

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



Figure similar

Article No. : **1FK7044-4CF71-1BG1-Z**  
J09

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       | 6                       |
| Rated torque (100 K)  | 3.7 Nm                  |
| Rated current         | 3.5 A                   |
| Static torque (60 K)  | 3.75 Nm                 |
| Static torque (100 K) | 4.50 Nm                 |
| Stall current (60 K)  | 3.20 A                  |
| Stall current (100 K) | 4.00 A                  |
| Moment of inertia     | 1.800 kgcm <sup>2</sup> |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 1.13 Nm/A                     |
| Voltage constant at 20° C   | 72.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 1.49 Ω                        |
| Rotating field inductance   | 18.8 mH                       |
| Electrical time constant    | 12.60 ms                      |
| Mechanical time constant    | 0.44 ms                       |
| Thermal time constant       | 45 min                        |
| Shaft torsional stiffness   | 9,800 Nm/rad                  |
| Net weight of the motor     | 11.3 kg                       |

### Recommended Motor Module

|                          |          |
|--------------------------|----------|
| Rated inverter current   | 5 A      |
| Maximum inverter current | 15 A     |
| Maximum torque           | 13.00 Nm |

### Mechanical data

|                          |   |
|--------------------------|---|
| Motor type               | Permanent-magnet synchronous motor                    |
| Motor type               | High Dynamic  |
| 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     | 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            | without holding brake                                 |
| Shaft end                | Plain shaft   |
| Encoder system           | Encoder AS24DQI: absolute encoder single-turn 24 bits |

### Gearbox data

|  |                         |
|--|-------------------------|
| Gearbox type                             | Planetary gearbox SP+   |
| Designation                              | SP 075S-MF1             |
| Gearbox shaft end                        | With feather key        |
| Gear ratio + steps                       | 10 (1-step)             |
| Motor speed S3-60 %                      | 7,500 rpm               |
| Motor speed S1                           | 3,100 rpm               |
| Output torque S1                         | 81 Nm                   |
| Rated output torque at duty type S3-60 % | 114 Nm                  |
| Moment of inertia of gearbox             | 0.540 kgcm <sup>2</sup> |
| Radial output shaft loading, max.        | 4,200 N                 |
| Axial output shaft load, max.            | 3,350 N                 |
| Efficiency of gearbox                    | 0.97                    |
| Torsional backlash                       | 4 '                     |
| Gearbox weight                           | 3.90 kg                 |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 9,000 rpm |
| Max. permissible speed (inverter) | 8,050 rpm |
| Maximum torque                    | 13.0 Nm   |
| Maximum current                   | 12.1 A    |

### Special design

J09 Mounting of SP+ planetary gearbox

# SIEMENS

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