

Data sheet for SIMOTICS S-1FK7



MLFB-Ordering data                      1FK7083-2AH71-1RA1

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

Item no. :  
Consignment no. :  
Project :

| Engineering data            |                               | Mechanical data          |                                                                                                                                                   |
|-----------------------------|-------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated speed (100 K)         | 4500 rpm                      | Motor type               | Permanent-magnet synchronous motor                                                                                                                |
| Number of poles             | 8                             | Motor type               | Compact                                                                                                                                           |
| Rated torque (100 K)        | 3.0 Nm                        | Shaft height             | 80                                                                                                                                                |
| Rated current               | 3.6 A                         | Cooling                  | Natural cooling                                                                                                                                   |
| Static torque (60 K)        | 13.30 Nm                      | Radial runout tolerance  | 0.050 mm                                                                                                                                          |
| Static torque (100 K)       | 16.00 Nm                      | Concentricity tolerance  | 0.10 mm                                                                                                                                           |
| Stall current (60 K)        | 12.20 A                       | Axial runout tolerance   | 0.10 mm                                                                                                                                           |
| Stall current (100 K)       | 15.00 A                       | Vibration severity grade | Grade A                                                                                                                                           |
| Moment of inertia           | 26.000 kgcm²                  | Connector size           | 1                                                                                                                                                 |
| Efficiency                  | 93.0 %                        | Degree of protection     | IP65                                                                                                                                              |
| Physical constants          |                               | Design acc. to Code I    | IM B5 (IM V1, IM V3)                                                                                                                              |
| Torque constant             | 1.06 Nm/A                     | Temperature monitoring   | Pt1000 temperature sensor                                                                                                                         |
| Voltage constant at 20° C   | 69.0 V/1000*min <sup>-1</sup> | Electrical connectors    | Connectors for signals and power rotatable                                                                                                        |
| Winding resistance at 20° C | 0.17 Ω                        | Color of the housing     | Standard (Anthracite RAL 7016)                                                                                                                    |
| Rotating field inductance   | 3.2 mH                        | Holding brake            | without holding brake                                                                                                                             |
| Electrical time constant    | 19.30 ms                      | Shaft end                | Feather key                                                                                                                                       |
| Mechanical time constant    | 1.14 ms                       | Encoder system           | Encoder AM20DQI: absolute encoder 20 bits (resolution 1048576, encoder-internal 512 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |
| Thermal time constant       | 50 min                        |                          |                                                                                                                                                   |
| Shaft torsional stiffness   | 101000 Nm/rad                 |                          |                                                                                                                                                   |
| Net weight of the motor     | 15.6 kg                       |                          |                                                                                                                                                   |



Figure similar

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| Optimum operating point           |          | Recommended Motor Module |          |
|-----------------------------------|----------|--------------------------|----------|
| Optimum speed                     | 3000 rpm | Rated inverter current   | 18 A     |
| Optimum power                     | 3.3 kW   | Maximum inverter current | 54 A     |
| Limiting data                     |          | Maximum torque           | 49.30 Nm |
| Max. permissible speed (mech.)    | 6000 rpm |                          |          |
| Max. permissible speed (inverter) | 6000 rpm |                          |          |
| Maximum torque                    | 50.0 Nm  |                          |          |
| Maximum current                   | 55.0 A   |                          |          |