

# DC-Micromotors

## Graphite Commutation

26 mNm  
21 W

### Series 2642 ... CXR

Values at 22°C and nominal voltage		2642 W	012 CXR	024 CXR	048 CXR	
1	Nominal voltage	$U_N$	12	24	48	V
2	Terminal resistance	$R$	1,46	5,84	24,06	$\Omega$
3	Efficiency, max.	$\eta_{max}$	76	78	79	%
4	No-load speed	$n_0$	5 800	5 900	5 900	min <sup>-1</sup>
5	No-load current, typ. (with shaft $\varnothing$ 4 mm)	$I_0$	0,092	0,045	0,022	A
6	Stall torque	$M_H$	144,6	150,5	149	mNm
7	Friction torque	$M_R$	1,7	1,7	1,7	mNm
8	Speed constant	$k_n$	514	252	125	min <sup>-1</sup> /V
9	Back-EMF constant	$k_E$	1,945	3,962	7,994	mV/min <sup>-1</sup>
10	Torque constant	$k_M$	18,57	37,83	76,34	mNm/A
11	Current constant	$k_I$	0,054	0,026	0,013	A/mNm
12	Slope of n-M curve	$\Delta n / \Delta M$	40,4	39	39,4	min <sup>-1</sup> /mNm
13	Rotor inductance	$L$	135	560	2 280	$\mu$ H
14	Mechanical time constant	$\tau_m$	5,1	4,9	5	ms
15	Rotor inertia	$J$	12	12	12	gcm <sup>2</sup>
16	Angular acceleration	$\alpha_{max}$	121	125	124	$\cdot 10^3$ rad/s <sup>2</sup>
17	Thermal resistance	$R_{th1} / R_{th2}$	4,7 / 15,2			K/W
18	Thermal time constant	$\tau_{w1} / \tau_{w2}$	20 / 720			s
19	Operating temperature range:					
	– motor		-30 ... +100			°C
	– winding, max. permissible		+125			°C
20	Shaft bearings		sintered bearings			ball bearings, preloaded (optional version)
21	Shaft load max.:		(standard)			(optional version)
	– with shaft diameter		4			4
	– radial at 3 000 min <sup>-1</sup> (3 mm from bearing)		10			20
	– axial at 3 000 min <sup>-1</sup>		2			2
	– axial at standstill		50			20
22	Shaft play:					
	– radial	$\leq$	0,03			0,015
	– axial	$\leq$	0,15			0
23	Housing material		steel, zinc galvanized and passivated			
24	Mass		114			g
25	Direction of rotation		clockwise, viewed from the front face			
26	Speed up to	$n_{max}$	7 000			min <sup>-1</sup>
27	Number of pole pairs		1			
28	Magnet material		NdFeB			

#### Rated values for continuous operation

29	Rated torque	$M_N$	25	26	26	mNm
30	Rated current (thermal limit)	$I_N$	1,6	0,82	0,41	A
31	Rated speed	$n_N$	4 770	4 770	4 750	min <sup>-1</sup>

**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.



