

## Data sheet for SIMOTICS S-1FK7



Figure similar

Article No. : 1FK7044-4CF71-1RB0

Client order no. :  
Order no. :  
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Item no. :  
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Project :

### Engineering data

|                       |                         |
|-----------------------|-------------------------|
| Rated speed (100 K)   | 3,000 rpm               |
| Number of poles       | 6                       |
| Rated torque (100 K)  | 3.7 Nm                  |
| Rated current         | 3.5 A                   |
| Static torque (60 K)  | 3.75 Nm                 |
| Static torque (100 K) | 4.50 Nm                 |
| Stall current (60 K)  | 3.20 A                  |
| Stall current (100 K) | 4.00 A                  |
| Moment of inertia     | 1.620 kgcm <sup>2</sup> |
| Efficiency            | 91.0 %                  |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 1.13 Nm/A                     |
| Voltage constant at 20° C   | 72.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 1.49 Ω                        |
| Rotating field inductance   | 18.8 mH                       |
| Electrical time constant    | 12.60 ms                      |
| Mechanical time constant    | 0.44 ms                       |
| Thermal time constant       | 45 min                        |
| Shaft torsional stiffness   | 7,900 Nm/rad                  |
| Net weight of the motor     | 8.0 kg                        |

### Mechanical data

|                          |   |
|--------------------------|---|
| Motor type               | Permanent-magnet synchronous motor  |
| Motor type               | High Dynamic  |
| Shaft height             | 48  |
| Cooling                  | Natural cooling   |
| Radial runout tolerance  | 0.040 mm  |
| Concentricity tolerance  | 0.08 mm   |
| Axial runout tolerance   | 0.08 mm   |
| Vibration severity grade | Grade A   |
| Connector size           | 1   |
| Degree of protection     | IP64  |
| Design acc. to Code I    | IM B5 (IM V1, IM V3)  |
| Temperature monitoring   | Pt1000 temperature sensor   |
| Electrical connectors    | Connectors for signals and power rotatable  |
| Color of the housing     | Standard (Anthracite RAL 7016)  |
| Holding brake            | with holding brake  |
| Shaft end                | Feather key   |
| Encoder system           | Encoder AM20DQI: absolute encoder 20 bits (resolution 1048576, encoder-internal 512 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |

### Optimum operating point

|               |           |
|---------------|-----------|
| Optimum speed | 3,000 rpm |
| Optimum power | 1.2 kW    |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 9,000 rpm |
| Max. permissible speed (inverter) | 8,050 rpm |
| Maximum torque                    | 13.0 Nm   |
| Maximum current                   | 12.1 A    |

### Holding brake

|                       |                        |
|-----------------------|------------------------|
| Holding brake version | Permanent-magnet brake |
| Holding torque        | 4.0 Nm                 |
| Power supply voltage  | DC 24 V ± 10 %         |
| Coil current          | 0.5 A                  |
| Opening time          | 70 ms                  |
| Closing time          | 30 ms                  |
| Highest braking work  | 150 J                  |

### Recommended Motor Module

|                          |          |
|--------------------------|----------|
| Rated inverter current   | 5 A      |
| Maximum inverter current | 15 A     |
| Maximum torque           | 13.00 Nm |

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