

## Data sheet for SIMOTICS S-1FK7 servo geared motor



Figure similar

Article No. : **1FK7060-2AF71-1CH1-Z**  
J13

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

Item no. :  
Consignment no. :  
Project :

### Engineering data

|                       |                          |
|-----------------------|--------------------------|
| Rated speed (100 K)   | 3,000 rpm                |
| Number of poles       | 8                        |
| Rated torque (100 K)  | 4.7 Nm                   |
| Rated current         | 3.7 A                    |
| Static torque (60 K)  | 5.00 Nm                  |
| Static torque (100 K) | 6.00 Nm                  |
| Stall current (60 K)  | 3.60 A                   |
| Stall current (100 K) | 4.45 A                   |
| Moment of inertia     | 10.770 kgcm <sup>2</sup> |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 1.33 Nm/A                     |
| Voltage constant at 20° C   | 85.5 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 1.35 Ω                        |
| Rotating field inductance   | 15.2 mH                       |
| Electrical time constant    | 11.30 ms                      |
| Mechanical time constant    | 1.71 ms                       |
| Thermal time constant       | 30 min                        |
| Shaft torsional stiffness   | 28,500 Nm/rad                 |
| Net weight of the motor     | 16.4 kg                       |

### Recommended Motor Module

|                          |          |
|--------------------------|----------|
| Rated inverter current   | 5 A      |
| Maximum inverter current | 15 A     |
| Maximum torque           | 18.00 Nm |

### Mechanical data

|                          |   |
|--------------------------|---|
| Motor type               | Permanent-magnet synchronous motor  |
| Motor type               | Compact   |
| Shaft height             | 63  |
| Cooling                  | Natural cooling   |
| Radial runout tolerance  | 0.040 mm  |
| Concentricity tolerance  | 0.10 mm   |
| Axial runout tolerance   | 0.10 mm   |
| Vibration severity grade | Grade A   |
| Connector size           | 1   |
| Degree of protection     | IP65  |
| 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) |

### Gearbox data

|  |                         |
|--|-------------------------|
| Gearbox type                             | Planetary gearbox SP+   |
| Designation                              | SP 100S-MF2             |
| Gearbox shaft end                        | With feather key        |
| Gear ratio + steps                       | 20 (2-step)             |
| Motor speed S3-60 %                      | 6,500 rpm               |
| Motor speed S1                           | 3,100 rpm               |
| Output torque S1                         | 259 Nm                  |
| Rated output torque at duty type S3-60 % | 347 Nm                  |
| Moment of inertia of gearbox             | 2.070 kgcm <sup>2</sup> |
| Radial output shaft loading, max.        | 6,600 N                 |
| Axial output shaft load, max.            | 5,650 N                 |
| Efficiency of gearbox                    | 0.94                    |
| Torsional backlash                       | 5'                      |
| Gearbox weight                           | 7.90 kg                 |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 7,200 rpm |
| Max. permissible speed (inverter) | 6,700 rpm |
| Maximum torque                    | 18.0 Nm   |
| Maximum current                   | 15.0 A    |

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### Holding brake

|                       |                        |
|-----------------------|------------------------|
| Holding brake version | Permanent-magnet brake |
| Holding torque        | 13.0 Nm                |
| Power supply voltage  | DC 24 V $\pm$ 10 %     |
| Coil current          | 0.8 A                  |
| Opening time          | 100 ms                 |
| Closing time          | 50 ms                  |
| Highest braking work  | 380 J                  |

### Special design

J13 Mounting of SP+ planetary gearbox