DC-Micromotors

12 mNm

Graphite Commutation

11 W

Series 2237 ... CXR

Values at 22°C and nominal voltage		2237 S	006 CXR	012 CXR	018 CXR	024 CXR	036 CXR	048 CXR	
1	Nominal voltage	U_N	6	12	18	24	36	48	V
2	Terminal resistance	R	0,85	3,92	8,5	15,7	33	62,8	Ω
3	Efficiency, max.	$\eta_{max.}$	68,1	70,8	72,2	72,6	73,6	73,5	%
4	No-load speed	n_0	6 900	6 800	7 000	6 900	7 200	7 000	min⁻¹
5	No-load current, typ. (with shaft ø 3 mm)	I_0	0,124	0,058	0,039	0,029	0,02	0,015	A
6	Stall torque	M_H	47,2	45,7	47,1	46,6	48,7	47,1	mNm
7	Friction torque	M_R	0,92	0,92	0,92	0,92	0,92	0,92	mNm
8	Speed constant	k_n	1 283	601	409	301	207	150	min⁻¹/V
9	Back-EMF constant	k_E	0,78	1,66	2,44	3,33	4,83	6,65	mV/min⁻¹
10	Torque constant	k_M	7,44	15,9	23,3	31,8	46,2	63,5	mNm/A
11	Current constant	k_I	0,134	0,063	0,043	0,032	0,022	0,016	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$	146	148	149	149	148	149	min⁻¹/mNm
13	Rotor inductance	L	35	150	320	590	1 240	2 340	µH
14	Mechanical time constant	τ_m	5	5	5	5	5	5	ms
15	Rotor inertia	J	3,1	3,1	3,1	3,1	3,1	3,1	gcm²
16	Angular acceleration	$\alpha_{max.}$	152	147	152	150	157	152	·10³rad/s²
17	Thermal resistance	R_{th1} / R_{th2}	8 / 17						K/W
18	Thermal time constant	τ_{w1} / τ_{w2}	13 / 500						s
19	Operating temperature range:								
	– motor		-30 ... +100						°C
	– winding, max. permissible		+125						°C
20	Shaft bearings		sintered bearings			ball bearings, preloaded			
21	Shaft load max.:		(standard)			(optional version)			
	– with shaft diameter		3			3			mm
	– radial at 3 000 min⁻¹ (3 mm from bearing)		2,5			15			N
	– axial at 3 000 min⁻¹		0,3			2			N
	– axial at standstill		20			20			N
22	Shaft play:								
	– radial	≤	0,03			0,015			mm
	– axial	≤	0,15			0			mm
23	Housing material		steel, zinc galvanized and passivated						
24	Mass		68						g
25	Direction of rotation		clockwise, viewed from the front face						
26	Speed up to	$n_{max.}$	8 000						min⁻¹
27	Number of pole pairs		1						
28	Magnet material		NdFeB						
Rated values for continuous operation									
29	Rated torque	M_N	11	12	12	12	12	12	mNm
30	Rated current (thermal limit)	I_N	1,9	0,9	0,61	0,46	0,31	0,23	A
31	Rated speed	n_N	4 750	4 450	4 700	4 560	4 880	4 630	min⁻¹

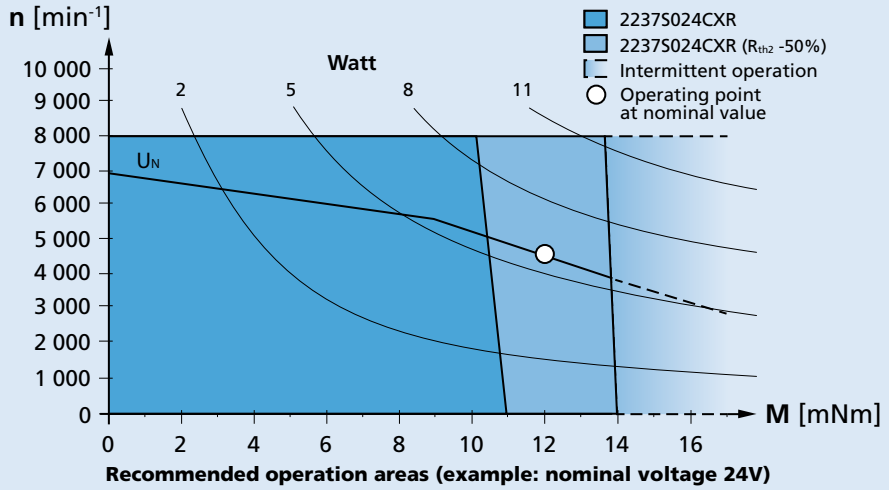
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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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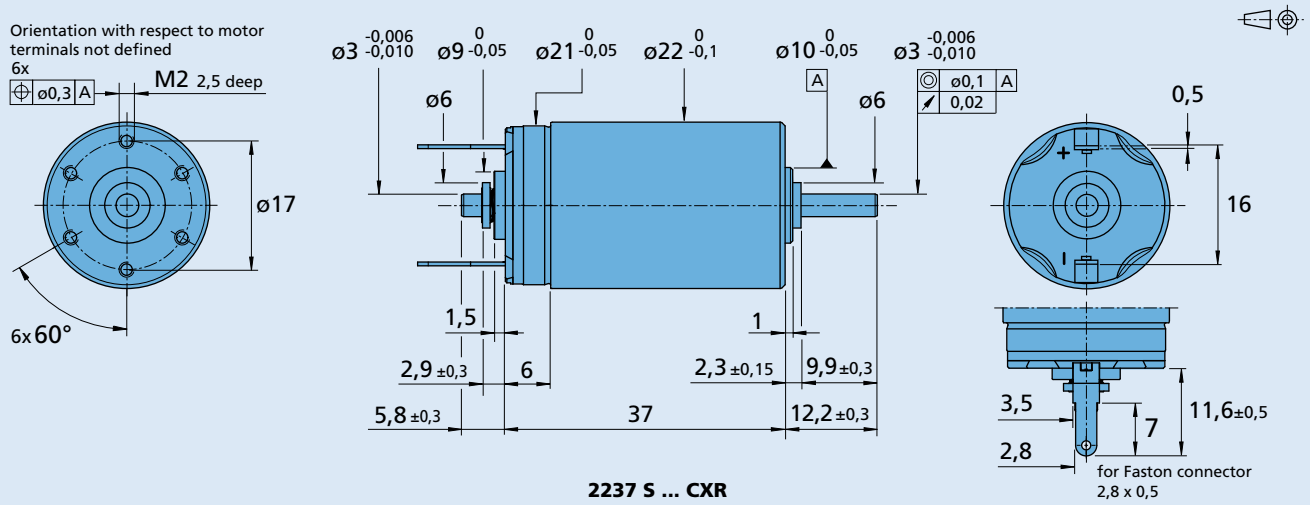
Dimensional drawing



2237 S ... CXR

Options

Example product designation: **2237S012CXR-275**

Option	Type	Description
U	Single Leads	For motors with single leads (PTFE), length 160 mm, red (+) / black (-)
158	Shaft end	No second shaft end
275	Ball bearings	Motor with 2 preloaded ball bearings.

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
22E 22EKV 22GPT 22/7 23/1 26A	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L	SC 1801 P SC 1801 S SC 2402 P SC 2804 S SC 5004 P SC 5008 S MCDC 3002 P MCDC 3002 S MCDC 3003 P MCDC 3006 S MC 5004 P MC 5005 S	To view our large range of accessory parts, please refer to the “Accessories” chapter.