

Flat DC-Micromotors

Precious Metal Commutation

0,45 mNm

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	13,5	54,7	155	Ω
3	Output power	$P_{2nom.}$	0,15	0,15	0,22	W
4	Efficiency, max.	$\eta_{max.}$	62	63	67	%
5	No-load speed	n_0	11 100	11 800	12 800	rpm
6	No-load current, typ. (with shaft \varnothing 0,8 mm)	I_0	0,01	0,005	0,003	A
7	Stall torque	M_H	0,52	0,49	0,64	mNm
8	Friction torque	M_R	0,02	0,02	0,02	mNm
9	Speed constant	k_n	3 884	2 053	1 107	rpm/V
10	Back-EMF constant	k_E	0,257	0,487	0,903	mV/rpm
11	Torque constant	k_M	2,46	4,65	8,63	mNm/A
12	Current constant	k_I	0,407	0,215	0,116	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	21 333	24 135	19 947	rpm/mNm
14	Rotor inductance	L	275	1 157	3 550	μH
15	Mechanical time constant	τ_m	17	19	16	ms
16	Rotor inertia	J	0,08	0,08	0,08	gcm ²
17	Angular acceleration	$\alpha_{max.}$	68	63	83	$\cdot 10^3 \text{rad/s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	25 / 35			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	4,5 / 48,4			s
20	Operating temperature range:					
	– motor		-25 ... +80			°C
	– winding, max. permissible		+85			°C
21	Shaft bearings		sintered bearings			
22	Shaft load max.:					
	– with shaft diameter		0,8			mm
	– radial at 3 000 rpm (3 mm from bearing)		0,5			N
	– axial at 3 000 rpm		0,1			N
	– axial at standstill		10			N
23	Shaft play					
	– radial	\leq	0,03			mm
	– axial	\leq	0,2			mm
24	Housing material		plastic			
25	Mass		4,3			g
26	Direction of rotation		clockwise, viewed from the front face			
27	Speed up to	$n_{max.}$	16 000			rpm
28	Number of pole pairs		2			
29	Magnet material		NdFeB			
Rated values for continuous operation						
30	Rated torque	M_N	0,37	0,35	0,45	mNm
31	Rated current (thermal limit)	I_N	0,16	0,081	0,056	A
32	Rated speed	n_N	2 500	2 500	2 500	rpm

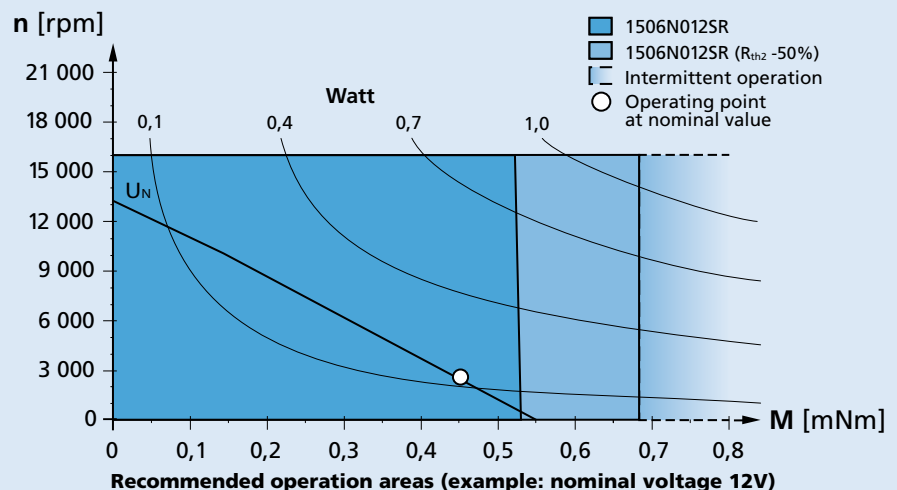
Note: Brush plate is loose and is only held in place by magnetic force.
 Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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.



Dimensional drawing

