DC-Micromotors

Precious Metal Commutation

2,2 mNm

5 W

Series 1717 ... SR

Values at 22°C and nominal voltage		1717 T		003 SR	006 SR	012 SR	018 SR	024 SR	
1	Nominal voltage	U_N		3	6	12	18	24	V
2	Terminal resistance	R		1,07	4,3	17,1	50,1	68,8	Ω
3	Efficiency, max.	$\eta_{max.}$		69	69	70	68	70	%
4	No-load speed	n_0		14 000	14 000	14 000	12 300	14 000	min^{-1}
5	No-load current, typ. (with shaft ø 1,5 mm)	I_0		0,091	0,046	0,023	0,013	0,011	A
6	Stall torque	M_H		5,37	5,34	5,38	4,66	5,36	mNm
7	Friction torque	M_R		0,18	0,18	0,18	0,18	0,17	mNm
8	Speed constant	k_n		4 820	2 410	1 210	709	602	min^{-1}/V
9	Back-EMF constant	k_E		0,207	0,414	0,829	1,41	1,66	mV/min^{-1}
10	Torque constant	k_M		1,98	3,96	7,92	13,5	15,9	mNm/A
11	Current constant	k_I		0,505	0,253	0,126	0,074	0,063	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$		2 610	2 620	2 600	2 640	2 610	min^{-1}/mNm
13	Rotor inductance	L		17	65	260	760	1 040	µH
14	Mechanical time constant	τ_m		16	16	16	16	16	ms
15	Rotor inertia	J		0,59	0,58	0,59	0,58	0,59	gcm²
16	Angular acceleration	$\alpha_{max.}$		92	92	92	80	92	·10^{3}rad/s²
17	Thermal resistance	R_{th1} / R_{th2}		4,5 / 27					K/W
18	Thermal time constant	τ_{w1} / τ_{w2}		2 / 210					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			18					g
25	Direction of rotation			clockwise, viewed from the front face					
26	Speed up to	$n_{max.}$		16 000					min^{-1}
27	Number of pole pairs			1					
28	Magnet material			NdFeB					
Rated values for continuous operation									
29	Rated torque	M_N		1,2	2,1	2,1	2,1	2,2	mNm
30	Rated current (thermal limit)	I_N		0,7	0,63	0,32	0,19	0,16	A
31	Rated speed	n_N		10 790	6 540	6 570	4 570	6 540	min^{-1}

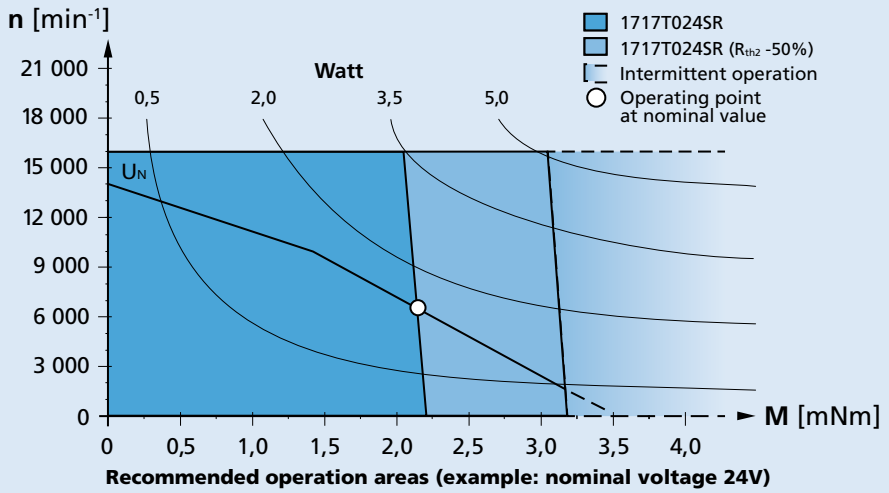
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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.

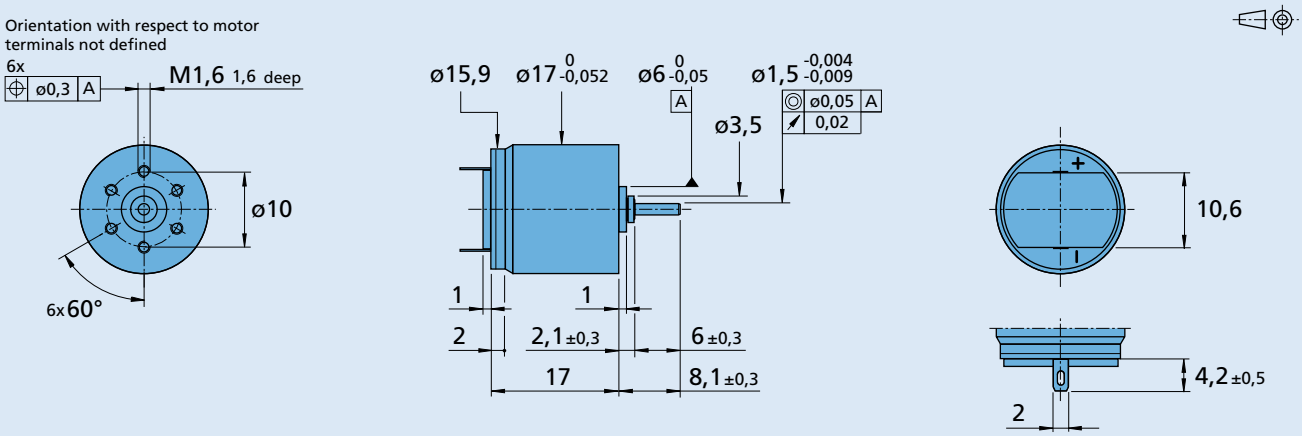
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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 24V)

Dimensional drawing



1717 T ... SR

Options

Example product designation: **1717T012SR-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
15A 15/10 16A 16/7 17/1	IE2-1024 IEH2-4096 IEH3-4096 IEH3-4096L	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.

For notes on technical data and lifetime performance refer to “Technical Information”.