

DC-Micromotors

Precious Metal Commutation

1,4 mNm

For combination with
Gearheads:
13A, 14/1, 15/5, 15/5 S
Encoders:
IE2-400

Series 1319 ... SR

Values at 22°C and nominal voltage		1319 T	006 SR	012 SR	024 SR	
1	Nominal voltage	U_N	6	12	24	V
2	Terminal resistance	R	8,26	34,6	119	Ω
3	Output power	$P_{2nom.}$	1	0,95	1,1	W
4	Efficiency, max.	$\eta_{max.}$	66	65	66	%
5	No-load speed	n_0	13 100	12 800	14 600	rpm
6	No-load current, typ. (with shaft \varnothing 1,5 mm)	I_0	0,031	0,015	0,009	A
7	Stall torque	M_H	2,91	2,84	2,89	mNm
8	Friction torque	M_R	0,13	0,13	0,13	mNm
9	Speed constant	k_n	2 280	1 110	637	rpm/V
10	Back-EMF constant	k_E	0,438	0,897	1,57	mV/rpm
11	Torque constant	k_M	4,19	8,57	15	mNm/A
12	Current constant	k_I	0,239	0,117	0,067	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	4 500	4 510	5 050	rpm/mNm
14	Rotor inductance	L	130	530	1 600	μH
15	Mechanical time constant	τ_m	19	19	19	ms
16	Rotor inertia	J	0,4	0,4	0,36	gcm ²
17	Angular acceleration	$\alpha_{max.}$	72	71	80	$\cdot 10^3 \text{rad/s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	8 / 35			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	3,8 / 175			s
20	Operating temperature range:					
	– motor		-30 ... +85 (optional version -55 ... +125)			°C
	– winding, max. permissible		+125			°C
21	Shaft bearings		sintered bearings			
22	Shaft load max.:					
	– with shaft diameter		1,5			mm
	– radial at 3 000 rpm (3 mm from bearing)		1,2			N
	– axial at 3 000 rpm		0,2			N
	– axial at standstill		20			N
23	Shaft play					
	– radial	\leq	0,03			mm
	– axial	\leq	0,2			mm
24	Housing material		steel, black coated			
25	Mass		12			g
26	Direction of rotation		clockwise, viewed from the front face			
27	Speed up to	$n_{max.}$	17 000			rpm
28	Number of pole pairs		1			
29	Magnet material		NdFeB			
Rated values for continuous operation						
30	Rated torque	M_N	1,4	1,4	1,3	mNm
31	Rated current (thermal limit)	I_N	0,4	0,2	0,11	A
32	Rated speed	n_N	4 140	3 790	5 400	rpm

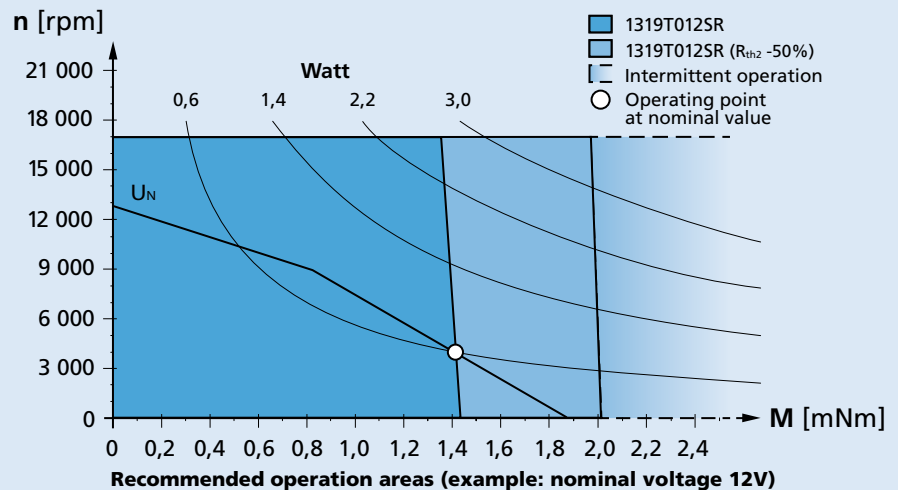
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

Note:

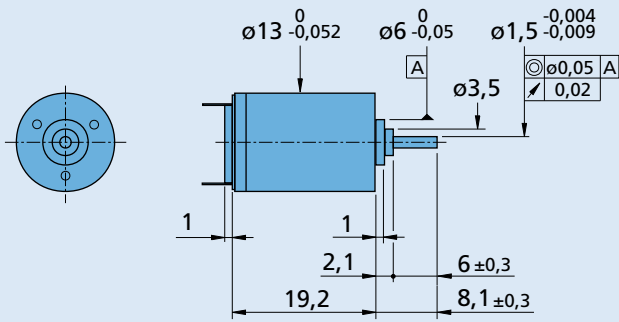
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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

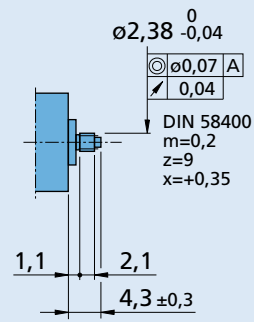
The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Dimensional drawing



1319 T ... SR



1319 E ... SR

