

永磁低速同步电动机

PM Slow Speed Synchronous Motors



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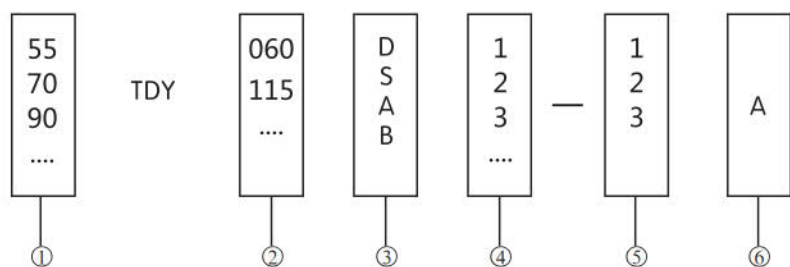
苏州斯奥克微电机制造有限公司
Suzhou SOK Micro Motor Mfg. Co.,Ltd.

概述 Description

本系列电机是一种无需齿轮减速装置直接获得低转速高转矩的新颖同步电动机，电机为全封闭式结构，其性能主要为转速恒定、振动小、噪声低和起动转矩大，电机在负载、启/停、正/反转和堵转时其电流变化小。该电机具有一定的自锁转矩，如电机采用直流激磁，可大幅度的增加自锁转矩。该电机能瞬间启/停、正/反转和堵转，被广泛地使用在工业自动化、电动阀门执行机构、机床进给、医疗机械、包装印刷、纺织机械和热交换器等场合。若配以TDY专用控制器GSI-02LF可获得无级调速以适合各种调速系统的需要。

This TDY motor is one kind of totally enclosed motor, which can produce low speed and high torque directly without any gear head, and has many advantages such as constant output speed, low vibration&noise, high starting torque and no impact current when starting, stopping, reversing and stalling. The TDY motors have certain holding torque, if it is excited by DC power, it will produce high holding torque. In addition, this TDY motor can start, brake, reverse and stall instantly. The TDY motors are mainly used as driving elements of low speed driving systems, such as instrument and meters, feed mechanism of lathes, rotary heat exchanger and actuator elements of open-loop control systems. The TDY motors can achieve stepless variable speed if they are driven by SOK's special inverter GSI-02LF.

型号命名 Motors type identification

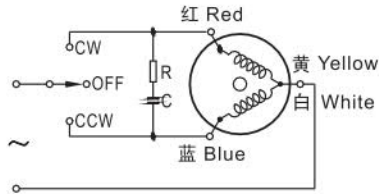


- ① 机座号：定子外径 (mm)
 - ② 电机转速：060-60r/min; 115-115.38r/min...
 - ③ 电源相数：D-单相；S-三相；A-单相去电阻；B-三相四线
 - ④ 电压/频率：1-24V/50Hz; 2-36V/50Hz; 3-110V/50Hz; 4-220V/50Hz; 5-380V/50Hz; 6-115V/60Hz; 7-230V/60Hz
 - ⑤ 电机长度：1-短尺寸；2-标准尺寸；3-长尺寸
 - ⑥ 电机结构：A-方形结构
- ① Frame size: motor outside dia. in mm
 - ② Motor speed: 060-60r/min; 115-115.38r/min...
 - ③ Phase: D-Single phase; S-Three phase; A-Single phase without R; B-Three phase with four lines
 - ④ Voltage/Frequency: 1-24V/50Hz; 2-36V/50Hz; 3-110V/50Hz; 4-220V/50Hz; 5-380V/50Hz; 6-115V/60Hz; 7-230V/60Hz
 - ⑤ Motor length: 1-short stator core length; 2-standard stator core length; 3-long stator core length
 - ⑥ Motor structure: square

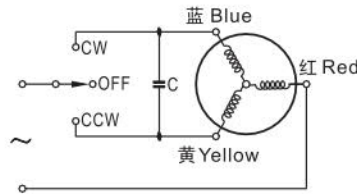
使用环境条件 Ambient condition

- 1、温度(Temperature): -25 °C~+40 °C
- 2、相对湿度(Relative humidity): 90%~95%
- 3、气压(Atmospheric pressure): 74.8Kpa(2500m)
- 4、振动(Vibration): 10~55Hz,双振幅(double amplitude) 1.5mm
- 5、冲击(Impact): 150m/s² (峰值加速度 peak acceleration)

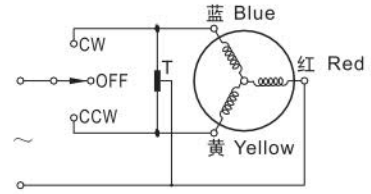
接线图 Wiring diagram



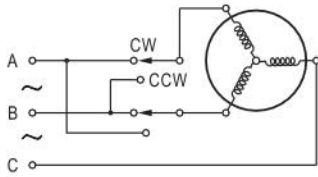
A



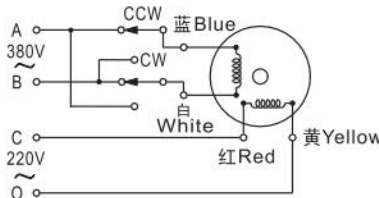
B



C



D



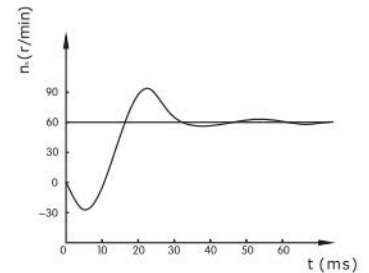
E

- | | |
|----------|-------------------------------------|
| A.单相接法 | A. single phase(with R/C) |
| B.单相接法 | B. single phase(with C without R) |
| C.单相接法 | C. single phase(with C(T)without R) |
| D.三相接法 | D. three phase |
| E.三相四线接法 | E. three phase with four lines |

电机的启/停特性 Starting and stopping characteristics

电机能在电源频率的1.5周期内，迅速牵入或牵出同步，对50Hz电源的电机，能在30ms内达到牵入或牵出最终的同步转速，图示为典型50Hz，60r/min电机的启/停特性。

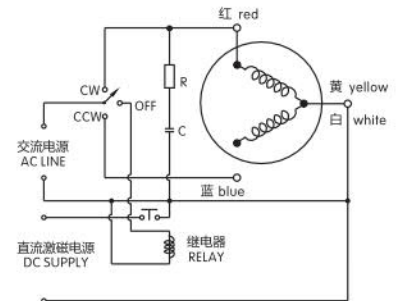
The motors will start and stop within 1.5 cycles of applied frequency, and pull-in and pull-out from synchronous speed are within 30ms for 50Hz frequency. Please refer to starting-stopping characteristics figure of 50Hz&60r/min motors.



增加电机自锁转矩 How to increase motors holding torque

当需要增加电机自锁转矩时，请采用图示的典型接线方法，所需要的有关直流激励电压值和使用电机规格及要求的自锁转矩值，请向本公司咨询。

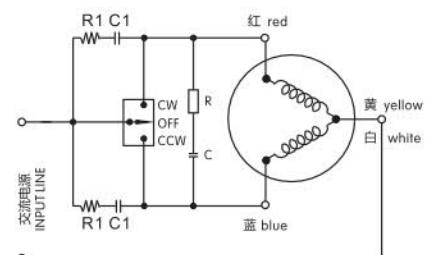
If high holding torque is required, please connect the motor according to the following wiring diagram. Please be noted that the holding torque depends on actual DC exciting voltage and specification of motors. Please feel free to contact SOK.



电机频繁启/停、正/反和堵转工作时控制开关触点保护线路 Control switch contact protection

当电机工作于频繁起/停、正/反和堵转工作时，为了对开关触点进行保护，请采用典型的保护线路。由0.1μF/400V和330Ω/1W组成的放电回路，可以将频繁启/停、正/反转和堵转工作时控制开关触点感应的高压电进行释放，从而延长了控制开关触点的使用寿命。

The figure shows typical control switch contact protection connection, the arcing is eliminated which caused from transient voltage when motor run at frequent starting & stopping, rotation reverse and stalling. Recommended value for additional capacitor and resistor are 0.1 μF/400V and 330 Ω/1W.



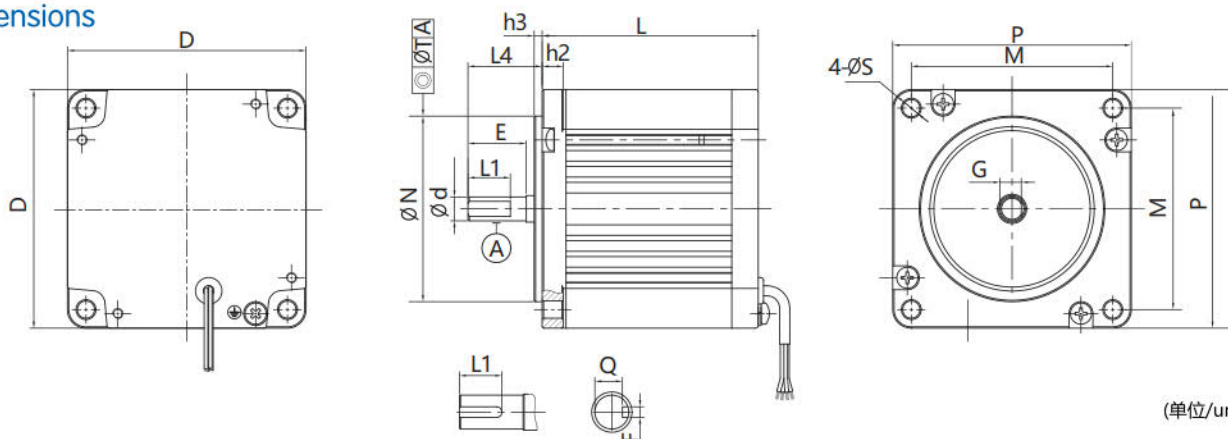
电机轴上允许承载力 Maximum shaft loads

型号 Type	轴伸直径 Motor shaft dia.	转轴承受最大轴向负载力 Maximum shaft axial load	转轴承受最大径向负载力 Maximum shaft radial load
	mm	kg	kg
55TDY	φ6	10.0	6.0
70TDY	φ8	16.0	8.5
90TDY	φ9	21.0	10.0
110TDY	φ11	25.0	12.0
130TDY	φ16	45.0	25.0
150TDY	φ16	45.0	25.0

注意：由于本电机转轴为不锈钢材料，请在表格所示的轴允许承受负载力时使用本电机！

Note: As the motors shaft materials are stainless steel, do not exceed the value show as the table when use the motors please!

外形图 Dimensions



(单位/unit=mm)

图示尺寸/Dimension		电机机座号/Frame size					
代号/Code	公差/Tolerance	55	70	90	110	130	150
D	h12	55	70	90	110	130	φ 150
N	h7	42	54	70	85	100	100
d	f7	6	8	9	11	16	16
E		16	20	22	26	30	38
L4		21	25	28	32	37	45
h2	±0.10	6	6	8	9	11	16
h3	h13	2	2.5	3	3	4	5
P		58	70	90	110	130	156
M	±0.15	48	60	76	94	110	125
S		4.5	5.5	6.5	6.5	8.5	9
G	h11	5	7	8	10	14	14
F	h11	2	3	3	4	5	5
Q	h11	4.8	6.2	7.2	8.5	13	13
L	js14	62	74.5	81.5	101	128	150/170
T		0.03	0.03	0.04	0.04	0.05	0.05
Z		0.03	0.03	0.04	0.04	0.05	0.05
L1		12	14	16	18	20	20

以上仅为代表产品，特殊要求产品可以根据客户要求订制，此系列产品中，150TDY为圆形结构。


Above only for representative products, products of special request can be made according to the customer request. The 150 TDY is the circular structure.

参数 Specification

型号 Model	电压 Voltage	相数 Phase	频率 Frequency	转速 Speed	输入 电流 Input Current	输入 功率 Input Power	最大 转矩 Max Torque	额定 转矩 Rated Torque	启动 转矩 Starting Torque	负载 惯量 Load Inertia	转子 惯量 Rotor Inertia	移相 电容 Capacitor	移相电阻 Resistor	重量 Weight
	VAC		Hz	r/min	A	W	mN.m	mN.m	mN.m	g.cm ²	g.cm ²	uF/V	Ω/W	kg
55TDY060D4-2A	220	1	50	60	0.08	16	550	380	200	600	160	0.47/500	1K/8	0.75
55TDY115D4-2A	220	1	50	115.38	0.08	20	400	340	150	600	160	0.47/500	1K/8	0.75
55TDY136D1-2A	24	1	50	136.36	1.00	20	450	400	150	600	160	50/63	20/16	0.75
55TDY060S4-2A	220	3	50	60	0.06	12	600	550	300	600	160	/	/	0.75
55TDY115S4-2A	220	3	50	115.38	0.08	16	500	340	300	600	160	/	/	0.75
70TDY060D4-2A	220	1	50	60	0.15	30	1250	1100	510	1500	700	1.0/500	1.5K/25	1.3
70TDY115D4-2A	220	1	50	115.38	0.15	28	900	850	400	1500	700	1.0/500	1.5K/25	1.3
70TDY060S5-2A	380	3	50	60	0.10	32	1800	1500	750	1500	700	/	/	1.3
70TDY115S5-2A	380	3	50	115.38	0.08	28	1300	1200	600	1500	700	/	/	1.3
90TDY060D4-2A	220	1	50	60	0.35	70	3000	2800	1500	9000	2400	2.7/500	720/50	2.2
90TDY115D4-2A	220	1	50	115.38	0.38	80	2400	2300	1050	9000	2400	3.0/500	620/50	2.2
90TDY060A4-1A	220	1	50	60	0.23	40	2000	1900	950	6500	1200	2.0/500	/	1.5
90TDY060S5-2A	380	3	50	60	0.16	60	3800	3550	1800	9000	2400	/	/	2.2
90TDY115S5-2A	380	3	50	115.38	0.19	70	3000	2500	1500	9000	2400	/	/	2.2
110TDY060D4-2A	220	1	50	60	0.65	115	6500	6000	2700	20000	5100	5.0/500	450/100	4.8
110TDY115D4-2A	220	1	50	115.38	0.65	110	3900	3600	1700	20000	5100	5.0/500	450/100	4.8
110TDY060S5-2A	380	3	50	60	0.35	130	7700	7000	3500	20000	5100	/	/	4.8
110TDY115S5-2A	380	3	50	115.38	0.35	110	6350	6100	2700	20000	5100	/	/	4.8
130TDY060D4-2A	220	1	50	60	0.80	145	9000	8500	3600	30000	13000	7.0/500	360/100	6.5
130TDY115D4-2A	220	1	50	115.38	0.90	150	5500	5000	2200	30000	13000	6.5/500	380/100	6.5
130TDY060S5-2A	380	3	50	60	0.55	150	11000	10000	5500	30000	13000	/	/	6.2
130TDY115S5-2A	380	3	50	115.38	0.60	180	9500	8600	5000	30000	13000	/	/	6.2
150TDY060D4-2	220	1	50	60	1.20	200	13000	12000	6000	50000	23000	8.0/500	260/150	12.5
150TDY115D4-2	220	1	50	115.38	1.20	210	9000	8000	4000	50000	23000	8.0/500	260/150	12.5
150TDY115S5-2	380	3	50	115.38	1.10	320	18000	17000	9000	50000	23000	/	/	13.0

以上仅为代表产品，特殊要求产品可以根据客户要求定制。本产品单相系列，标配电容、电阻，电阻为发热体，电机运行过程中，电阻的表面温度在200°C不等，请注意将电容、电阻至少保证间隔距离100mm以上。

The above are standard products. The products can be customized. The products are single-phase series attached with capacitors and resistors. The resistors are heating elements, during the operation, the surface temperature is about 200°C. Please ensure that the capacitors and the resistors are separated by at least 100mm.



克牌电机 永无止境
SOK motor endless

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