

## Data sheet for SIMOTICS S-1FK7



Figure similar

## MLFB-Ordering data

1FK7086-4SF71-1CH0

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

| Engineering data            |                               |
|-----------------------------|-------------------------------|
| Rated speed (100 K)         | 3000 rpm                      |
| Number of poles             | 8                             |
| Rated torque (100 K)        | 24.0 Nm                       |
| Rated current               | 20.0 A                        |
| Static torque (60 K)        | 31.50 Nm                      |
| Static torque (100 K)       | 38.00 Nm                      |
| Stall current (60 K)        | 23.00 A                       |
| Stall current (100 K)       | 29.00 A                       |
| Moment of inertia           | 25.500 kgcm²                  |
| Efficiency                  | 93.0 %                        |
| Physical constants          |                               |
| Torque constant             | 1.33 Nm/A                     |
| Voltage constant at 20° C   | 84.5 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 0.12 Ω                        |
| Rotating field inductance   | 3.1 mH                        |
| Electrical time constant    | 27.00 ms                      |
| Mechanical time constant    | 0.46 ms                       |
| Thermal time constant       | 35 min                        |
| Shaft torsional stiffness   | 63000 Nm/rad                  |
| Net weight of the motor     | 30.0 kg                       |

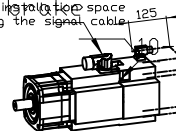
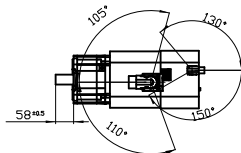
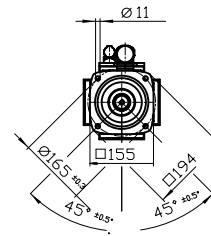
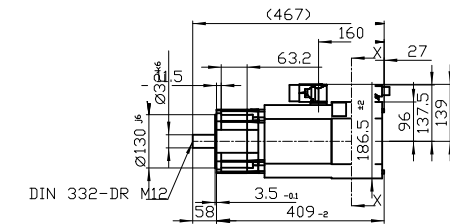
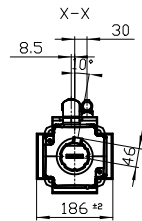
| Mechanical data          |                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor type               | Permanent-magnet synchronous motor                                                                                                                  |
| Motor type               | High Dynamic                                                                                                                                        |
| Shaft height             | 80                                                                                                                                                  |
| Cooling                  | Forced ventilation                                                                                                                                  |
| Radial runout tolerance  | 0.050 mm                                                                                                                                            |
| Concentricity tolerance  | 0.10 mm                                                                                                                                             |
| Axial runout tolerance   | 0.10 mm                                                                                                                                             |
| Vibration severity grade | Grade A                                                                                                                                             |
| Connector size           | 1.5                                                                                                                                                 |
| Degree of protection     | IP54/64                                                                                                                                             |
| 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                | Plain shaft                                                                                                                                         |
| Encoder system           | Encoder AM24DQI: absolute encoder 24 bits (resolution 16777216, encoder-internal 2048 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |



Figure similar

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| Optimum operating point           |                        | Recommended Motor Module |          |
|-----------------------------------|------------------------|--------------------------|----------|
| Optimum speed                     | 3000 rpm               | Rated inverter current   | 30 A     |
| Optimum power                     | 7.5 kW                 | Maximum inverter current | 90 A     |
| Limiting data                     |                        | Maximum torque           | 92.70 Nm |
| Max. permissible speed (mech.)    | 6000 rpm               |                          |          |
| Max. permissible speed (inverter) | 6000 rpm               |                          |          |
| Maximum torque                    | 105.0 Nm               |                          |          |
| Maximum current                   | 112.0 A                |                          |          |
| Holding brake                     |                        |                          |          |
| Holding brake version             | Permanent-magnet brake |                          |          |
| Holding torque                    | 22.0 Nm                |                          |          |
| Power supply voltage              | DC 24 V ± 10 %         |                          |          |
| Coil current                      | 0.9 A                  |                          |          |
| Opening time                      | 200 ms                 |                          |          |
| Closing time                      | 60 ms                  |                          |          |
| Highest braking work              | 1400 J                 |                          |          |



Connector size 1.5 = M40;  
6-pole for power and additional installation space  
for assembling the signal cable



125

40

6-pole RJ45 socket

|                                                                                       |         |                    |  |
|---------------------------------------------------------------------------------------|---------|--------------------|--|
|  |         | -                  |  |
|                                                                                       |         | -                  |  |
| Unit                                                                                  | mm [in] | 1FK7086-4SF71-1CH0 |  |
| Date                                                                                  | 7/7/23  |                    |  |
| SIEMENS AG                                                                            |         | -                  |  |
|                                                                                       |         | -                  |  |
|                                                                                       |         | DT                 |  |