

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 ø 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	·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	≤	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.



