

Flat DC-Micromotors

Precious Metal Commutation

0,44 mNm
1,12 W

Series 1506 ... SR

Values at 22°C and nominal voltage		1506 N	003 SR	006 SR	012 SR	
1	Nominal voltage	U_N	3	6	12	V
2	Terminal resistance	R	13,6	60,5	156	Ω
3	Efficiency, max.	η_{max}	65	63	68	%
4	No-load speed	n_0	11 200	11 800	12 900	min ⁻¹
5	No-load current, typ. (with shaft \varnothing 0,8 mm)	I_0	0,00814	0,00431	0,00232	A
6	Stall torque	M_H	0,522	0,441	0,644	mNm
7	Friction torque	M_R	0,02	0,02	0,02	mNm
8	Speed constant	k_n	3 880	2 050	1 110	min ⁻¹ /V
9	Back-EMF constant	k_E	0,258	0,487	0,904	mV/min ⁻¹
10	Torque constant	k_M	2,46	4,65	8,63	mNm/A
11	Current constant	k_I	0,406	0,215	0,116	A/mNm
12	Slope of n-M curve	$\Delta n / \Delta M$	21 500	26 700	20 000	min ⁻¹ /mNm
13	Rotor inductance	L	275	1 160	3 550	μ H
14	Mechanical time constant	τ_m	18	22,4	16,8	ms
15	Rotor inertia	J	0,08	0,08	0,08	gcm ²
16	Angular acceleration	α_{max}	65	55,1	80,5	$\cdot 10^3$ rad/s ²
Thermal and mechanical limits						
17	Thermal resistance	R_{th1} / R_{th2}	25 / 35			K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	4,5 / 48			s
19	Operating temperature range:					
	– motor		-25 ... +80			°C
	– winding, max. permissible		+85			°C
20	Shaft bearings		sintered bearings			
21	Shaft load max.:					
	– with shaft diameter		0,8			mm
	– radial at 3 000 min ⁻¹ (3 mm from bearing)		0,5			N
	– axial at 3 000 min ⁻¹		0,1			N
	– axial at standstill		10			N
22	Shaft play:					
	– radial	\leq	0,03			mm
	– axial	\leq	0,2			mm
23	Housing material		plastic			
24	Mass		4,3			g
25	Direction of rotation		clockwise, viewed from the front face			
26	Speed up to	n_{max}	16 000			min ⁻¹
27	Number of pole pairs		2			
28	Magnet material		NdFeB			
Rated values for continuous operation						
29	Rated torque	M_N	0,363	0,313	0,444	mNm
30	Rated current (thermal limit)	I_N	0,16	0,0734	0,0558	A
31	Rated speed	n_N	2 500	2 500	2 500	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 0%.

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.



