

DC-Micromotors

Graphite Commutation

32 mNm
28 W

Series 2642 ... CR

Values at 22°C and nominal voltage		2642 W	012 CR	018 CR	024 CR	036 CR	048 CR	
1	Nominal voltage	U_N	12	18	24	36	48	V
2	Terminal resistance	R	1,45	3,1	5,78	13,6	23,8	Ω
3	Efficiency, max.	η_{max}	78	76	79	76	79	%
4	No-load speed	n_0	6 400	6 400	6 400	6 500	6 400	min ⁻¹
5	No-load current, typ. (with shaft ø 4 mm)	I_0	0,118	0,079	0,058	0,039	0,029	A
6	Stall torque	M_H	132	144	139	134	137	mNm
7	Friction torque	M_R	2	2	2	2	2	mNm
8	Speed constant	k_n	565	370	276	183	137	min ⁻¹ /V
9	Back-EMF constant	k_E	1,77	2,7	3,62	5,47	7,31	mV/min ⁻¹
10	Torque constant	k_M	16,9	25,8	34,6	52,2	69,8	mNm/A
11	Current constant	k_I	0,059	0,039	0,029	0,019	0,014	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$	48,5	44,5	46	47,7	46,7	min ⁻¹ /mNm
13	Rotor inductance	L	130	300	550	1 200	2 200	μ H
14	Mechanical time constant	τ_m	5,4	5,4	5,4	5,4	5,4	ms
15	Rotor inertia	J	11	12	11	11	11	gcm ²
16	Angular acceleration	α_{max}	120	120	120	120	120	·10 ³ rad/s ²
17	Thermal resistance	R_{th1} / R_{th2}	2,1 / 11					K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	10 / 510					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		114					g
25	Direction of rotation		clockwise, viewed from the front face					
26	Speed up to	n_{max}	7 000					min ⁻¹
27	Number of pole pairs		1					
28	Magnet material		NdFeB					
Rated values for continuous operation								
29	Rated torque	M_N	30	32	32	31	32	mNm
30	Rated current (thermal limit)	I_N	2,2	1,5	1,1	0,74	0,56	A
31	Rated speed	n_N	4 390	4 490	4 370	4 340	4 330	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.



