

Brushless DC-Servomotors

2 Pole Technology

0,36 mNm
1,7 W

Series 0620 ... B

Values at 22°C and nominal voltage		0620 K	006 B	012 B	
1	Nominal voltage	U_N	6	12	V
2	Terminal resistance, phase-phase	R	8,8	60,2	Ω
3	Efficiency, max.	η_{max}	51	50	%
4	No-load speed	n_0	48 600	37 300	min^{-1}
5	No-load current, typ. (with shaft \varnothing 1 mm)	I_0	0,056	0,018	A
6	Stall torque	M_H	0,732	0,551	mNm
7	Friction torque, static	C_0	0,011	0,011	mNm
8	Friction torque, dynamic	C_V	$1,02 \cdot 10^{-6}$	$1,02 \cdot 10^{-6}$	$\text{mNm}/\text{min}^{-1}$
9	Speed constant	k_n	8 761	3 386	min^{-1}/V
10	Back-EMF constant	k_E	0,114	0,295	$\text{mV}/\text{min}^{-1}$
11	Torque constant	k_M	1,09	2,82	mNm/A
12	Current constant	k_I	0,917	0,355	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	70 730	72 289	$\text{min}^{-1}/\text{mNm}$
14	Terminal inductance, phase-phase	L	28	192	μH
15	Mechanical time constant	τ_m	7	7,2	ms
16	Rotor inertia	J	0,0095	0,0095	gcm^2
17	Angular acceleration	α_{max}	771	580	$\cdot 10^3 \text{rad}/\text{s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	13,2 / 84,3		K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	1,1 / 89		s
20	Operating temperature range:				
	– motor		-20 ... +100		°C
	– winding, max. permissible		+125		°C
21	Shaft bearings		ball bearings, preloaded		
22	Shaft load max.:				
	– with shaft diameter		1		mm
	– radial at 10 000 min^{-1} (4 mm from mounting flange)		2		N
	– axial at 10 000 min^{-1} (push only)		0,6		N
	– axial at standstill (push only)		10		N
23	Shaft play:				
	– radial	\leq	0,012		mm
	– axial	$=$	0		mm
24	Housing material		aluminium, black anodized		
25	Mass		2,5		g
26	Direction of rotation		electronically reversible		
27	Speed up to	n_{max}	100 000		min^{-1}
28	Number of pole pairs		1		
29	Hall sensors		digital		
30	Magnet material		NdFeB		
Rated values for continuous operation					
31	Rated torque	M_N	0,28	0,3	mNm
32	Rated current (thermal limit)	I_N	0,311	0,122	A
33	Rated speed	n_N	21 820	7 290	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



