

NEW

 **FAULHABER**

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	Output power	$P_{2nom.}$	2,33	2,25	2,25	W
4	Efficiency, max.	$\eta_{max.}$	63	65	66	%
5	No-load speed	n_0	7 300	7 600	7 600	min ⁻¹
6	No-load current, typ. (with shaft ø 2 mm)	I_0	0,052	0,026	0,013	A
7	Stall torque	M_H	12,2	11,4	11,4	mNm
8	Friction torque	M_R	0,36	0,36	0,36	mNm
9	Speed constant	k_n	1 362	681	332	min ⁻¹ /V
10	Back-EMF constant	k_E	0,734	1,47	3,01	mV/min ⁻¹
11	Torque constant	k_M	7,01	14,03	28,73	mNm/A
12	Current constant	k_I	0,143	0,071	0,035	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	595	668	666	min ⁻¹ /mNm
14	Rotor inductance	L	80	320	1 440	μ H
15	Mechanical time constant	τ_m	8,1	8,4	8,4	ms
16	Rotor inertia	J	1,3	1,2	1,2	gcm ²
17	Angular acceleration	$\alpha_{max.}$	94	95	95	·10 ³ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	9,1 / 28,3			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	7 / 340			s
20	Operating temperature range:					
	– motor		-30 ... +100			°C
	– winding, max. permissible		+125			°C
21	Shaft bearings		ball bearings, preloaded			
22	Shaft load max.:					
	– with shaft diameter		2			mm
	– radial at 3 000 min ⁻¹ (3 mm from bearing)		8			N
	– axial at 3 000 min ⁻¹		0,8			N
	– axial at standstill		10			N
23	Shaft play:					
	– radial	≤	0,015			mm
	– axial	=	0			mm
24	Housing material		steel, nickel plated			
25	Mass		28			g
26	Direction of rotation		clockwise, viewed from the front face			
27	Speed up to	$n_{max.}$	9 000			min ⁻¹
28	Number of pole pairs		1			
29	Magnet material		NdFeB			
Rated values for continuous operation						
30	Rated torque	M_N	4,9	4,7	4,7	mNm
31	Rated current (thermal limit)	I_N	0,84	0,41	0,2	A
32	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.



