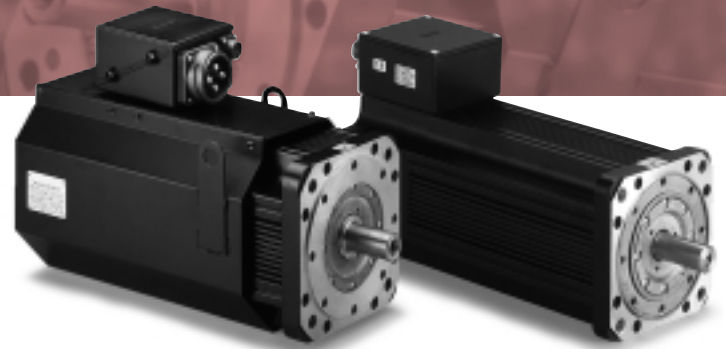


MOOG

Fastact T/F
Brushless Servo Motors
无刷伺服电动机



DESCRIPTION

Series T FASTACT servomotors are the solution to the ever increasing demands of accurate axis control in industrial automation applications. FAS T servomotors provide high dynamic performance characteristics coupled with automated production techniques, to offer the customer established brushless motor performance advantages and traditional dc servo system economy.

The FAS F family is the FAS T version equipped with an integral fan for forced cooling of the motor casing allowing better performances with limited weight and size increase.

The wider range of choice consists of six frame sizes and is composed of 41 types.

Torque ratings range from 0.3 to 430 Nm at $\Delta\theta_{win} = 65K$ (0.4 to 522 Nm at $\Delta\theta_{win} = 110K$) and there are two speed ratings for each type.

FAS T/F servomotors are available in "M" and "V" versions. Type "M" windings are designed for use with 230 VAC drives; namely our DBM03 and DBC digital servodrives.

Type "V" windings are designed for use with our range of 400/460 V_{AC} digital drives : DBM04 (multiaxis), DBS and DS 2000 (singleaxis).

For heavy duty applications, we recommend the use of their FAS F range. The recommended digital drives/motors systems are listed in the Technical data; for the analog drives BRM and BRD please contact our appointed Service Centers.

Compliance is guaranteed to EN 61800-3 (1996) for industrial environment, according to 89/336/EC Directive (EMC).

STANDARD MODELS

- rare earth magnets
- 3-phase star connected winding
- nominal voltage at nominal torque and nominal speed: 180V for M version and 325V for V version
- IP 64 protection, according to EN60529 (1991), except forced ventilation system for FAS F
- class F insulation
- ambient temperature: $-25^{\circ}\div +55^{\circ}C$
- storage temperature: $-25^{\circ}\div +70^{\circ}C$
- IC 00 41 cooling (totally enclosed, not ventilated) according to EN60034-6 (1995) for FAS T, by forced axial fan ventilation for FAS F (power supply 220 V_{AC} single-phase for F1 and F2, 220 V_{AC} 3-phase for F3 and F4)
- resolver poles number:
FAS T00 and 0, FAS T/F 1, 2 and 3: 6 pole resolver
FAS T/F 4: 8 pole resolver; when $\omega > 8000$ rpm for DBM03/04, DBS and DS 2000 drives: 2 pole resolver
- B14 flange mounting for size 0, B5 for size 00, 1, 2, 3, and 4
- shielded bearings lubricated for life
- construction and mounting arrangement for size 0 is IM B14, IM V18 and IM V19; for size 00, 1, 2, 3 and 4 IM B5, IM V1 and IM V3 according to EN60034-7 (1993)
- shock: 30 g_n per 11 ms, on two axes according to IEC 68-2-27 (1987)
- vibrations: 0,3 mm peak-to-peak up to 57 Hz, 2 g_n from 57 Hz to 150 Hz, on two axes, according to

说明

T系列FASTACT伺服电机是工业自动化应用中对轴控制精度要求日益提高的最佳解决方案。

FAS T伺服电机的高度动力特性, 以及自动化生产技术, 使客户享有无刷电机的性能优势, 并享有传统DC伺服系统的经济优势。

FAS F家族是配备集成风扇的FAS T型, 这种集成风扇不但限定了重量和尺寸的增加, 而且强制冷却电机的外壳, 从而达到较好的性能。FASTACT伺服电机共有6种框架尺寸, 41种型号, 选择范围广泛。

在 $\Delta\theta_{win}=65K$ 时的转矩额定值范围从0.3到430Nm (在 $\Delta\theta_{win}=110K$ 时范围从0.4到522Nm), 每种型号有两种速度额定值。

FAS T/F伺服电机有“M”和“V”型。“M”型线圈设计用于230VAC驱动器, 也就是DBM03和DBC数字伺服驱动器。

“V”型线圈设计用于400/460VAC的数字驱动器: DBM04 (多轴), DBS和DS 2000 (单轴)。

对于重负荷应用, 我们建议使用FAS F系列。技术数据表中列出了推荐的数字驱动器/电动机系统; 对于模拟驱动器BRM和BRD, 请与我们指定的维修服务中心联系。

按照89/336/EC指令(EMC), 保证符合EN61800-3 (1996)的工业环境标准。

标准型号

- 稀土磁铁
- 三相星形法连接绕组
- 在额定转矩和额定速度时的额定电压: M型为180V, V型为325V。
- 除了FAS F的强制通风系统之外, 按照EN60529 (1991), 标准型号为IP64防护装置
- F级绝缘
- 环境温度: $-25^{\circ}C$ 到 $+55^{\circ}C$
- 存放温度: $-25^{\circ}C$ 到 $+70^{\circ}C$
- FAS T按照EN60034-6 (1995)的IC 00 41冷却 (全封闭, 不通风), FAS F通过强制轴流式风扇通风 (F1和F2的电源为单相220VAC; F3和F4的电源为三相220VAC)
- 解码器极数:
FAS T00和0, FAS T/F1、2和3: 6极解码器
FAS T/F4:
8极解码器;
→8000rpm时用于DBM03/04、DBS和DS 2000驱动器;
2极解码器
- B14凸缘(式)安装座用于规格0, B5用于规格00、1、2、3和4
- 润滑防护轴承以延长寿命
- 按照EN60034-7 (1993), 规格0的结构和安装排列是IM B14、IM V18和IM V19; 规格00、1、2、3和4的排列是IM B5、IM V1和IM V3
- 冲击: 按照IEC 68-2-27 (1987), 两轴上的冲击每11ms为30g_n
- 振动: 按照IEC68-2-6 (1982), 峰-峰小于等于57Hz时两轴上的振动为0.3mm; 57Hz到150Hz时为2g_n
- 按照DIN332 (1983), 圆柱形轴具有供机械接口安装用的公制螺纹孔
DIN 332(1983)
- 按照ISO 1940-1, 动态平衡精确度Q=2.5 (注: 如果适用的话, 用销平衡)
- 发黑处理
- 使用阈值为130°C的PTC对M型进行热保护, 使用阈值为155°C的PTC对V型进行热保护
- 电源连接用的是PT卡口式信号连接器(*)和接线板

IEC 68-2-6 (1982)

- cylindrical shaft with metric screwthread hole for mechanical interface mounting, according to DIN 332 (1983)
- dynamic balancing accuracy
Q = 2,5 according to ISO 1940-1 (note: balancing with key, if applicable)
- black finish
- thermal protection using PTC with threshold at 130°C for M version and 155°C for V version
- PT bayonet signal connector (*) and terminal board for power connection
- plug connectors (*) included
- 90° indexable connector box (*)
- MTBF at 20°C, $\Delta\theta_{win} = 65K$, ground fixed motor: 200,000 hours (*) power and resolver connection leads for T00.

- 包括插塞式连接器 (*)
- 可以旋转90°的接线盒 (*)
- 20°C, $\Delta\theta_{win}=65K$ 时, 固定在地面的电机的MTBF (平均故障间隔时间) 为: 200000小时

(*) 供T00用的电源和解码器接头

有关选装件 (安全制动器、电源接线器、编码器安装套件) 的细节, 参见第19-20页和第21页。

特制产品

这是我们按照客户需求设计和制造的特殊产品, 也即订制产品。

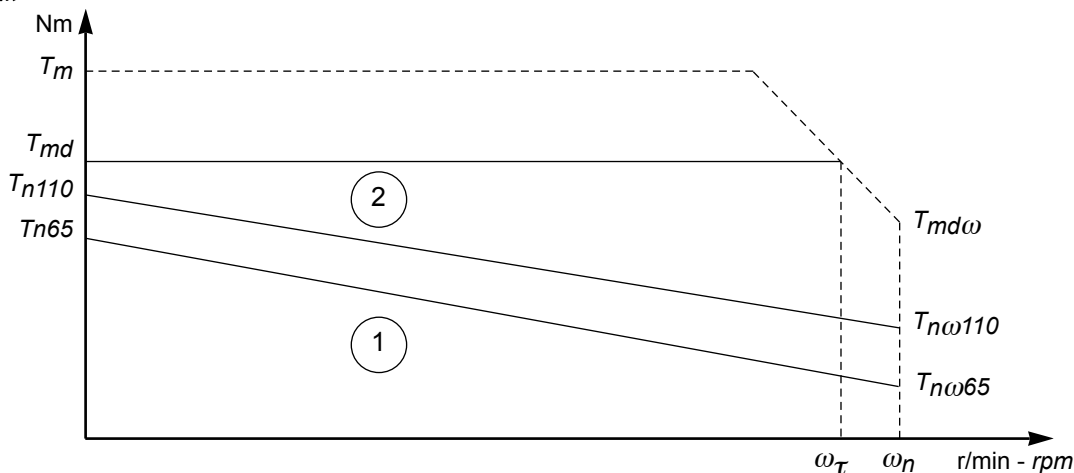
OPTIONS

Options (safety brake, power connectors, encoder mounting kit, etc.) are detailed on pages 19-20 and 21.

SPECIAL PRODUCTS

It is our custom to design and manufacture special products to meet customer's needs.

力矩/速度特点/TORQUE/SPEED CHARACTERISTICS



- Tn65: nominal torque, continuous duty, locked rotor $\Delta\theta_{win} = 65K$
- Tn110: nominal torque, continuous duty, locked rotor $\Delta\theta_{win} = 110K$
- Tnω65: nominal torque, continuous duty, nominal speed $\Delta\theta_{win} = 65K$
- Tnω110: nominal torque, continuous duty, nominal speed $\Delta\theta_{win} = 110K$
- Tm: peak torque
- Tmd: max torque with recommended drive
- Tmdω: max torque at nominal speed with recommended drive
- ωn: nominal speed
- ωτ: cutoff speed at max torque with recommended drive
- Area 1: continuous duty zone
- Area 2: intermittent duty zone; the performances at a specified duty rate are available under request

- Tn65: $\Delta\theta_{win}=65K$ 时锁定转子在连续负荷下的额定转矩
- Tn110: $\Delta\theta_{win}=110K$ 时锁定转子在连续负荷下的额定转矩
- Tnω65: $\Delta\theta_{win}=65K$ 时以额定速度连续负荷下的额定转矩
- Tnω110: $\Delta\theta_{win}=110K$ 时以额定速度连续负荷下的额定转矩
- Tm:峰值转矩
- Tmd: 推荐的驱动器的最大转矩
- Tmdω: 推荐的驱动器在额定速度时的最大转矩
- ωn: 额定速度
- ωτ: 推荐的驱动器在最大转矩时的停车速度
- 区域1: 连续负荷区
- 区域2: 断断续续的负荷区; 按要求可提供指定负荷系数时的性能

Recommended drive

The recommended drive showed in the following "Technical Data" is able to give the best mix of performances in terms of max torque (Tmd) and drive type. If the performances required by the customer application consent the use of different drive a new coupling drive-motor is possible; for the evaluation of the max torque Tmd1 with the new drive it is possible the use of the following formula:

$$Tmd1 = Tmd * (I_{max \text{ new drive}} / I_{max \text{ recommended drive}})$$

推荐的驱动器

下页“技术数据”中推荐的驱动器在最大转矩 (Tmd) 和驱动器尺寸方面具有最佳性能组合。如果客户应用要求的性能允许使用不同的驱动器, 则可以使用新的耦合驱动电机。评估新驱动器的最大转矩Tmd1时, 可以使用下面公式:

$$Tmd1 = Tmd * (I_{\text{新驱动器的最大值}} / I_{\text{推荐驱动器的最大值}})$$

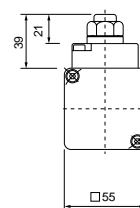
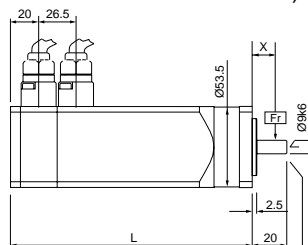
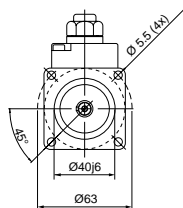
正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive		电机型号 Motor size		FAS T00				
				M2 060	M2 100	M4 060	M4 100	M2 030
		M	V2 100		V4 100		V2 060	
转子模块数/ Number of rotor modules			2	2	4	4	2	2
$\Delta\theta_{win}=65K^\circ$ 时锁定转了在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=65K^\circ$			0.3	0.3	0.56	0.56	0.5	0.5
$\Delta\theta_{win}=110K^\circ$ 时锁定转了在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=110K^\circ$			0.4	0.4	0.74	0.74	0.6	0.6
峰值转矩/ Peak torque			1.6	1.6	3	3	2.6	2.6
推荐的驱动器 Recommended drive	DBM03 (DBCIII) M		1.5/5 (F2)	1.5/5 (F2)	1.5/5 (F2)	5/15 (F4)	1.5/5 (F2*)	2.5/7.5 (F2)
	DBS / DBM04 V		-	3/9 *	-	3/9	-	3/9
	DS2000 400 Vac V		-	3/9	-	3/9	-	3/9
推荐的驱动器的最大转矩 Max torque with recommended drive	DBM03 (DBCIII) M		1.16 (1.39)	0.78 (1.31)	1.33 (2.12)	2.44 (2.76)	2.1 (3)	2 (2.2)
	DBS / DBM04 V		-	1.5	-	2.9	-	2.7
	DS2000 400 Vac V		-	1.68	-	2.9	-	2.7
额定速度/ Nominal speed			6000	10000	6000	10000	3000	6000
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			0.2	0.1	0.33	0.2	0.47	0.43
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			0.3	0.25	0.55	0.45	0.58	0.55
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recom. drive	DBM03 (DBCIII) M		0.71	0.73	1.18	1.46	0.7	0.5
	DBS / DBM04 V		-	1.5	-	1.8	-	1.6
	DS2000 400 Vac V		-	1.5	-	2.4	-	1.9
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recom. drive **	DBM03 (DBCIII) M		3800 (2400)	9000 (6600)	5500 (4500)	8000 (7500)	400 (0)	2000 (1800)
	DBS / DBM04 V		-	10000	-	6000	-	2000
	DS2000 400 Vac V		-	10000	-	7000	-	2500
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			0.12	0.105	0.21	0.21	0.15	0.27
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			0.188	0.26	0.31	0.47	0.18	0.34
转子惯量 (包括解码器) Rotor inertia (resolver included)			17.3	17.3	26.3	26.3	58	58
机械时间常数 Mechanical time constant	M		3.98	3.69	2.16	2.23	10.71	10.70
	V		-	5.22	-	2.84	-	9.50
重量/ Weight			1.26	1.26	1.65	1.65	2.3	2.3
热时间常数/ Thermal time constant			490	490	500	500	710	710
转矩常数 Torque constant	M		0.36	0.24	0.39	0.23	0.62	0.39
	V		-	0.29	-	0.46	-	0.44
电气时间常数 Electrical time constant	M		0.71	0.76	1.04	1.00	1.63	1.67
	V		-	0.77	-	1.10	-	1.89
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)	M		17.2	7.1	7.2	2.34	41	16.2
	V		-	14.64	-	10.36	-	18.3
线圈感系数 (相到相) Winding inductance (phase to phase)	M		13.3	5.2	7.4	2.56	67	27.1
	V		-	9.0	-	9.85	-	34.5
锁定转子的额定电流 Nominal current, locked rotor	M		0.85	1.27	1.4	2.4	0.8	1.3
	V		-	1.04	-	1.2	-	1.1
电源接线板 (参见第21页) Power terminal board (see page 21)	M		-	-	-	-	A	A
	V		-	-	-	-	-	A
电源接线器 (参见第21页) Power connector (see page 21)	M		-	-	-	-	A	A
	V		-	-	-	-	-	A
推荐的电源线横截面 (4X) Recommended power cable square section (4x)	M		0.75 (18)	0.75 (18)	0.75 (18)	0.75 (18)	1.0 (18)	1.0 (18)
	V		-	0.75 (18)	-	0.75 (18)	-	1.0 (18)

尺寸和公差/ DIMENSIONS AND TOLERANCES

(关于FAS T0接线盒尺寸, 参见第21页。/ See page 21 for FAS T0 connection box dimensions)

FAS T00

型号 Model	L
2 个模块/modules	135
4 个模块/modules	165



中心距M3, 符合DIN332 (1983)
Center M3 according to DIN 332 (1983)

FAS T0				符号 Symbol	单位 Unit
M4 030	M4 060 V4 060	M8 030	M8 060 V8 060		
4	4	8	8	n / nr	
1	1	1.9	1.9	T_{n65}	Nm
1.25	1.25	2.3	2.3	T_{n110}	Nm
5.5	5.5	9	9	T_m	Nm
2.5/7.5 (F2)	5/15 (F4)	5/15 (F4)	10/25 (F7.5)	驱动器尺寸 Drive Size	
-	3/9	-	6/15		
-	3/9	-	6/15		
3.9 (4.1)	4.4 (5)	8.7 (9.8)	7.6 (6.3)	T_{md}	Nm
-	4.1	-	6.6		
-	4.1	-	6.6		
3000	6000	3000	6000	ω_n	r/min rpm
0.987	0.95	1.85	1.56	$T_n\omega$	Nm
1.2	1.1	2.2	2	$T_n\omega$	Nm
1.1	1.1	1.9	1.9	$T_{md}\omega$	Nm
-	2.6	-	5.7		
-	3.1	-	6.4		
1000 (900)	2200 (2000)	1000 (900)	3000 (3200)	$\omega\tau$	r/min rpm
-	2000	-	3500		
-	2400	-	4000		
0.31	0.60	0.58	0.98	P_{out}	kW
0.37	0.7	0.69	1.26	P_{out}	kW
78	78	118	118	J	$10^{-6}kgm^2$
4.93	4.37	2.61	3.02	τ_m	ms
-	4.00	-	2.38		
2.8	2.8	3.7	3.7	m	kg
790	790	1000	1000	τ_{th}	s
0.74	0.42	0.82	0.43	K_t	Nm/A
-	0.65	-	0.64		
2.3	2.28	2.87	2.47	τ_e	ms
-	2.51	-	3.13		
20	5.7	8.6	2.73	R_w	Ω
-	12.9	-	4.9		
46	13	24.64	6.85	L_w	mH
-	31.4	-	14.9		
1.4	2.4	2.3	4.4	I_n	A
-	1.5	-	3		
A	A	A	A	型号/Type	
A	A	A	A	型号/Type	
1.0 (18)	1.0 (18)	1.0 (18)	1.0 (18)	mm ² (AWG)	
-	1.0 (18)	-	1.0 (18)		

技术数据表的通用备注:

M=FAS T/F系列伺服电机, 可与230VAC DBM 和 DBC III驱动器匹配
V=FAS T/F系列伺服电机, 可与400/460VAC DBS/DBM 04 和 DS 2000 驱动器匹配

• 环境温度在20°C, 法兰温度在45°C

** 参见“转矩/速度特点”

* 驱动器处于限制的最大电流

推荐的驱动 $\Delta\theta_{win}$ 为110K时连续负荷下的额定转矩和峰值转矩。

General Remarks to Technical Data Sheets:

M= FAS T/F series servomotors matchable with 230 V_{AC} DBM 03 and DBC III drives

V= FAS T/F series servomotors matchable with 400/460 V_{AC} DBS/DBM 04 and DS 2000 drives

• ambient at 20°C and flange at 45°C

** see "Torque/Speed Characteristics"

* with drive max current limited

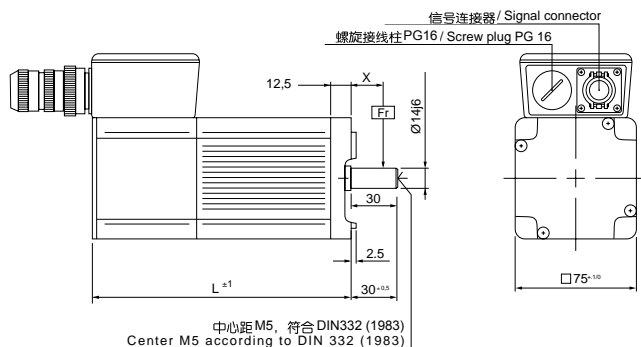
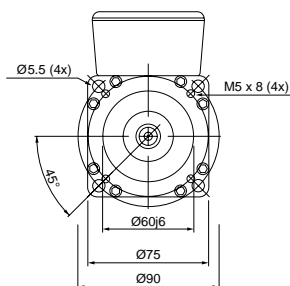
The Nominal Torque, continuous duty, $\Delta\theta_{win} = 110K$, and the Peak Torque are not always achievable with the recommended drive.

460V_{ac}
关于DBS/DBM04和DS2000驱动器在额定速度时的最大转矩, 请与我们指定的维修服务中心联系。

460Vac
Please contact our appointed Service Centers for max torque at nominal speed with DBS/DBM04 and DS 2000 drives

FAS T0

型号 Model	L
2 个模块/modules	148
4 个模块/modules	169
8 个模块/modules	211



技术数据/ TECHNICAL DATA (参见第5页的通用备注 / see general remarks page 5)

正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive		电机型号 Motor size	FAS T1					
			M2 030	M2 060	M4 030	M4 045	M6 030	M6 045
		M	V2 030	V2 060	V4 030	V4 045	V6 030	V6 045
转子模块数 / Number of rotor modules			2	2	4	4	6	6
$\Delta\theta_{win}=65K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=65K^\circ$			2.1	2.1	3.9	3.9	5.9	5.9
$\Delta\theta_{win}=110K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=110K^\circ$			2.7	2.7	4.8	4.8	7.2	7.2
峰值转矩 / Peak torque			10	10	18	18	24	24
推荐的驱动器 Recommended drive	DBM03 (DBCIII) M		5/15 (F4)	10/25 (F10)	10/25 (F10)	10/25 (F10)	15/45 (F13)	15/45 (F13)
	DBS / DBM04 V		3/9	6/15	6/15	8/22	8/22	15/42 *
	DS2000 400 Vac V		3/9	6/15	6/15	8/22	8/22	14/42 *
推荐的驱动器的最大转矩 Max torque with recommended drive	DBM03 (DBCIII) M		8.1 (9.1)	6.9 (7.7)	13.8 (15.4)	9.2 (10.3)	24 (21)	16.6 (14)
	DBS / DBM04 V		8	6.8	12.4	14	21.5	24
	DS2000 400 Vac V		8	6.8	12.4	14	21.5	24
额定速度 / Nominal speed			3000	6000	3000	4500	3000	4500
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)		M						
		V	1.7	1.2	3.1	2.4	4.1	3
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)		M						
		V	2.3	1.9	4.1	3.7	6.1	5.2
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recom.drive	DBM03 (DBCIII) M		2.8	3.0	6.0	6.5	9.6	10.3
	DBS / DBM04 V		5.2	5.5	11.5	11	16	17
	DS2000 400 Vac V		6.2	6.0	12	12.5	19	20
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recom. drive **	DBM03 (DBCIII) M		1500 (1300)	3800 (3500)	1900 (1700)	3800 (3600)	1700 (2000)	3600 (3900)
	DBS / DBM04 V		1700	4000	2500	2800	2000	2600
	DS2000 400 Vac V		2000	4700	2900	3300	2100	3100
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			0.54	0.75	0.97	1.13	1.29	1.41
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			0.73	1.19	1.28	1.74	1.92	2.44
转子惯量 (包括解码器) Rotor inertia (resolver included)			265	265	415	415	525	525
机械时间常数 Mechanical time constant	M		3.88	3.89	2.09	2.13	1.27	1.30
	V		3.63	3.62	2.05	1.95	1.41	1.43
重量 / Weight			4.2	4.2	6.2	6.2	8.5	8.5
热时间常数 / Thermal time constant			1290	1290	1380	1380	1500	1500
转矩常数 Torque constant	M		0.79	0.41	0.81	0.54	0.81	0.54
	V		1.30	0.67	1.21	0.96	1.44	0.97
电气时间常数 Electrical time constant	M		4.31	4.43	5.89	5.83	8.08	7.86
	V		4.61	4.77	6.01	6.35	7.23	7.13
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)		M	5.54	1.4	2	0.9	0.92	0.42
		V	12.97	3.42	4.02	2.57	3.3	1.45
线圈感系数 (相到相) Winding inductance (phase to phase)		M	23	6.2	11.3	5.07	7.43	3.3
		V	61.6	16.8	25.05	15.8	23.2	10.7
锁定转子的额定电流 Nominal current, locked rotor ***	M		2.6	5.2	4.8	7.2	7.3	10.9
	V		1.6	3.1	3.2	4.1	4.1	6.1
电源接线板 (参见第21页) Power terminal board (see page 21)	M		A	A	A	A	A	A
	V		A	A	A	A	A	A
电源接线器 (参见第21页) Power connector (see page 21)	M		A	A	A	A	B	B
	V		A	A	A	A	B	B
推荐的电源线横截面 (4X) Recommended power cable square section (4x)	M		1.0 (18)	1.5 (16)	1.5 (16)	1.5 (14)	1.5 (14)	2.5 (10)
	V		1.0 (18)	1.0 (18)	1.0 (18)	1.0 (18)	1.0 (18)	1.5 (16)

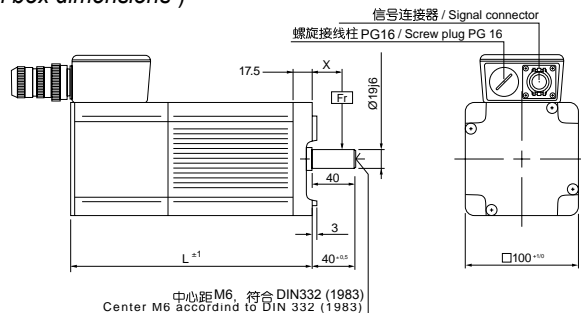
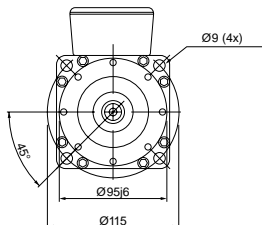
(***) 额定电流参见FAS F电动机的Tn110。 / Nominal current referred to Tn110 for FAS F motors

尺寸和公差/ DIMENSIONS AND TOLERANCES

(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS T1

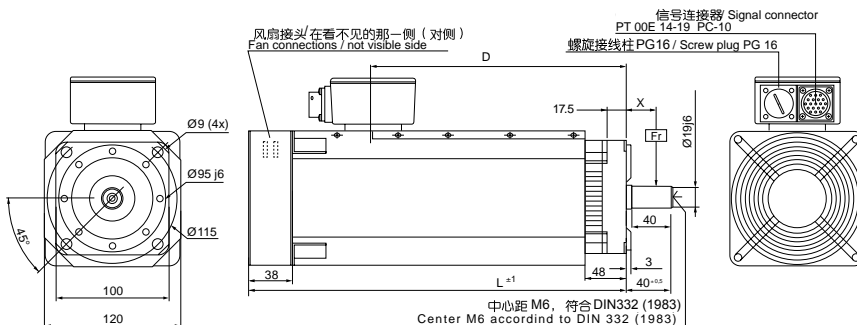
型号 Model	L
2 个模块/modules	173
4 个模块/modules	217
6 个模块/modules	261
8 个模块/modules	305



中心距M6 符合DIN332 (1983)
Center M6 according to DIN 332 (1983)

FAS F1										符号 Symbol	单位 Unit
M8 030	M8 045	M2 030	M2 060	M4 030	M4 045	M6 030	M6 045	M8 030	M8 045		
V8 030	V8 045	V2 030	V2 060	V4 030	V4 045	V6 030	V6 045	V8 030	V8 045		
8	8	2	2	4	4	6	6	8	8	n / nr	
7.4	7.4	3.0	3.0	5.6	5.6	8.3	8.3	10.3	10.3	T_{n65}	Nm
9.1	9.1	3.7	3.7	6.8	6.8	10	10	12.6	12.6	T_{n110}	Nm
30	30	10	10	18	18	24	24	30	30	T_m	Nm
15/45 (F13)	15/45 (F18)	5/15 (F4)	10/25 (F10)	10/25 (F10)	10/25 (F10)	15/45 (F13)	25/70* (F18)	15/45 (F13)	25/70(F25)	驱动器尺寸 Drive Type	
8/22	15/42	3/9	6/15	6/15	8/22	8/22	15/42 *	8/22	15/42		
8/22	14/42	3/9	6/15	6/15	8/22	8/22	14/42 *	8/22	14/42		
25.5 (21.5)	17.8 (19.8)	8.1 (9.1)	6.9 (7.7)	13.8 (15.4)	9.2 (10.3)	24 (21)	24 (18.5)	25.5 (21.5)	27 (27)	T_{md}	Nm
23	28	8	6.8	12.4	14	21.5	24	23	28		
23	28	8	6.8	12.4	14	21.5	24	23	28		
3000	4500	3000	6000	3000	4500	3000	4500	3000	4500	ωn	r/min rpm
5.1	3.5	2.8	2.4	5	4.6	7.0	6.4	8.8	7.9	$T_n\omega$	Nm
7.6	6.5	3.5	3.2	6.4	6.2	9.2	8.8	11.6	10.9	$T_n\omega$	Nm
12.8	11.6	2.8	3.0	6.0	6.5	9.6	10.3	12.8	11.6	$T_{md}\omega$	Nm
20	24	5.2	5.5	11.5	11	16	17	20	24		
23	27	6.2	6.0	12	12.5	19	20	23	27		
2100 (2400)	3900 (3700)	1500 (1300)	3800 (3500)	1900 (1700)	3800 (3600)	1700 (2000)	3000 (3200)	2100 (2400)	3200 (3200)	$\omega\tau$	r/min rpm
1700	2400	1700	4000	2500	2800	2000	2600	1700	2400		
2000	2800	2000	4700	2900	3300	2100	3100	2000	2800		
1.6	1.65	0.88	1.51	1.57	2.17	2.2	3.02	2.76	3.72	P_{out}	kW
2.38	3.06	1.10	2.01	2.01	2.92	2.89	4.15	3.64	5.14	P_{out}	kW
680	680	265	265	415	415	525	525	680	680	J	10 ⁻⁶ kgm ²
1.18	1.20	3.88	3.89	2.09	2.13	1.27	1.30	1.18	1.20	τ_m	ms
1.26	1.29	3.63	3.62	2.05	1.95	1.41	1.43	1.26	1.29		
10	10	5.7	5.7	8	8	10.3	10.3	12	12	m	kg
1560	1560	775	775	830	830	900	900	940	940	τ_{th}	s
0.83	0.58	0.79	0.41	0.81	0.54	0.81	0.54	0.83	0.58	K_t	Nm/A
1.55	1.01	1.30	0.67	1.21	0.96	1.44	0.97	1.55	1.01		
7.83	7.65	4.31	4.43	5.89	5.83	8.08	7.86	7.83	7.65	τ_e	ms
7.29	7.14	4.61	4.77	6.01	6.35	7.23	7.13	7.29	7.14		
0.69	0.34	5.54	1.4	2	0.9	0.92	0.42	0.69	0.34	R_w	Ω
2.6	1.13	12.97	3.42	4.02	2.57	3.3	1.45	2.6	1.13		
5.4	2.6	23	6.2	11.3	5.07	7.43	3.3	5.4	2.6	L_w	mH
18.8	8	61.6	16.8	25.05	15.8	23.2	10.7	18.8	8		
8.9	12.8	4.7	9.1	8.4	12.6	12.3	18.5	15.2	21.8	I_n	A
4.8	7.3	2.8	5.5	5.6	7.1	7.0	10.3	8.1	12.5		
A	A	A	A	A	A	A	A	A	A	型号/Type	
A	A	A	A	A	A	A	A	A	A	型号/Type	
B	B	A	A	B	B	B	B	B	B	型号/Type	
B	B	A	A	B	B	B	B	B	B	型号/Type	
2.5 (10)	2.5 (10)	1.0 (18)	2.5 (14)	2.5 (14)	2.5 (14)	2.5 (14)	2.5 (10)	2.5 (10)	6.0 (8)	mm ² (AWG)	
1.5 (16)	2.5 (14)	1.0 (18)	1.5 (16)	1.5 (16)	1.5 (16)	1.5 (16)	2.5 (14)	2.5 (14)	4.0 (10)		

FAS F1



标准电机 Standard Motors	L	D
2 个模块/modules	242	137
4 个模块/modules	291	181
6 个模块/modules	335	225
8 个模块/modules	379	269

正弦驱动器的特点和额定值 <i>Characteristics and nominal values with sinusoidal drive</i>		电机型号 <i>Motor size</i>	FAS T2					
			M2 030	M2 045	M4 020	M4 030	M6 020	M6 030
		M	V2 030	V2 045	V4 020	V4 030	V6 020	V6 030
转子模块数 / Number of rotor modules			2	2	4	4	6	6
Δθ win=65K° 时锁定转子在连续负荷下的额定转矩		M	7.5	7.5	12.5	12.5	18	18
<i>Nominal torque, continuous duty, locked rotor Δθ win=65K°</i>		V	7.5	7.5	13.5	13.5	19	19
Δθ win=110K° 时锁定转子在连续负荷下的额定转矩		M	9.1	9.1	15	15	22	22
<i>Nominal torque, continuous duty, locked rotor Δθ win=110K°</i>		V	9.6	9.6	17.5	17.5	24	24
峰值转矩 / Peak torque			25	25	45	45	66	66
推荐的驱动器 <i>Recommended Drive</i>		DBM03 (DBCIII) M	10/25 (F10)	15/45 (F18)	10/25 (F10)	15/45 (F18)	15/45 (F18)	25/70 (F25)
		DBS / DBM04 V	8/22	15/42	8/22	15/42	15/42	15/42
		DS2000 400 Vac V	8/22	14/42	8/22	14/42	14/42	14/42
推荐的驱动器的最大转矩 <i>Max torque with recommended drive</i>		DBM03 (DBCIII) M	14.5 (16)	16.2 (18)	21.5 (24)	25.2 (27.5)	37.8 (42)	40.7 (40.7)
		DBS / DBM04 V	22	25	34	43	65	45
		DS2000 400 Vac V	22	25	34	43	65	45
额定速度 / Nominal speed			3000	4500	2000	3000	2000	3000
在额定速度(Δθ win=65K°) 连续负荷下的额定转矩		M	5.5	4	10.8	8.8	14	10
<i>Nominal torque, continuous duty, nominal speed (Δθ win = 65K°)</i>		V	5.6	4.1	12.3	9.5	15.7	10.8
在额定速度(Δθ win=110K°) 连续负荷下的额定转矩		M	8	6.8	14.7	12.5	17.8	16
<i>Nominal torque, continuous duty, nominal speed (Δθ win = 110K°)</i>		V	8	6.8	14.7	13.5	20	17.3
推荐的驱动器在额定速度时的最大转矩 <i>Max torque, at nominal speed with recom. drive</i>		DBM03 (DBCIII) M	6.5	8.6	13.7	16.5	24.3	22.9
		DBS / DBM04 V	17	20	30	35	52	42
		DS2000 400 Vac V	19	23	32	40	60	44
推荐的驱动器在最大转矩时的停车速度 <i>Cutoff speed at max torque with recom. drive **</i>		DBM03 (DBCIII) M	2000 (1900)	3200 (3000)	1700 (1600)	2500 (2300)	1600 (1500)	2300 (2300)
		DBS / DBM04 V	1500	2200	1000	1500	1000	1500
		DS2000 400 Vac V	1800	2500	1200	1700	1200	1700
在额定速度(Δθ win=65K°) 连续负荷下的输出功率		M	1.73	1.88	2.24	2.79	2.93	3.14
<i>Output power, continuous duty, nominal speed (Δθ win = 65K°)</i>		V	1.9	1.95	2.59	3	3.3	3.4
在额定速度(Δθ win=110K°) 连续负荷下的输出功率		M	2.51	3.2	3.08	3.93	3.73	5.03
<i>Output power, continuous duty, nominal speed (Δθ win = 110K°)</i>		V	2.51	3.2	3.08	4.24	4.19	5.43
转子惯量 (包括解码器) <i>Rotor inertia (resolver included)</i>			1450	1450	2350	2350	3400	3400
机械时间常数 <i>Mechanical time constant</i>		M	4.47	4.54	2.61	2.58	2.10	2.22
		V	3.54	3.49	1.95	1.99	1.62	1.54
重量 / Weight			11	11	16	16	21	21
热时间常数 / Thermal time constant			1180	1180	1400	1400	1550	1550
转矩常数 <i>Torque constant</i>		M	0.88	0.56	1.31	0.85	1.28	0.88
		V	1.59	0.95	2.38	1.59	2.38	1.67
电气时间常数 <i>Electrical time constant</i>		M	7.19	6.96	9.55	9.57	11.03	10.51
		V	6.18	6.27	8.71	8.54	9.68	10.16
20°C时的线圈电阻 (相到相)		M	1.39	0.56	1.1	0.45	0.58	0.30
<i>Winding resistance at 20°C (phase to phase)</i>		V	3.4	1.22	2.61	1.17	1.38	0.67
线圈感应系数 (相到相) <i>Winding inductance (phase to phase)</i>		M	10	3.9	10.5	4.4	6.4	3.1
		V	21.95	7.9	23.6	10.5	15.1	7.4
锁定转子的额定电流		M	8.5	13.5	9.5	14.7	14.1	20.4
<i>Nominal current, locked rotor ***</i>		V	4.7	7.9	5.7	8.5	8.0	11.4
电源接线板 (参见第21页)		M	B	B	B	B	B	B
<i>Power terminal board (see page 21)</i>		V	B	B	B	B	B	B
电源接线器 (参见第21页)		M	B	B	B	B	B	B
<i>Power connector (see page 21)</i>		V	B	B	B	B	B	B
推荐的电源线横截面 (4X)		M	2.5 (14)	2.5 (10)	2.5 (14)	2.5 (10)	2.5 (10)	6.0 (8)
<i>Recommended power cable square section (4x)</i>		V	1.5 (16)	2.5 (14)	1.5 (16)	2.5 (14)	2.5 (14)	2.5 (14)

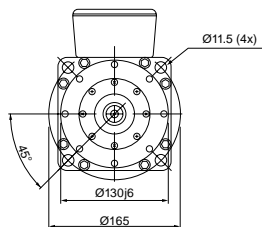
(***) Per i motori FAS F la corrente nominale è riferita a Tn110 / Nominal current referred to Tn110 for FAS F motors

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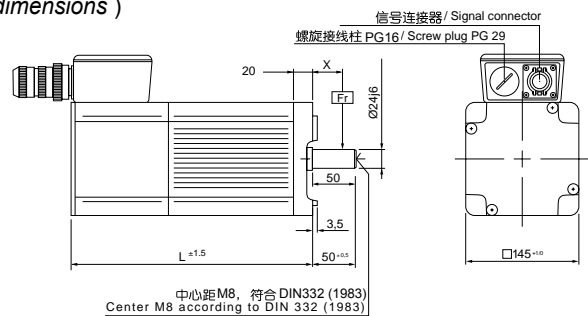
(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS T2

型号 <i>Model</i>	L
2 个模块/modules	220
4 个模块/modules	274
6 个模块/modules	328
8 个模块/modules	382

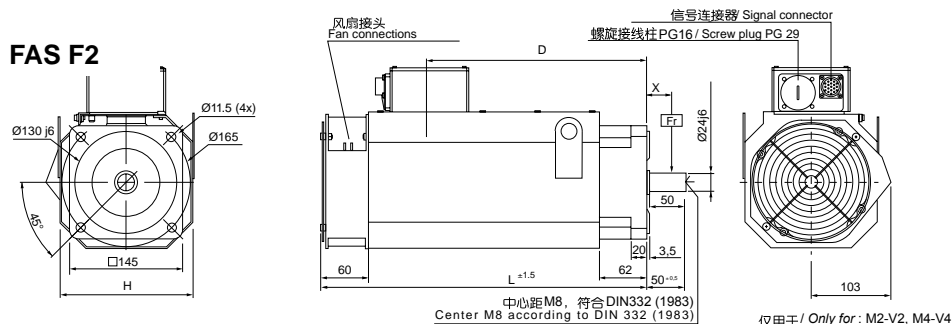


注: FAS T/F M8/V8 有两个吊环螺栓
Note: FAS T/F2 M8/V8 has two eyebolts.



中心距M8, 符合DIN332 (1983)
Center M8 according to DIN 332 (1983)

FAS F2										符号 Symbol	单位 Unit
M8 020	M8 030	M2 030	M2 045	M4 020	M4 030	M6 020	M6 030	M8 020	M8 030		
V8 020	V8 030	V2 030	V2 045	V4 020	V4 030	V6 020	V6 030	V8 020	V8 030		
8	8	2	2	4	4	6	6	8	8	n / nr	
23	23	9.6	9.6	15.8	15.8	23	23	30	30	Tn65	Nm
24	24	9.6	9.6	17.4	17.4	24.5	24.5	31	31		
28.2	28.2	11.7	11.7	19.3	19.3	28	28	36	36	Tn110	Nm
30	30	11.7	11.7	21	21	30	30	38	38		
83	83	25	25	45	45	66	66	83	83	Tm	Nm
25/70(F25)	25/70 (F25)	15/45* (F13)	25/70 (F18)	15/45 (F13)	25/70 (F25)	25/70 (F25)	30/90 (F25)	30/90 (F25)	50/140	驱动器尺寸 Drive Type	
15/42	25/70	8/22	15/42	8/22	15/42	15/42	25/70 *	15/42	25/70		
14/42	25/70	8/22	14/42	8/22	14/42	14/42	25/70 *	14/42	25/70		
60.3 (60.3)	42.2 (42.2)	25 (22)	25 (18)	38.5 (32.5)	39 (39)	58 (58)	52 (40.7)	77 (60.3)	83	Tmd	Nm
65	72	22	25	34	43	65	66	65	72		
65	72	22	25	34	43	65	66	65	72	ωn	r/min rpm
2000	3000	3000	4500	2000	3000	2000	3000	2000	3000		
15.9	11.4	8.5	7.3	14.4	13.2	20	18	22	19.5	Tnω	Nm
18.6	11.4	8.5	7.3	15.5	14.5	22	18.8	25	22		
22	19	11	10	17.6	17	25	22.8	28	27.5	Tnω	Nm
25	21	11	10	19	18.5	27.5	24	32	31		
30.8	27.1	6.5	8.6	13.7	16.5	24.3	22.9	30.8	27.1	Tmdω	Nm
60	67	17	20	30	35	52	54	60	67		
63	70	19	23	32	40	60	60	63	70		
1500 (1500)	2600 (2600)	1200 (1400)	2200 (3000)	1100 (1500)	1800 (1800)	1200 (1200)	1900 (2300)	1200 (1500)	1700	ωτ	r/min rpm
1200	1700	1500	2200	1000	1500	1000	1400	1200	1700		
1400	2000	1800	2500	1200	1700	1200	1600	1400	2000	Pout	kW
3.33	3.58	2.7	3.44	3.02	4.15	4.19	5.65	4.60	6.12		
3.9	3.6	2.7	3.44	3.2	4.55	4.60	5.90	5.24	6.90	Pout	kW
4.61	5.97	3.46	4.71	3.69	5.34	5.24	7.16	5.86	8.64		
5.24	6.6	3.46	4.71	3.98	5.81	5.76	7.54	6.70	9.74	J	10 ⁻⁶ kgm ²
4500	4500	1450	1450	2350	2350	3400	3400	4500	4500		
2.05	1.95	4.47	4.54	2.61	2.58	2.10	2.22	2.05	1.95	τm	ms
1.38	1.39	3.54	3.49	1.95	1.99	1.62	1.54	1.38	1.39		
26	26	14	14	20	20	25	25	31.2	31.2	m	kg
1700	1700	710	710	840	840	930	930	1020	1020	τth	s
1.31	0.92	0.88	0.56	1.31	0.85	1.28	0.88	1.31	0.92	Kt	Nm/A
2.38	1.59	1.59	0.95	2.38	1.59	2.38	1.67	2.38	1.59		
10.67	11.19	7.19	6.96	9.55	9.57	11.03	10.51	10.67	11.19	τe	ms
10.8	10.67	6.18	6.27	8.71	8.54	9.68	10.16	10.8	10.67		
0.45	0.23	1.39	0.56	1.1	0.45	0.58	0.3	0.45	0.23	Rw	Ω
0.97	0.45	3.4	1.22	2.61	1.17	1.38	0.67	0.97	0.45		
4.8	2.35	10	3.9	10.5	4.4	6.4	3.1	4.8	2.35	Lw	mH
10.8	4.8	21.95	7.9	23.6	10.5	15.1	7.4	10.8	4.8		
17.6	25.1	13.2	21.0	14.7	22.7	21.9	31.7	27.5	39.3	In	A
10.1	15.1	7.4	12.3	8.8	13.2	12.6	18.0	16.0	23.9		
B	B	B	B	B	B	B	B	B	B	型号/Type	
B	B	B	B	B	B	B	B	B	B	型号/Type	
B	B	B	B	B	B	B	B	B	B	型号/Type	
6.0 (8)	6.0 (8)	2.5 (10)	6.0 (8)	2.5 (10)	6.0 (8)	6.0 (8)	10.0 (8)	6.0 (8)	10.0 (8)	mm ² (AWG)	
2.5 (14)	4.0 (10)	2.5 (14)	2.5 (10)	2.5 (14)	2.5 (10)	2.5 (10)	4.0 (10)	4.0 (10)	6.0 (8)		



标准电机 Standard Motors	L	D	H
2 个模块/modules	309	172	169
4 个模块/modules	363	226	169
6 个模块/modules	417	280	187
8 个模块/modules	471	334	187

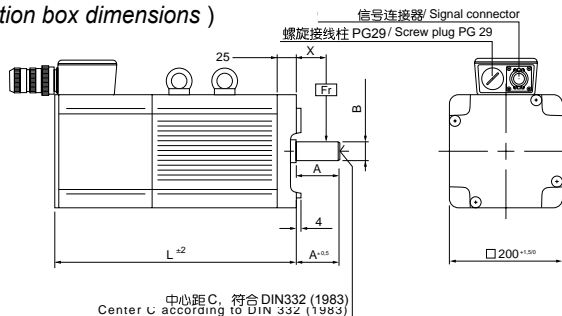
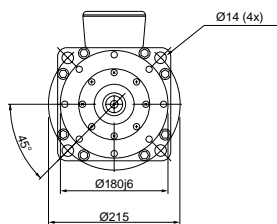
技术数据/ TECHNICAL DATA (参见第5页的通用备注 / see general remarks page 5)

正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive		电机型号 Motor size		FAS T3					
		M	V	M2 020	M2 030	M3 020	M3 030 ⁿ	M4 020	M4 030 ⁿ
转子模块数/ Number of rotor modules				2	2	3	3	4	4
Δθ win=65K°时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor Δθ win=65K°				26	26	36	36	48	48
Δθ win=110K°时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor Δθ win=110K°				32	32	44	44	59	59
峰值转矩/ Peak torque				70	70	105	105	127	127
推荐的驱动器 Recommended drive	DBM03 (DBCIII) M			25/70 (25/70)	30/90	30/90	50/140	50/140	70/180
	DBS / DBM04 V			15/42	25/70	25/70	35/90	25/70	35/90
	DS2000 400 Vac V			14/42	25/70	25/70	30/90	25/70	30/90
推荐的驱动器的最大转矩 Max torque with recommended drive	DBM03 (DBCIII) M			58 (58)	52	79	81	127	93
	DBS / DBM04 V			59	66	96	94	107	95
	DS2000 400 Vac V			59	66	96	94	107	95
额定速度/ Nominal speed				2000	3000	2000	3000	2000	3000
在额定速度(Δθ win=65K°)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed (Δθ win = 65K°)				20	13	26	19	34	17
在额定速度(Δθ win=110K°)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed (Δθ win = 110K°)				25	17	32	28	42	37
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recom. drive	DBM03 (DBCIII) M			45	40	59	45	69	74
	DBS / DBM04 V			56	61	91	58	101	70
	DS2000 400 Vac V			58	65	94	69	105	81
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recom. drive **	DBM03 (DBCIII) M			1800 (1800)	2400	1800	2400	1500	2600
	DBS / DBM04 V			1400	2000	1300	1400	1400	1600
	DS2000 400 Vac V			1600	2400	1500	1600	1600	1800
在额定速度(Δθ win=65K°)连续负荷下的输出功率 Output power, continuous duty, nominal speed (Δθ win = 65K°)				4.1	4	5.4	5.9	7.1	5.3
在额定速度(Δθ win=110K°)连续负荷下的输出功率 Output power, continuous duty, nominal speed (Δθ win = 110K°)				5.2	5.3	6.7	8.8	8.8	11.6
转子惯量 (包括解码器) Rotor inertia (resolver included)				11300	11300	15150	15150	21000	21000
机械时间常数 Mechanical time constant	M			3.78	3.73	2.76	2.67	2.49	2.39
	V			4.24	4.17	3.17	3.32	2.88	2.91
重量/ Weight				29	29	37	37	46	46
热时间常数 / Thermal time constant				1850	1850	2050	2050	2270	2270
转矩常数 Torque constant	M			1.18	0.82	1.24	0.83	1.29	0.74
	V			2.05	1.37	2.06	1.54	2.26	1.55
电气时间常数 Electrical time constant	M			13.57	13.67	16.42	16.86	18.25	18.89
	V			13.6	13.83	16.41	15.67	17.75	17.92
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)				M 0.269	0.128	0.164	0.07	0.114	0.037
				V 0.88	0.41	0.52	0.3	0.39	0.193
线圈感应系数 (相到相) Winding inductance (phase to phase)	M			3.65	1.75	2.66	1.18	2.08	0.68
	V			12.4	5.53	8.4	4.7	7.17	3.44
锁定转子的额定电流 Nominal current, locked rotor				M 22	31.7	29	43.5	37.3	65.2
				V 12.7	19	17.5	23.3	21.2	30.9
电源接线板 (参见第21页) Power terminal board (see page 21)				M B	B	B	B	B	B
				V B	B	B	B	B	B
电源接线器 (参见第21页) Power connector (see page 21)				M B	B	C	C	C	C
				V B	B	B	B	B	B
推荐的电源线横截面 (4X) Recommended power cable square section (4x)				M 6.0 (8)	6.0 (8)	6.0 (8)	10.0 (8)	10.0 (8)	16.0 (6)
				V 4.0 (10)	4.0 (10)	4.0 (10)	6.0 (8)	6.0 (8)	10.0 (8)

尺寸和公差 / DIMENSIONS AND TOLERANCES

(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS T3



中心距 C, 符合 DIN332 (1983)
Center C according to DIN 332 (1983)

M6 012	M6 020	M8 012	M8 020 ⁿ	符号 Symbol	单位 Unit
V6 012	V6 020	V8 012	V8 020 [†]		
6	6	8	8	n / nr	
68	68	87	87	T_{n65}	Nm
83	83	106	106	T_{n110}	Nm
190	190	240	240	T_m	Nm
30/90	70/180	50/140	80/240	驱动器尺寸 Drive Type	
25/70	35/90	35/90	50/140		
25/70	30/90	30/90	-		
140	175	218	187	T_{md}	Nm
172	159	235	239		
172	159	235	-		
1200	2000	1200	2000	ω_n	r/min rpm
55	47	72	54	$T_n\omega$	Nm
66	55	81	69	$T_n\omega$	Nm
84	67	118	160	$T_{md\omega}$	Nm
160	140	213	160		
168	149	231	-		
1000	1400	850	1700	$\omega\tau$	r/min rpm
800	1300	800	900		
900	1500	900	-		
7.1	9.8	9	11.3	P_{out}	kW
8.3	11.5	10.1	14.4	P_{out}	kW
30175	30175	41150	41150	J	10^{-6}kgm^2
2.14	2.11	1.97	1.94	τ_m	ms
2.50	2.43	2.35	2.27		
61	61	78	78	m	kg
2550	2550	3050	3050	τ_{th}	s
2.2	1.38	2.2	1.1	K_t	Nm/A
3.61	2.58	3.78	2.42		
19.34	19.48	20.60	20.91	τ_e	ms
18.75	19.35	19.66	20.22		
0.198	0.077	0.134	0.033	R_w	Ω
0.59	0.31	0.463	0.184		
3.83	1.5	2.76	0.69	L_w	mH
11.7	6	9.28	3.76		
30.8	49.3	39.4	78.8	I_n	A
18.8	26.4	22.9	36		
B	B	B	B	型号/Type	
B	B	B	B	型号/Type	
C	C	C	C	型号/Type	
B	B	B	B	型号/Type	
10.0 (8)	10.0 (8)	10.0 (8)	16.0 (6)	mm ² (AWG)	
4.0 (10)	10.0 (8)	6.0 (8)	10.0 (8)		

Remarks :

- ⁿ with 0.25 mH choke in series for each motor phase
- [†] with 1.5 mH choke in series for each motor phase

备注:

- ⁿ 每个电动机为0.25mH串联扼流圈
- [†] 每个电动机为1.5mH串联扼流圈

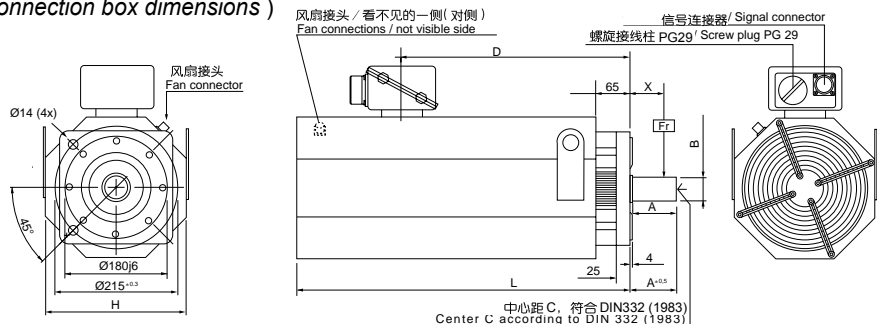
标准电机 Standard Motors	L	A	B	C
2 个模块/modules	286	58	32k6	M12
3 个模块/modules	332	58	32k6	M12
4 个模块/modules	378	82	42k6	M16
6 个模块/modules	470	82	42k6	M16
8 个模块/modules	562	82	42k6	M16

正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive		电机型号 Motor size		FAS F3					
		M	V	M2 020	M2 030	M3 020	M3 030 ⁿ	M4 020	M4 030 ⁿ
转子模块数 / Number of rotor modules				2	2	3	3	4	4
Δθ _{win} =65K°时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor Δθ _{win} =65K°				33	33	45	45	61	61
Δθ _{win} =110K°时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor Δθ _{win} =110K°				40	40	55	55	74	74
峰值转矩 / Peak torque				70	70	105	105	127	127
推荐的驱动器 Recommended Drive	DBM03 (DBCIII) M			50/140 *	50/140 *	50/140 *	70/180	70/180 *	80/240
	DBS / DBM04 V			25/70 *	25/70	25/70	35/90	35/90 *	50/140 *
	DS2000 400 V _{ac} V			25/70 *	25/70	25/70	30/90	30/90 *	-
推荐的驱动器的最大转矩 Max torque with recommended drive	DBM03 (DBCIII) M			70	70	105	105	127.0	125
	DBS / DBM04 V			70	66	96	94	127.0	127.0
	DS2000 400 V _{ac} V			70	66	96	94	127.0	-
额定速度 / Nominal speed				2000	3000	2000	3000	2000	3000
在额定速度(Δθ _{win} =65K°)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed (Δθ _{win} = 65K°)				24	18	32	30	42	38
在额定速度(Δθ _{win} =110K°)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed (Δθ _{win} = 110K°)				34	28	45	42	58	57
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recom. drive	DBM03 (DBCIII) M			45	40	59	45	69	74
	DBS / DBM04 V			62	61	91	58	113	72
	DS2000 400 V _{ac} V			68	65	94	69	123	-
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recom. drive **	DBM03 (DBCIII) M			1300	2200	1700	2200	1500	2200
	DBS / DBM04 V			1200	2000	1300	1400	1200	1200
	DS2000 400 V _{ac} V			1400	2400	1500	1600	1400	-
在额定速度(Δθ _{win} =65K°)连续负荷下的输出功率 Output power, continuous duty, nominal speed (Δθ _{win} = 65K°)				5.0	5.7	6.7	9.4	8.8	11.9
在额定速度(Δθ _{win} =110K°)连续负荷下的输出功率 Output power, continuous duty, nominal speed (Δθ _{win} = 110K°)				7.2	8.9	9.4	13.2	12.1	17.9
转子惯量 (包括解码器) Rotor inertia (resolver included)				11300	11300	15150	15150	21000	21000
机械时间常数 Mechanical time constant	M			3.78	3.73	2.76	2.67	2.49	2.39
	V			4.24	4.17	3.17	3.32	2.88	2.91
重量 / Weight				34	34	42	42	52	52
热时间常数 / Thermal time constant				1110	1110	1230	1230	1360	1360
转矩常数 Torque constant	M			1.18	0.82	1.24	0.83	1.29	0.74
	V			2.05	1.37	2.06	1.54	2.26	1.55
电气时间常数 Electrical time constant	M			13.57	13.67	16.42	16.86	18.25	18.89
	V			13.6	13.83	16.41	15.67	17.75	17.92
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)	M			0.269	0.128	0.164	0.07	0.114	0.037
	V			0.88	0.41	0.52	0.3	0.39	0.193
线圈感系数 (相到相) Winding inductance (phase to phase)	M			3.65	1.75	2.66	1.18	2.08	0.68
	V			12.4	5.53	8.4	4.7	7.17	3.44
锁定转子的额定电流 (Δθ _{win} = 110K) Nominal current, locked rotor (Δθ _{win} = 110K)	M			33.9	48.8	44.4	66.3	57.4	100.0
	V			19.5	29.2	26.7	35.7	32.7	47.7
电源接线板 (参见第21页) Power terminal board (see page 21)	M			B	B	B	B	B	C
	V			B	B	B	B	B	B
电源接线器 (参见第21页) Power connector (see page 21)	M			B	C	C	C	C	C
	V			B	B	B	B	B	C
推荐的电源线横截面 (4X) Recommended power cable square section (4x)	M			6.0 (8)	10.0 (8)	10.0 (8)	10.0 (6)	16.0 (6)	25.0 (4)
	V			4.0 (10)	6.0 (8)	6.0 (8)	10.0 (8)	10.0 (8)	10.0 (8)

尺寸和公差 / DIMENSIONS AND TOLERANCES

(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS F3



M6 012	M6 020	M8 012	M8 020 ⁿ	符号 Symbol	单位 Unit
V6 012	V6 020	V8 012	V8 020 [†]		
6	6	8	8	n / nr	
86	86	110	110	T_{n65}	Nm
105	105	135	135	T_{n110}	Nm
190	190	240	240	T_m	Nm
50/140 *	80/240 *	70/180 *	-	驱动器尺寸 Drive Type	
35/90 *	50/140 *	35/90	60/180 *		
30/90 *	-	30/90	-		
190	190	240	-	T_{md}	Nm
190	190	235	240		
190	-	235	-		
1200	2000	1200	2000	ωn	r/min rpm
70	52	88	70	$T_n\omega$	Nm
93	74	110	108	$T_n\omega$	Nm
84	67	118	-	$T_{md}\omega$	Nm
172	156	213	160		
175	-	231	-		
900	1300	800	-	$\omega\tau$	r/min rpm
700	1100	800	900		
800	-	900	-		
8.8	10.9	11.1	14.7	P_{out}	kW
11.6	15.5	13.8	22.5	P_{out}	kW
30175	30175	41150	41150	J	10^{-6}kgm^2
2.14	2.11	1.97	1.94	τ_m	ms
2.50	2.43	2.35	2.27		
71	71	89	89		
1530	1530	1830	1830	τ_{th}	s
2.20	1.38	2.20	1.10	K_t	Nm/A
3.61	2.58	3.78	2.42		
19.34	19.48	20.60	20.91		
18.75	19.35	19.66	20.22	τ_e	ms
0.198	0.077	0.134	0.033		
0.59	0.31	0.463	0.184	R_w	Ω
3.83	1.5	2.76	0.69		
11.7	6	9.28	3.76	L_w	mH
47.7	76.1	61.4	122.7		
29.1	40.7	35.7	55.8	I_n	A
B	B	B	C		
B	B	B	B	型号/Type	
C	C	C	C	型号/Type	
B	B	B	C	型号/Type	
10.0 (8)	16.0 (6)	16.0 (6)	25.0 (4)	mm ² (AWG)	
6.0 (8)	10.0 (8)	10.0 (8)	16.0 (6)		

Remarks :

- ⁿ with 0.25 mH choke in series for each motor phase
- [†] with 1.5 mH choke in series for each motor phase

备注：

- ⁿ 每个电动机为0.25mH串联扼流圈
- [†] 每个电动机为1.5mH串联扼流圈

标准电机 Standard Motors	L	D	H	B	A	C
2 个模块/modules	359	223	225	32k6	58	M12
3 个模块/modules	405	269	225	32k6	58	M12
4 个模块/modules	451	315	225	42k6	82	M16
6 个模块/modules	595	407	250	42k6	82	M16
8 个模块/modules	687	499	250	42k6	82	M16

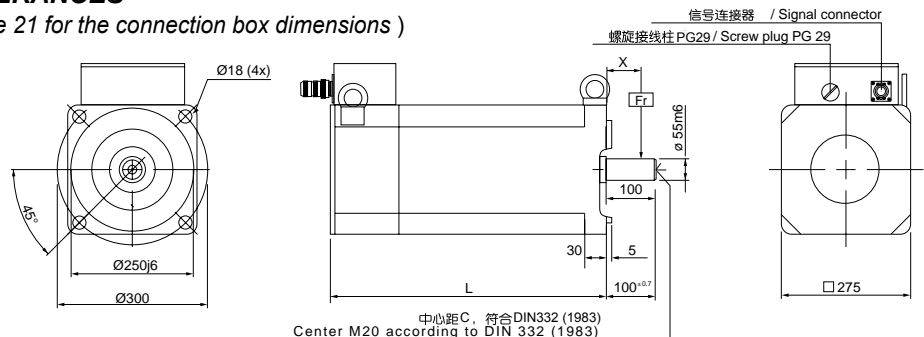
技术数据/ TECHNICAL DATA (参见第5页的通用备注 / see general remarks page 5)

正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive	电机型号 Motor size	FAS T4						
		V	V2 017	V2 022 ^t	V3 012	V3 020 ^t	V4 010	V4 015
转子模块数 / Number of rotor modules			2	2	3	3	4	4
$\Delta\theta_{win}=65K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=65K$			105	105	157	157	210	210
$\Delta\theta_{win}=110K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=110K^\circ$			127	127	190	190	254	254
峰值扭矩 / Peak torque			300	300	450	450	600	600
推荐的驱动器 Recommended drive	DBS / DBM04 V DS2000 400 Vac V	V	50/140 30/90	60/180 -	50/140 30/90	100/240 -	60/180 -	60/180 -
推荐的驱动器的最大转矩 Max. Torque with recommended drive	DBS / DBM04 V DS2000 400 Vac V	V	290 200	290 -	411 290	410 -	600 -	508 -
额定速度 / Nominal speed			1700	2200	1200	2000	1000	1500
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			20	20	70	40	100	60
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			78	78	132	110	172	130
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recommended drive	DBS / DBM04 V DS2000 400 Vac V	V	260 200	220 -	380 290	300 -	510 -	400 -
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recommended drive **	DBS / DBM04 V DS2000 400 Vac V	V	1000 1700	900 -	750 1200	1000 -	600 -	800 -
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			3.60	4.60	8.8	7.10	10.5	9.40
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			13.9	18.0	16.6	19.6	18.0	20.4
转子惯量 (包括解码器) Rotor inertia (resolver included)			47000	47000	70000	70000	91000	91000
机械时间常数 Mechanical time constant		V	1.24	1.23	0.94	0.94	0.90	0.90
重量 / Weight			80	80	104	104	126	126
热时间常数 / Thermal time constant			4300	4300	5200	5200	6000	6000
转矩常数 Torque constant		V	3.26	2.53	4.615	2.714	5.43	4.34
电气时间常数 Electrical time constant		V	21.51	21.59	25.66	25.57	26.45	26.43
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)		V	0.146	0.088	0.152	0.058	0.153	0.100
线圈感系数 (相到相) Winding inductance (phase to phase)		V	3.14	1.9	3.9	1.45	4.05	3.95
锁定转子的额定电流 ($\Delta\theta_{win} = 110K$) Nominal current, locked rotor ($\Delta\theta_{win} = 110K$)		V	39.0	50.1	41.2	70.0	46.8	58.5
电源接线板 (参见第21页) Power terminal board (see page 21)		V	B	B	B	B	B	B
电源接线器 (参见第21页) Power connector (see page 21)		V	B	C	B	C	C	C
推荐的电源线横截面 (4X) Recommended power cable square section (4x)		V	10.0 (8)	10.0 (8)	10.0 (8)	16.0 (6)	10.0 (8)	16.0 (6)

尺寸和公差 / DIMENSIONS AND TOLERANCES

(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS T4



V5 010	V6 010	符号 Symbol	单位 Unit
5	6	n / nr	
262	324	T_{n65}	Nm
317	392	T_{n110}	Nm
750	920	T_m	Nm
60/180	100/240	驱动器尺寸 Drive Type	
-	-		
681	910	T_{md}	Nm
-	-		
1000	1000	ω_n	r/min rpm
100	90	$T_n\omega$	Nm
200	232	$T_n\omega$	Nm
570	750	$T_{md\omega}$	Nm
-	-		
600	500	$\omega\tau$	r/min rpm
-	-		
10.5	9.4	P_{out}	kW
20.9	24.3	P_{out}	kW
114000	147000	J	10^{-6}kgm^2
0.81	0.80	τ_m	ms
154	185	m	kg
6800	7600	τ_{th}	s
5.88	6.15	K_t	Nm/A
29.01	29.78	τ_e	ms
0.131	0.110	R_w	Ω
3.8	3.27	L_w	mH
53.9	63.7	I_n	A
B	B	型号/Type	
C	C	型号/Type	
16.0 (6)	16.0 (6)	mm ² (AWG)	

Remarks :

with 1.5 mH choke in series for each motor phase

FAS T4 servomotors matchable with 400-460 V_{AC} DBS/DBM 04 and 400 V_{AC} DS2000 servodrives

备注:

每个电动机为1.5mH串联扼流圈
FAS T4 伺服电动机可与400-460V_{AC} DBS/DBM 04 和 400 V_{AC} DS2000 伺服驱动器匹配

标准电机 Standard Motors	L
2 个模块/modules	377
3 个模块/modules	461
4 个模块/modules	545
6 个模块/modules	713

技术数据/ TECHNICAL DATA (参见第5页的通用备注 / see general remarks page 5)

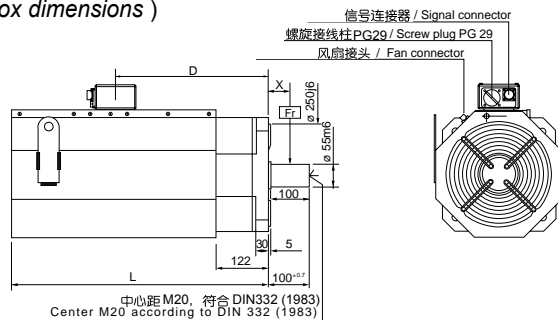
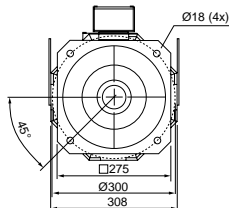
正弦驱动器的特点和额定值 Characteristics and nominal values with sinusoidal drive	电机型号 Motor size	FAS F4						
		V	V2 017	V2 022	V3 012	V3 020	V4 010	V4 015
转子模块数 / Number of rotor modules			2	2	3	3	4	4
$\Delta\theta_{win}=65K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=65K^\circ$			140	140	210	210	280	280
$\Delta\theta_{win}=110K^\circ$ 时锁定转子在连续负荷下的额定转矩 Nominal torque, continuous duty, locked rotor $\Delta\theta_{win}=110K^\circ$			170	170	255	255	340	340
峰值扭矩 / Peak torque			300	300	450	450	600	600
推荐的驱动器 Recommended drive	DBS / DBM04	V	50/140	60/180	50/140	100/240	60/180	60/180
推荐的驱动器的最大转矩 Max. Torque with recommended drive	DBS / DBM04	V	290	290	411	410	600	508
额定速度 / Nominal speed			1700	2200	1200	2000	1000	1500
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			82	50	135	80	178	130
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的额定转矩 Nominal torque, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			125	108	200	143	254	225
推荐的驱动器在额定速度时的最大转矩 Max torque at nominal speed with recommended drive	DBS / DBM04	V	260	250	380	378	510	400
推荐的驱动器在最大转矩时的停车速度 Cutoff speed at max torque with recommended drive **	DBS / DBM04	V	1000	1300	750	1300	600	800
在额定速度($\Delta\theta_{win}=65K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 65K^\circ$)			14.60	11.50	17	16.8	18.60	20.40
在额定速度($\Delta\theta_{win}=110K^\circ$)连续负荷下的输出功率 Output power, continuous duty, nominal speed ($\Delta\theta_{win} = 110K^\circ$)			22.2	24.9	25.1	29.9	26.6	35.3
转子惯量 (包括解码器) Rotor inertia (resolver included)			47000	47000	70000	70000	91000	91000
机械时间常数 Mechanical time constant		V	1.24	1.23	0.94	0.94	0.90	0.90
重量 / Weight			92	92	118	118	142	142
热时间常数 / Thermal time constant			2150	2150	2600	2600	3000	3000
转矩常数 Torque constant		V	3.26	2.53	4.615	2.714	5.43	4.34
电气时间常数 Electrical time constant		V	21.51	21.59	25.66	25.57	26.45	26.43
20°C时的线圈电阻 (相到相) Winding resistance at 20°C (phase to phase)		V	0.146	0.088	0.152	0.058	0.153	0.100
线圈感应系数 (相到相) Winding inductance (phase to phase)		V	3.14	1.9	3.9	1.45	4.05	3.95
锁定转子的额定电流($\Delta\theta_{win} = 110K$) Nominal current, locked rotor ($\Delta\theta_{win} = 110K$)		V	52.2	67.1	55.3	94.0	62.6	78.3
电源接线板 (参见第21页) Power terminal board (see page 21)		V	B	B	B	C	C	C
电源接线器 (参见第21页) Power connector (see page 21)		V	C	C	C	C	C	C
推荐的电源线横截面 (4X) Recommended power cable square section (4x)		V	16.0 (6)	16.0 (6)	16.0 (6)	25.0 (4)	16.0 (6)	25.0 (4)

尺寸和公差 / DIMENSIONS AND TOLERANCES

(关于接线盒尺寸, 参见第21页。 / See page 21 for the connection box dimensions)

FAS F4

标准电机 Standard Motors	L	D
2 个模块/modules	463	292
3 个模块/modules	539	368
4 个模块/modules	623	452
5 个模块/modules	709	538
6 个模块/modules	803	632



中心距 M20, 符合 DIN332 (1983)
Center M20 according to DIN 332 (1983)

V5 010	V5 015	V6 010	V6 015	符号 Symbol	单位 Unit
5	5	6	6	n / nr	
350	350	430	430	T_{n65}	Nm
425	425	522	522	T_{n110}	Nm
750	750	920	920	T_m	Nm
60/180	100/240	100/240	100/240	驱动器尺寸 Drive Type	
681	685	910	750	T_{md}	Nm
1000	1500	1000	1500	ωn	r/min rpm
210	110	310	110	$Tn\omega$	Nm
303	215	375	230	$Tn\omega$	Nm
570	500	750	570	$T_{md\omega}$	Nm
600	800	500	750	$\omega\tau$	r/min rpm
22	17.3	32.5	17.3	P_{out}	kW
31.7	33.8	39.3	36.1	P_{out}	kW
114000	114000	147000	147000	J	10^{-6}kgm^2
0.81	0.81	0.80	0.80	τm	ms
172	172	205	205	m	kg
3400	3400	3800	3800	τth	s
5.88	4.53	6.15	4.75	K_t	Nm/A
29.01	29.03	29.78	30.00	τ_e	ms
0.131	0.080	0.110	0.071	R_w	Ω
3.8	2.10	3.27	1.93	L_w	mH
72.3	93.9	84.9	109.9	I_n	A
C	C	C	C	型号/Type	
C	C	C	C	型号/Type	
16.0 (6)	25.0 (4)	25.0 (4)	25.0 (4)	mm ² (AWG)	

Remark :

FAS F4 servomotors matchable
with 400-460 V_{AC} DBS/DBM 04 servodrives

备注:

FAS T4 伺服电动机 可与400-460V_{AC}
DBS/DBM 04 伺服驱动器匹配

RESOLVERS/解码器

版本 VERSION	型号 Model	极数 Poles	电源 Power Supply	频率 Frequency	最大电流 Max Current	出错传播 最长 时间 Max Error Spread	相移 Phase Shift	输入阻抗 Input Imp.	输出阻抗 Output Imp.	传送速率 Transf. Ratio
		(n°/个)	(Vrms)	(kHz)	(mA _{rms})	(min/分钟)	(°)	(Ω)	(Ω)	
Standard 标准	T00	6	7.1	10	25	10	0-6	≥280	≤850	0.47 +5% -10%
	T0, T/F1-2-3	6	7.1	10	15	10	0-6	≥470	≤850	0.29 +5% -10%
	T/F4	8	7.1	10	15	16	0-6	≥470	≤850	0.29 +5% -10%
Optional 可选	T00	2	7.1	10	25	10	0-6	≥280	≤850	0.47 +5% -10%
	T0, T/F1-2-3-4	2	7.1	10	25	20	0-6	≥280	≤850	0.47 +5% -10%
	T0, T/F1-2-3	6	7.1	10	15	4	0-6	≥470	≤850	0.29 +5% -10%

注: 2极解码器是用于 ω>8000rpm的DBM03/04, DBS和DS 2000 驱动器的标准解码器。
 Note: 2 pole resolver is standard for ω > 8000 rpm with DBM03/04, DBS and DS 2000 drives

径向负载/ RADIAL LOADS

(关于X[mm]尺寸, 参见电动机图/ see motor drawings for X[mm] dimension)

转动速度, 单位为rpm / Rotational speed in rpm

滚球轴承的额定寿命=2000小时时,
电动机轴上的最大径向负载与电动机
轴离法兰的距离和电动机轴速度的关
系曲线

(Δθ_{win}=65K, 90% 的可靠性)

Maximum radial load on motor shaft
vs. distance from flange and motor
shaft speed referred to ball bearing
rating life = 20000 h.

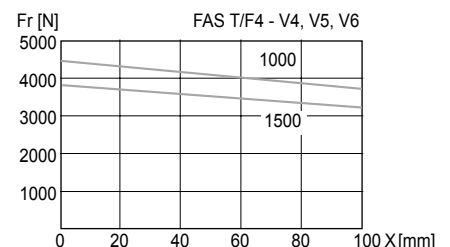
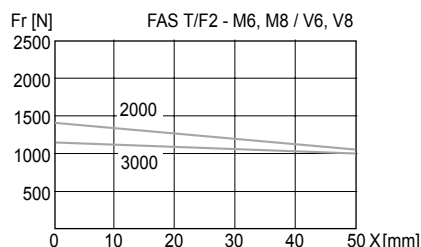
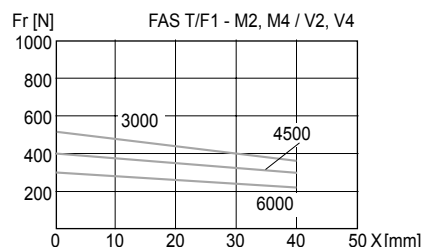
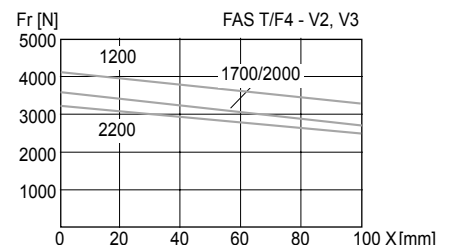
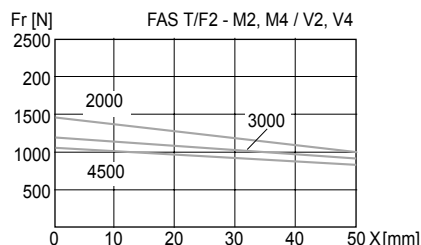
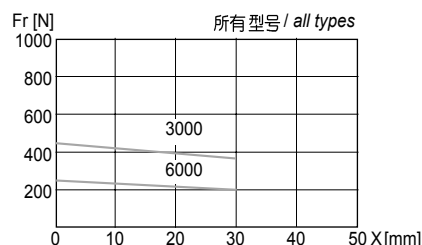
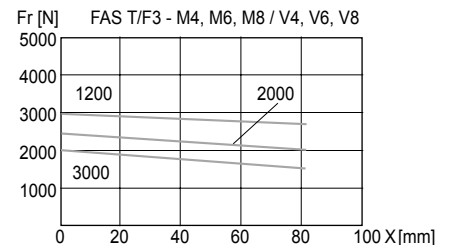
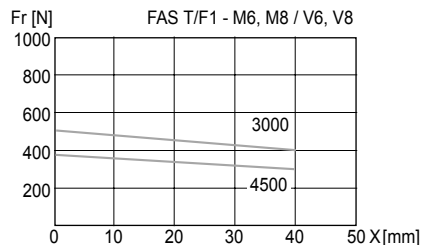
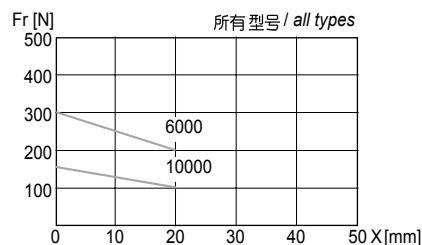
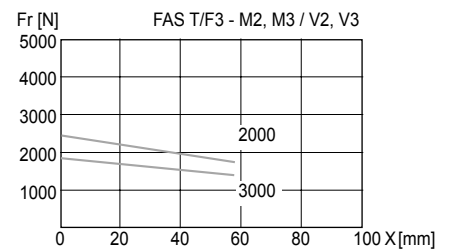
(reliability of 90%, Δθ_{win} = 65K).

注: 最大轴向负载绝不能超过最大径
向负载的30%。

Note: maximum axial load must not
exceed 30% of maximum radial load.

小心! 安装时避免轴向冲击

Caution! Avoid axial shock on shaft
during assembling

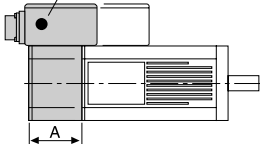


电气选装件 / ELECTRICAL OPTIONS

安全制动器 (T00不可用) **Safety brake (not available for T00)**

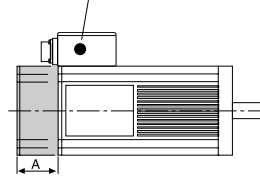
FAS T0

螺旋接线柱
Screw plug PG7



FAS T1/F1, T2/F2

螺旋接线柱
Screw plug PG7



制动器特点 BRAKE CHARACTERISTICS	T0	T1	F1	T2	F2	T3	F3	T4	F4	单位 Unit
电源电压+10%到15% <i>Supply Voltage +10% -15%</i>	24	24	24	24	24	24	24	24	24	Vdc
电源电流 <i>Supply Current</i>	0.5	0.75	0.75	1.75	1.75	2.3	2.3	2.3	2.3	A
安全制动器保持转矩 <i>Stating brake holding torque</i>	2.2	9	9	30	30	90	90	90	90	Nm
惯量 <i>Inertia</i>	17	50	50	446	446	2300	2300	2300	2300	10 ⁻⁶ kgm ²
重量 <i>Weight</i>	1	1.8	2	5	6.3	12.3	14	15	17	kg
最大角间隙 <i>Max angular backlash</i>	20	20	20	20	20	20	20	20	20	min
长度[A] <i>Length [A]</i>	53	49	49	59	59	64	70	85	90	mm

小心:

只有电源电压在指定的范围内时, 制动器才会正确松开; 规定的制动器转矩经过了较准, 并且制动器转矩是固定值。必须夹紧制动器, 在电动机停止时松开。

Caution:

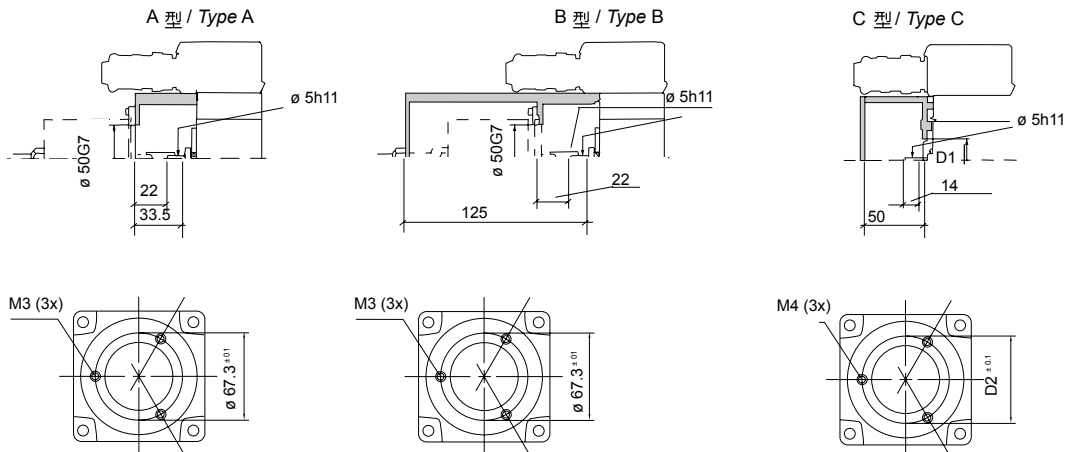
Brake will only release correctly when the supply is within the specified voltage range; the brake torques stated are calibrated and fixed values. Brake must be clamped and released with motor at standstill.

对于FZS T3/F3 和 T4/F4 来说, 螺旋接线柱只能用于 B型接线盒, C型接头上提供有制动器。

For FAS T3/F3 and T4/F4 the screw plug is just for type B connector box. Brake supplied by connector for Type C connection

光学编码器安装套件 (T00、T4和扇冷式电动机不可用)

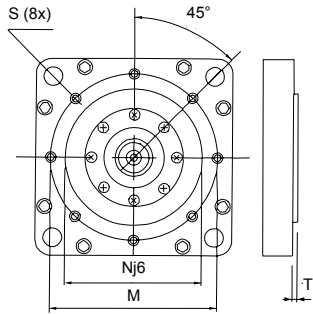
Optical encoder mounting kit (not available for T00, T4 and fan cooled motors)



注 (仅B型): 对于FAS T0电动机来说 直径为42 ± 0.1时, 固定孔直径为4.5。
Note (type B only): for FAS T0 motors the fixing holes are $\varnothing 4.5$ on $\varnothing 42 \pm 0.1$

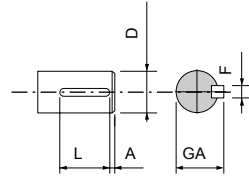
编码器安装套件类型 MOUNTING KIT TYPE		T0	T1	T2	T3	单位 Unit
重量 Weight	A	0.2	0.4	1	2	kg
	B	0.8	1.1	2	4.5	kg
	C	0.4	0.7	1.5	3.2	kg
	D1	35	35	60	60	mm
	D2	55	55	75	75	mm

机械选装件 / MECHANICAL OPTIONS
法兰
B14 Flange



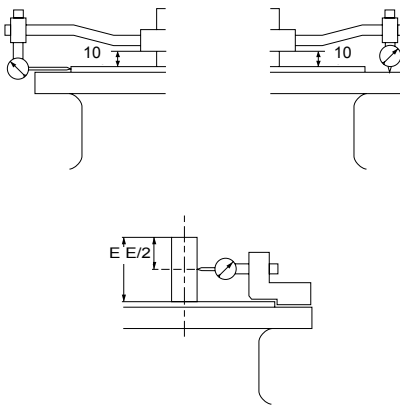
型号 TYPE	T/F1	T/F2	T/F3	T/F4
N	70	95	130	180
M	85	115	165	215
T	2.5	3	3.5	4
S	M6x9	M8x12	M10x15	M12x15

带键的轴 [符合 IEC 72-1 (1991)]
Shaft with key [according IEC 72-1 (1991)]



型号 TYPE	T00	T0	T/F1	T/F2	T/F3 M-V2-3	T/F3 M-V4-6-8	T/F4
D	9k6	14j6	19j6	24j6	32k6	42k6	55m6
L	14	20	25	32	40	70	70
A	3	3	3	3	4	5	5
GA	10.2	16	21.5	27	35	45	59
F	3	5	6	8	10	12	16

偏心率[极限值, 符合IEC72-1 (1991)]
Eccentricity [limit values according IEC 72-1 (1991)]



型号 TYPE	T00	T0	T/F1	T/F2	T/F3	T/F4
标准公差 Standard Tolerance	0.080	0.080	0.080	0.100	0.100	0.125
缩减的公差 Reduced Tolerance	0.040	0.040	0.040	0.050	0.050	0.063

型号 TYPE	T00	T0	T/F1	T/F2	T/F3	T/F4
标准公差 Standard Tolerance	0.030	0.035	0.040	0.040	0.050	0.060
缩减的公差 Reduced Tolerance	0.015	0.018	0.021	0.021	0.025	0.030

连接标准 / CONNECTIONS
Standard

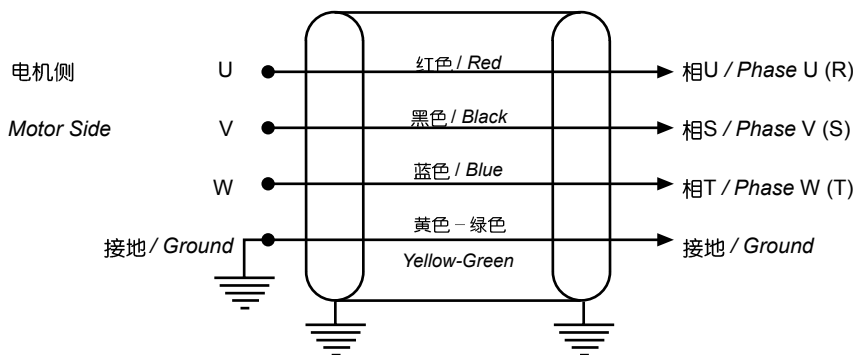
T00 电机

所有T00电机的接线头都有200毫米长, 信号电缆的横截面为0.24平方毫米; 电源电缆的横截面为0.61平方毫米。

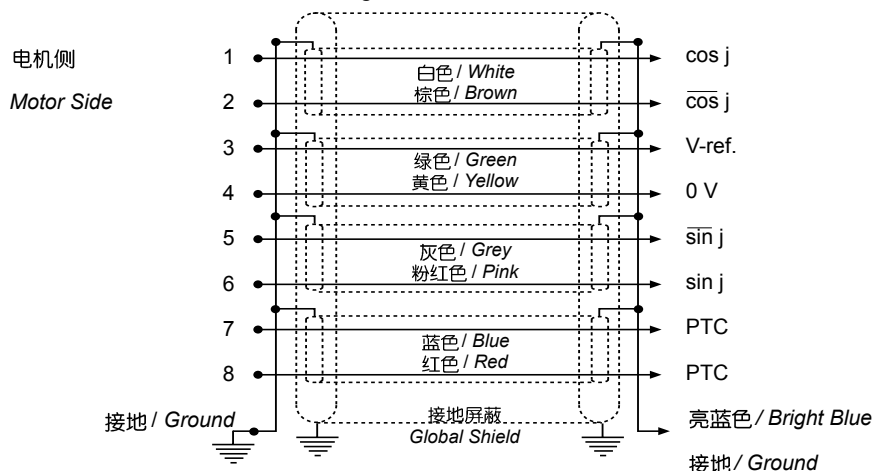
T00 motors

All T00 motors have connection leads length= 200mm, section 0.24 mm² for signal cable and 0.61 mm² for power cable.

电源连接* / Power connection*



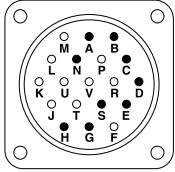
信号电缆* / Signal cable*



(*) 使用接头夹的接地屏蔽
(*) Grounding of shield via connector clamp

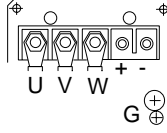
接线盒尺寸 (mm) / Connection Box Dimension (mm) (T00不可用 - not available for T00)		
A型 / Type A	B型 / Type B	C型 / Type C
75 x 75 x 43	100 x 100 x 60	140 x 124 x 80

信号连接器
(用于所有FAS T/F, 但IP67 选装件和T00 除外)
PT 00E 14-19 PC-10, PT06F 8AG 14-19S
Signal connector
(for all FAS T/F, except IP 67 option and T00)
PT 00E 14-19 PC-10, PT06F 8AG 14-19S

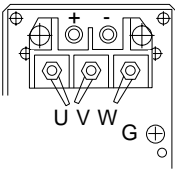


解码器 / Resolver
C $\cos \varphi$
E $\cos \varphi$
D V-ref
B 0V
N PTC
A PTC
G $\sin \varphi$
H $\sin \varphi$
S 屏蔽 / shield

电源接线器 - B 型接线盒
Power terminal board - Type B box
U 相 U / Phase U
V 相 V / Phase V
W 相 W / Phase W
G 接地 / Ground
+ 制动器 / Brake
- 制动器 / Brake

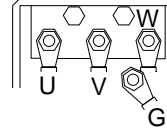


电源接线器 - A 型接线盒
Power terminal board - Type A box



U 相 U / Phase U
V 相 V / Phase V
W 相 W / Phase W
G 接地 / Ground
+ 制动器 / Brake
- 制动器 / Brake

电源接线器 - C 型接线盒
Power terminal board - Type C box

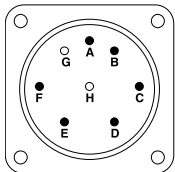


U 相 U / Phase U
V 相 V / Phase V
W 相 W / Phase W
G 接地 / Ground

选装件 / OPTIONS

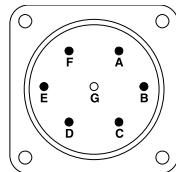
C 电源和制动器连接器 (FAS T00不可用) / Power and brake connectors (not available for FAS T00)

Connettore potenza - Scatola **Tipo A**
Power connector - Type A box
PT 00E 16-8 PC-2, PT06F8 AG 16-8S



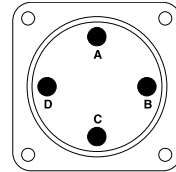
A 相 U / Phase U
B 相 V / Phase V
C 相 W / Phase W
D 接地 / Ground
E 制动器 / Brake +
F 制动器 / Brake -

Connettore potenza - Scatola **Tipo B**
Power connector - Type B box
97B 3100RS 24-10P, 97B3106F 24-10S



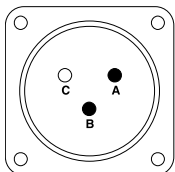
A 相 U / Phase U
B 相 V / Phase V
C 相 W / Phase W
D 接地 / Ground
E 制动器 / Brake +
F 制动器 / Brake -

Connettore potenza - Scatola **Tipo C**
Power connector - Type C box
97B 3102R 36-5P, 97B3106F 36-5S



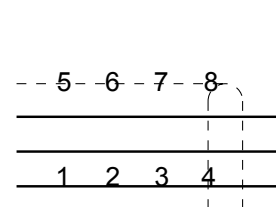
A 相 U / Phase U
B 相 V / Phase V
C 相 W / Phase W
D 接地 / Ground

制动器连接器
(供带有C型接线盒的电动机选装的部件)
Brake connector
(option for motors with type C box)
PT 00E 8-3PC, PT06F 8AG3S
(关于T/F3-T/F4, 参见第10-16页上的图)
(see drawing pgs 10-16 for T/F3-T/F4)



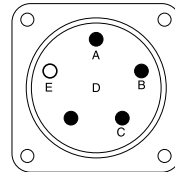
A 制动器 / Brake +
B 制动器 / Brake -

IP67 型信号连接器 (*)
(仅用于 IP67 保护装置)
IP67 version signal connector (*)
(only for IP67 protection)
AMPMODU II 280637



1 $\cos \varphi$
2 $\overline{\cos \varphi}$
3 V-ref
4 0V
5 $\sin \varphi$
6 $\overline{\sin \varphi}$
7 PTC
8 PTC

风扇连接器
(FAS F3 和 FAS F4电动机用; 按2.8x0.5的方式坚固 FAS F1 和 F2 接头)
Fan connector
(for FAS F3 and FAS F4 motors; FAS F1 and F2 connection by faston 2.8x0.5)
PT 00E 14-5 PC1,

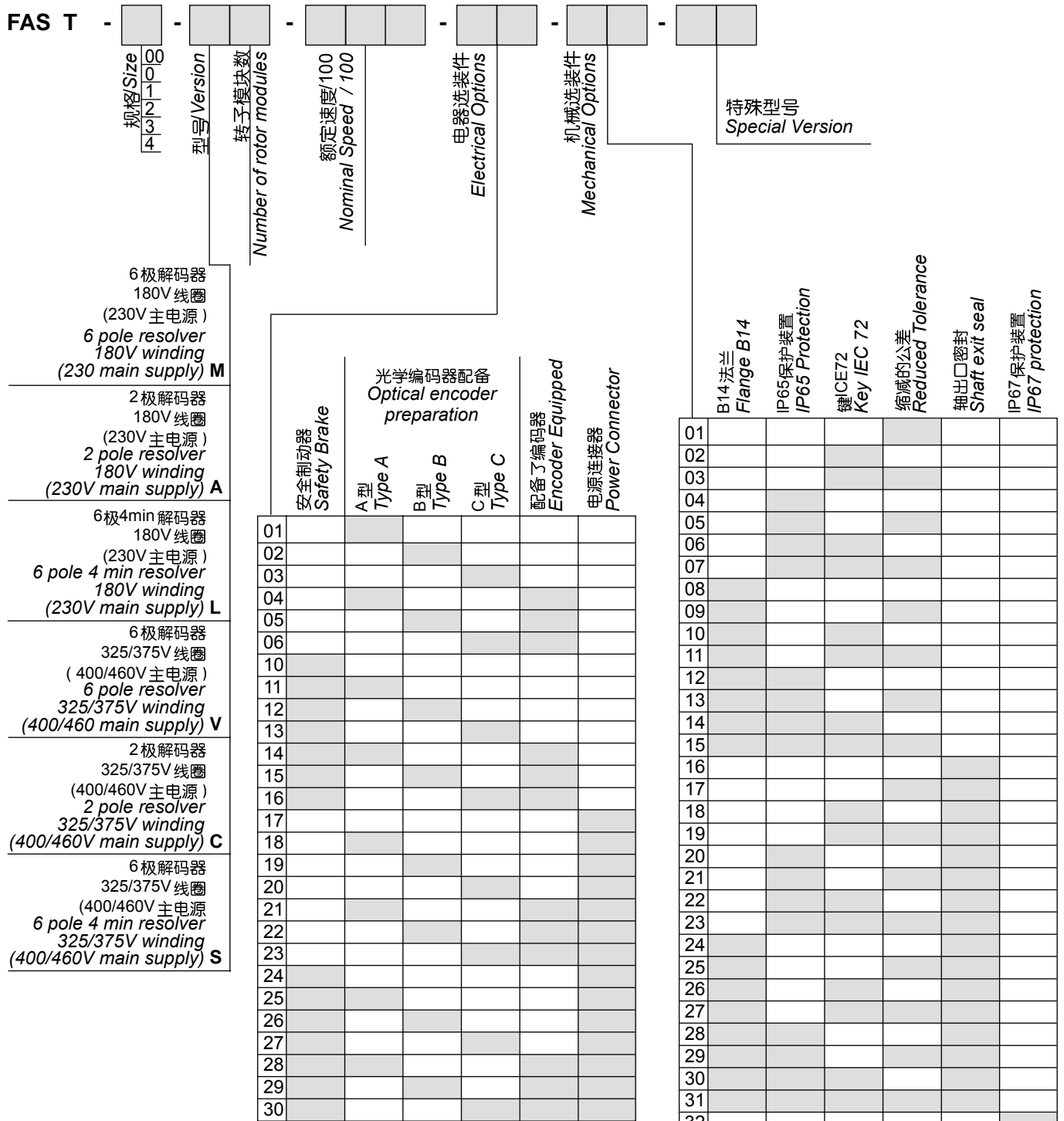


A 相 U / Phase U
B 相 V / Phase V
C 相 W / Phase W
D Massa / Ground

(*) 注: T00和FAS F不可用。插塞式连接器、触点和电缆夹可以单独订购。可选的电源接线器与IP67保护装置不兼容。要转动接线盒的话, 必须更改垫圈。

(*) Note: not available for T00 and FAS F. Plug connector, contacts and cable clamps can be ordered separately. The optional power connector is incompatible with the IP67 protection. To rotate the connector box, gaskets must be changed

型号代码 / MODEL CODE

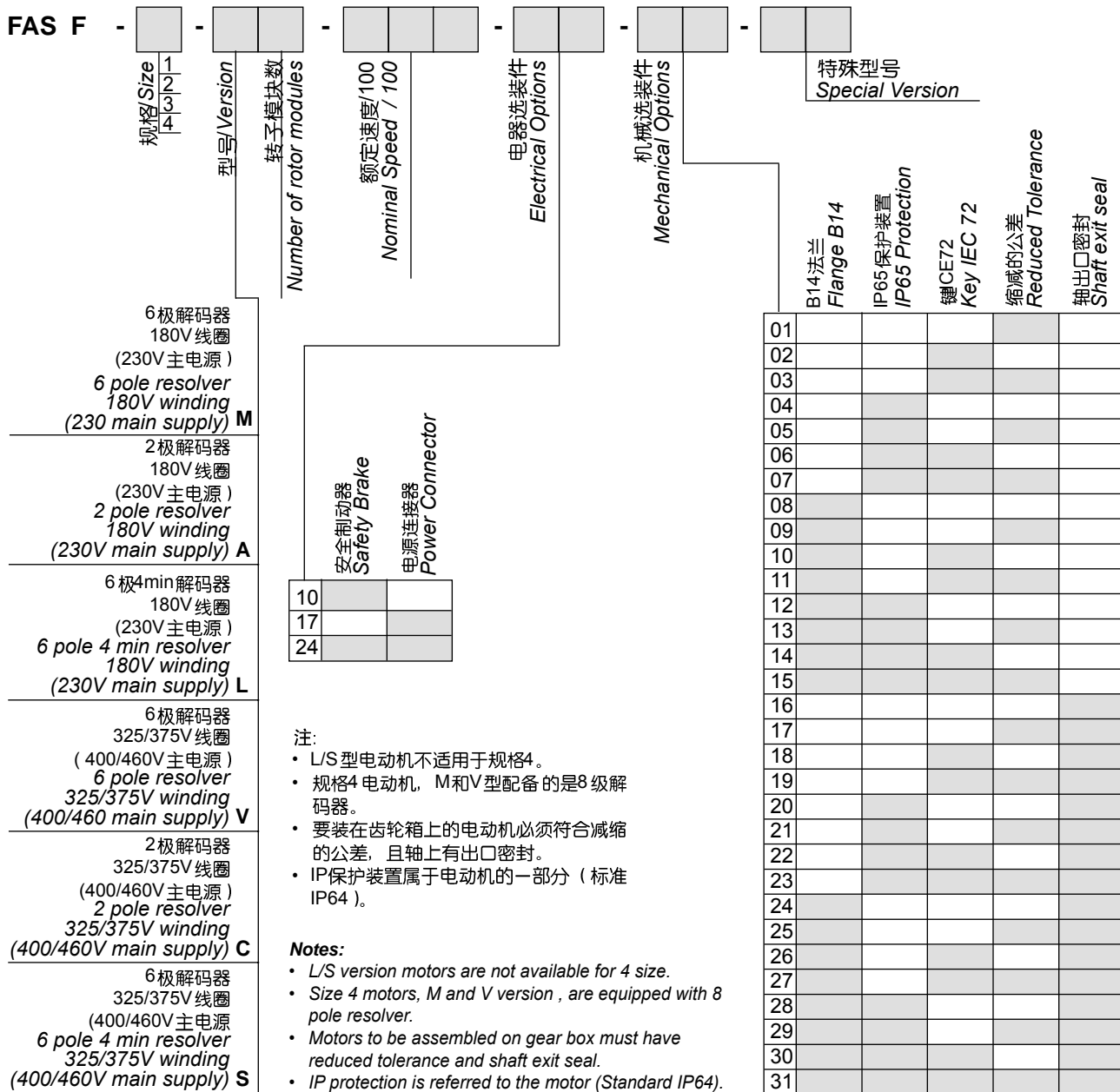


注:

- L/S型电机不适用于规格00和4。
- 规格4电机, M和V型配备的是8级解码器。
- 要装在齿轮箱上的电动机必须符合缩减的公差, 且轴上有出口密封。
- 如果“配备了”编码器的话, 则会在电动机代码“特殊型号”的最后两个数字中指出其型号。
- IP保护装置属于电动机的一部分(标准IP64)。
- 电源接线器不适用于在IP67保护装置中。

Notes:

- L/S version motors are not available for 00 and 4 size.
- Size 4 motors, M and V version, are equipped with 8 pole resolver.
- Motors to be assembled on gear box must have reduced tolerance and shaft exit seal.
- If “equipped” the type of encoder is indicated in the last two digits of motor code “Special Version”.
- IP protection is referred to the motor (Standard IP64).
- Power connector is not available with IP67 protection



RECOMMENDED WIRING
 Signal cable: 4 pair individually twisted & shielded and with an overall shield. Low capacitance, & a minimum 0.38 mm² cross section per conductor. Cable length should not exceed 30 m. The signal cable and power / brake cable must be separated by a distance of at least 30 cm.
 Brake cable: one pair 20 AWG (0.60 mm²) minimum wire, shielded
 Drive cable: four conductors, screened, recommended section for single wire, as in technical data table
 Fan cable: FAS F1 and F2, 3-conductor cable 0.60 mm² section (AWG20); FAS F3 and F4, 4-conductor cable 0.15 mm² section (AWG16)

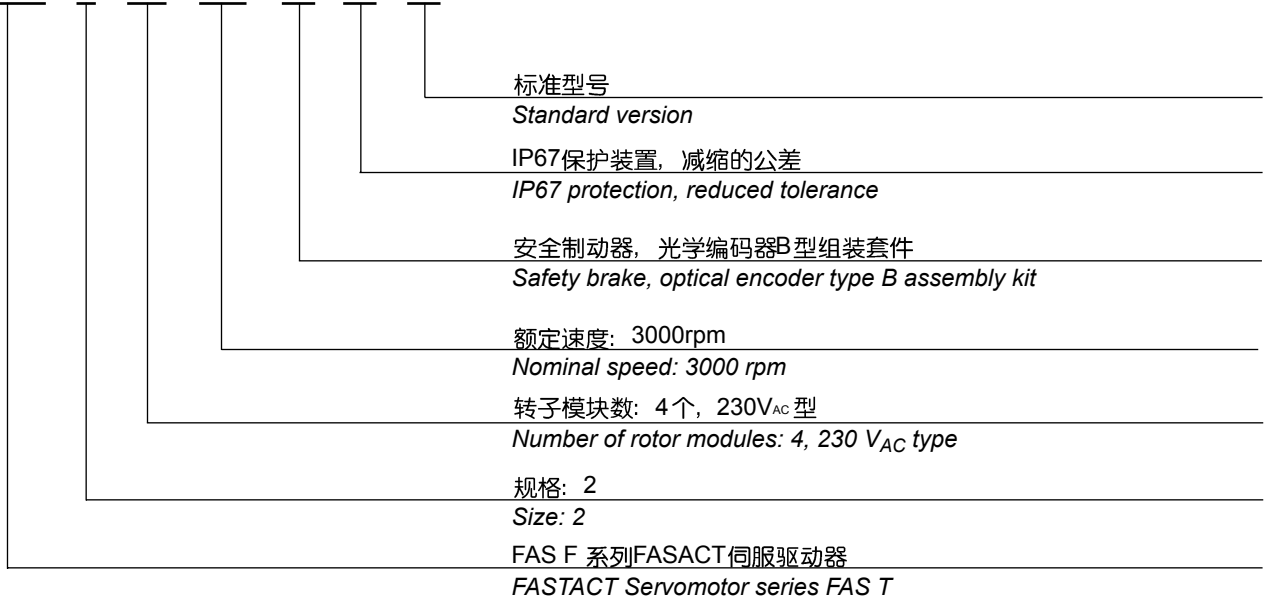
EMC
 To meet the EC Directive 89/336/EEC (EMC), and for the proper system operation, signal and power cables must be shielded (85% minimum coverage).
 The shield must be earthed at both sides with Radio Frequency type connection (i.e. 360°).
 The motor connections must be made as follows:
 Connector: Via connector clamp;
 Terminal board: Via the proper clip to the grounding screw.

推荐的接线
 信号电缆: 4对导线单独扭曲并屏蔽, 最后再全部屏蔽的导线。每根导线的最低横截面为0.38平方毫米, 且是低容量。电缆长度不应超出30米。信号电缆和电源电缆/制动器电缆必须隔出至少30厘米的距离。
 制动器电缆: 一对20AWG的屏蔽线(横截面最少为0.60平方毫米)
 驱动器电缆: 4根屏蔽导线, 每根导线推荐的截面积为技术数据表上的值。
 风扇电缆: FAS F1和F2, 3根横截面为0.60平方毫米的电缆(AWG20); FAS F3和F4, 4根横截面为0.15平方毫米的电缆(AWG16)

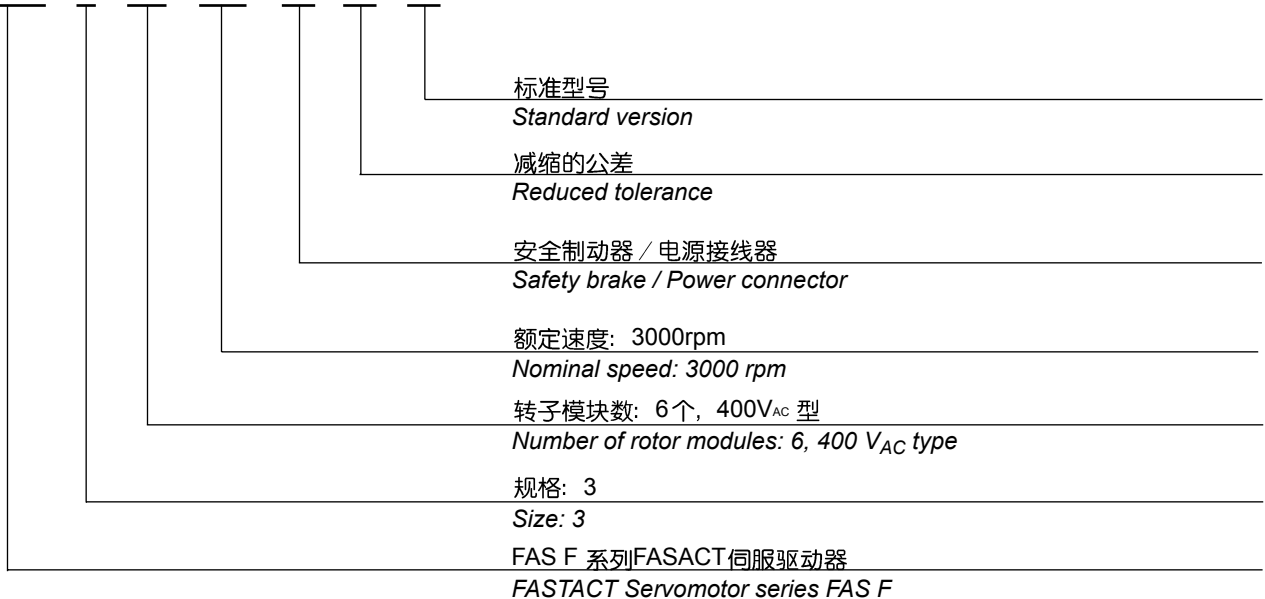
EMC
 为了符合EC指令89/336/EEC (EMC) 以及使系统正常运行, 必须使信号电缆和电源电缆屏蔽起来(最低85%的覆盖范围)。屏蔽两端必须按照典型的RF连接方法(即360°)接地。
 必须按如下方法连接电动机: 连接器: 通过接头夹; 接线板: 通过接地螺钉上的正确夹子。

代码实例 / **CODE EXAMPLE**

FAST - 2 - M4 - 030 - 12 - 33 - 00



FASF - 3 - V6 - 030 - 17 - 01 - 00



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CAS-008 0101 CNS 10 01