AST AUTOMATION SOURCE TECHNOLOGIES

DC-Servomotor KN 16 M4 T *inch version*

Characteristics

Rated Values [1]				
Nominal torque	M_N	290		Ncm
Nominal speed [2]	n_N	3000		min^{-1}
Nominal output [2]	P_N	910		W
Terminal voltage	U_N	115		V
Nominal current	I_N	9,3		A

Motor Performance				
Peak torque [3]	M_{max}	3280		Ncm
Max. peak current	I_{max}	100		A
Acceleration at peak torque	a_{max}	42		10^3 rad/s^2
Stall torque	M_0	305		Ncm
Current at stall torque	I_0	8,8		A
Max. load speed	n_{max}	4000		min^{-1}
Max. no load speed	n_0	6000		min^{-1}

Intrinsic Motor Constants				
Torque constant	k_T	31,0		Ncm/A
Back E.M.F constant	k_E	32,5		V/10^3 min^{-1}
Viscous damping constant	k_D	9,8		Ncm/10^3 min^{-1}
Speed reg. at const. Voltage	k_n	1,59		min^{-1}/Ncm
Average friction torque	M_F	11,2		Ncm
Terminal resistance (25 °C)	R_A	0,94		?
Armature (Cu-)resistance (25 °C)	R_{Cu}	0,74		?
Armature inductance (10^3 Hz)	L_A	<0,01		mH
Mechanical time constant	T_m	5,9		ms
Electrical time constant	T_e	<0,08		ms
Rotor inertia	J	8,93		kg cm^2

Thermal Characteristics				
Time const. armature-housing	T_{th1}	1,82		min
Time const. housing-ambient [5]	T_{th2}	32,8		min
Resistance armature-housing	R_{th1}	0,83		K/W
Resistance housing-ambient [5]	R_{th2}	0,59		K/W
Temp.- coeff. of back EMF	c_{th}	-0,11		%/K
Max. cont. armature temp.	th	155		°C

Physical Data				
Number of magnet poles	2p	8		pcs
Number of commutator bars	z	162		pcs
Admitted shaft load, radial	F_R	390		N
Admitted shaft load, axial	F_A	375		N
Weight without extensions	m	6,0		kg

Tachometer characteristics [6]				
Output voltage (±5%)	U	16,5		V/10^3 min^{-1}
Max. ripple peak to peak	U_{RH}	3,0		%
Temperature coefficient of k_E	c_T	-0,11		%/K
Max. rated current	I_L	100		mA

1) for DC current with formfactor 1,05, uncooled execution, protection IP 54, ambient temperature +40 °C.
2) Continuous operation S1 (VDE 530), part 1,4. Motor can be run at all points of the torque speed curve S1, continuous speed beyond 4000 min^{-1} is not recommended, please check the torque speed curve.
3) Incremental motion cycle S3, VDE 530, part 1,4. Pulse duration 50 ms, 1% of duty cycle.
4) Point of intersection torque speed curve S1 with torque co-ordinate at speed zero. Permitted at very low speed < 1min^{-1}. Works the motor with blocked shaft longer than 20 s, the stall current must be reduced to appr. 70%.
5) Based upon mounted motors, heat transfer from motor to equipment.
6) Tacho must not operate without load, $R_{L.min}$ = 10k?

Outline dimensions motor:

grey diagrammed hood optional