

DC-Micromotors

Graphite Commutation

51 mNm
45 W

Series 2657 ... CR

Values at 22°C and nominal voltage		2657 W	012 CR	018 CR	024 CR	036 CR	048 CR	
1	Nominal voltage	U_N	12	18	24	36	48	V
2	Terminal resistance	R	0,71	1,7	2,84	6,78	12,5	Ω
3	Efficiency, max.	η_{max}	84	81	85	82	84	%
4	No-load speed	n_0	6 300	6 300	6 400	6 480	6 400	min ⁻¹
5	No-load current, typ. (with shaft ø 4 mm)	I_0	0,115	0,077	0,058	0,039	0,028	A
6	Stall torque	M_H	278	269	286	273	265	mNm
7	Friction torque	M_R	2	2	2	2	2	mNm
8	Speed constant	k_n	552	363	274	182	136	min ⁻¹ /V
9	Back-EMF constant	k_E	1,81	2,75	3,65	5,51	7,37	mV/min ⁻¹
10	Torque constant	k_M	17,3	26,3	34,8	52,6	70,4	mNm/A
11	Current constant	k_I	0,058	0,038	0,029	0,019	0,014	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$	22,7	23,5	22,4	23,4	24,2	min ⁻¹ /mNm
13	Rotor inductance	L	95	210	380	850	1 550	μ H
14	Mechanical time constant	τ_m	3,9	3,9	3,9	3,9	3,9	ms
15	Rotor inertia	J	16	16	17	16	15	gcm ²
16	Angular acceleration	α_{max}	170	170	170	170	170	·10 ³ rad/s ²
17	Thermal resistance	R_{th1} / R_{th2}	1,9 / 9					K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	10 / 580					s
19	Operating temperature range:							
	– motor		-30 ... +125					°C
	– winding, max. permissible		+155					°C
20	Shaft bearings		ball bearings, preloaded					
21	Shaft load max.:							
	– with shaft diameter		4					mm
	– radial at 3 000 min ⁻¹ (3 mm from bearing)		20					N
	– axial at 3 000 min ⁻¹		2					N
	– axial at standstill		20					N
22	Shaft play:							
	– radial	≤	0,015					mm
	– axial	=	0					mm
23	Housing material		steel, black coated					
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	45	49	51	50	50	mNm
30	Rated current (thermal limit)	I_N	3	2,3	1,8	1,2	0,86	A
31	Rated speed	n_N	5 250	4 960	5 060	5 020	4 920	min ⁻¹

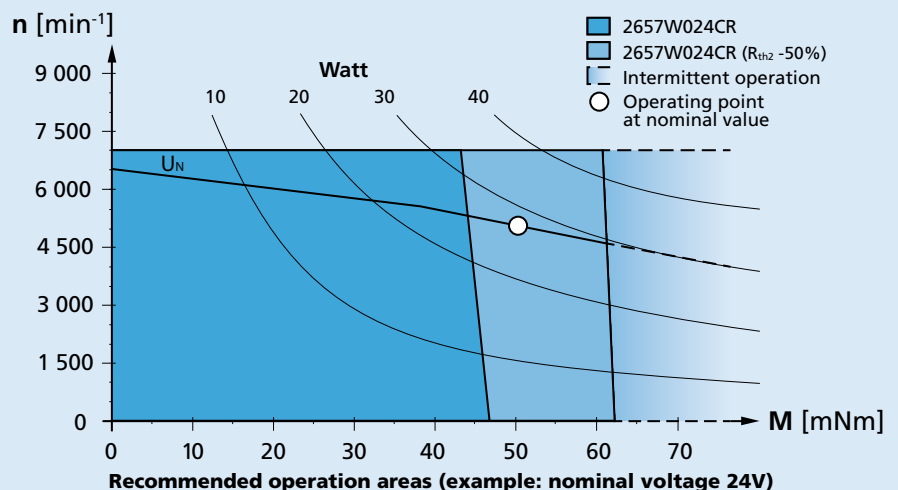
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.



Orientation with respect to motor terminals not defined

3x $\oplus \varnothing 0,3 \text{ A}$ M2 4 deep

$\varnothing 17$

6x60°

M3 4 deep 3x $\oplus \varnothing 0,3 \text{ A}$

$\varnothing 4 \begin{smallmatrix} -0,006 \\ -0,010 \end{smallmatrix}$ $\varnothing 11 \begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$ $\varnothing 24 \begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$ $\varnothing 26 \begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$ $\varnothing 10 \begin{smallmatrix} 0 \\ -0,015 \end{smallmatrix}$ $\varnothing 4 \begin{smallmatrix} -0,006 \\ -0,010 \end{smallmatrix}$ $\varnothing 6,5 \begin{smallmatrix} \circlearrowleft 0,05 \text{ A} \\ \nearrow 0,02 \end{smallmatrix}$

1,5 3,4 ±0,25 6 1 2,4 ±0,15 10 ±0,3 8,8 ±0,4 57 12,4 ±0,3

0,5 18

3,5 2,8 7 11,6 ±0,5

for Faston connector 2,8 x 0,5

2657 W ... CR

[illegible]

Product combination			
Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
22GPT 26A 26/1 26/1R 30/1 30/1 S 32A 32ALN 32GPT	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L	SC 2402 P SC 2804 S SC 5004 P SC 5008 S MCDC 3003 P MCDC 3006 S MC 5004 P MC 5005 S	MBZ To view our large range of accessory parts, please refer to the "Accessories" chapter.