

DC-Micromotors

Graphite Commutation

51,1 mNm
37 W

Series 2657 ... CR

Values at 22°C and nominal voltage	2657 W	012 CR	018 CR	024 CR	036 CR	048 CR		
Nominal voltage	U_N	12	18	24	36	48	V	
Terminal resistance	R	0,711	1,7	2,85	6,78	12,5	Ω	
Rotor inductance	L	93,2	217	373	868	1 530	μH	
Efficiency, max.	η_{max}	81	82	83	83	83	%	
No-load current, typ.	I_0	0,11	0,0723	0,0552	0,0362	0,0272	A	
No-load speed	n_0	6 020	6 000	6 150	6 090	6 130	min^{-1}	
Stall torque	M_{H1}	296	288	302	292	282	mNm	
Rotor inertia	J	16	16	17	16	15	gcm^2	
Friction torque	M_R	2	2	2	2	2	mNm	
Torque constant	k_M	18,4	28,1	36,9	56,2	74,7	mNm/A	
Speed constant	k_n	518	340	259	170	128	min^{-1}/V	
Slope of n-M curve	$\Delta n/\Delta M$	20	20,5	20	20,5	21,4	$\text{min}^{-1}/\text{mNm}$	
Thermal resistance:								
- winding to housing	R_{th1}	4,1					K/W	
- housing to ambient (external plastic flange)	R_{th2p}	12					K/W	
- housing to ambient (external metal flange)	R_{th2m}	2,7					K/W	
Thermal time constant:								
- winding	τ_{w1}	30					s	
- housing (external plastic flange)	τ_{w2p}	740					s	
- housing (external metal flange)	τ_{w2m}	170					s	
Operating temperature range:								
- motor		-30 ... +125					$^{\circ}\text{C}$	
- winding, max. permissible		+155					$^{\circ}\text{C}$	
Shaft bearings								
Shaft diameter		ball bearings, preloaded						mm
Radial shaft load max.:		4						mm
- dynamic at 3 000 min^{-1} (3 mm from bearing)		20					N	
Axial shaft load max.:								
- dynamic at 3 000 min^{-1}		2					N	
- static (shaft unsupported)		20					N	
- static (shaft supported)		1 400					N	
Shaft play, max.:								
- radial		0,015					mm	
- axial		0					mm	
Speed up to	n_{max}	7 000					min^{-1}	
Number of pole pairs		1						
Mass		156					g	
Housing material		steel, nickel plated						
Magnet material		NdFeB						
Rated values for continuous operation								
Rated torque	M_N	46,9	50,2	51,1	50,8	49,9	mNm	
Rated current (thermal limit)	I_N	3	2,17	1,69	1,1	0,814	A	
Rated speed	n_N	4 980	4 730	4 910	4 800	4 800	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 50%.

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.



