

DC-Micromotors

Graphite Commutation

31,3 mNm
22,5 W

Series 2642 ... CR

Values at 22°C and nominal voltage	2642 W	012 CR	018 CR	024 CR	036 CR	048 CR		
Nominal voltage	U_N	12	18	24	36	48	V	
Terminal resistance	R	1,45	3,1	5,79	13,6	23,8	Ω	
Rotor inductance	L	130	300	539	1 230	2 200	μH	
Efficiency, max.	η_{max}	74	76	76	76	77	%	
No-load current, typ.	I_0	0,117	0,0772	0,0575	0,0381	0,0285	A	
No-load speed	n_0	6 340	6 360	6 360	6 360	6 370	min^{-1}	
Stall torque	M_{H1}	136	148	142	137	141	mNm	
Rotor inertia	J	11	12	11	11	11	gcm^2	
Friction torque	M_R	2	2	2	2	2	mNm	
Torque constant	k_M	17,4	26,5	35,5	53,6	71,7	mNm/A	
Speed constant	k_n	548	361	269	178	133	min^{-1}/V	
Slope of n-M curve	$\Delta n/\Delta M$	45,6	42,2	43,8	45,4	44,3	$\text{min}^{-1}/\text{mNm}$	
Thermal resistance:								
- winding to housing	R_{th1}	4,9					K/W	
- housing to ambient (external plastic flange)	R_{th2p}	14					K/W	
- housing to ambient (external metal flange)	R_{th2m}	1,9					K/W	
Thermal time constant:								
- winding	τ_{w1}	25					s	
- housing (external plastic flange)	τ_{w2p}	650					s	
- housing (external metal flange)	τ_{w2m}	89					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.:								
- 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		114					g	
Housing material		steel, nickel plated						
Magnet material		NdFeB						

Rated values for continuous operation

Rated torque	M_N	29,7	31,3	30,8	30,5	30,9	mNm
Rated current (thermal limit)	I_N	2,13	1,47	1,08	0,709	0,538	A
Rated speed	n_N	4 360	4 450	4 400	4 340	4 370	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 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.



