

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	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	min ⁻¹
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	min ⁻¹ /V
10	Back-EMF constant	k_E	0,438	0,897	1,57	mV/min ⁻¹
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	min ⁻¹ /mNm
14	Rotor inductance	L	130	530	1 600	μ H
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	$\cdot 10^3$ 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.:		ball bearings, preloaded			
	– with shaft diameter		(standard)			
	– radial at 3 000 min ⁻¹ (3 mm from bearing)	1,5	1,5			mm
	– axial at 3 000 min ⁻¹	1,2	5			N
	– axial at standstill	0,2	0,5			N
23	Shaft play:		10			N
	– 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			min ⁻¹
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	min ⁻¹

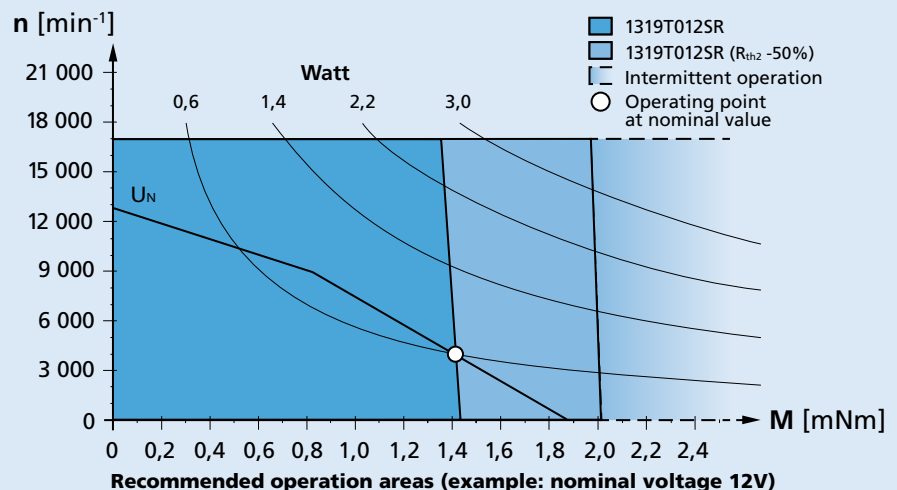
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

Note:

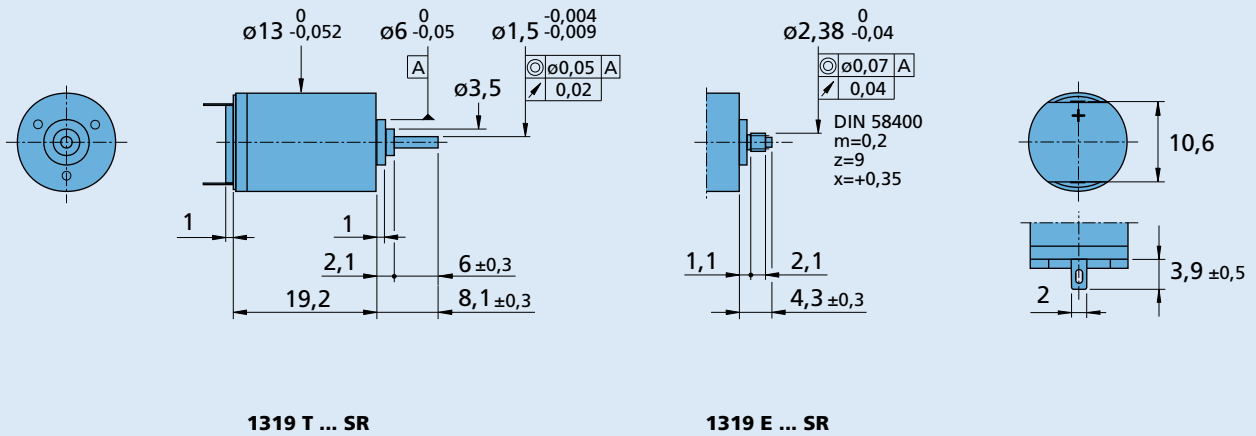
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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 MCDC 3002	

Planetary Gearheads

0,3 Nm

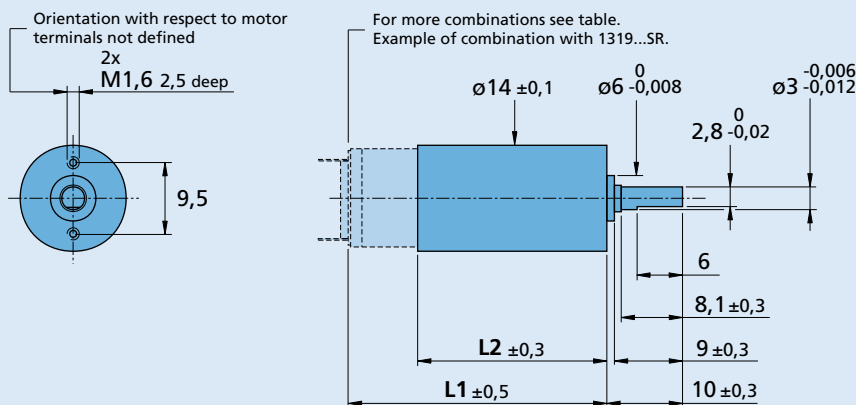
For combination with
DC-Micromotors

Series 14/1

	14/1
Housing material	metal
Geartrain material	steel
Recommended max. input speed for:	
– continuous operation	5 000 min ⁻¹
Backlash, at no-load	≤ 1 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 20 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 15 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,04 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

Technical data		1	2	3	4	5	6
Number of gear stages							
Continuous torque	mNm	200	300	300	300	300	300
Intermittent torque	mNm	300	450	450	450	450	450
Mass without motor, ca.	g	17	20	24	27	30	34
Efficiency, max.	%	90	80	70	60	55	50
Direction of rotation, drive to output		=	=	=	=	=	=
Reduction ratio ¹⁾ (rounded)		3,71:1	9,7:1 14:1	43:1 66:1	94:1 112:1 134:1 159:1 190:1 246:1	415:1 592:1 989:1 1 526:1	2 608:1 4 365:1 5 647:1
L2 [mm] = length without motor		20,9	25,0	29,2	33,3	37,4	41,5
L1 [mm] = length with motor							
	1319T...SR	34,1	38,2	42,4	46,5	50,6	54,7
	1331T...SR	46,1	50,2	54,4	58,5	62,6	66,7
	1336U...CXR	50,9	55,0	59,2	63,3	67,4	71,5

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.



14/1