

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

Article No. : 1FK7042-2AF71-1UG0-Z  
V40

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

Item no. :  
Consignment no. :  
Project :



Figure similar

### Engineering data

|                       |                         |
|-----------------------|-------------------------|
| Rated speed (100 K)   | 3,000 rpm               |
| Number of poles       | 8                       |
| Rated torque (100 K)  | 2.6 Nm                  |
| Rated current         | 2.0 A                   |
| Static torque (60 K)  | 2.50 Nm                 |
| Static torque (100 K) | 3.00 Nm                 |
| Stall current (60 K)  | 1.80 A                  |
| Stall current (100 K) | 2.20 A                  |
| Moment of inertia     | 3.510 kgcm <sup>2</sup> |

### Physical constants

|                             |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 1.38 Nm/A                     |
| Voltage constant at 20° C   | 90.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 4.67 Ω                        |
| Rotating field inductance   | 35.0 mH                       |
| Electrical time constant    | 7.50 ms                       |
| Mechanical time constant    | 2.15 ms                       |
| Thermal time constant       | 30 min                        |
| Shaft torsional stiffness   | 15,500 Nm/rad                 |
| Net weight of the motor     | 8.4 kg                        |

### Recommended Motor Module

|                          |          |
|--------------------------|----------|
| Rated inverter current   | 3 A      |
| Maximum inverter current | 9 A      |
| Maximum torque           | 10.50 Nm |

### Mechanical data

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| Motor type               | Permanent-magnet synchronous motor                                       |
| Motor type               | Compact                                                                  |
| 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     | IP64                                                                     |
| 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           | Resolver R15DQ: resolver 15 bits (resolution 32768, internal multi-pole) |

### Gearbox data

|                                    |                         |
|------------------------------------|-------------------------|
| Gearbox type                       | Planetary gearbox NP+   |
| Designation                        | NP 025                  |
| Gearbox shaft end                  | With feather key        |
| Gear ratio + steps                 | 5 (1-step)              |
| Temporary input speed              | 7,000 rpm               |
| Motor speed S1                     | 3,400 rpm               |
| Output torque S1                   | 50 Nm                   |
| Output moment maximum (short-time) | 100 Nm                  |
| Moment of inertia of gearbox       | 0.610 kgcm <sup>2</sup> |
| Radial output shaft loading, max.  | 2,800 N                 |
| Axial output shaft load, max.      | 0 N                     |
| Efficiency of gearbox              | 0.97                    |
| Torsional backlash                 | 8 '                     |
| Gearbox weight                     | 3.80 kg                 |

### Limiting data

|                                   |           |
|-----------------------------------|-----------|
| Max. permissible speed (mech.)    | 9,000 rpm |
| Max. permissible speed (inverter) | 6,400 rpm |
| Maximum torque                    | 10.5 Nm   |
| Maximum current                   | 7.6 A     |



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Figure similar

Special design

V40 Mounting of NP+ planetary gearbox

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