	5.1	8.5
连续输出电流(A)Continuous output current (A)		6.0	7.6	12.4
瞬时最大输出电流(A)Instantaneous maximum output current (A)		18.0	22.8	37.2
冷却方式Cooling method		风扇冷却 Fan cooling	风扇冷却 Fan cooling	风扇冷却 Fan cooling
制动电阻Braking resistor		内置 (40 Ω/50W) Built in(40 Ω/50W)	内置 (25 Ω/80W) Built in(25 Ω/80W)	内置 (25 Ω/80W) Built in(25 Ω/80W)
短路电流Short-circuit current		最大短路电流≤65kA Maximum short-circuit current ≤ 65kA		
尺寸(宽×高×深,mm)Dimensions (width × height × depth, mm)		46×171×173	57×179.5×186.4	80×179.5×196.4
重量(kg)Weight (kg)		0.9	1.3	1.7

11.5 N0 框架接口端子信号定义

11.5 N0 framework interface terminal signal definition

主电源进线端子

Main power input terminal

采用带固定卡扣的脱落式端子, 引脚间距5.0mm, 线径范围0.2~2.5mm²。 Utilizes detachable terminals with fixed latch, pin spacing of 5.0mm, wire diameter range of 0.2~2.5mm².

端子位置 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
X3	1	L1	连接电源	Input power supply
	2	L2		
	3	L3		
	4	P	直流母线正	Positive terminal of DC busbar
	5	D	内置制动电阻	built-in braking resistor
	6	B	外置制动电阻	External braking resistor
	7	N	直流母线负	Negative terminal of DC busbar
	8	U	连接电机	Connect servo motor
	9	V		
	10	W		

安全功能端子

Safety function terminals

采用带固定螺丝的脱落式端子, 引脚间距3.5mm, 线径范围0.5~1.5mm²。 Utilizes detachable terminals with fixed screws, pin spacing of 3.5mm, wire diameter range of 0.5~1.5mm².

端子位置 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
X1	1	S0V	安全功能 24V电源	Safety function 24V power supply
	2	S24V		
	3	ST01	两路安全 功能输入	Dual-channel safety function signal input
	4	ST02		

数字量输入输出端子

Digital input/output terminals

采用压线式接线端子端子, 引脚间距3.5mm, 线径范围0.5~1.5mm²。 Use crimp-type terminal blocks. pin spacing of 3.5mm, wire diameter range of 0.5~1.5mm².

端子位置 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
X2	5	DIO	数字量输入	Digital input
	7	DI1		
	9	DI2		
	11	DI3		
	13	DI4		
	3	M		
	2	24V	输出24V电 源	24V output power supply
	1	0V		
	4	D00+	数字量输出	Digital output
	6	D00-		
	8	D01+		
	10	D01-		
	12	D02+		
	14	D02-		

编码器端子

Encoder terminals

采用RJ45端子。

Utilizes RJ45 female socket.

端子位置 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
X10	1	TEMP+	温度采样	Motor temperature detection
	2	TEMP-		
	3	CK+	编码器 时钟信号	Encoder clock signal
	4	RS485_B	编码器 数据信号	Encoder data signal
	5	RS485_A		
	6	CK-	编码器 时钟信号	Encoder clock signal
	7	+5V	编码器5V 供电电源	Encoder 5V power supply
	8	GND		

调试端子

Debugging terminals

采用标准 USB TYPE-C 通用端子。

Utilizes standard USB TYPE-C interface.

PN通讯端子

PN Communication terminals

采用RJ45端子。

Utilizes RJ45 female socket.

端子编码 Terminal code	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
X20	1	TD+	数据发送+	Data transmission +
	2	TD-	数据发送-	Data transmission -
	3	RD+	数据接收+	Data reception +
	4	-	-	-
	5	-	-	-
	6	RD-	数据接收-	Data reception -
	7	-	-	-
	8	-	-	-
X21	1	TD+	数据发送+	Data transmission +
	2	TD-	数据发送-	Data transmission -
	3	RD+	数据接收+	Data reception +
	4	-	-	-
	5	-	-	-
	6	RD-	数据接收-	Data reception -
	7	-	-	-
	8	-	-	-

控制电源端子

Control power terminals

采用带固定螺丝的脱落式端子, 引脚间距3.5mm, 线径范围0.5~1.5mm²。

Uses detachable terminals with fixed screws, with a pin pitch of 3.5mm and a wire size range of 0.5~1.5mm².

端子序号 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition	
	1	24V	输出24V 电源正	Output 24V power positive
	2	24V		
	3	0V	输出24V 电源负	Output 24V power negative
	4	0V		

11.6 N1 N2框架接口端子信号定义

11.6 N1 N2 framework interface terminal signal definition

主电源进线端子

采用带固定卡扣的脱落式端子, 引脚间距7.62mm, 线径范围0.2~2.5mm²。

Main power input terminal

Uses a detachable terminal with a fixed latch, with a pin pitch of 7.62mm and a wire size range of 0.2~2.5mm².

端子序号 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X2	1	PE	接地 Grounding
	2	R	连接三相电源 Connect the three-phase power supply
	3	S	
	4	T	
	5	P	直流母线正 DC bus positive
	6	D	默认短接为使用 内置制动电阻 The default short-circuit is to use the built-in braking resistor
	7	B	
	8	N	直流母线负 DC bus negative

电机端子

采用带固定卡扣的脱落式端子, 引脚间距7.62mm, 线径范围0.2~2.5mm²。

Motor terminals

Uses a detachable terminal with a fixed latch, with a pin pitch of 7.62mm and a wire size range of 0.2~2.5mm².

端子序号 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X3	1	U	连接伺服 电机进线 Connect the servo motor input line
	2	V	
	3	W	
	4	PE	接地 Grounding

安全功能端子

采用带固定螺丝的脱落式端子, 引脚间距3.5mm, 线径范围0.5~1.5mm²。

Safety function terminals

Uses a detachable terminal with fixed screws, pin spacing 3.5mm, wire diameter range 0.5~1.5mm².

端子序号 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X4	1	S0V	安全功能 24V电源 Safety function 24V power supply
	2	S24V	
	3	ST01	两路安全 功能输入 Two-channel safety function input
	4	ST02	

数字量输入输出端子

采用D-SUB15端子。

Digital input/output terminals

Utilizes D-SUB15 female socket.

端子序号 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X5	10	DIO	数字量输入 Digital input
	9	DI1	
	8	DI2	
	7	DI3	
	11	DI4	
	13	COM	
	15	24V_OUT	输出24V电 源 24V output power supply
	14	GND	数字量输出 Digital output
	1	D00+	
	6	D00-	
	3	D01+	
	2	D01-	
	5	D02+	
	4	D02-	

编码器端子

采用RJ45端子。

Encoder terminals

Utilizes RJ45 female socket.

端子位置 Terminal number	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X10	1	TEMP+	电机温度侦测 Motor Temperature Detection
	2	TEMP-	
	3	-	-
	4	RS485_B	编码器数据信号 Encoder Data Signal
	5	RS485_A	
	6	-	-
	7	5V	编码器5V电源 Encoder 5V Power Supply
	8	GND	

调试端子

采用标准 MINI USB 接口, 端子序号为X12。

Debugging terminals

Uses a standard MINI USB interface, terminal number is X12.

通讯端子

采用RJ45端子。

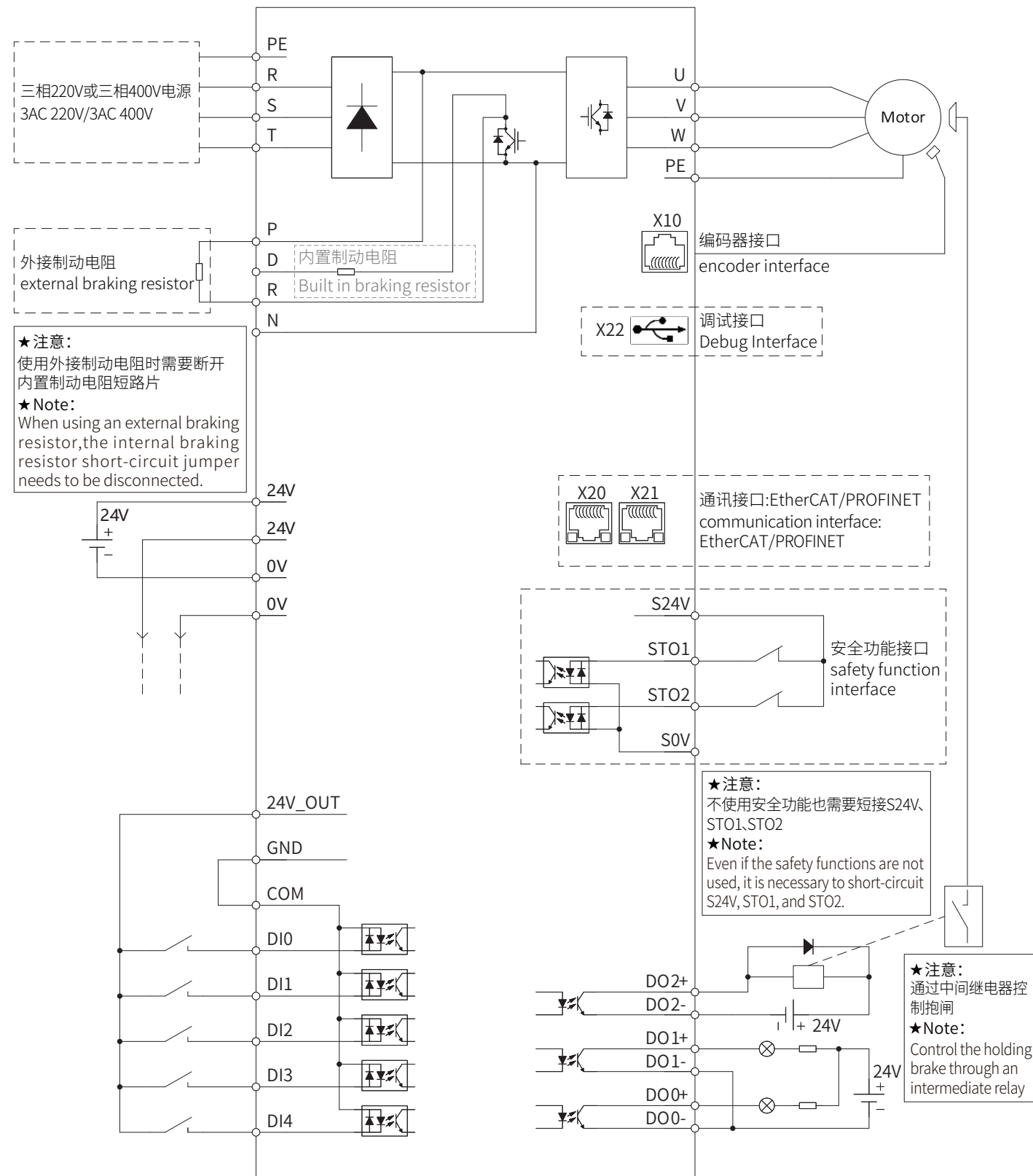
Communication terminals

Utilizes RJ45 female socket.

端子编码 Terminal code	引脚序号 Pin number	信号名称 Signal name	功能定义 Function definition
X20, X21	1	TD+	数据发送+ Data transmission +
	2	TD-	数据发送- Data transmission -
	3	RD+	数据接收+ Data reception +
	4	-	-
	5	-	-
	6	RD-	数据接收- Data reception -
	7	-	-
	8	-	-

11.7 端子配线图

11.7 Servo drive terminal connection



12 整机外形及安装尺寸图

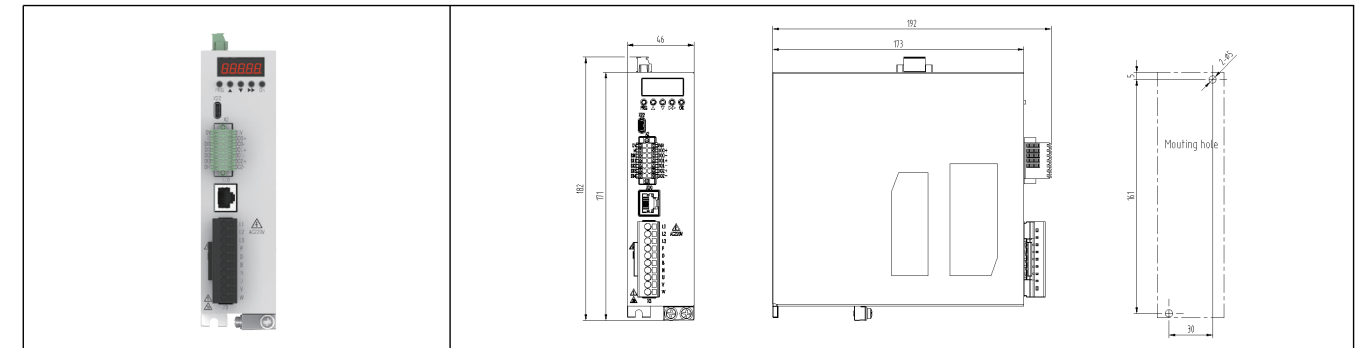
12 Overall appearance and installation dimension diagram

整机外形图及安装尺寸图，单位：
mm

Overall appearance diagram and installation dimension diagram, unit: mm

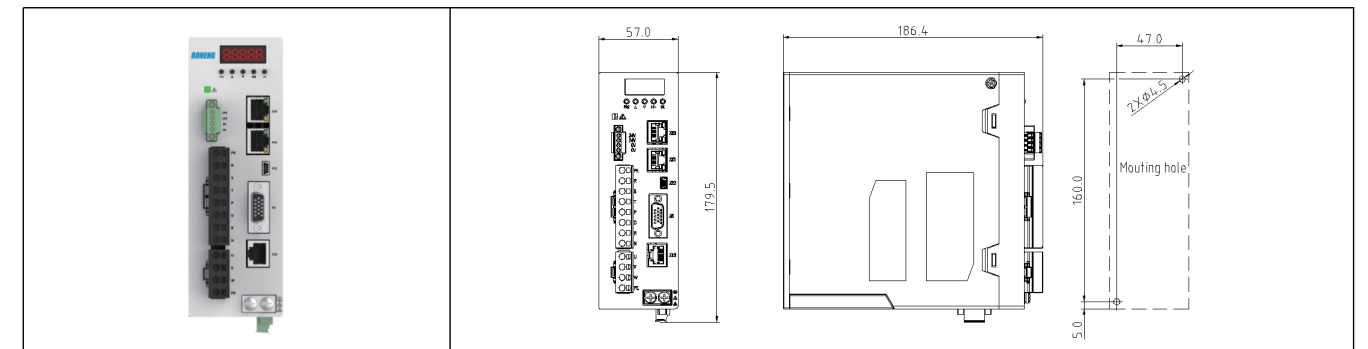
N0(0.75kW)

N0(0.75kW)



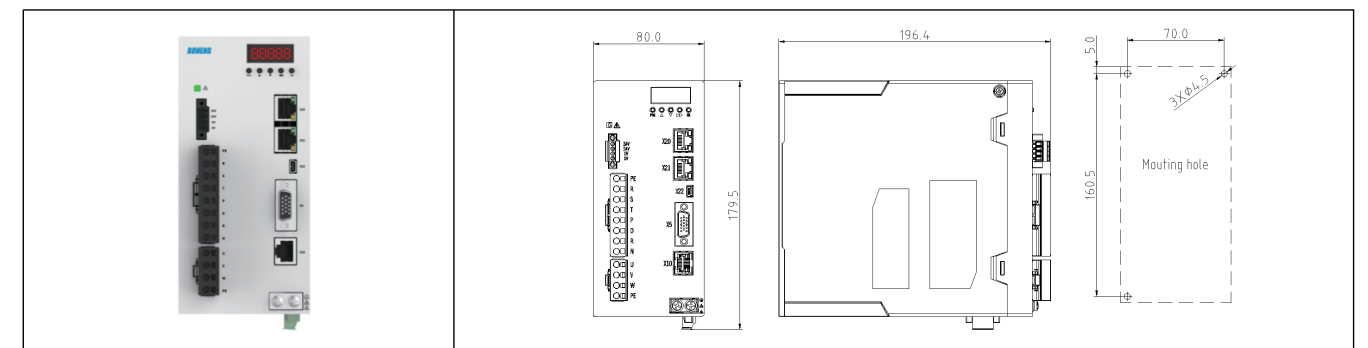
N1(1.5kW)

N1(1.5kW)



N2(3.0kW)

N2(3.0kW)



13 可选项

13 Incoming Reactor

13.1 进线电抗器

13.1 Incoming Reactor

当系统的故障率高时，需要加装进线电抗器以保护驱动器不受过大的谐波电流的干扰，改善驱动器的输入侧功率因数；防止过载，并将进线谐波限制在允许的值内，以确保驱动器达到期望的使用寿命。

When the failure rate of the system is high, it is necessary to install an incoming reactor to protect the driver from the interference of large harmonic currents and improve the input power factor of the driver; Prevent overloading and limit incoming harmonics within allowable values to ensure that the driver reaches the expected service life.

220V 50/60Hz AN系列驱动器可选的进线电抗器推荐型号如下表：

The recommended models of incoming reactors for 220V 50/60Hz AN series drives are as follows:

框架 Dimensions	伺服驱动 器型号 Order number	额定 电流 Rated current	电感 Induct- ance	订货号 Ordering Data
		(A)	(mH)	
N0	AN-A3A75-S-EC	10	1.40	A1-H12-TB140
N0	AN-A3A75-S-PN	10	1.40	A1-H12-TB140
N1	AN-A3B15-S-EC	10	1.40	A1-H12-TB140
N1	AN-A3B15-S-PN	10	1.40	A1-H12-TB140
N2	AN-A3B30-S-EC	14.7	0.93	A1-H12-TA930
N2	AN-A3B30-S-PN	14.7	0.93	A1-H12-TA930

13.2 进线滤波器

进线滤波器的作用是抑制驱动器通过输入电源线所传输到公共电网中的电磁干扰,同时也衰减从电源线进入驱动器的干扰;在安装时请尽量靠近驱动器的输入端子侧进行安装,请使用驱动器专用的进线滤波器。AN系列驱动器可选的进线滤波器推荐型号如下表：

13.2 Incoming filter

The function of the incoming filter is to suppress the electromagnetic interference transmitted by the driver through the input power line to the public power grid, while also attenuating the interference entering the driver from the power line; When installing, please try to install it as close to the input terminal side of the driver as possible, and use a dedicated input filter for the driver. The recommended models for optional incoming line filters for AN series drives are shown in the table below:

框架 Dimensions	伺服驱动 器型号 Order number	额定电流 Rated current	订货号 Ordering Data
		(A)	
N0	AN-A3A75-S-EC	10	A1-H11-A-C10-□
N0	AN-A3A75-S-PN	10	A1-H11-A-C10-□
N1	AN-A3B15-S-EC	10	A1-H11-A-C10
N1	AN-A3B15-S-PN	10	A1-H11-A-C10
N2	AN-A3B30-S-EC	20	A1-H11-A-C20
N2	AN-A3B30-S-PN	20	A1-H11-A-C20

无后缀 三相 220V
A 单相 220V
No suffix Three-phase 220V
A Single-phase 220V

13.3 制动电阻

制动电阻用于使大转动惯量的负载迅速制动。在电机和负载制动时,动能转换成的再生电能会返回到驱动器中,直流母线电压因此抬高,驱动器将这些再生的能量几乎全部消耗在制动电阻上;AN系列驱动器可选的制动电阻推荐规格如下：

13.3 Braking resistor

The braking resistor is used to quickly brake a load with a large moment of inertia. During motor and load braking, the regenerated energy converted from kinetic energy will return to the driver, causing the DC bus voltage to rise. The driver will consume almost all of this regenerated energy on the braking resistor; The recommended specifications for the optional braking resistor of the AN series driver are as follows:

驱动器		允许的 最小 制动阻	2%ED的非频繁制动应用场合			20%ED的频繁制动应用场合			
Servo driver model			2% ED for non frequent braking applications			20% ED for frequent braking applications			
框架	伺服驱动器型号		功率 (kW)	阻值 (Ω)	博能内置 制动电阻	推荐值 Recommended value		博能订货型号 Boneng ordering model	
Dimen- sions	Order number	Allow minimum resistance value	Power (KW)	Resist- ance value (Ω)	Built in braking resistor	功率 (kW) Power (KW)	阻值 (Ω) Resistance value(Ω)	订货号 Ordering Data	等效制动电阻 Equivalent break- ing resistance
N0	AN-A3A75-S-EC	40 Ω	0.05	40	50W 40 Ω	0.40	75	A1-H02-A40-K-C75	400W 75 Ω
N0	AN-A3A75-S-PN	40 Ω	0.05	40	50W 40 Ω	0.40	75	A1-H02-A40-K-C75	400W 75 Ω
N1	AN-A3B15-S-EC	20 Ω	0.08	25	80W 25 Ω	0.80	36	A1-H02-A80-K-C36	800W 36 Ω
N1	AN-A3B15-S-PN	20 Ω	0.08	25	80W 25 Ω	0.80	36	A1-H02-A80-K-C36	800W 36 Ω
N2	AN-A3B30-S-EC	15 Ω	0.08	25	80W 25 Ω	1	27	A1-H02-B10-K-C27	1000W 27 Ω
N2	AN-A3B30-S-PN	15 Ω	0.08	25	80W 25 Ω	1	27	A1-H02-B10-K-C27	1000W 27 Ω

制动电阻接线注意事项：

- 使用外接制动电阻时请将P、D之间短接线拆除,否则会导致制动管过流损坏；
- 请勿将外接制动电阻直接接到母线正负极,否则会导致炸机和跳闸；
- 请勿小于最小允许阻值,否则会导致过流报警或损坏驱动器

Precautions for brake resistor wiring:

- When using an external brake resistor, please remove the short circuit between P and D, otherwise it may cause overcurrent damage to the brake IGBT;
- Do not directly connect the external braking resistor to the positive and negative poles of the bus, otherwise it may cause the machine to explode and trip;
- Do not exceed the minimum allowable resistance value, otherwise it may cause over-current alarm or damage to the drive;

随着技术迭代进步，博能产品样本将会同步更新，请见谅。
Along with the technology advancedet.,the product of the manual of Boneng will be changed,please forgive.

控制层 CONTROL

驱动层 DRIVE

马达层 MOTOR

齿轮层 GEAR

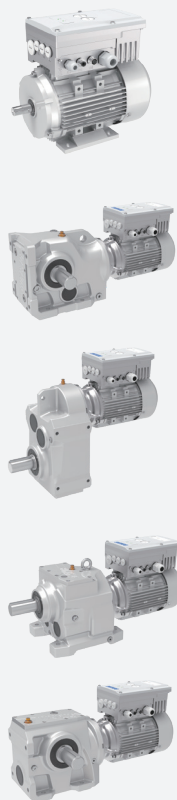


X7030 X7050
系列控制器
EtherCAT&Modbus



X3050 运动控制器
Motion Controller
EtherCAT&Modbus
24VDC

C/F/K/S-M
* . . . D
马达分布式
变频驱动器
Integrated
Gearmotor
Drive



EtherCAT&
Modbus
380~480VAC
0.25~3kW
i=4~355

AM 变频驱动器
Variable Frequency Drive



Modbus
380~480VAC
0.75~5.5kW

A1 变频驱动器
Variable Frequency Drive



Modbus/CANopen
/PROFINET
380~480VAC
0.75~250kW

C/F/K/S/R
齿轮马达
Gearmotor



380~480VAC
0.09~200kW
i=1.25~500

MP/MU
三相交流异步马达
Asynchronous Motor



380~480VAC
0.09~90kW
960/1450r/min
1160/1750r/min

HB/BE/HK
齿轮箱
Gearbox



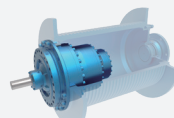
4.2~15775kW
i=5.6~450

P/PK
行星齿轮箱
Planetary
Gearbox



0.4~14000kW
i=25~4000

PW
卷扬齿轮箱
Planetary
Winch
Gearbox



1~1810kW
i=13~940

PS
回转齿轮箱
Planetary
Slewing
Gearbox



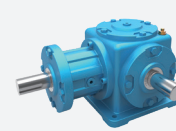
1~1626kW
i=14~947

J/JB
升降机
Jack



0.35~22.63kW
i=5~34

T
转向箱
Spiral Bevel
Gearbox



0.08~303kW
i=1:1~3:1

MX&AX
伺服马达&伺
服驱动器
Permanent
Magnet
Servo Motor
& Servo Drive



EtherCAT/
PROFINET
380~480VAC
0.28~14kW
1500/2000r/min
3000/4500r/min

C/F/K-MX
&AX齿轮伺
服马达&伺
服驱动器
Servo
Gearmotor
& Servo Drive



EtherCAT/
PROFINET
380~480VAC
0.28~14kW
i=1.25~315

PX-MX&AX
行星伺服马达
&伺服驱动器
Planetary
Precision Gear
Servo Motor
& Servo Drive



EtherCAT/
PROFINET
380~480VAC
0.38~14kW
i=3~100

PN-MN&AN
行星伺服马达
&伺服驱动器
Planetary
Precision Gear
Servo Motor
& Servo Drive



EtherCAT
PROFINET
380~480VAC
0.28~5.03kW
i=3~100

ME&AN
永磁同步伺服马
达&伺服驱动器
Permanent
Magnet
Servo Motor
& Servo Drive



EtherCAT/
PROFINET
200~240VAC
0.1kW~7.5kW

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