

DC-Micromotors

Graphite Commutation

4,9 mNm
5,3 W

Series 1727 ... CXR

Values at 22°C and nominal voltage		1727 U	006 CXR	012 CXR	024 CXR	
1	Nominal voltage	U_N	6	12	24	V
2	Terminal resistance	R	3,06	13,78	57,6	Ω
3	Efficiency, max.	η_{max}	63	65	66	%
4	No-load speed	n_0	7 300	7 600	7 600	min ⁻¹
5	No-load current, typ. (with shaft ø 2 mm)	I_0	0,052	0,026	0,013	A
6	Stall torque	M_H	12,2	11,4	11,4	mNm
7	Friction torque	M_R	0,36	0,36	0,36	mNm
8	Speed constant	k_n	1 362	681	332	min ⁻¹ /V
9	Back-EMF constant	k_E	0,734	1,47	3,01	mV/min ⁻¹
10	Torque constant	k_M	7,01	14,03	28,73	mNm/A
11	Current constant	k_I	0,143	0,071	0,035	A/mNm
12	Slope of n-M curve	$\Delta n / \Delta M$	595	668	666	min ⁻¹ /mNm
13	Rotor inductance	L	80	320	1 440	μ H
14	Mechanical time constant	τ_m	8,1	8,4	8,4	ms
15	Rotor inertia	J	1,3	1,2	1,2	gcm ²
16	Angular acceleration	α_{max}	94	95	95	·10 ³ rad/s ²
17	Thermal resistance	R_{th1} / R_{th2}	9,1 / 28,3			K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	7 / 340			s
19 Operating temperature range:						
– motor		-30 ... +100				°C
– winding, max. permissible		+125				°C
20	Shaft bearings	ball bearings, preloaded	sintered bearings			
21	Shaft load max.:	(standard)	(optional version)			
– with shaft diameter		2				mm
– radial at 3 000 min ⁻¹ (3 mm from bearing)		8	1,5			N
– axial at 3 000 min ⁻¹		0,8	0,2			N
– axial at standstill		10	20			N
22 Shaft play:						
– radial		≤	0,015	0,03		mm
– axial		=	0	0,2		mm
23	Housing material	steel, nickel plated				
24	Mass	28				g
25	Direction of rotation	clockwise, viewed from the front face				
26	Speed up to	n_{max}	9 000			min ⁻¹
27	Number of pole pairs	1				
28	Magnet material	NdFeB				
Rated values for continuous operation						
29	Rated torque	M_N	4,9	4,7	4,7	mNm
30	Rated current (thermal limit)	I_N	0,84	0,41	0,2	A
31	Rated speed	n_N	2 910	2 810	2 730	min ⁻¹

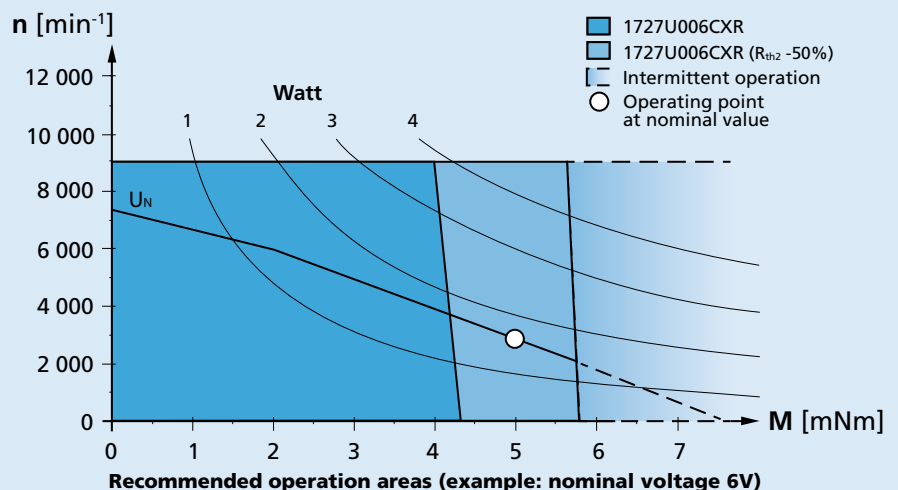
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.

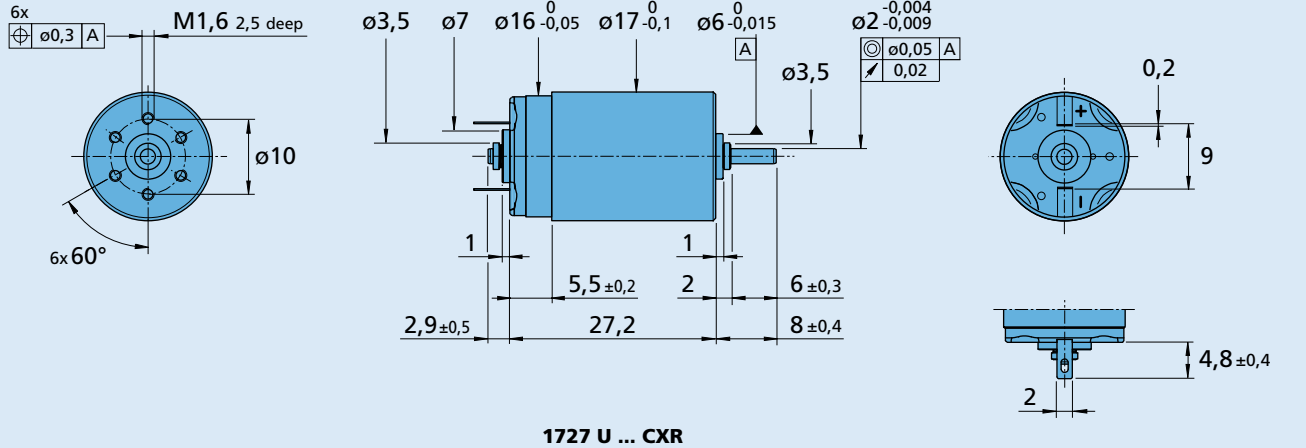
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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.



Dimensional drawing

Orientation with respect to motor terminals not defined



Options

Example product designation: **1727U012CXR-217**

Option	Type	Description
L	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-)
4924	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-)
X4924	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-)
4925	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-), with connector AMP 179228-2
X4925	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-), with connector AMP 179228-2
Y4925	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-), with connector AMP 179228-2
F	Single Leads	For motors with single leads (PTFE), length 150 mm, red (+) / black (-)
123	Encoder combination	Second shaft end for combination with encoder IE2, IEH2 and IEH3
217	Bearings	Motor with sintered bearings

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
15/10 16/7 17/1	IE2-16 IE2-1024 IEH2-4096 IEH3-4096 IEH3-4096L	SC 1801 P SC 1801 S MCDC 3002 P MCDC 3002 S MC 5004 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.