

## Data sheet for SIMOTICS S-1FK7



Figure similar

Article No. : 1FK7040-2AK71-1FA0

Client order no. :  
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Item no. :  
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Project :

### Engineering data

|                       |                         |
|-----------------------|-------------------------|
| Rated speed (100 K)   | 6,000 rpm               |
| Number of poles       | 8                       |
| Rated torque (100 K)  | 1.1 Nm                  |
| Rated current         | 1.9 A                   |
| Static torque (60 K)  | 1.30 Nm                 |
| Static torque (100 K) | 1.60 Nm                 |
| Stall current (60 K)  | 1.90 A                  |
| Stall current (100 K) | 2.35 A                  |
| Moment of inertia     | 1.600 kgcm <sup>2</sup> |
| Efficiency            | 88.0 %                  |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 0.68 Nm/A                     |
| Voltage constant at 20° C   | 43.4 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 2.87 Ω                        |
| Rotating field inductance   | 16.5 mH                       |
| Electrical time constant    | 5.70 ms                       |
| Mechanical time constant    | 3.00 ms                       |
| Thermal time constant       | 25 min                        |
| Shaft torsional stiffness   | 18,700 Nm/rad                 |
| Net weight of the motor     | 3.2 kg                        |

### Mechanical data

|                          |                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor type               | Permanent-magnet synchronous motor                                                                                                                |
| Motor type               | Compact                                                                                                                                           |
| 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            | without holding brake                                                                                                                             |
| Shaft end                | Feather key                                                                                                                                       |
| Encoder system           | Encoder AM22DQ: absolute encoder 22 bits (resolution 4194304, encoder-internal 2048 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |

### Optimum operating point

|               |           |
|---------------|-----------|
| Optimum speed | 6,000 rpm |
| Optimum power | 0.7 kW    |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 9,000 rpm |
| Max. permissible speed (inverter) | 9,000 rpm |
| Maximum torque                    | 5.1 Nm    |
| Maximum current                   | 7.7 A     |

### Recommended Motor Module

|                          |         |
|--------------------------|---------|
| Rated inverter current   | 3 A     |
| Maximum inverter current | 9 A     |
| Maximum torque           | 5.10 Nm |

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