



Data sheet for SIMOTICS S-1FK7 servo geared motor

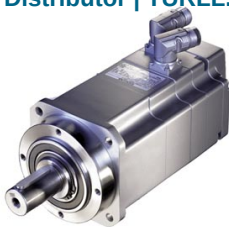


Figure similar

Article No. : 1FK7043-4CH71-1RH1-Z  
J03

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

Item no. :  
Consignment no. :  
Project :

| Engineering data      |             |
|-----------------------|-------------|
| Rated speed (100 K)   | 4,500 rpm   |
| Number of poles       | 6           |
| Rated torque (100 K)  | 2.6 Nm      |
| Rated current         | 3.3 A       |
| Static torque (60 K)  | 2.90 Nm     |
| Static torque (100 K) | 3.50 Nm     |
| Stall current (60 K)  | 3.30 A      |
| Stall current (100 K) | 4.10 A      |
| Moment of inertia     | 2.040 kgcm² |

| Physical constants          |                               |
|-----------------------------|-------------------------------|
| Torque constant             | 0.85 Nm/A                     |
| Voltage constant at 20° C   | 54.0 V/1000*min <sup>-1</sup> |
| Winding resistance at 20° C | 1.20 Ω                        |
| Rotating field inductance   | 13.6 mH                       |
| Electrical time constant    | 11.30 ms                      |
| Mechanical time constant    | 0.49 ms                       |
| Thermal time constant       | 40 min                        |
| Shaft torsional stiffness   | 9,000 Nm/rad                  |
| Net weight of the motor     | 10.5 kg                       |

| Recommended Motor Module |          |
|--------------------------|----------|
| Rated inverter current   | 5 A      |
| Maximum inverter current | 15 A     |
| Maximum torque           | 10.00 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            | with holding brake                                                                                                                                |
| Shaft end                | Plain shaft                                                                                                                                       |
| Encoder system           | Encoder AM20DQI: absolute encoder 20 bits (resolution 1048576, encoder-internal 512 S/R) + 12 bits multi-turn (traversing range 4096 revolutions) |

| Gearbox data                             |                       |
|------------------------------------------|-----------------------|
| Gearbox type                             | Planetary gearbox SP+ |
| Designation                              | SP 075S-MF1           |
| Gearbox shaft end                        | With feather key      |
| Gear ratio + steps                       | 5 (1-step)            |
| Motor speed S3-60 %                      | 7,500 rpm             |
| Motor speed S1                           | 2,900 rpm             |
| Output torque S1                         | 81 Nm                 |
| Rated output torque at duty type S3-60 % | 132 Nm                |
| Moment of inertia of gearbox             | 0.680 kgcm²           |
| 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) | 9,000 rpm |
| Maximum torque                    | 10.0 Nm   |
| Maximum current                   | 12.5 A    |



Figure similar

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| Holding brake         |                        |
|-----------------------|------------------------|
| Holding brake version | Permanent-magnet brake |
| Holding torque        | 4.0 Nm                 |
| Power supply voltage  | DC 24 V ± 10 %         |
| Coil current          | 0.5 A                  |
| Opening time          | 70 ms                  |
| Closing time          | 30 ms                  |
| Highest braking work  | 150 J                  |

| Special design |  |
|----------------|--|
|----------------|--|

J03 Mounting of SP+ planetary gearbox

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