

## Data sheet for SIMOTICS S-1FK7



Figure similar

MLFB-Ordering data

1FK7040-2AK71-1CB0

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

| Engineering data            |                               | Mechanical data          |   |
|-----------------------------|-------------------------------|--------------------------|---|
| Rated speed (100 K)         | 6000 rpm                      | Motor type               | Permanent-magnet synchronous motor  |
| Number of poles             | 8                             | Motor type               | Compact   |
| Rated torque (100 K)        | 1.1 Nm                        | Shaft height             | 48  |
| Rated current               | 1.9 A                         | Cooling                  | Natural cooling   |
| Static torque (60 K)        | 1.30 Nm                       | Radial runout tolerance  | 0.040 mm  |
| Static torque (100 K)       | 1.6 Nm                        | Concentricity tolerance  | 0.08 mm   |
| Stall current (60 K)        | 1.90 A                        | Axial runout tolerance   | 0.08 mm   |
| Stall current (100 K)       | 2.35 A                        | Vibration severity grade | Grade A   |
| Moment of inertia           | 1.920 kgcm <sup>2</sup>       | Connector size           | 1   |
| Efficiency                  | 88.0 %                        | Degree of protection     | IP64  |
| <b>Physical constants</b>   |                               | Design acc. to Code I    | IM B5 (IM V1, IM V3)  |
|                             |                               | Temperature monitoring   | Pt1000 temperature sensor   |
| Torque constant             | 0.68 Nm/A                     | Electrical connectors    | Connectors for signals and power rotatable  |
| Voltage constant at 20° C   | 43.4 V/1000*min <sup>-1</sup> | Color of the housing     | Standard (Anthracite RAL 7016)  |
| Winding resistance at 20° C | 2.87 Ω                        | Holding brake            | with holding brake  |
| Rotating field inductance   | 16.5 mH                       | Shaft extension          | Feather key   |
| Electrical time constant    | 5.70 ms                       | Encoder system           | Encoder AM24DQI: absolute encoder 24 bits (resolution 16777216, encoder-internal 2048 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |
| Mechanical time constant    | 3.00 ms                       |                          |   |
| Thermal time constant       | 25 min                        |                          |   |
| Shaft torsional stiffness   | 13000 Nm/rad                  |                          |   |
| Net weight of the motor     | 3.9 kg                        |                          |   |



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### Optimum operating point

|               |          |
|---------------|----------|
| Optimum speed | 6000 rpm |
| Optimum power | 0.7 kW   |

### Limiting data

|                                   |          |
|-----------------------------------|----------|
| Max. permissible speed (mech.)    | 9000 rpm |
| Max. permissible speed (inverter) | 9000 rpm |
| Maximum torque                    | 5.1 Nm   |
| Maximum current                   | 7.7 A    |

### Holding brake

|                       |                        |
|-----------------------|------------------------|
| Holding brake version | Permanent-magnet brake |
| Holding torque        | 4.0 Nm                 |
| Power supply voltage  | DC 24 V $\pm$ 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   | 3 A     |
| Maximum inverter current | 9 A     |
| Maximum torque           | 5.10 Nm |