

DC-Micromotors

Graphite Commutation

70 mNm
84 W

Series 2668 ... CR

Values at 22°C and nominal voltage	2668 W	018 CR	024 CR	036 CR	048 CR	
1 Nominal voltage	U_N	18	24	36	48	V
2 Terminal resistance	R	0,57	1,03	2,53	4,23	Ω
3 Efficiency, max.	η_{max}	86	87	87	88	%
4 No-load speed	n_0	7 900	7 800	7 500	7 700	min ⁻¹
5 No-load current, typ. (with shaft \varnothing 4 mm)	I_0	0,105	0,078	0,05	0,038	A
6 Stall torque	M_H	653	656	632	660	mNm
7 Friction torque	M_R	2,2	2,2	2,2	2,2	mNm
8 Speed constant	k_n	448	331	211	162	min ⁻¹ /V
9 Back-EMF constant	k_E	2,24	3,02	4,73	6,18	mV/min ⁻¹
10 Torque constant	k_M	21,3	28,9	45,2	59	mNm/A
11 Current constant	k_I	0,047	0,035	0,022	0,017	A/mNm
12 Slope of n-M curve	$\Delta n / \Delta M$	12	11,8	11,8	11,6	min ⁻¹ /mNm
13 Rotor inductance	L	87	158	390	660	μ H
14 Mechanical time constant	τ_m	3,4	3,1	3,1	3,2	ms
15 Rotor inertia	J	27	25	25	26	gcm ²
16 Angular acceleration	α_{max}	242	263	253	254	$\cdot 10^3$ rad/s ²
17 Thermal resistance	R_{th1} / R_{th2}	3 / 8				K/W
18 Thermal time constant	τ_{w1} / τ_{w2}	33 / 600				s
19 Operating temperature range:						
– motor		-30 ... +125				°C
– winding, max. permissible		+155				°C
20 Shaft bearings		ball bearings, preloaded				
21 Shaft load max.:						
– with shaft diameter		4				mm
– radial at 3 000 min ⁻¹ (3 mm from bearing)		20				N
– axial at 3 000 min ⁻¹		2				N
– axial at standstill		20				N
22 Shaft play:						
– radial	\leq	0,015				mm
– axial	$=$	0				mm
23 Housing material		steel, black coated				
24 Mass		189				g
25 Direction of rotation		clockwise, viewed from the front face				
26 Speed up to	n_{max}	10 000				min ⁻¹
27 Number of pole pairs		1				
28 Magnet material		NdFeB				
Rated values for continuous operation						
29 Rated torque	M_N	56	68	69	70	mNm
30 Rated current (thermal limit)	I_N	3	2,8	1,8	1,4	A
31 Rated speed	n_N	7 480	7 370	7 030	7 260	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 25%.

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.



