

DC-Micromotors

Precious Metal Commutation

3,44 mNm
5,14 W

Series 1331 ... SR

Values at 22°C and nominal voltage	1331 T	006 SR	012 SR	024 SR	
Nominal voltage	U_N	6	12	24	V
Terminal resistance	R	2,83	13,7	52,9	Ω
Rotor inductance	L	70	310	1 100	μH
Efficiency, max.	η_{max}	80	79	79	%
No-load current, typ.	I_0	0,0226	0,0105	0,0055	A
No-load speed	n_0	10 700	9 910	10 500	min^{-1}
Stall torque	M_H	11,2	9,94	9,74	mNm
Rotor inertia	J	0,71	0,67	0,63	gcm^2
Friction torque	M_R	0,12	0,12	0,12	mNm
Torque constant	k_M	5,33	11,5	21,7	mNm/A
Speed constant	k_n	1 790	833	439	min^{-1}/V
Slope of n-M curve	$\Delta n/\Delta M$	950	993	1 070	$\text{min}^{-1}/\text{mNm}$
Thermal resistance:					
- winding to housing	R_{th1}	11			K/W
- housing to ambient (external plastic flange)	R_{th2p}	28			K/W
- housing to ambient (external metal flange)	R_{th2m}	6			K/W
Thermal time constant:					
- winding	τ_{w1}	8,1			s
- housing (external plastic flange)	τ_{w2p}	220			s
- housing (external metal flange)	τ_{w2m}	48			s
Operating temperature range:					
- motor		-30 ... +85 (optional version -30 ... +125)			$^{\circ}\text{C}$
- winding, max. permissible		+125			$^{\circ}\text{C}$
Shaft bearings		sintered bearings	ball bearings, preloaded		
Shaft diameter		1,5	1,5		mm
Radial shaft load max.:					
- dynamic at 3 000 min^{-1} (3 mm from bearing)		1,2	5		N
Axial shaft load max.:					
- dynamic at 3 000 min^{-1}		0,2	0,5		N
- static (shaft unsupported)		20	10		N
Shaft play, max.:					
- radial		0,03	0,015		mm
- axial		0,2	0		mm
Speed up to	n_{max}	12 000			min^{-1}
Number of pole pairs		1			
Mass		19			g
Housing material		steel, nickel plated			
Magnet material		NdFeB			

Rated values for continuous operation

Rated torque	M_N	1,96	3,44	3,31	mNm
Rated current (thermal limit)	I_N	0,4	0,343	0,174	A
Rated speed	n_N	8 750	5 260	5 650	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%.

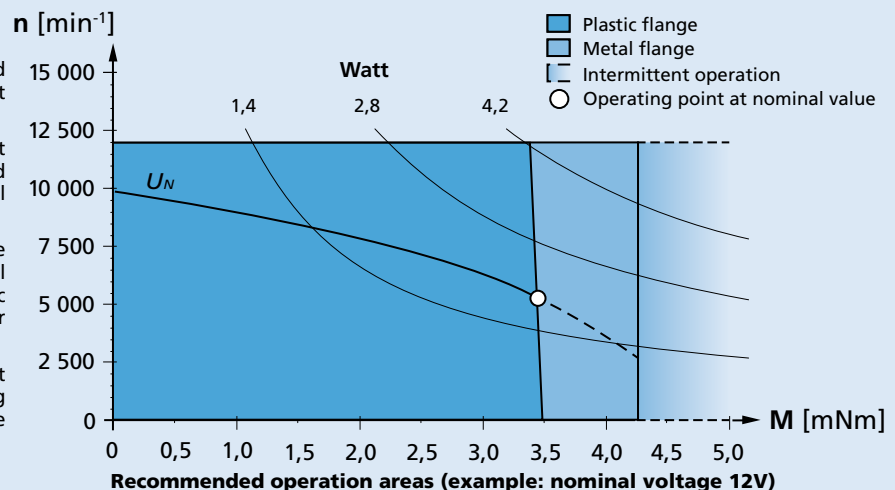
Note:

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

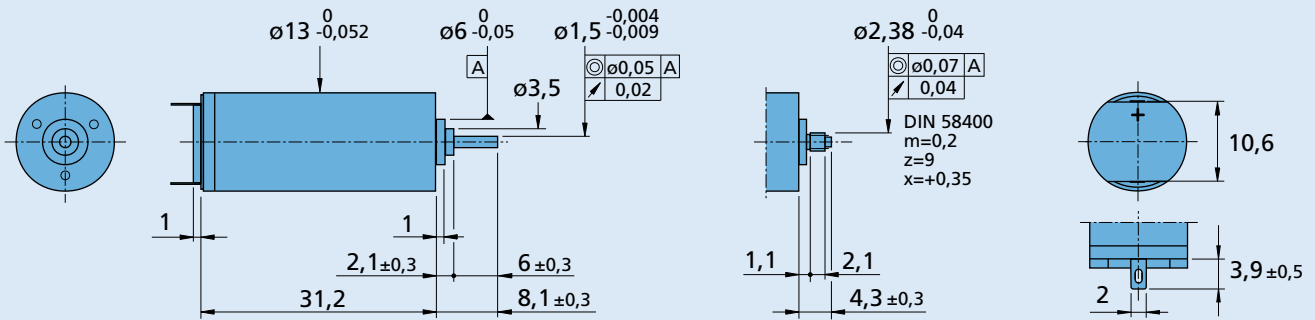
The diagram shows the motor in different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

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 MC 3001 B MC 3001 P MC 3603 S MC 5004 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.