DC-Micromotors

Precious Metal Commutation

1,4 mNm

3,5 W

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	Efficiency, max.	$\eta_{max.}$		66	65	66	%
4	No-load speed	n_0		13 100	12 800	14 600	min^{-1}
5	No-load current, typ. (with shaft ø 1,5 mm)	I_0		0,031	0,015	0,009	A
6	Stall torque	M_H		2,91	2,84	2,89	mNm
7	Friction torque	M_R		0,13	0,13	0,13	mNm
8	Speed constant	k_n		2 280	1 110	637	min^{-1}/V
9	Back-EMF constant	k_E		0,438	0,897	1,57	mV/min^{-1}
10	Torque constant	k_M		4,19	8,57	15	mNm/A
11	Current constant	k_I		0,239	0,117	0,067	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$		4 500	4 510	5 050	min^{-1}/mNm
13	Rotor inductance	L		130	530	1 600	µH
14	Mechanical time constant	τ_m		19	19	19	ms
15	Rotor inertia	J		0,4	0,4	0,36	gcm²
16	Angular acceleration	$\alpha_{max.}$		72	71	80	·10^{3}rad/s²
17	Thermal resistance	R_{th1} / R_{th2}	8 / 35				K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	3,8 / 175				s
19	Operating temperature range:						
	– motor		-30 ... +85 (optional version -55 ... +125)				°C
	– winding, max. permissible		+125				°C
20	Shaft bearings		sintered bearings (standard)	ball bearings, preloaded (optional version)			
21	Shaft load max.:						
	– with shaft diameter		1,5	1,5			mm
	– radial at 3 000 min^{-1} (3 mm from bearing)		1,2	5			N
	– axial at 3 000 min^{-1}		0,2	0,5			N
	– axial at standstill		20	10			N
22	Shaft play:						
	– radial	≤	0,03	0,015			mm
	– axial	≤	0,2	0			mm
23	Housing material		steel, black coated				
24	Mass		12				g
25	Direction of rotation		clockwise, viewed from the front face				
26	Speed up to	$n_{max.}$	17 000				min^{-1}
27	Number of pole pairs		1				
28	Magnet material		NdFeB				

Rated values for continuous operation							
29	Rated torque	M_N		1,4	1,4	1,3	mNm
30	Rated current (thermal limit)	I_N		0,4	0,2	0,11	A
31	Rated speed	n_N		4 140	3 790	5 400	min^{-1}

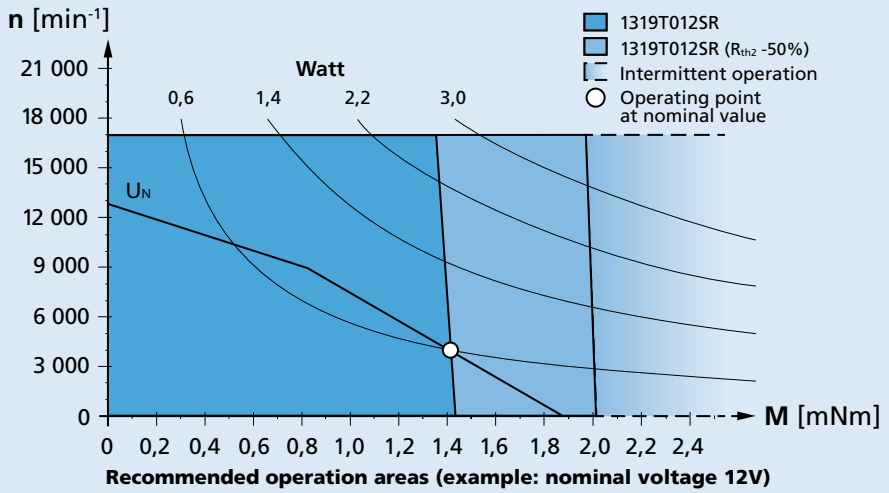
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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.

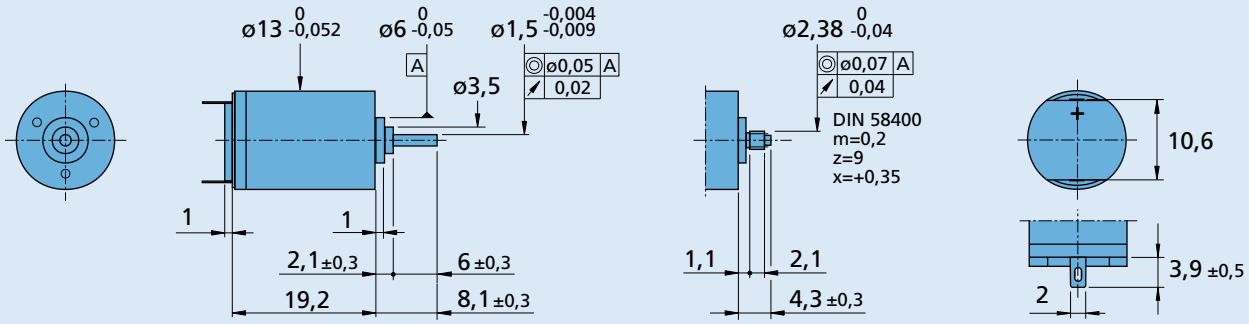
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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



1319 T ... SR **1319 E ... SR**

Options

Example product designation: **1319T012SR-277**

Option	Type	Description
L	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-)
4924	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-)
X4924	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-)
4925	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-), with connector AMP 179228-2
X4925	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-), with connector AMP 179228-2
Y4925	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-), with connector AMP 179228-2
F	Single Leads	For motors with single leads (PTFE), length 150 mm, red (+) / black (-)
277	Bearings	2 preloaded ball bearings

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
13A 14/1 15/5 15/5 S	IE2-400	SC 1801 P SC 1801 S MCDC 3002 P MCDC 3002 S MC 3001 B MC 3001 P MC 5004 P	To view our large range of accessory parts, please refer to the “Accessories” chapter.