

MN & AN

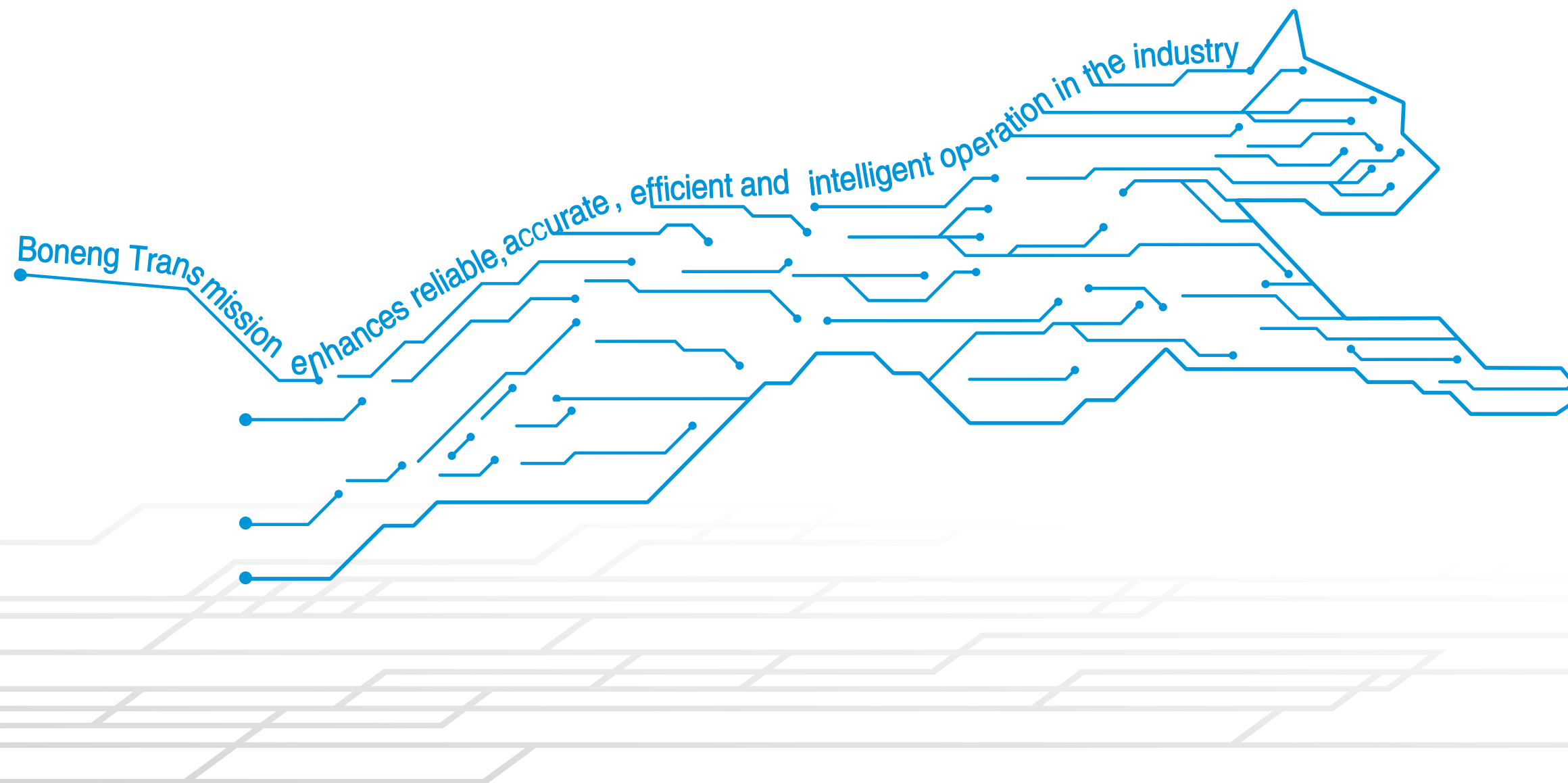


MN通用型伺服马
达&AN伺服驱动器

MN Universal
Servo Motor &
AN Servo Drives

(0.28kW~5.03kW)

Edit date 10/2026
Selection Catalogue: C05.0056



控制器/驱动器/马达/
齿轮马达/齿轮箱

Controller/ Drive/ Motor/
Gearmotor/ Gearbox

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MN通用型伺服马达

1 伺服马达概述

MN系列伺服马达匹配博能AN系列伺服驱动器可组成精确定位的伺服系统。
MN伺服马达出厂常用的冷却方式为自然冷却, 其他冷却方式, 如强制风冷、水冷伺服马达可特殊定制并实现更高的功率输出, 具体参数另请咨询。
MN伺服马达设计生产符合ISO、IEC、GB等相关标准要求。BONENG伺服马达适用于连续工作制(S1), 同时满足大部分断续工作方式(S2-S10)

2 马达优点

- ◆ 结构紧凑坚固
- ◆ 优良的径向跳动质量和细微的转矩波动
- ◆ 高动态响应
- ◆ 高过载承载能力
- ◆ 高效率
- ◆ 高精度、高分辨率编码器

3 马达应用

- ◆ 机床
- ◆ 机器人
- ◆ 印刷机械
- ◆ 包装机械
- ◆ 纺织机械
- ◆ 自动化设备

MN universal servo motor

1 Servo motors overview

MN series servo motors matched with Boneng AN series servo drivers can form a precise positioning servo system.
The commonly used cooling method for MN servo motors at the factory is natural cooling, while other cooling methods such as forced air cooling and water-cooled servo motors can be specially customized and achieved High power output, please consult for specific parameters.
The design and production of MN servo motors comply with relevant standards such as ISO, IEC, and GB. BONENG servo motor is suitable for continuous working system (S1), Simultaneously meeting most intermittent working modes (S2-S10)

2 Motor advantages

- ◆ Compact and robust
- ◆ Excellent radial runout quality and subtle torque ripple
- ◆ High dynamic response
- ◆ High overload carrying capacity
- ◆ High efficiency
- ◆ High-precision, high-resolution encoder

3 Motor application

- ◆ Machine tools
- ◆ Robots
- ◆ Printing machinery
- ◆ Packaging machinery
- ◆ Textile machinery
- ◆ Automation equipment

4 马达技术特征

4 Motor technical characteristics

马达型号	Motor model	MN通用型 伺服马达	MN universal 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)	28、36、48、63、80	28、36、48、63、80
额定功率(kW)	Rated power(kW)	0.28-5.03	0.28-5.03
额定转矩(N.m)	Rated torque(N.m)	0.8-19	0.8-19
额定转速(r/min)	Rated speed(r/min)	2000、3000、4500	2000、3000、4500
绝缘等级	Insulation class	F	F
防护等级	Protection class	IP65	IP65
冷却方式	Cooling method	自然冷却	Natural cooling
振动等级	Vibration level	A	A
噪声(dB)	Noise(dB)	55-70	55-70
径向圆跳精度、同轴度和端面圆跳精度等级	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	Encoder	编码器分辨率2 ²³	Encoder resolution 2 ²³
连接器	Connector	动力和信号连接器	Power and signal connection
选件	Options	内置永磁失电制动器	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Kht
所允许的功率值：Pn’ =Pn·Kht

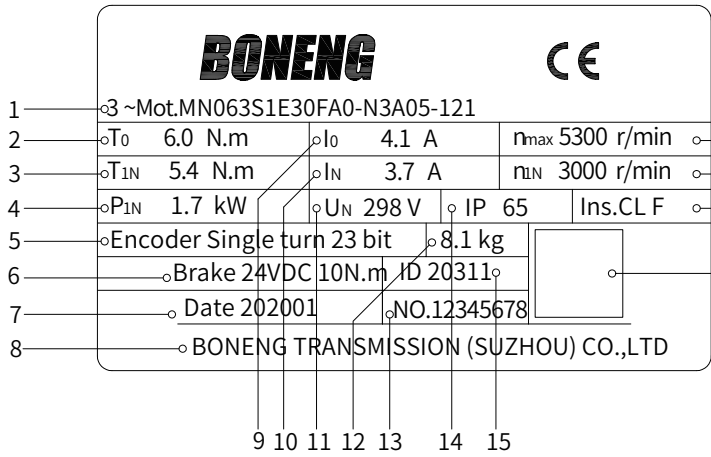
5 Motor operatingenvironment

- ◆ 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 Kht: Pn’ = Pn·Kht

对于不同高度和（或）不同 环境温度的功率折算系数Kht				Power conversion factor for different altitudes and different ambient temperatures Kht		
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

6 马达铭牌信息

6 Motor nameplate information



- 1.马达型号

2.静止转矩(100K)

3.额定转矩(100K)

4.额定功率

5.编码器参数

6.制动器参数

7.生产日期

8.公司名称

9.静止电流

10.额定电流
- 11.额定转速下的感应线电压

12.重量

13.出厂编号

14.防护等级

15.马达ID

16.二维码

17.绝缘等级

18.额定转速

19.最大转速
- 1.Model of motor

2.Statictorque(100K)

3.Ratedtorque(100K)

4.Rated power

5.Parameter of encoder

6.Parameter of brake

7.Date in produced

8.Company name

9.Static current

10.Rated current
- 11.Back EMF

12.Weight

13.Factory number

14.Level of protection

15.ID of the motor

16.QR code

17. Insulation grade

18.Rated speed

19.Maximum speed

7 马达制动器参数

7 Motor brake parameters

制动器型号	Brake model	BN028	BN036	BN048	BN063	BN080
静摩擦力矩 (N. m)	Static friction torque (N. m)	≥1.9	≥2.4	≥3.8	≥10	≥22
制动器功率 (W)	Brake power (W)	8.76	6.74	13.4	14	19
转动惯量 (kgcm) ²	Moment of inertia(kg.cm) ²	0.09	0.11	0.39	0.78	2.55
额定间隙 (mm)	Rated clearance (mm)	0.15	0.12	0.2	0.2	0.3
工作电压 (VDC)	Operating voltage (VDC)	24±10%	24±10%	24±10%	24±10%	24±10%
工作温度 (℃)	Operating temperature (℃)	-15~120	-15~120	-15~120	-15~120	-15~120
制动器吸合时间(ms)	Brake pull-in time (ms)	≤20	≤20	≤30	≤25	≤30
制动器释放时间(ms)	Brake release time (ms)	≤35	≤80	≤50	≤90	≤100
紧急制动次数(次)	Emergency braking times (times)	2000	2000	2000	500	2000
紧急制动次数(次/小时)	Emergency braking times (times/hour)	20	20	20	20	20
最大紧急制动转速(r/min)	Maximum emergencybraking speed (r/min)	6000	6000	6000	3000	3000
适配马达机座号	Compatible motorframe size	28	36	48	063/080S	080M

8 马达和驱动器的
选型及订货号

8 Selection and order
numbers of motor
and drives

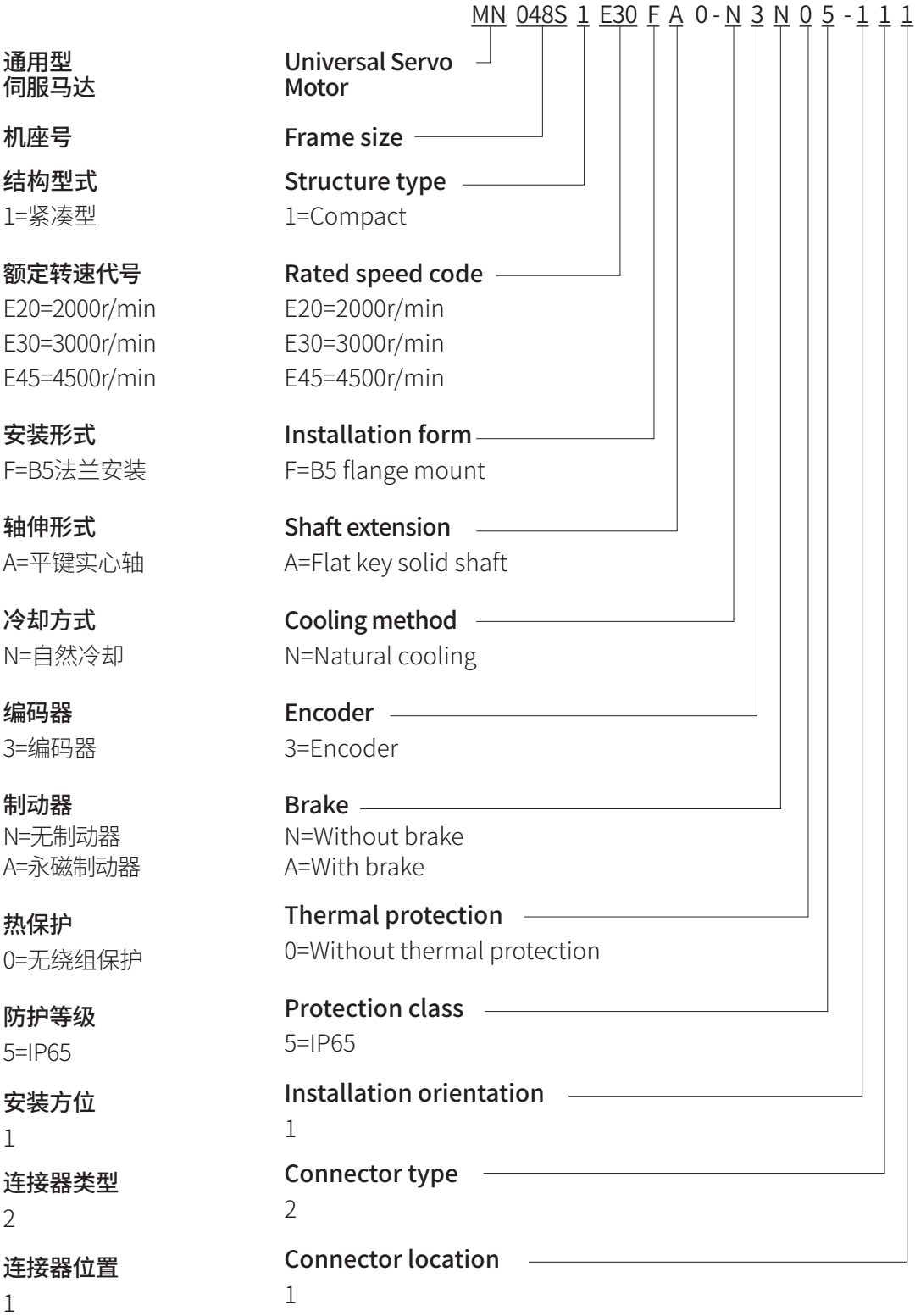
马达机座号	马达额定功率 (kW)	马达额定转速 (r/min)	马达能效等级	马达容许最大惯量比	马达ID	
					无制动器	带制动器
					Motor ID	
Motor frame size	Motor rated power (kw)	Motor rated speed (r/min)	Motor energy efficiency class	Motor allowable maximum inertia ratio	Without brake	With brake
028S	0.28	3000	IE5	35	10010	20010
028M	0.42	3000	IE5	25	10012	20012
028S	0.38	4500	IE5	30	10011	20011
028M	0.54	4500	IE5	25	10013	20013
036S	0.47	3000	IE5	15	10110	20110
036M	0.75	3000	IE5	15	10112	20112
036S	0.66	4500	IE5	10	10111	20111
036M	0.8	4500	IE5	10	10113	20113
048S	1	3000	IE5	10	10210	20210
048M	1.5	3000	IE5	10	10212	20212
048S	1.32	4500	IE5	5	10211	20211
048M	1.55	4500	IE5	5	10213	20213
063S	1.2	2000	IE5	10	10310	20310
063M	2.05	2000	IE5	5	10313	20313
063S	1.7	3000	IE5	5	10311	20311
063M	2.76	3000	IE5	10	10314	20314
063S	2.07	4500	IE5	5	10312	20312
063M	2.97	4500	IE5	5	10315	20315
080S	2.39	2000	IE5	5	10410	20410
080M	3.98	2000	IE5	5	10412	20412
080S	3.24	3000	IE5	5	10411	20411
080M	5.03	3000	IE5	5	10413	20413

马达订货号	驱动器订货号	动力线订货号	信号线订货号
Motor order number	Driver order number	Power cable order number	Signal cable order number
MN028S1E30FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN028M1E30FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN028S1E45FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN028M1E45FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN036S1E30FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN036M1E30FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN036S1E45FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN036M1E45FA0-N3□05-121	AN-B3A75-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN048S1E30FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN048M1E30FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN048S1E45FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN048M1E45FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063S1E20FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063M1E20FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063S1E30FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063M1E30FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063S1E45FA0-N3□05-121	AN-B3B15-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN063M1E45FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A10-□□□	A2-H17-A□□-□□□
MN080S1E20FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A15-□□□	A2-H17-A□□-□□□
MN080M1E20FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A15-□□□	A2-H17-A□□-□□□
MN080S1E30FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A15-□□□	A2-H17-A□□-□□□
MN080M1E30FA0-N3□05-121	AN-B3B30-S-□□	A2-H□□-A15-□□□	A2-H17-A□□-□□□

无制动器	N	EC:EtherCAT	无制动器	18	B30 长度 3m	不带电池盒	10	B30 长度 3m
带制动器	A	PN:PROFINET	带制动器	16	B50 长度 5m	带电池盒	11	B50 长度 5m
Without brake	N		Without brake	18	B70 长度 7m	Without battery	10	B70 长度 7m
With brake	A		With brake	16	C10 长度 10m	With battery	11	C10 长度 10m
					B30 Length 3m			B30 Length 3m
					B50 Length 5m			B50 Length 5m
					B70 Length 7m			B70 Length 7m
					C10 Length 10m			C10 Length 10m

9 马达型号表示方法

9 Motor model indication method



整机标配颜色 ■ RAL9006

The standard color of the whole machine ■ RAL9006

10 马达特性及外形尺寸

10 Motor characteristics and dimensions

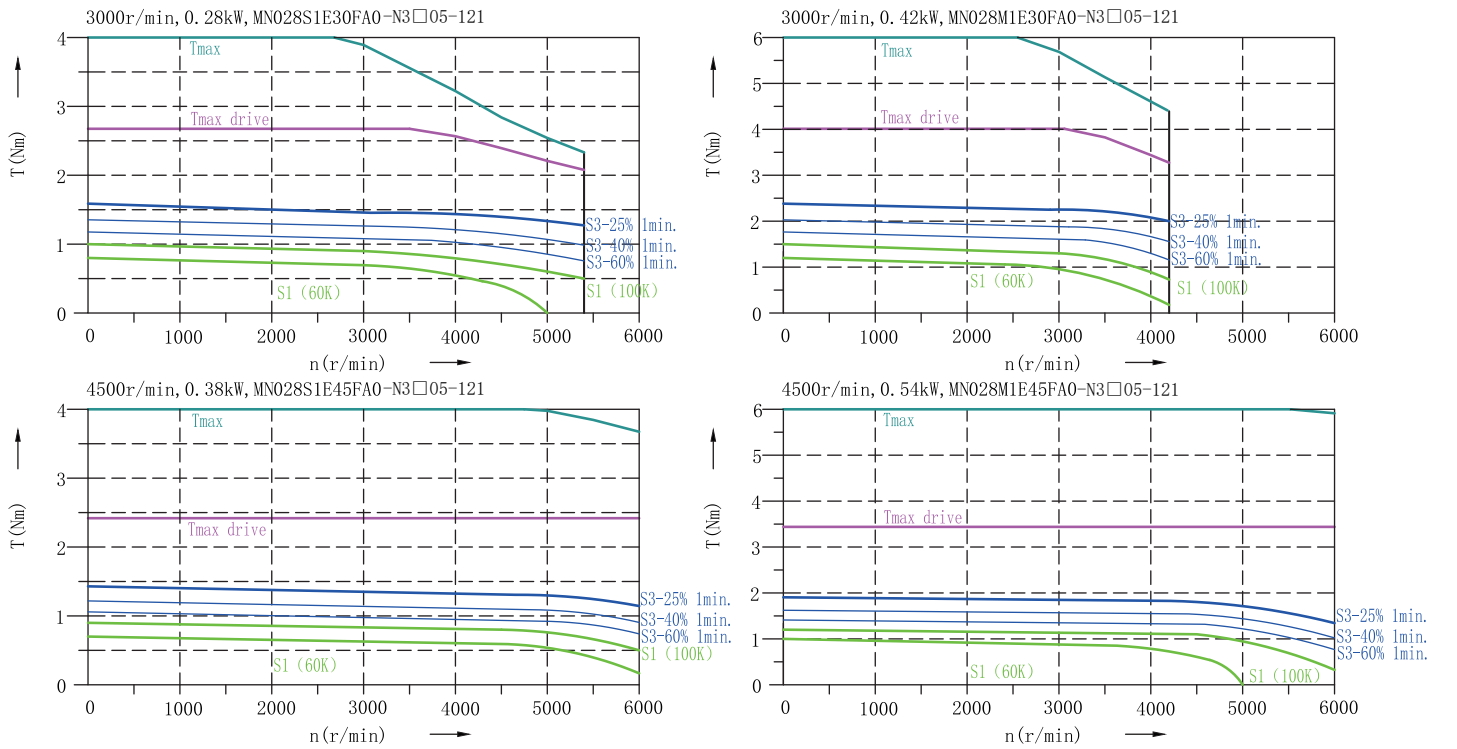
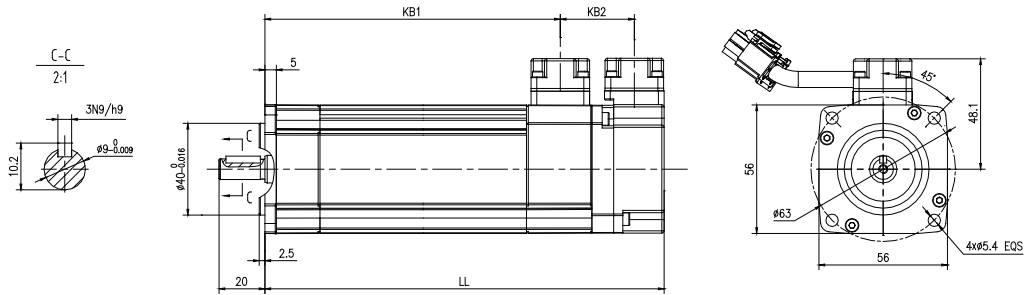
10.1 机座号028伺服马达参数、外形尺寸以及特性曲线

10.1 Frame size 028 servo motor parameters, dimensions and characteristic curve

马达型号	Motor model	MN028S1E30FA0 -N3□05-121	MN028M1E30FA0 -N3□05-121	MN028S1E45FA0 -N3□05-121	MN028M1E45FA0 -N3□05-121
额定转速 n_{1N} (r/min)	Rated speed n_{1N} (r/min)	3000	3000	4500	4500
额定功率 P_{1N} (kW)	Rated power P_{1N} (kW)	0.28	0.42	0.38	0.54
额定电流 $I_{N(100K)}$ (A)	Rated current $I_{N(100K)}$ (A)	0.9	1	1.2	1.8
额定转矩 $T_{1N(100K)}$ (N.m)	Rated torque $T_{1N(100K)}$ (N.m)	0.9	1.3	0.8	1.1
静止电流 I_0 (A)	Static current I_0 (A)	1	1.2	1.3	2
静止转矩 T_0 (N.m)	Static torque T_0 (N.m)	1	1.5	0.9	1.2
最大转速 $n_{max\ drive}$ (r/min)	Maximum speed $n_{max\ drive}$ (r/min)	5400	4200	6000	6000
最大电流 $I_{max\ drive}$ (A)	Maximum current $I_{max\ drive}$ (A)	2.7	3	3.6	5.4
最大转矩 $T_{max\ drive}$ (N.m)	Maximum torque $T_{max\ drive}$ (N.m)	2.7	3.9	2.4	3.3
极限电流 I_{max} (A)	Limit current I_{max} (A)	4	4.8	5.8	10
极限转矩 T_{max} (N.m)	Limit torque T_{max} (N.m)	4	6	4	6
转动惯量 J (10^{-4} kg.m ²)	Moment of inertia J (10^{-4} kg.m ²)	0.15 (0.17)	0.25 (0.27)	0.15 (0.17)	0.25 (0.27)
重量 m (kg)	Weight m (kg)	1.8 (2)	2.4 (2.7)	1.8 (2)	2.4 (2.7)
止口到动力 连接器长度 KB1 (mm)	Socket to Power Connector Length KB1 (mm)	83.5	128.5	83.5	128.5
止口到信号 连接器长度 KB2 (mm)	Power Connector to Signal Connector Length KB2 (mm)	31.8 (55.8)	31.8 (55.8)	31.8 (55.8)	31.8 (55.8)
整机长度 LL (mm)	Overall length LL (mm)	129.5 (153.5)	174.5 (198.5)	129.5 (153.5)	174.5 (198.5)

注：括号内为带制动器的数据

Note: The data in parentheses includes the brake.



10.2 Frame size 036 servo motor parameters, dimensions and characteristic curve

Technical drawing of the 1000 series pump assembly, showing three views: a cross-section, a side view, and a front view. Dimensions are provided in millimeters.

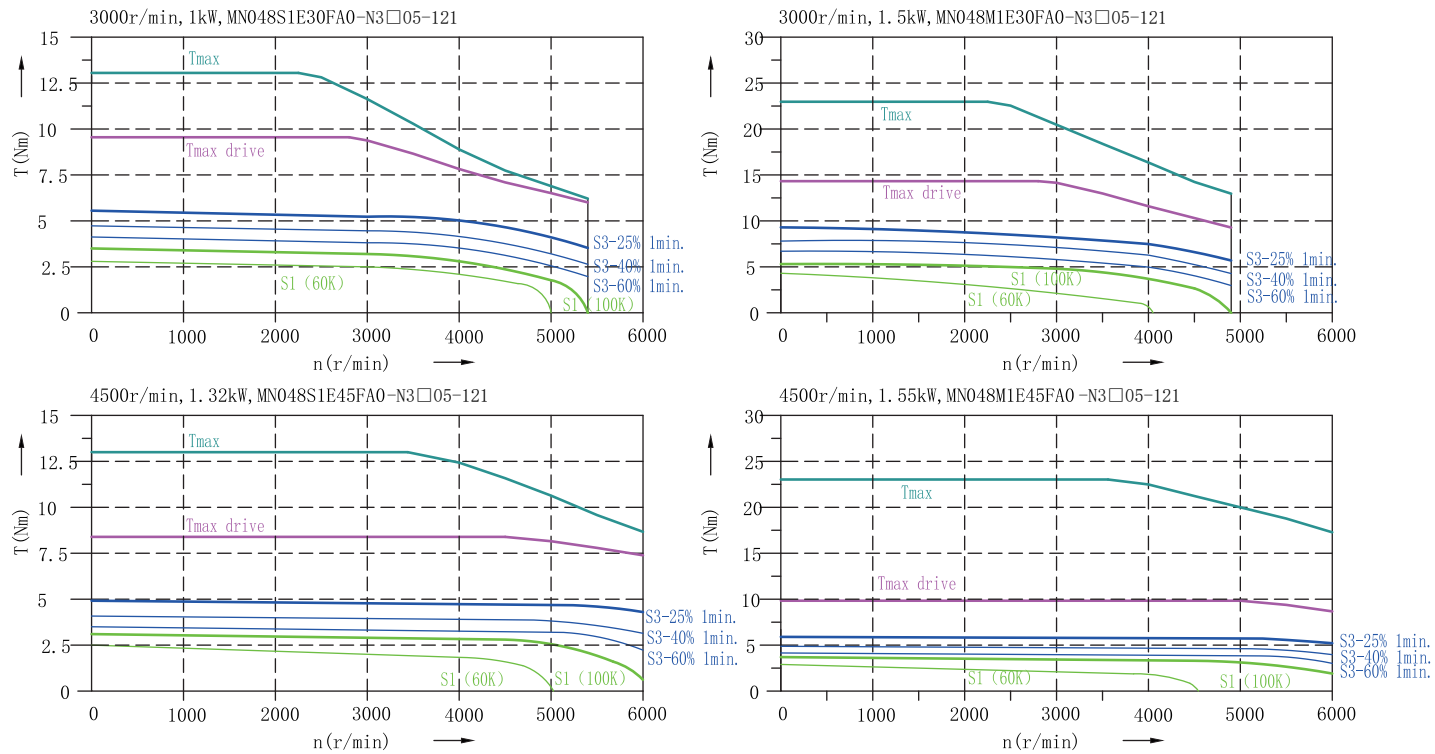
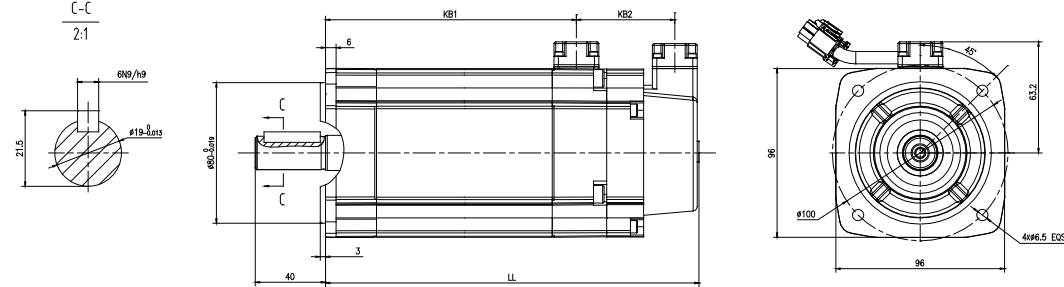
- Cross-section:** Shows a circular base with a central shaft. Dimensions include a diameter of $\phi 14 \pm 0.011$, a height of 16, and a width of 5N9/19. A scale of 2:1 is indicated.
- Side View:** Shows the pump's profile. Dimensions include a total height of $\phi 60 \pm 0.019$, a base width of 30, a top width of 6, and a length of LL. A central shaft diameter of $\phi 14 \pm 0.011$ is shown. A 3mm dimension is also indicated.
- Front View:** Shows the circular base with a central shaft. Dimensions include a diameter of $\phi 75$, a total width of 72, a total height of 72, and a top cover width of 54.7. A 45-degree angle is indicated for the top cover. A 4x $\phi 6.5$ EQS dimension is also shown.



10.3 机座号048伺服马达参数、外形尺寸以及特性曲线

10.3 Frame size 048 servo motor parameters, dimensions and characteristic curve

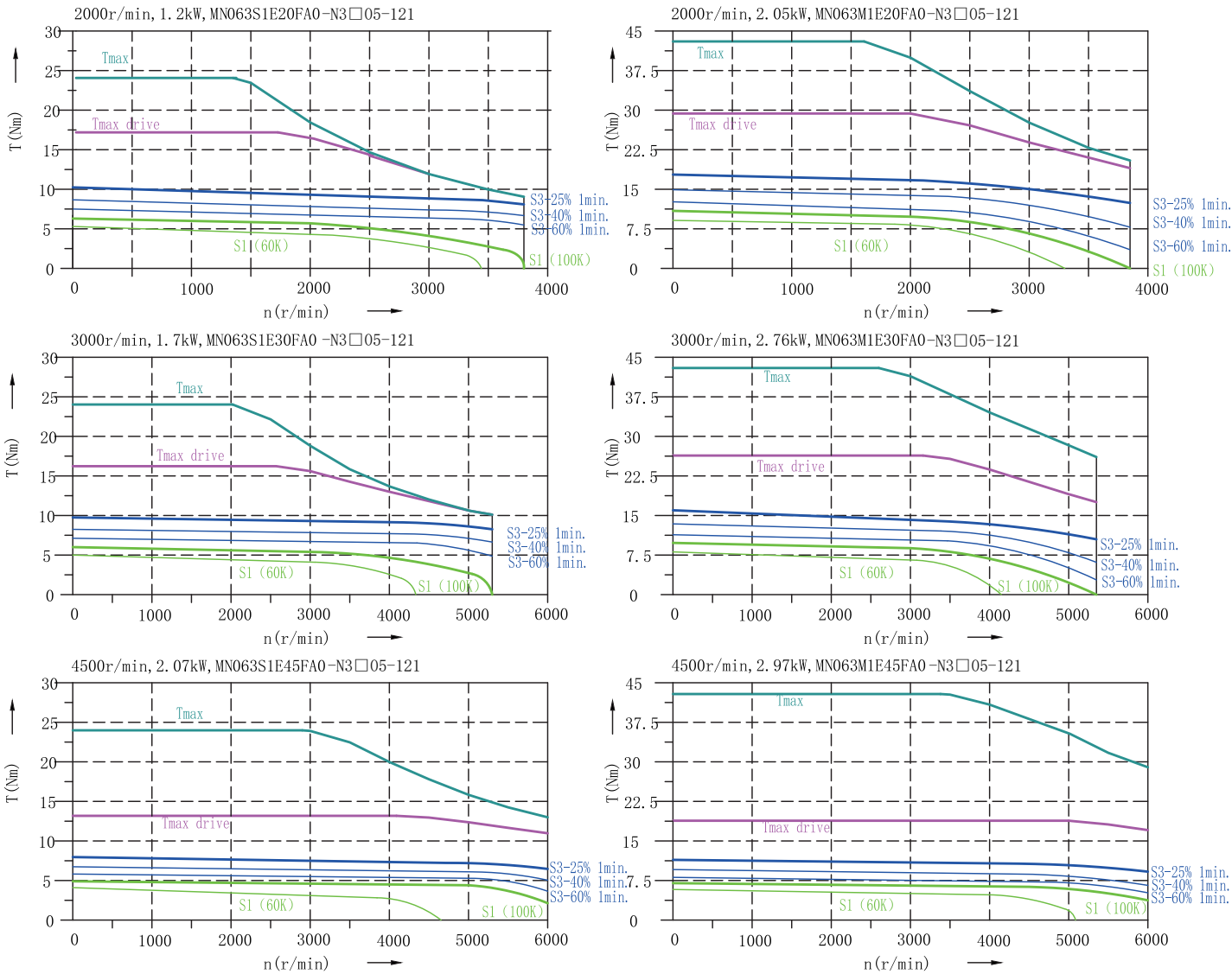
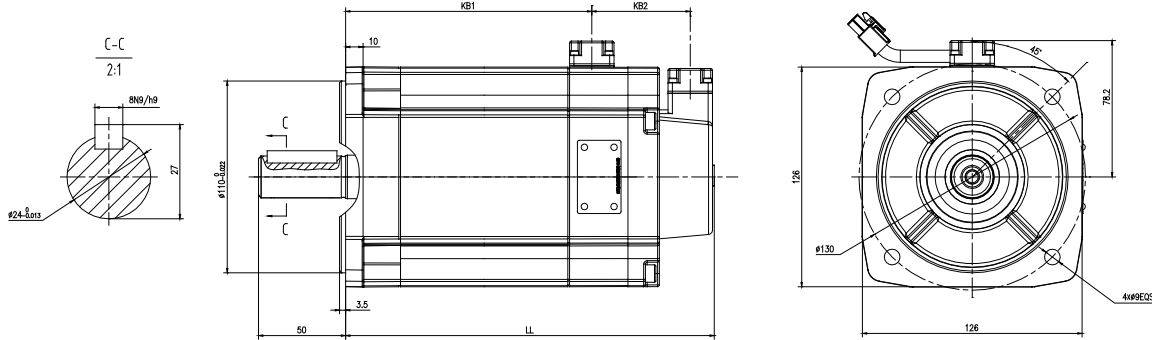
马达型号	Motor model	MN048S1E30FA0 -N3□05-121	MN048M1E30FA0 -N3□05-121	MN048S1E45FA0 -N3□05-121	MN048M1E45FA0 -N3□05-121
额定转速 n_{IN} (r/min)	Rated speed n_{IN} (r/min)	3000	3000	4500	4500
额定功率 P_{IN} (kW)	Rated power P_{IN} (kW)	1	1.5	1.32	1.55
额定电流 $I_{N(100K)}$ (A)	Rated current $I_{N(100K)}$ (A)	2.2	3	2.8	3.3
额定转矩 $T_{IN(100K)}$ (N.m)	Rated torque $T_{IN(100K)}$ (N.m)	3.2	4.8	2.8	3.3
静止电流 I_0 (A)	Static current I_0 (A)	2.5	3.4	3.1	3.4
静止转矩 T_0 (N.m)	Static torque T_0 (N.m)	3.5	5.3	3.1	3.7
最大转速 $n_{max\ drive}$ (r/min)	Maximum speed $n_{max\ drive}$ (r/min)	5400	4900	6000	6000
最大电流 $I_{max\ drive}$ (A)	Maximum current $I_{max\ drive}$ (A)	6.6	9	8.4	9.9
最大转矩 $T_{max\ drive}$ (N.m)	Maximum torque $T_{max\ drive}$ (N.m)	9.6	14.4	8.4	9.9
极限电流 I_{max} (A)	Limit current I_{max} (A)	9.3	14.8	13	23
极限转矩 T_{max} (N.m)	Limit torque T_{max} (N.m)	13	23	13	23
转动惯量 J (10^{-4} kg.m ²)	Moment of inertia J (10^{-4} kg.m ²)	2.53 (2.76)	4.85 (5.08)	2.53 (2.76)	4.85 (5.08)
重量 m (kg)	Weight m (kg)	4.5 (5.2)	7 (7.7)	4.5 (5.2)	7 (7.7)
止口到动力 连接器长度 KB1 (mm)	Socket to Power Connector Length KB1 (mm)	92.7	142.7	92.7	142.7
止口到信号 连接器长度 KB2 (mm)	Power Connector to Signal Connector Length KB2 (mm)	56 (95.5)	56 (95.5)	56 (95.5)	56 (95.5)
整机长度 LL (mm)	Overall length LL (mm)	162.5 (202)	212.5 (252)	162.5 (202)	212.5 (252)



10.4 机座号063伺服马达参数、
外形尺寸以及特性曲线

10.4 Frame size 063 servo motor
parameters, dimensions and
characteristic curve

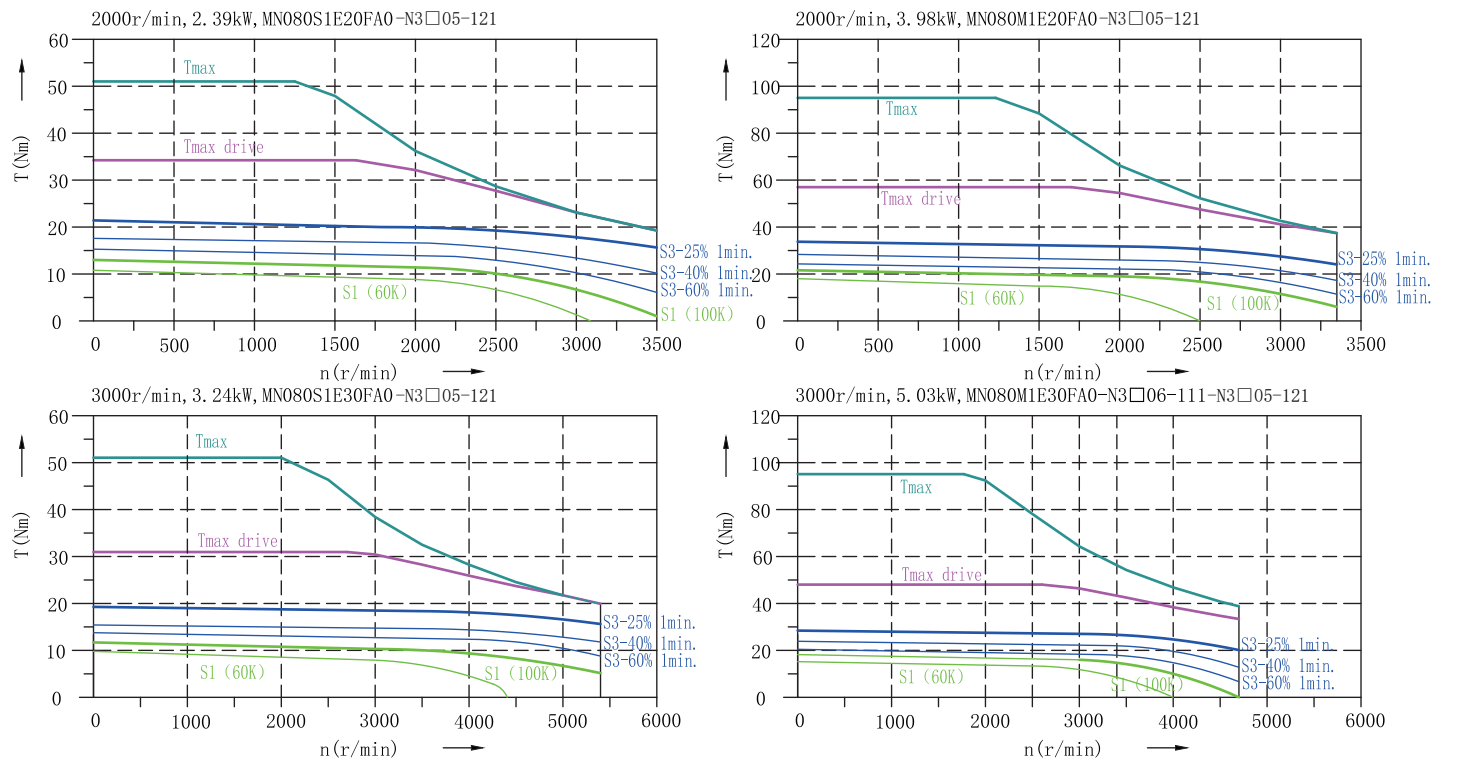
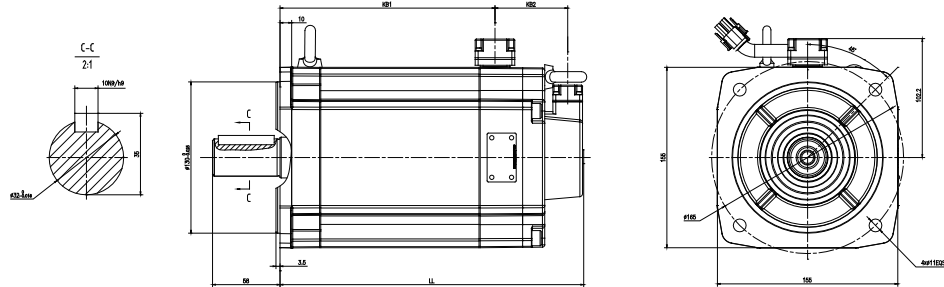
马达型号	Motor model	MN063S1E2 OFA0-N3 □05-121	MN063M1E2 OFA0-N3 □05-121	MN063S1E3 OFA0-N3 □05-121	MN063M1E3 OFA0-N3 □05-121	MN063S1E4 5FA0-N3 □05-121	MN063M1E4 5FA0-N3 □05-121
额定转速 n_{1N} (r/min)	Rated speed n_{1N} (r/min)	2000	2000	3000	3000	4500	4500
额定功率 P_{1N} (kW)	Rated power P_{1N} (kW)	1.2	2.05	1.7	2.76	2.07	2.97
额定电流 $I_{N(100K)}$ (A)	Rated current $I_{N(100K)}$ (A)	2.8	4.6	3.6	6	4.3	6.4
额定转矩 $T_{1N(100K)}$ (N.m)	Rated torque $T_{1N(100K)}$ (N.m)	5.7	9.8	5.4	8.8	4.4	6.3
静止电流 I_0 (A)	Static current I_0 (A)	3.1	5.1	4	6.7	4.8	7.1
静止转矩 T_0 (N.m)	Static torque T_0 (N.m)	6.3	10.9	6	9.8	4.9	7
最大转速 $n_{max\ drive}$ (r/min)	Maximum speed $n_{max\ drive}$ (r/min)	3800	3850	5300	5350	6000	6000
最大电流 $I_{max\ drive}$ (A)	Maximum current $I_{max\ drive}$ (A)	8.4	13.8	10.8	18	12.9	19.2
最大转矩 $T_{max\ drive}$ (N.m)	Maximum torque $T_{max\ drive}$ (N.m)	17.1	29.4	16.2	26.4	13.2	18.9
极限电流 I_{max} (A)	Limit current I_{max} (A)	11.8	20.1	16	29.4	23.5	43.6
极限转矩 T_{max} (N.m)	Limit torque T_{max} (N.m)	24	43	24	43	24	43
转动惯量 J ($10^{-4}kg \cdot m^2$)	Moment of inertia J ($10^{-4}kg \cdot m^2$)	7.36(7.57)	14.09(14.31)	7.36(7.57)	14.09(14.31)	7.36(7.57)	14.09(14.31)
重量 m (kg)	Weight m (kg)	7.1 (8)	10.9(11.8)	7.1 (8)	10.9(11.8)	7.1 (8)	10.9(11.8)
止口到动力 连接器长度 KB1 (mm)	Socket to Power Connector Length KB1 (mm)	93.3	141.3	93.3	141.3	93.3	141.3
止口到信号 连接器长度 KB2 (mm)	Power Connector to Signal Connector Length KB2 (mm)	56.5 (85)	56.5 (85)	56.5 (85)	56.5 (85)	56.5 (85)	56.5 (85)
整机长度 LL (mm)	Overall length LL (mm)	163.5(192)	211.5(240)	163.5(192)	211.5(240)	163.5(192)	211.5(240)



10.5 机座号080伺服马达参数、
外形尺寸以及特性曲线

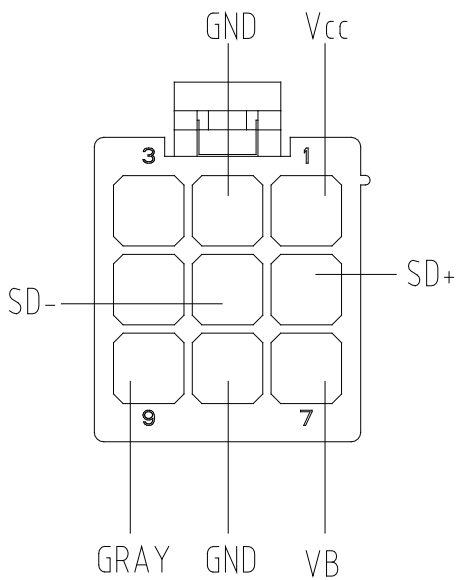
10.5 Frame size 080 servo motor
parameters, dimensions and
characteristic curve

马达型号	Motor model	MN080S1E20FA0 -N3□05-121	MN080M1E20FA0 -N3□05-121	MN080S1E30FA0 -N3□05-121	MN080M1E30FA0 -N3□05-121
额定转速 n_{1N} (r/min)	Rated speed n_{1N} (r/min)	2000	2000	3000	3000
额定功率 P_{1N} (kW)	Rated power P_{1N} (kW)	2.39	3.98	3.24	5.03
额定电流 $I_{N(100K)}$ (A)	Rated current $I_{N(100K)}$ (A)	5	8.1	7.1	9.6
额定转矩 $T_{1N(100K)}$ (N.m)	Rated torque $T_{1N(100K)}$ (N.m)	11.4	19	10.3	16
静止电流 I_0 (A)	Static current I_0 (A)	5.7	9.2	8.1	10.9
静止转矩 T_0 (N.m)	Static torque T_0 (N.m)	13	21.6	11.7	18.2
最大转速 $n_{max\ drive}$ (r/min)	Maximum speed $n_{max\ drive}$ (r/min)	3500	3350	5400	4700
最大电流 $I_{max\ drive}$ (A)	Maximum current $I_{max\ drive}$ (A)	15	24.3	21.3	28.8
最大转矩 $T_{max\ drive}$ (N.m)	Maximum torque $T_{max\ drive}$ (N.m)	34.2	57	30.9	48
极限电流 I_{max} (A)	Limit current I_{max} (A)	22.4	40.5	35.3	56.9
极限转矩 T_{max} (N.m)	Limit torque T_{max} (N.m)	51	95	51	95
转动惯量 J ($10^{-4}kg \cdot m^2$)	Moment of inertia J ($10^{-4}kg \cdot m^2$)	25.49 (25.59)	48.89 (50.08)	25.49 (25.59)	48.89 (50.08)
重量 m (kg)	Weight m (kg)	13.6 (14.3)	21.9 (23.9)	13.6 (14.3)	21.9 (23.9)
止口到动力 连接器长度 KB1 (mm)	Socket to Power Connector Length KB1 (mm)	116.8	184.7	116.8	184.7
止口到信号 连接器长度 KB2 (mm)	Power Connector to Signal Connector Length KB2 (mm)	62.5 (83)	62.5 (110.5)	62.5 (83)	62.5 (110.5)
整机长度 LL (mm)	Overall length LL (mm)	193 (213.5)	261 (309)	193 (213.5)	261 (309)

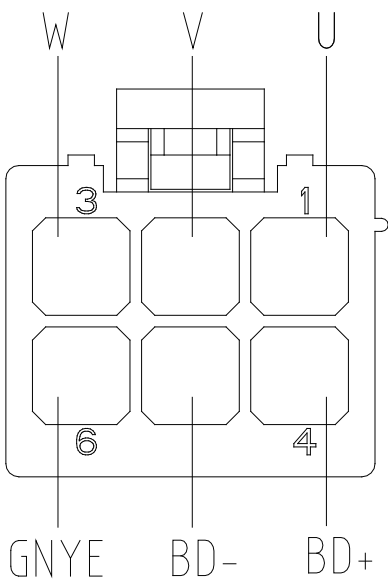


11 马达电气连接

11 Motor electrical connection



马达信号端插头 motor signal end plug



马达动力端插头 motor power end plug

AN通用型伺服驱动器

12 伺服驱动器概述

AN系列伺服驱动器是支持EtherCAT工业以太网的通用型伺服驱动器，支持STO安全转矩关断功能，配合MN通用型伺服马达，在不降低控制性能的同时，可为伺服系统提供更加优化的成本配置。



AN general servo drive

12 Preface

TheANserieservodriveisageneral servo drive that supports EtherCAT industrialEthernetcommunication protocol.ItfeaturesSTO(SafeTorque Off)safetytorqueshutdownfunction, which means that the torque output of the servo system can be safely stopped when needed, ensuring the safety of operators and equipment. WhenpairedwithMNuniversalservo motors, theANserieservodrivecan provideamoreoptimizedcostconfigurationforservosystems without compromising control performance, making it particularly attractive for applications that are cost-sensitive yet require high performance.

12.1 伺服驱动器型号表示方法

12.1 Model indication method

通用型伺服驱动器

General servo drive

电压等级

Voltage level

B = 400VAC

B = 400VAC

输入相数

Input phase

3=3相

3=3 phase

功率代号

Power

A75 = 0.75kW

A75 = 0.75kW

B15 = 1.5kW

B15 = 1.5kW

B30 = 3.0kW

B30 = 3.0kW

版本类型

Version

S=标准型驱动器

S=Standard type drive

通讯类型

Communication type

EC=EtherCAT通讯

EC=EtherCAT Communication

AN - B 3 B15 - S - EC

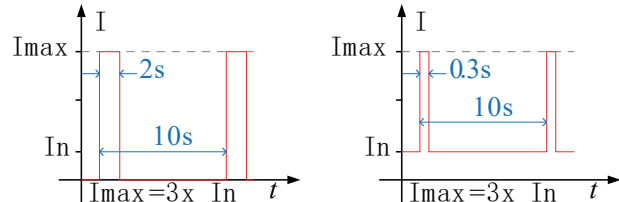
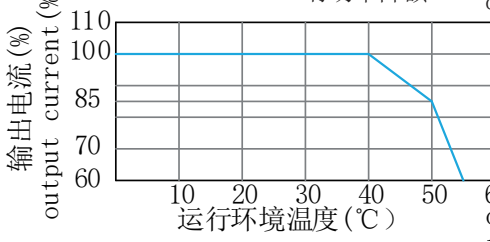
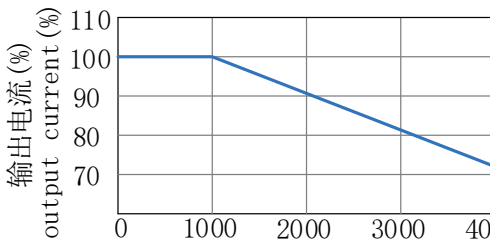
12.2 伺服驱动器订货数据

12.2 Model indication method

380...480V3AC输入			380...480V3AC input	
额定数据		Rated data	外形尺寸	型号
额定功率(kW)	Power (kW)	额定电流(A)		
0.75		1.9	N1	AN-B3A75-S-EC
0.75		1.9	N1	AN-B3A75-S-PN
1.5		5.3	N1	AN-B3B15-S-EC
1.5		5.3	N1	AN-B3B15-S-PN
3		10.53	N2	AN-B3B30-S-EC
3		10.53	N2	AN-B3B30-S-PN

12.3 伺服驱动器通用技术数据

12.3 G eneral data of AN general servo drive

参数		描述	
过载能力 Typical inverter load cycles			
电磁兼容性 Electromagnetic compatibility		符合 IEC 61800 -3 According 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(no direct sunlight), without corrosive gases, flammable gases, dust	
环境 Relative 温度 humidity	运行 Operating	-20℃~+40℃: 无功率降额, +40℃~+55℃: 有功功率降额 -20℃~+40℃: without current derating, +40℃~+55℃: with current derating 	
	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			
振动 Vibration		符合 IEC 60068-2-6 According to IEC 60068-2-6 10Hz~58Hz:0.075mm/偏转, 58Hz~200Hz:1 g/振动 10Hz~58Hz:0.075mm deflection, 58Hz~200Hz:1g vibration	
冲击 Impact		符合 IEC60068-2-27 According to IEC60068-2-27 峰值加速度:5g/0ms及15g/11ms, 冲击数量:每方向上3个轴6次冲击, 冲击持续时间:1s Peak acceleration:5g/0ms and 15g/11ms, impact quantity:six impacts on 3 axes in each direction, impact duration:1s	
污染等级 Pollution		等级2 Suitable for environments with degree of pollution 2	
噪音排放 Noise intensity		<75dB <75dB	
防护等级 Protection level		IP20 IP20	
盐雾 Salt mist		符合 IEC60068-2-11 According to IEC60068-2-11	
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 DI of 5-way common terminal COM	
		电气隔离, 支持Source和Sink模式, 最大电压:DC30V Electrical isolation, supports Source and Sink modes, maximum voltage: DC 30V	
数字量 输出信号	Digital output signal	3路开集电极DO 3-way open collector DO	
		最大电压:DC30V, 最大电流:DC50mA Maximum voltage: DC30V, maximum current: DC50mA	
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 Debugging		通过USB调试参数 Debugging parameters through USB	

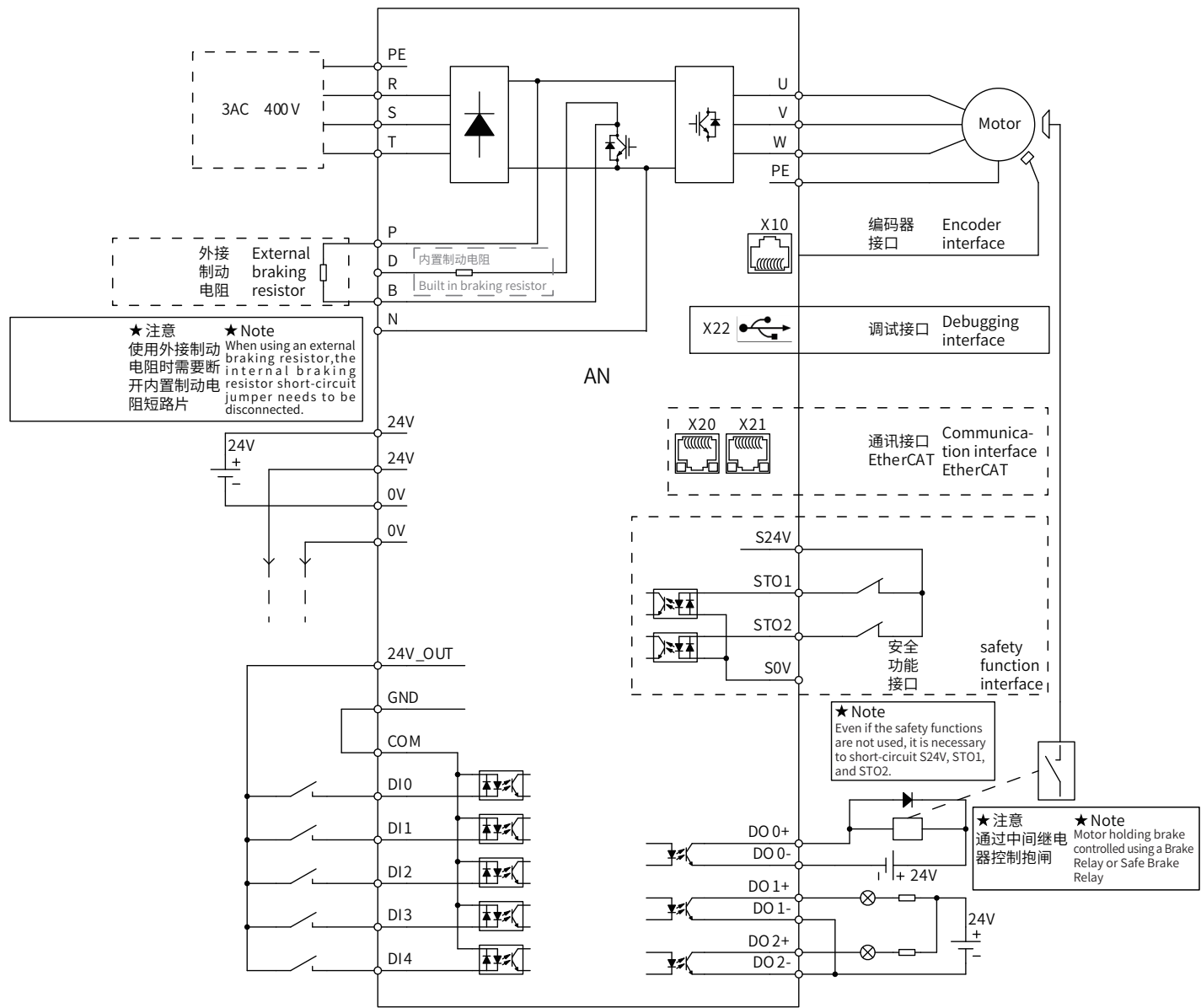
12.4 伺服驱动器特定技术数据

12.4 Technical data for servo drives

AN系列伺服驱动器AN series servo drive		0.75kW	1.5kW	3kW
控制电源Control power supply	输入电压Input voltage	24VDC, ±10%		
	输入电流Input current	1.5A max		
主电源Main power supply	电压Voltage	3AC 380V~480VAC, ±10%		
	频率Frequency	47Hz~63Hz		
输入电流(A)Input current (A)		1.6	4.5	10.5
连续输出电流(A)Continuous output current (A)		1.9	5.3	10.53
瞬时最大输出电流(A)Instantaneous maximum output current(A)		5.7	15.9	31.59
冷却方式Cooling method		Fan cooling		
冷却风量(CFM)Cooling Air Volume(CFM)		12.26	12.26	36.1
制动电阻Braking resistor		Built in (100 Ω /80W)	Built in (100 Ω /80W)	Built in (50 Ω /80W)
短路电流Short-circuit current		Maximum short-circuit current ≤ 65kA		
尺寸(宽×高×深, mm)Dimensions (width×height×depth, mm)		57×179.5×186.4	57×179.5×186.4	80×179.5×196.4
重量(kg)Weight (kg)		1.3	1.3	1.7

12.5 伺服驱动器端子配线图

12.5 Servo drive terminal connection



12.6 接口端子信号定义

12.6 Interface signal definitions

控制电源端子: 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。

Control power terminal: Using detachable terminals 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
X1	1	24V	输入24V电源正 Positive terminal of 24V input power supply
	2	24V	
	3	0V	输入24V电源负 Negative terminal of 24V input power supply
	4	0V	

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: Utilizes detachable terminals with fixed latch, pin spacing of 7.62mm, wire diameter 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 Protecting Earthing
	2	R	连接三相电源 Three-phase power supply
	3	S	
	4	T	
	5	P	直流母线正 Positive terminal of DC busbar
	6	D	使用内置制动电阻时, 短接P和D连接外置制动电阻时, 先取掉接于P和D的短接片, 再将制动电阻接于P和R When use the built-in braking resistor, short terminals P and D Remove the jumper bar between terminals P and D before connecting an external braking resistor between terminals P and R
	7	B	
	8	N	直流母线负 Negative terminal of DC busbar

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: Utilizes detachable terminals with fixed latch, pin spacing of 7.62mm, wire diameter 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 Servo motor power line
	2	V	
	3	W	
	4	PE	接地 Protecting Earthing

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: Utilizes detachable terminals with fixed screws, pin spacing of 3.5mm, wire diameter 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
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 Dual-channel safety function signal 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 connectors.

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	DI0	数字量 输入 Digital input
	9	DI1	
	8	DI2	
	7	DI3	
	11	DI4	
	13	COM	
	14	24V OUT	输出24V 电源 24V output power supply
	15	GND	
	1	D00+	
	6	D00-	数字量 输出 Digital output
	3	D01+	
	2	D01-	
	5	D02+	
	4	D02-	

编码器端子:采用RJ45母座。

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	RS485B	编码器 数据信号 Encoder data signal
	5	RS485A	
	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X22。

Debugging terminals: Utilizes standard MINI USB interface, terminal number is X22.

通讯端子:采用RJ45母座。

Communication terminals: Utilizes RJ45 female socket.

端子编码 Encoder 5V power supply	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	-	-

X20: EtherCAT IN, X21: EtherCAT OUT

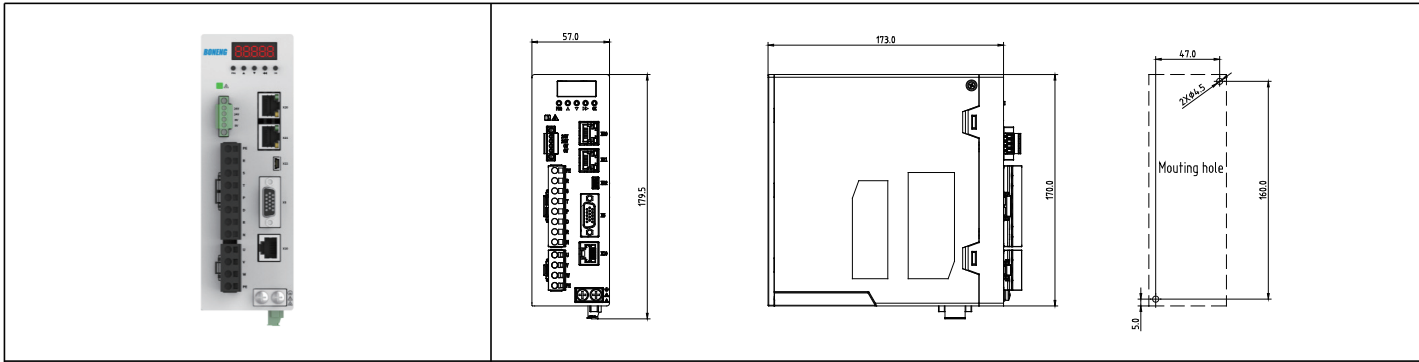
X20: EtherCAT IN, X21: EtherCAT OUT

13 整机外形及安装尺寸图

13 Overall appearance and installation dimension diagram

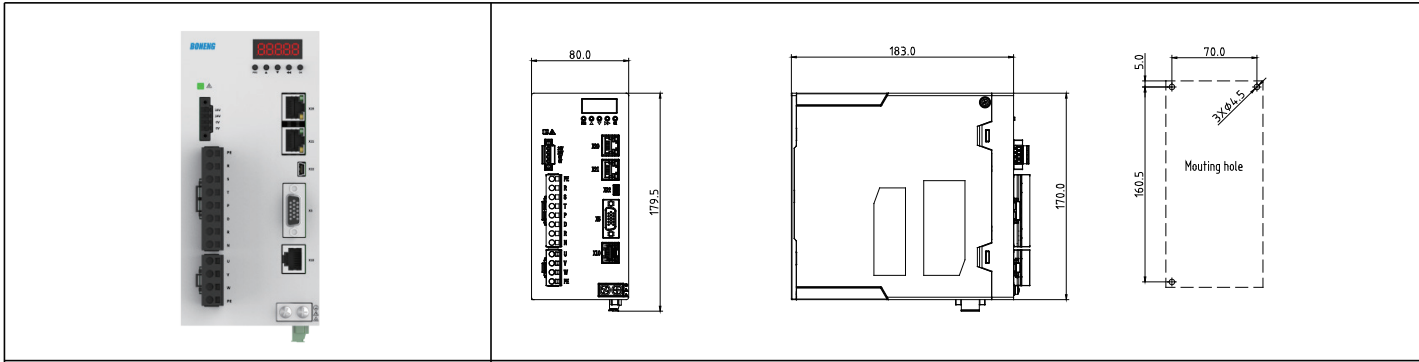
整机外形图及安装尺寸图，N1~N2功率范围，单位：mm
N1(0.75kW-1.5kW)

Overall appearance diagram and installation dimension diagram, N1~N2 power range, unit: mm
N1(0.75kW-1.5kW)



N2(3.0kW)

N2(3.0kW)



14 可选件

14.1 进线电抗器

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。400V 50/60Hz AN系列驱动器可选的进线电抗器推荐型号如下表:

框架	Dimen- sions	伺服驱动器型号	Order number	额定 电流	Rated current	电感	Induc- tance	订货号	Ordering Data
				(A)		(mH)			
N1		AN-B3A75-S-□□		2.3		2.8		A1-H12-TB280	
		AN-B3B15-S-□□		6.3		2		A1-H12-TB200	
N2		AN-B3B30-S-□□		14.7		0.93		A1-H12-TA930	

14.2 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。400V 50/60Hz AN系列驱动器可选的进线滤波器推荐型号如下表:

框架 Dimensions	伺服驱动 器型号	Order number	额定电流	订货号 Ordering Data
			Rated current (A)	
N1	AN-B3A75-S-□□		10	A1-H11-A-C10
	AN-B3B15-S-□□		10	A1-H11-A-C10
N2	AN-B3B30-S-□□		20	A1-H11-A-C20

14 Optional parts

14.1 Incoming Reactor

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. The recommended models of incoming reactors for 400V50/60Hz AN series drives are as follows:

14.2 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 400V 50/60Hz AN series drives are shown in the table below:

14.3 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; 400V 50/60Hz AN系列驱动器可选的制动电阻推荐规格如下:

14.3 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 400V50/60Hz AN series driver are as follows:

驱动器		允许的 最小阻值	2%ED的非频繁制动应用场合			20%ED的频繁制动应用场合			
框架	伺服驱动器型号		功率(kW)	阻值(Ω)	内置 制动电阻	推荐值		博能订货型号	
						功率(kW)	阻值(Ω)	订货号	等效 制动电阻
Servo driver model		ALLOW minimum resistance value	2% ED for non frequent braking applications			20% ED for frequent braking applications			
Dimen- sions	Order number		Power (KW)	Resistance value(Ω)	Built in braking resistor	Recommended value		Boneng ordering model	
						Power (KW)	Resistance value(Ω)	Ordering Data	Equivalent breaking resistance
N1	AN-B3A75-S-□□	100Ω	0.08	100	80W100Ω	0.3	240	A1-H02-A40-K-D24	400W 240Ω
	AN-B3B15-S-□□	100Ω	0.08	100	80W100Ω	0.6	130	A1-H02-A80-K-D13	800W 130Ω
N2	AN-B3B30-S-□□	50 Ω	0.08	50	80W50Ω	1.2	75	A1-H02-B12-K-C75	1200W75Ω

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;

控制层 CONTROL

驱动层 DRIVE

马达层 MOTOR

齿轮层 GEAR

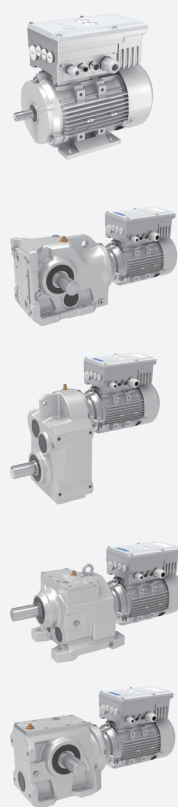


X7030 X7050
系列控制器
EtherCAT&Modbus



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



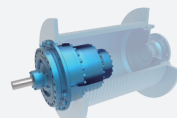
4.2~15775kW
i=5.6~450

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



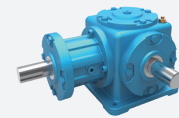
1~1626kW
i=14~947

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

博能传动(沈阳)有限公司	BONENG TRANSMISSION(SHENYANG)CO.,LTD.
辽宁省沈阳市沈北新区 太平洋工业城A区A73-6号 电话：024-31271571	No. A73-6, Area A, Pacific Industrial City, Shenbei New District, Shenyang, Liaoning Province, China TEL: 024-31271571

博能传动(天津)有限公司	BONENG TRANSMISSION(TIANJIN)CO.,LTD.
天津市北辰区双海道6号 宏鹏工业园7号车间 电话：022-26929556	7th Workshop, Hongpeng Industrial Park, No. 6 Shuanghai Road, Beichen District, Tianjin City,China TEL: 022-26929556

博能传动(潍坊)有限公司	BONENG TRANSMISSION(WEIFANG)CO.,LTD.
山东省潍坊市安丘市经济开发区 汶水路与昆仑大街交叉口往北 100米路东1号车间 电话：0536-2141166	1st Workshop, Economic Development Zone, Anqiu, Weifang City, Shandong Province, China TEL: 0536-2141166

博能传动(开封)有限公司	BONENG TRANSMISSION(KAIFENG)CO.,LTD.
河南省开封市宋城路四大街11号 海神机械院内五号厂房 电话：0371-23335238	5th Workshop, Haishen Machinery, No.11, Fourth Street, Songcheng Road,New District, Kaifeng City, Henan Province, China TEL: 0371-23335238

博能传动(长沙)有限公司	BONENG TRANSMISSION(CHANGSHA)CO.,LTD.
湖南省长沙市望城经济开发区 普瑞大道1288号 电话：0731-88386958	No. 1288 Puri Avenue, Wangcheng Economic Development Zone, Changsha City, Hunan Province, China TEL: 0731-88386958

博能传动设备(成都)有限公司	BONENG TRANSMISSION EQUIPMENT(CHENGDU) CO., LTD.
四川省成都市金牛区金牛坝路9号5栋 向荣中心A座7楼5号 电话：028-87741100	No. 5, 7th Floor, Block A, Xiangrong Center, Building 5, No. 9 Jinniuba Road, Jinniu District, Chengdu City, Sichuan Province, China TEL: 028-87741100

博能传动(肇庆)有限公司	BONENG TRANSMISSION(ZHAOQING)CO.,LTD.
广东省肇庆市鼎湖区肇庆新区 科创大道7号平谦国际现代产业园 一期A12北厂房 电话：0757-86719757	No. 7 Science and Technology Innovation Avenue, Zhaoqing New Area, Dinghu District, Zhaoqing City, Guangdong Province, China TEL: 0757-86719757

博能传动(苏州)有限公司	BONENG TRANSMISSION(SUZHOU)CO.,LTD.
江苏省苏州市相城区如元路100号 电话：0512-66189662	No. 100, Ruyuan Road, Xiangcheng District, Suzhou, Jiangsu Province, China TEL: 0512-66189662

博能传动(美国)有限公司	BONENG TRANSMISSION(USA)LLC.
1250 E 222nd Euclid, OH 44117, United Staes TEL: 1-216-618-0138 TEL: 1-216-618-0496 TEL: 1-216-618-3099	1250 E 222nd Euclid, OH 44117, United Staes TEL: 1-216-618-0138 TEL: 1-216-618-0496 TEL: 1-216-618-3099

博能传动(印度)有限公司	BONENG TRANSMISSION(INDIA)PVT.LTD
Plot No. E-10/3, MIDC sinnar (Malegaon) Industrial Area, Nashik, 422123, Maharashtra, India. TEL:+91-11- 4507 6293 (DELHI) TEL:+91-22-2781 3385 (MUMBAI)	Plot No. E-10/3, MIDC sinnar (Malegaon) Industrial Area, Nashik, 422123, Maharashtra, India. TEL:+91-11- 4507 6293 (DELHI) TEL:+91-22-2781 3385 (MUMBAI)