

## Data sheet for SIMOTICS S-1FT7

Article No. : 1FT7102-5WF71-1FH1

Client order no. :  
Order no. :  
Offer no. :  
Remarks :

Item no. :  
Consignment no. :  
Project :



Figure similar

### Engineering data

|                         |                          |
|-------------------------|--------------------------|
| Rated speed             | 3,000 rpm                |
| Number of poles         | 10                       |
| Rated torque (100 K)    | 45.5 Nm                  |
| Rated current           | 38.80 A                  |
| Static torque (60 K)    | 40.0 Nm                  |
| Static torque (100 K)   | 50.0 Nm                  |
| Stall current (60 K)    | 32.80 A                  |
| Stall current (100 K)   | 40.00 A                  |
| Rotor moment of inertia | 125.00 kgcm <sup>2</sup> |
| Efficiency              | 95.0 %                   |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 1.22 Nm/A                     |
| Voltage constant at 20° C   | 77.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 0.06 Ω                        |
| Rotary field inductance     | 1.2 mH                        |
| Electrical time constant    | 20.00 ms                      |
| Mechanical time constant    | 1.20 ms                       |
| Thermal time constant       | 2 min                         |
| Shaft torsional stiffness   | 124,000 Nm/rad                |
| Net weight of the motor     | 40.9 kg                       |

### Mechanical data

|                          |                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor type               | Permanent-magnet synchronous motor                                                                                                                |
| Motor type               | Compact                                                                                                                                           |
| Shaft height             | 100                                                                                                                                               |
| Cooling                  | Water cooling                                                                                                                                     |
| Radial runout tolerance  | 0.050 mm                                                                                                                                          |
| Concentricity tolerance  | 0.100 mm                                                                                                                                          |
| Axial runout tolerance   | 0.100 mm                                                                                                                                          |
| Vibration severity grade | Grade A                                                                                                                                           |
| Degree of protection     | IP65                                                                                                                                              |
| Design acc. to Code I    | IM B5 (compatible with 1FT6)                                                                                                                      |
| Temperature monitoring   | Pt1000 temperature sensor                                                                                                                         |
| Color of the housing     | Standard (pearl dark gray similar to RAL 9023)                                                                                                    |
| Shaft end type           | Plain shaft                                                                                                                                       |
| Sensor design            | Encoder AM22DQ: absolute encoder 22 bits (resolution 4194304, encoder-internal 2048 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |
| Electrical connection    | Connector turnable                                                                                                                                |
| Connector size           | 1.5                                                                                                                                               |

### Optimum operating point

|               |           |
|---------------|-----------|
| Optimum speed | 3,000 rpm |
| Optimum power | 14.3 kW   |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 6,000 rpm |
| Max. permissible speed (inverter) | 6,000 rpm |
| Maximum torque                    | 130.0 Nm  |
| Maximum current                   | 135.00 A  |

### Recommended Motor Module

|                          |         |
|--------------------------|---------|
| Rated inverter current   | 45.00 A |
| Maximum inverter current | 85.00 A |
| Maximum torque           | 89.5 Nm |

### Holding brake

|                        |                        |
|------------------------|------------------------|
| Holding brake version  | Permanent-magnet brake |
| Holding torque         | 85.0 Nm                |
| Braking torque         | 35.0 Nm                |
| Power supply voltage   | DC 24 V                |
| Coil current           | 1.60 A                 |
| Permissible brake work | 5,300 J                |
| Opening time           | 250 ms                 |
| Closing time           | 70 ms                  |