

SIMOTICS S-1FT7 数据表  
Data sheet for SIMOTICS S-1FT7

订货号：1FT7086-1AF71-1CG1  
Article No.：

客户订单号：  
Client order no.：  
西门子订单号：  
Order no.：  
报价号：  
Offer no.：  
注释：  
Remarks：

物品号：  
Item no.：  
托运号：  
Consignment no.：  
项目：  
Project：



图像类似  
Figure similar

选型数据  
Engineering data

|                                       |             |
|---------------------------------------|-------------|
| 额定转速<br>Rated speed                   | 3,000 rpm   |
| 极数<br>Number of poles                 | 10          |
| 额定扭矩 (100 K)<br>Rated torque (100 K)  | 18.0 Nm     |
| 额定电流<br>Rated current                 | 11.00 A     |
| 静态扭矩 (60 K)<br>Static torque (60 K)   | 23.0 Nm     |
| 静态扭矩 (100 K)<br>Static torque (100 K) | 28.0 Nm     |
| 静止电流 (60 K)<br>Stall current (60 K)   | 12.50 A     |
| 静止电流 (100 K)<br>Stall current (100 K) | 15.50 A     |
| 转子的转动惯量<br>Rotor moment of inertia    | 63.60 kgcm² |
| 有效系数<br>Efficiency                    | 93.0 %      |

物理常量  
Physical constants

|                                              |                                |
|----------------------------------------------|--------------------------------|
| 扭矩常量<br>Torque constant                      | 1.81 Nm/A                      |
| 电压常数, 20° C 时<br>Voltage constant at 20° C   | 114.0 V/1000*min <sup>-1</sup> |
| 绕组电阻, 20° C 时<br>Winding resistance at 20° C | 0.23 Ω                         |
| 旋转磁场电感<br>Rotary field inductance            | 4.0 mH                         |
| 电气时间常数<br>Electrical time constant           | 17.40 ms                       |
| 机械时间常数<br>Mechanical time constant           | 1.30 ms                        |
| 热时间常数<br>Thermal time constant               | 60 min                         |
| 轴抗扭刚度<br>Shaft torsional stiffness           | 74,000 Nm/rad                  |
| 电机净重<br>Net weight of the motor              | 27.5 kg                        |

机械数据  
Mechanical data

|                                       |                                                                                                                                                                                                                                                                               |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 电机类型<br>Motor type                    | 永磁同步电机<br>Permanent-magnet synchronous motor                                                                                                                                                                                                                                  |
| 电机类型<br>Motor type                    | Compact 凑核心型<br>Compact core type                                                                                                                                                                                                                                             |
| 轴高<br>Shaft height                    | 80                                                                                                                                                                                                                                                                            |
| 冷却<br>Cooling                         | 自冷却<br>Natural cooling                                                                                                                                                                                                                                                        |
| 圆跳公差<br>Radial runout tolerance       | 0.050 mm                                                                                                                                                                                                                                                                      |
| 同轴度公差<br>Concentricity tolerance      | 0.100 mm                                                                                                                                                                                                                                                                      |
| 端面跳动公差<br>Axial runout tolerance      | 0.100 mm                                                                                                                                                                                                                                                                      |
| 振动值等级<br>Vibration severity grade     | 等级 A<br>Grade A                                                                                                                                                                                                                                                               |
| 防护等级<br>Degree of protection          | IP65                                                                                                                                                                                                                                                                          |
| 结构型式, 根据代码 I<br>Design acc. to Code I | IM B5 (兼容 1FT6)<br>IM B5 (compatible with 1FT6)                                                                                                                                                                                                                               |
| 温度监视<br>Temperature monitoring        | 温度传感器 Pt1000<br>Pt1000 temperature sensor                                                                                                                                                                                                                                     |
| 外壳的特殊颜色<br>Color of the housing       | 标准色 (珍珠深灰, 接近 RAL 9023)<br>Standard (pearl dark gray similar to RAL 9023)                                                                                                                                                                                                     |
| 轴端型号<br>Shaft end type                | 光轴<br>Plain shaft                                                                                                                                                                                                                                                             |
| 编码器型号<br>Sensor design                | 编码器 AM24DQI : 绝对值编码器 24 位 (分辨率 16777216, 编码器内部 2048S/R) + 12 位多圈 (运行范围 4096 转) - 带信号接口 RJ45<br>Encoder AM24DQI: Absolute encoder 24 bit (resolution 16777216, encoder-internal 2048 S/R) + 12 bit Multiturn (traversing range 4096 revolutions) - with signal connection RJ45 |
| 电气接线<br>Electrical connection         | 连接器可旋转<br>Connector turnable                                                                                                                                                                                                                                                  |
| 连接器尺寸<br>Connector size               | 1,5                                                                                                                                                                                                                                                                           |

最佳工作点  
Optimum operating point

|                       |           |
|-----------------------|-----------|
| 最佳转速<br>Optimum speed | 3,000 rpm |
| 最佳功率<br>Optimum power | 5.7 kW    |



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| 极限数据<br>Limiting data |  |
|-----------------------|--|
|-----------------------|--|

|                                              |           |
|----------------------------------------------|-----------|
| 最大允许转速（机械）<br>Max. permissible speed (mech.) | 8,000 rpm |
|----------------------------------------------|-----------|

|                                                  |           |
|--------------------------------------------------|-----------|
| 最大允许转速（变频器）<br>Max. permissible speed (inverter) | 5,100 rpm |
|--------------------------------------------------|-----------|

|                        |          |
|------------------------|----------|
| 最大扭矩<br>Maximum torque | 120.0 Nm |
|------------------------|----------|

|                         |         |
|-------------------------|---------|
| 最大电流<br>Maximum current | 78.00 A |
|-------------------------|---------|

| 推荐的电机模块<br>Recommended Motor Module |  |
|-------------------------------------|--|
|-------------------------------------|--|

|                                   |         |
|-----------------------------------|---------|
| 变频器额定电流<br>Rated inverter current | 18.00 A |
|-----------------------------------|---------|

|                                     |         |
|-------------------------------------|---------|
| 变频器最大电流<br>Maximum inverter current | 36.00 A |
|-------------------------------------|---------|