

DC-Micromotors

2,2 mNm

Precious Metal Commutation

For combination with

Gearheads:

15/10, 15A, 16/7, 16A, 17/1

Encoders:

IE2-1024, IE2-16, IEH2-4096

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	Output power	$P_{2nom.}$	1,97	1,96	1,97	1,5	1,96	W
4	Efficiency, max.	$\eta_{max.}$	69	69	70	68	70	%
5	No-load speed	n_0	14 000	14 000	14 000	12 300	14 000	rpm
6	No-load current, typ. (with shaft \varnothing 1,5 mm)	I_0	0,091	0,046	0,023	0,013	0,011	A
7	Stall torque	M_H	5,37	5,34	5,38	4,66	5,36	mNm
8	Friction torque	M_R	0,18	0,18	0,18	0,18	0,17	mNm
9	Speed constant	k_n	4 820	2 410	1 210	709	602	rpm/V
10	Back-EMF constant	k_E	0,207	0,414	0,829	1,41	1,66	mV/rpm
11	Torque constant	k_M	1,98	3,96	7,92	13,5	15,9	mNm/A
12	Current constant	k_I	0,505	0,253	0,126	0,074	0,063	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	2 610	2 620	2 600	2 640	2 610	rpm/mNm
14	Rotor inductance	L	17	65	260	760	1 040	μH
15	Mechanical time constant	τ_m	16	16	16	16	16	ms
16	Rotor inertia	J	0,59	0,58	0,59	0,58	0,59	gcm ²
17	Angular acceleration	$\alpha_{max.}$	92	92	92	80	92	$\cdot 10^3 \text{rad/s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	4,5 / 27					K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	2 / 210					s
20	Operating temperature range:							
	- motor		-30 ... +85 (optional version -55 ... +125)					°C
	- winding, max. permissible		+125					°C
21	Shaft bearings		sintered bearings	ball bearings	ball bearings, preloaded			
			(standard)	(optional version)	(optional version)			
22	Shaft load max.:							
	- with shaft diameter		1,5	1,5	1,5			mm
	- radial at 3 000 rpm (3 mm from bearing)		1,2	5	5			N
	- axial at 3 000 rpm		0,2	0,5	0,5			N
	- axial at standstill		20	10	10			N
23	Shaft play							
	- radial	\leq	0,03	0,015	0,015			mm
	- axial	\leq	0,2	0,2	0			mm
24	Housing material		steel, black coated					
25	Mass		18					g
26	Direction of rotation		clockwise, viewed from the front face					
27	Speed up to	$n_{max.}$	16 000					rpm
28	Number of pole pairs		1					
29	Magnet material		NdFeB					
Rated values for continuous operation								
30	Rated torque	M_N	1,2	2,1	2,1	2,1	2,2	mNm
31	Rated current (thermal limit)	I_N	0,7	0,63	0,32	0,19	0,16	A
32	Rated speed	n_N	10 790	6 540	6 570	4 570	6 540	rpm

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.



