PRELIMINARY

FAULHABER

DC-Micromotors

Graphite Commutation

10 mNm

10,8 W

Series 1741 ... CXR

			1741.00610	
Values at 22°C and nominal voltage	**1741 U**		**024 CXR XX5329**	
1 Nominal voltage	U_N		24	V
2 Terminal resistance	R		17,2	Ω
3 Output power	$P_{2nom.}$		7,86	W
4 Efficiency, max.	$\eta_{max.}$		79	%
5 No-load speed	n_0		7 700	min^{-1}
6 No-load current, typ. (with shaft ø 1,5 mm)	I_0		0,014	A
7 Stall torque	M_H		39,2	mNm
8 Friction torque	M_R		0,4	mNm
9 Speed constant	k_n		329	min^{-1}/V
10 Back-EMF constant	k_E		3,04	mV/min^{-1}
11 Torque constant	k_M		29	mNm/A
12 Current constant	k_I		0,034	A/mNm
13 Slope of n-M curve	$\Delta n/\Delta M$		195	min^{-1}/mNm
14 Rotor inductance	L		600	µH
15 Mechanical time constant	τ_m		4,4	ms
16 Rotor inertia	J		1,5	gcm^2
17 Angular acceleration	$\alpha_{max.}$		174	$\cdot 10^3 rad/s^2$
18 Thermal resistance	R_{th1} / R_{th2}	7 / 23		K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	8 / 440		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, zinc galvanized and passivated		
25 Mass		45		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		10	mNm
31 Rated current (thermal limit)	I_N		0,4	A
32 Rated speed	n_N		5 100	min^{-1}

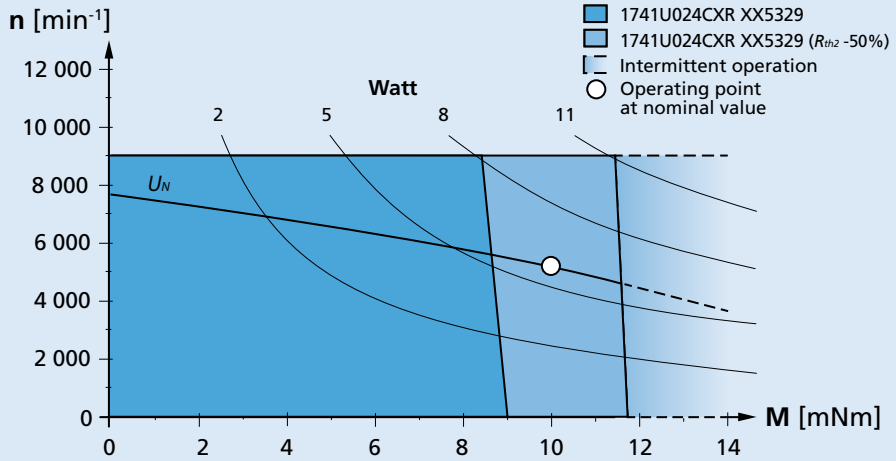
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.



Recommended operation areas (example: nominal voltage 24V)

For notes on technical data and lifetime performance refer to "Technical Information".

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