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.	$\eta_{max.}$		65	63	68	%
4	No-load speed	n_0		11 200	11 800	12 900	min⁻¹
5	No-load current, typ. (with shaft ø 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	µH
14	Mechanical time constant	τ_m		18	22,4	16,8	ms
15	Rotor inertia	J		0,08	0,08	0,08	gcm²
16	Angular acceleration	$\alpha_{max.}$		65	55,1	80,5	$\cdot 10^3$rad/s²
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	≤	0,03				mm
	– axial	≤	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

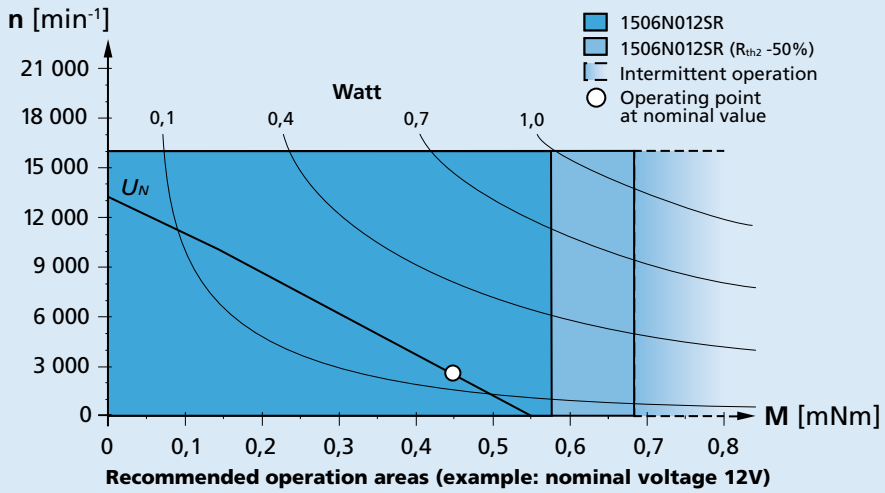
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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.

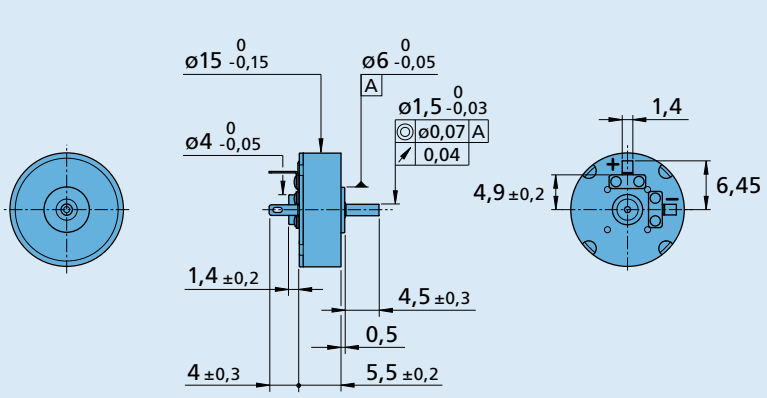
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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.

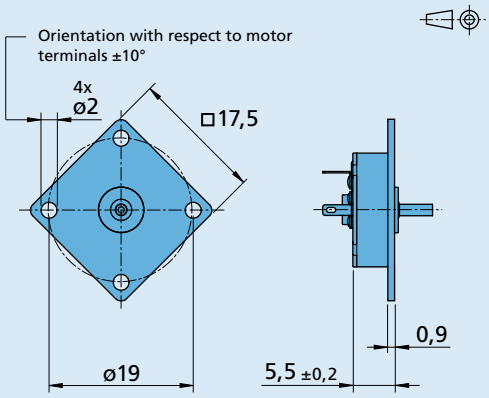


Recommended operation areas (example: nominal voltage 12V)

Dimensional drawing



1506 N ... SR



1506 N ... SR X3697

Options

Example product designation: **1506N012SR-3359**

Option	Type	Description
3327	Twin Leads	For motors with twin leads (PVC), length 70 mm, red (+) / black (-)
F	Single Leads	For motors with single leads (PTFE), length 150 mm, red (+) / black (-)
X3697	Flange	Square mounting flange (17,5 x 17,5 mm)
3359	Second shaft end	Length 4,5 mm

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
		SC 1801 P SC 1801 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.