

DC-Micromotors

Precious Metal Commutation

3,8 mNm

5 W

Series 1331 ... SR

Values at 22°C and nominal voltage		1331 T	006 SR	012 SR	024 SR	
1	Nominal voltage	U_N	6	12	24	V
2	Terminal resistance	R	2,83	13,7	52,9	Ω
3	Efficiency, max.	η_{max}	81	80	80	%
4	No-load speed	n_0	10 600	9 900	10 400	min ⁻¹
5	No-load current, typ. (with shaft ø 1,5 mm)	I_0	0,022	0,0105	0,0055	A
6	Stall torque	M_H	11,2	9,9	9,76	mNm
7	Friction torque	M_R	0,12	0,12	0,12	mNm
8	Speed constant	k_n	1 790	835	439	min ⁻¹ /V
9	Back-EMF constant	k_E	0,56	1,2	2,28	mV/min ⁻¹
10	Torque constant	k_M	5,35	11,4	21,8	mNm/A
11	Current constant	k_I	0,187	0,087	0,046	A/mNm
12	Slope of n-M curve	$\Delta n / \Delta M$	946	1 000	1 070	min ⁻¹ /mNm
13	Rotor inductance	L	70	310	1 100	μ H
14	Mechanical time constant	τ_m	7	7	7	ms
15	Rotor inertia	J	0,71	0,67	0,63	gcm ²
16	Angular acceleration	α_{max}	160	150	160	·10 ³ rad/s ²
17	Thermal resistance	R_{th1} / R_{th2}	6 / 25			K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	5 / 190			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	19				g
25	Direction of rotation	clockwise, viewed from the front face				
26	Speed up to	n_{max} 12 000				min ⁻¹
27	Number of pole pairs	1				
28	Magnet material	NdFeB				
Rated values for continuous operation						
29	Rated torque	M_N	2	3,8	3,7	mNm
30	Rated current (thermal limit)	I_N	0,4	0,37	0,19	A
31	Rated speed	n_N	8 710	4 900	5 260	min ⁻¹

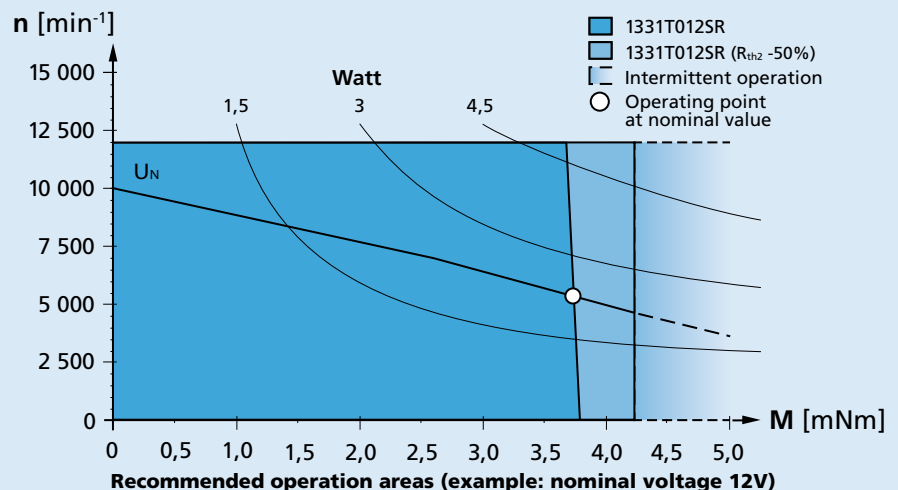
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

Note:

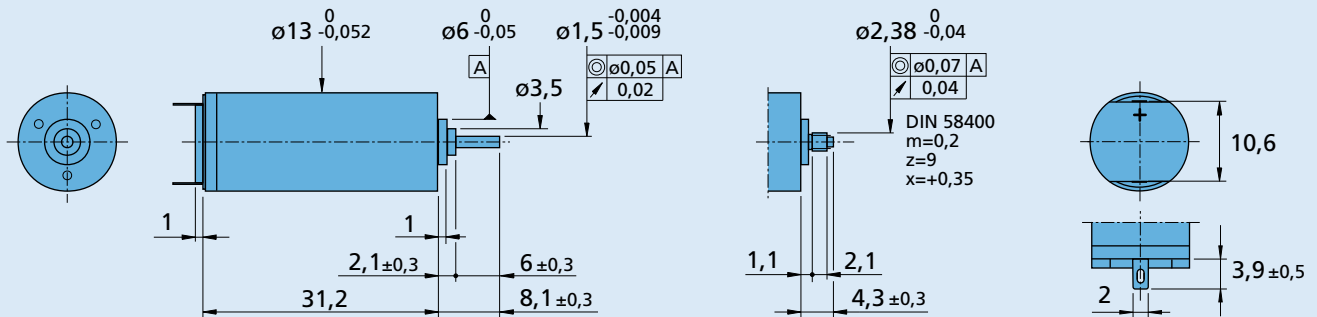
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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



1331 T ... SR

1331 E ... SR

Options

Example product designation: **1331T012SR-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.