

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.	η_{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	μ H
14	Mechanical time constant	τ_m	19	19	19	ms
15	Rotor inertia	J	0,4	0,4	0,36	gcm ²
16	Angular acceleration	α_{max}	72	71	80	·10 ³ rad/s ²
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	ball bearings, preloaded			
21	Shaft load max.:	(standard)	(optional version)			
	– 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

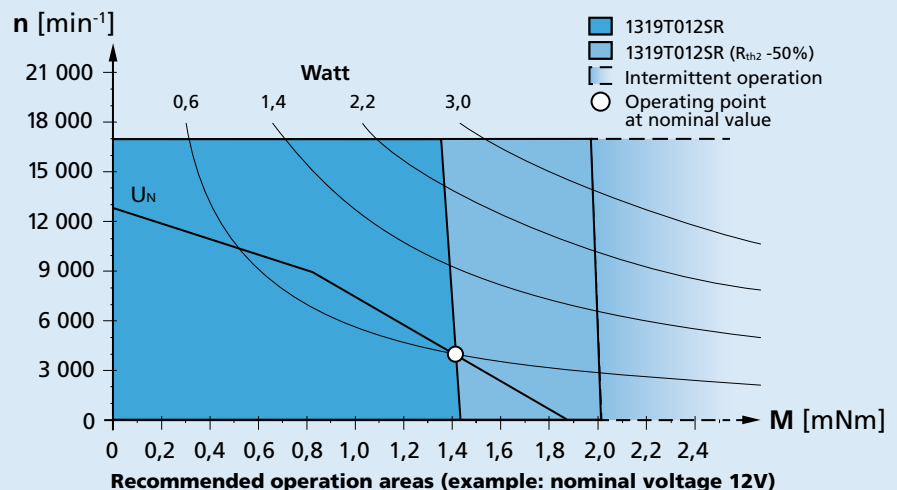
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

Note:

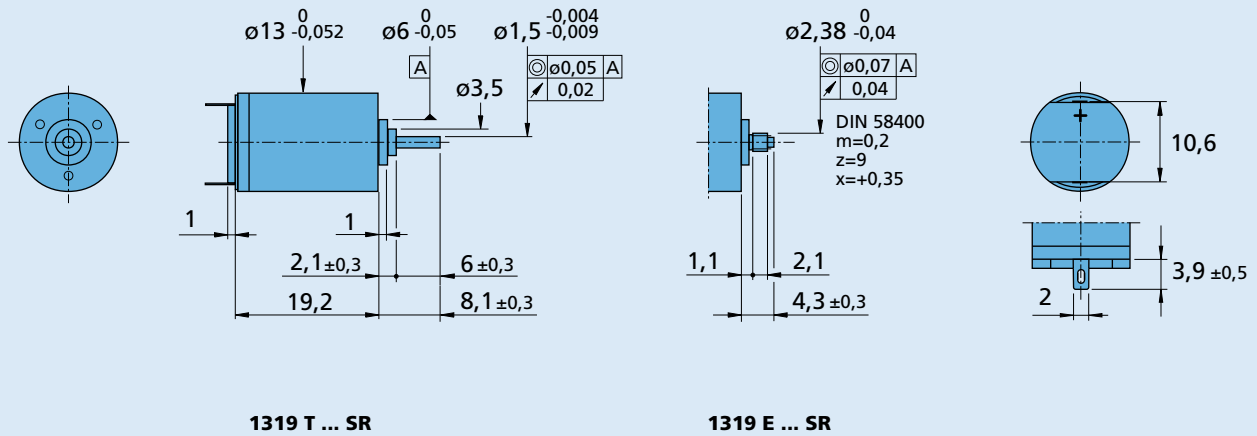
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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.



Dimensional drawing



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 5004 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.