

DC-Micromotors

Graphite Commutation

42,3 mNm
35,8 W

Series 2657 ... CXR

Values at 22°C and nominal voltage	2657 W	012 CXR	018 CXR	024 CXR	030 CXR	036 CXR	048 CXR		
Nominal voltage	U_N	12	18	24	30	36	48	V	
Terminal resistance	R	0,721	1,72	3	4,84	6,76	12,7	Ω	
Rotor inductance	L	91	212	364	581	819	1 490	μH	
Efficiency, max.	η_{max}	81	82	83	83	83	83	%	
No-load current, typ.	I_0	0,105	0,0689	0,0526	0,0416	0,035	0,0259	A	
No-load speed	n_0	5 730	5 710	5 860	5 820	5 900	5 840	min^{-1}	
Stall torque	M_H	307	298	301	296	302	292	mNm	
Rotor inertia	J	17	17	17	17	17	17	gcm^2	
Friction torque	M_R	2	2	2	2	2	2	mNm	
Torque constant	k_M	19,3	29,5	38,7	48,9	58	78,4	mNm/A	
Speed constant	k_n	494	324	247	196	165	122	min^{-1}/V	
Slope of n-M curve	$\Delta n/\Delta M$	18,4	18,9	19,2	19,4	19,2	19,7	$\text{min}^{-1}/\text{mNm}$	
Thermal resistance:									
- winding to housing	R_{th1}	4						K/W	
- housing to ambient (external plastic flange)	R_{th2p}	12						K/W	
- housing to ambient (external metal flange)	R_{th2m}	2,2						K/W	
Thermal time constant:									
- winding	τ_{w1}	29						s	
- housing (external plastic flange)	τ_{w2p}	740						s	
- housing (external metal flange)	τ_{w2m}	140						s	
Operating temperature range:									
- motor		-30 ... +100						$^{\circ}\text{C}$	
- winding, max. permissible		+125						$^{\circ}\text{C}$	
Shaft bearings		sintered bearings			ball bearings, preloaded				
Shaft diameter		4			4				mm
Radial shaft load max.:									
- dynamic at 3 000 min^{-1} (3 mm from bearing)		10			20				N
Axial shaft load max.:									
- dynamic at 3 000 min^{-1}		2			2				N
- static (shaft unsupported)		50			20				N
- static (shaft supported)		1 400			1 400				N
Shaft play, max.:									
- radial		0,03			0,015				mm
- axial		0,15			0				mm
Speed up to	n_{max}	7 000						min^{-1}	
Number of pole pairs		1							
Mass		156						g	
Housing material		steel, zinc galvanized and passivated							
Magnet material		NdFeB							

Rated values for continuous operation

Rated torque	M_N	41,4	41,9	41,9	42	42,3	42	mNm
Rated current (thermal limit)	I_N	2,53	1,68	1,28	1,02	0,861	0,633	A
Rated speed	n_N	4 980	4 910	5 040	4 980	5 070	4 980	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2p} 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 different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

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.



