

DC-Micromotors

Graphite Commutation

40 mNm
34 W

Series 2657 ... CXR

Values at 22°C and nominal voltage		2657 W	012 CXR	024 CXR	048 CXR	
1	Nominal voltage	U_N	12	24	48	V
2	Terminal resistance	R	0,72	2,98	12,61	Ω
3	Efficiency, max.	η_{max}	81	83	83	%
4	No-load speed	n_0	5 600	5 800	5 800	min ⁻¹
5	No-load current, typ. (with shaft \varnothing 4 mm)	I_0	0,104	0,052	0,026	A
6	Stall torque	M_H	306,7	302,9	283,1	mNm
7	Friction torque	M_R	2	2	2	mNm
8	Speed constant	k_n	494	247	122	min ⁻¹ /V
9	Back-EMF constant	k_E	2,024	4,05	8,205	mV/min ⁻¹
10	Torque constant	k_M	19,33	38,67	78,35	mNm/A
11	Current constant	k_I	0,052	0,026	0,013	A/mNm
12	Slope of n-M curve	$\Delta n / \Delta M$	18,4	19	19,6	min ⁻¹ /mNm
13	Rotor inductance	L	90	365	1 500	μ H
14	Mechanical time constant	τ_m	3,3	3,4	3,5	ms
15	Rotor inertia	J	17	17	17	gcm ²
16	Angular acceleration	α_{max}	180	178	172	$\cdot 10^3$ rad/s ²
17	Thermal resistance	R_{th1} / R_{th2}	4,4 / 12,6			K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	28 / 810			s
19	Operating temperature range:					
	– motor		-30 ... +100			°C
	– winding, max. permissible		+125			°C
20	Shaft bearings		sintered bearings	ball bearings, preloaded		
21	Shaft load max.:		(standard)	(optional version)		
	– with shaft diameter		4	4		mm
	– radial at 3 000 min ⁻¹ (3 mm from bearing)		10	20		N
	– axial at 3 000 min ⁻¹		2	2		N
	– axial at standstill		50	20		N
22	Shaft play:					
	– radial	\leq	0,03	0,015		mm
	– axial	\leq	0,15	0		mm
23	Housing material		steel, zinc galvanized and passivated			
24	Mass		156			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	39	40	40	mNm
30	Rated current (thermal limit)	I_N	2,4	1,2	0,61	A
31	Rated speed	n_N	5 040	5 110	5 050	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.



