

Data sheet for SIMOTICS S-1FK2

Article No. : 1FK2104-6AF11-2MA0-Z
C31+M01+R10



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Basic data of geared motor	
Motor type	Permanent-magnet synchronous motor, Planetary gearbox, Natural cooling, Degree of protection IP65
Motor type	High Dynamic
Static torque at output $M_{2,0}$	29.00 Nm
Static current I_0	3.0 A
Maximum torque at output $M_{2,max}^{(6)}$	61.00 Nm
Maximum output speed $n_{2,max}$	700 rpm
Moment of inertia motor + gearbox (related to the input) J_1	1.21 kgcm ²
Mass m	7.31 kg
Lubrication	Standard

Rated data of geared motor	
SINAMICS S210, 3AC 400V	
Rated speed related to the gear output n_{2N}	250 rpm
Rated torque related to the gear output M_{2N}	20.50 Nm
Rated power P_N	0.537 kW

Basic data of gearbox	
Gearbox type and size	Planetary gearbox NLC080
Transmission ratio i	1 : 10 (Output to input)
Number of gear stages z	1
Output torque (fatigue strength) $M_{2N,G}$	38.0 Nm
Maximum permissible output torque (short-time, end of fatigue strength) $M_{2,max,G}^{(3)}$	61.0 Nm
Emergency off output moment (1000 cycles) $M_{2Em,Off}$	200.0 Nm
Torsional backlash related to the output φ_2	7 '
Torsional stiffness related to the output c_{T2}	8.8 Nm/°
Maximum static radial force $F_{R,max}$	5,500 N
Max. average radial force for 20000 h $F_{R,eq}^{(4)}$	5,500 N
Maximum static axial force $F_{A,max}$	6,400 N
Max. average axial force for 20000 h $F_{A,eq}^{(5)}$	6,400 N
Max. average breakdown torque M_K	383 Nm
Max. bending moment on the flange to the motor M_B	16 Nm
Efficiency η_G	0.94
Degree of protection gearbox	IP65
Gearbox shaft extension	Fitted key

Basic motor data	
Maximum average torque (incl. derating due to mounted gearing) $M_{0,M}$	2.90 Nm
Maximum average continuous current (incl. derating due to mounted gearing) $I_{0,M}$	2.72 A
Maximum acceleration torque $M_{max,M}^{(3)}$	9.63 Nm
Maximum short-time permissible current $I_{max,M}$	10.90 A
Degree of protection motor	IP65
Connection type	OCC for S210
Connector size	M17
Encoder system	Encoder AM22DQC: Absolute encoder 22 bit + 12 bit multitrack

Holding brake	
Holding torque	3.30 Nm
Average dynamic torque	3.30 Nm
Opening time	50 ms
Closing time	40 ms
Maximum single switching energy ¹⁾	270 J
Service life, operating energy	120,000 J
Holding current ²⁾	0.2 A
Break-induced current for 500 ms ²⁾	1.2 A

¹⁾Up to three consecutive emergency stops and up to 25% of all emergency stops as a Wmax high energy stop possible.

²⁾Typical value for 20°C ambient temperature. At -15°C the break-induced currents can be increased by up to 30%.

³⁾The maximum acceleration torque $M_{max,M}$ x of transmission ratio i is greater than the maximum permitted output torque (short-time fixed) $M_{2,max,G}$. Depending on the load conditions, a torque limitation and service life calculation may be necessary.

⁴⁾based on an output speed of 100 rpm and a force application point in the center of the shaft

⁵⁾based on an output speed of 100 rpm

⁶⁾Fatigue limit range - for max. 30 000 revolutions of the output shaft, utilization only with service life calculation