DC-Micromotors

Graphite Commutation

40 mNm

For combination with
Gearheads:
26/1, 26/1 S, 26A, 30/1, 30/1 S, 32A
Encoders:
HEDL 5540, HEDM 5500, HEDS 5500, HEDS 5540, IE3-1024, IE3-1024 L

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	Output power	$P_{2nom.}$			45,3	45,7	44,1	W
4	Efficiency, max.	$\eta_{max.}$			81	83	83	%
5	No-load speed	n_0			5 600	5 800	5 800	rpm
6	No-load current, typ. (with shaft ø 4 mm)	I_0			0,104	0,052	0,026	A
7	Stall torque	M_H			306,7	302,9	283,1	mNm
8	Friction torque	M_R			2	2	2	mNm
9	Speed constant	k_n			494	247	122	rpm/V
10	Back-EMF constant	k_E			2,024	4,05	8,205	mV/rpm
11	Torque constant	k_M			19,33	38,67	78,35	mNm/A
12	Current constant	k_I			0,052	0,026	0,013	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$			18,4	19	19,6	rpm/mNm
14	Rotor inductance	L			90	365	1 500	µH
15	Mechanical time constant	τ_m			3,3	3,4	3,5	ms
16	Rotor inertia	J			17	17	17	gcm²
17	Angular acceleration	$\alpha_{max.}$			180	178	172	·10³rad/s²
18	Thermal resistance	R_{th1} / R_{th2}	4,4 / 12,6					K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	28 / 810					s
20	Operating temperature range:							
	– motor		-30 ... +100					°C
	– winding, max. permissible		+125					°C
21	Shaft bearings		sintered bearings	ball bearings, preloaded				
22	Shaft load max.:		(standard)	(optional version)				
	– with shaft diameter		4	4				mm
	– radial at 3 000 rpm (3 mm from bearing)		10	20				N
	– axial at 3 000 rpm		2	2				N
	– axial at standstill		50	20				N
23	Shaft play							
	– radial	≤	0,03	0,015				mm
	– axial	≤	0,2	0				mm
24	Housing material		steel, zinc galvanized and passivated					
25	Mass		156					g
26	Direction of rotation		clockwise, viewed from the front face					
27	Speed up to	$n_{max.}$	7 000					rpm
28	Number of pole pairs		1					
29	Magnet material		NdFeB					

Rated values for continuous operation							
30	Rated torque	M_N		39	40	40	mNm
31	Rated current (thermal limit)	I_N		2,4	1,2	0,61	A
32	Rated speed	n_N		5 040	5 110	5 050	rpm

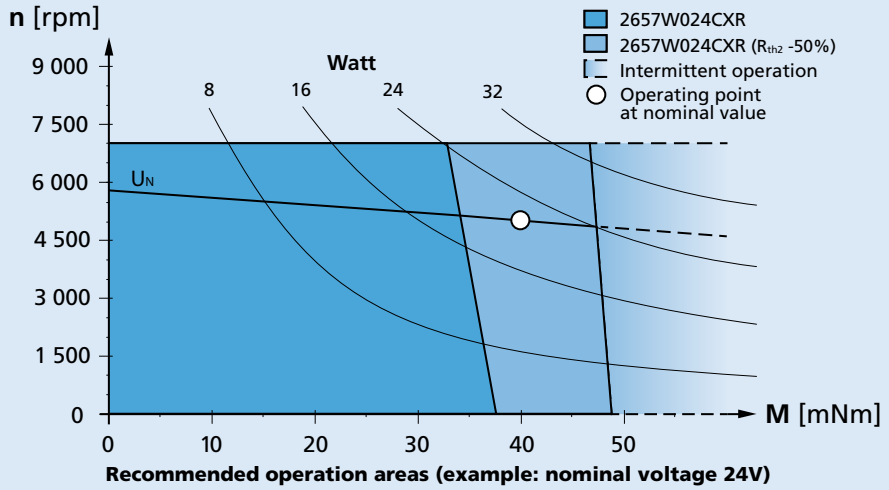
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.

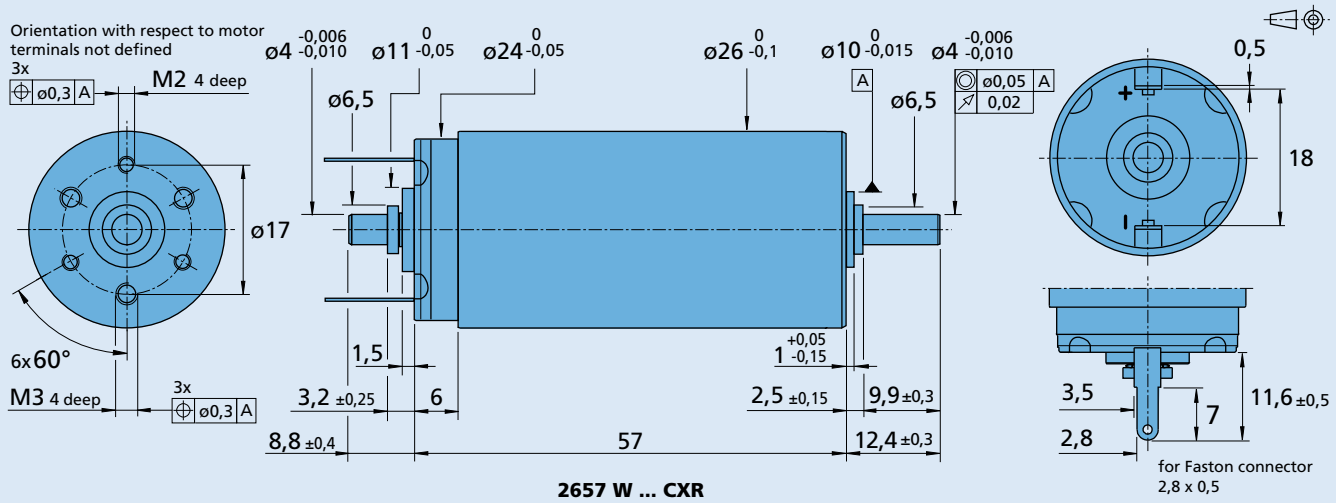
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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.



Recommended operation areas (example: nominal voltage 24V)

Dimensional drawing



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