FAULHABER

12,4 mNm
11,9 W

DC-Micromotors
Graphite Commutation

Series 2237 ... CXR

Values at 22°C and nominal voltage	2237 S	006 CXR	012 CXR	018 CXR	024 CXR	036 CXR	048 CXR	
Nominal voltage	U_N	6	12	18	24	36	48	V
Terminal resistance	R	0,851	3,92	8,5	15,8	33	62,8	Ω
Rotor inductance	L	32,9	150	323	599	1 260	2 400	µH
Efficiency, max.	$\eta_{max.}$	69	71	72	73	74	73	%
No-load current, typ.	I_0	0,125	0,0587	0,04	0,0294	0,0202	0,0147	A
No-load speed	n_0	7 010	6 870	7 120	7 010	7 300	7 090	min⁻¹
Stall torque	M_H	47,2	45,6	47,1	46,5	48,8	47,1	mNm
Rotor inertia	J	3,1	3,1	3,1	3,1	3,1	3,1	gcm²
Friction torque	M_R	0,92	0,92	0,92	0,92	0,92	0,92	mNm
Torque constant	k_M	7,45	15,9	23,3	31,8	46,2	63,5	mNm/A
Speed constant	k_n	1 280	601	409	301	207	150	min⁻¹/V
Slope of n-M curve	$\Delta n/\Delta M$	147	149	149	149	148	149	min⁻¹/mNm
Thermal resistance:								
– winding to housing	R_{th1}	6,2						K/W
– housing to ambient (external plastic flange)	$R_{th2\,p}$	18						K/W
– housing to ambient (external metal flange)	$R_{th2\,m}$	2,2						K/W
Thermal time constant:								
– winding	τ_{w1}	11						s
– housing (external plastic flange)	$\tau_{w2\,p}$	520						s
– housing (external metal flange)	$\tau_{w2\,m}$	65						s
Operating temperature range:								
– motor		-30 ... +100						°C
– winding, max. permissible		+125						°C
Shaft bearings		sintered bearings			ball bearings, preloaded			
Shaft diameter		3			3			mm
Radial shaft load max.:								
– dynamic at 3 000 min⁻¹ (4 mm from mounting flange)		2,5			15			N
Axial shaft load max.:								
– dynamic at 3 000 min⁻¹		0,3			2			N
– static (shaft unsupported)		20			20			N
– static (shaft supported)		900			900			N
Shaft play, max.:								
– radial		0,03			0,015			mm
– axial		0,15			0			mm
Speed up to	$n_{max.}$	8 000						min⁻¹
Number of pole pairs		1						
Mass		68						g
Housing material		steel, zinc galvanized and passivated						
Magnet material		NdFeB						
Rated values for continuous operation								
Rated torque	M_N	11,7	12,1	12,2	12,3	12,4	12,4	mNm
Rated current (thermal limit)	I_N	1,91	0,924	0,633	0,468	0,325	0,236	A
Rated speed	n_N	4 660	4 350	4 590	4 450	4 770	4 520	min⁻¹

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

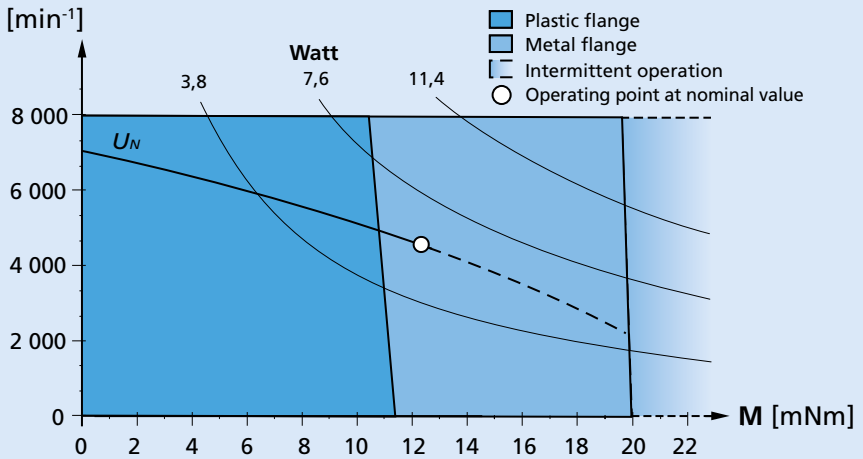
Note:

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 different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

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 48V)

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

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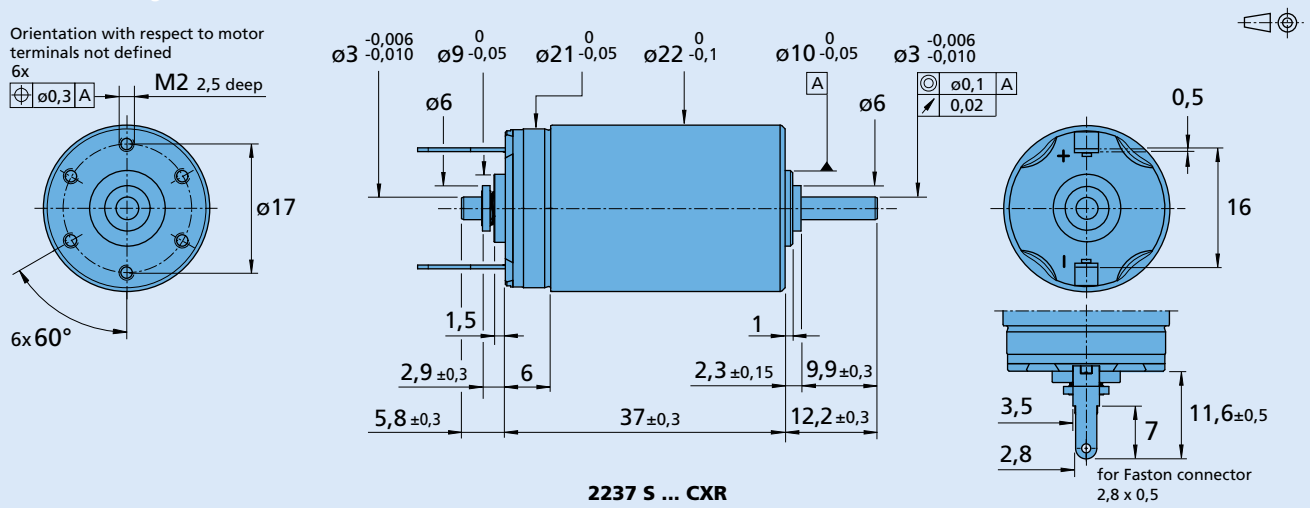
Dimensional drawing



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 22GPT LN 22GPT HT 22/7 23/1 26A 22L ... ML 22L ... SB 22L ... PB	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 MC 3001 B MC 3001 P MC 3602 B MC 3603 S MC 5004 P MC 5005 S	To view our large range of accessory parts, please refer to the “Accessories” chapter.

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