NEW

FAULHABER

DC-Micromotors

Precious Metal Commutation

4 mNm

5,8 W

Series 1228 ... SXR

Values at 22°C and nominal voltage	1228 V		003 SXR	006 SXR	012 SXR	
Nominal voltage	U_N		3	6	12	V
Terminal resistance	R		0,63	2,39	10,2	Ω
Rotor inductance	L		25,4	100	492	µH
Efficiency, max.	$\eta_{max.}$		83	83	83	%
No-load current, typ.	I_0		0,038	0,02	0,009	A
No-load speed	n_0		8 820	8 990	8 700	min⁻¹
Stall torque	M_H		15,3	15,8	15,3	mNm
Rotor inertia	J		0,45	0,45	0,45	gcm²
Friction torque	M_R		0,121	0,121	0,121	mNm
Torque constant	k_M		3,24	6,36	13,1	mNm/A
Speed constant	k_n		2 950	1 500	727	min⁻¹/V
Slope of n-M curve	$\Delta n/\Delta M$		573	564	566	min⁻¹/mNm
Thermal resistance:						
– winding to housing	R_{th1}	11				K/W
– housing to ambient (external plastic flange)	$R_{th2\,p}$	38				K/W
– housing to ambient (external metal flange)	$R_{th2\,m}$	6,3				K/W
Thermal time constant:						
– winding	τ_{w1}	12				s
– housing (external plastic flange)	$\tau_{w2\,p}$	260				s
– housing (external metal flange)	$\tau_{w2\,m}$	43				s
Operating temperature range:						
– motor		-30 ... +85				°C
– winding, max. permissible		+100				°C
Shaft bearings		sintered bearings	ball bearings, preloaded			
Shaft diameter		1,5	1,5			mm
Radial shaft load max.:						
– dynamic at 3 000 min⁻¹ (3 mm from bearing)		1,2	5			N
Axial shaft load max.:						
– dynamic at 3 000 min⁻¹		0,2	0,5			N
– static (shaft unsupported)		20	10			N
– static (shaft supported)		200	200			N
Shaft play, max.:						
– radial		0,03	0,015			mm
– axial		0,2	0			mm
Speed up to	$n_{max.}$	11 000				min⁻¹
Number of pole pairs		1				
Mass		16,7				g
Housing material		steel, nickel plated				
Magnet material		NdFeB				
Rated values for continuous operation						
Rated torque	M_N		2,41	3,96	4	mNm
Rated current (thermal limit)	I_N		0,8	0,704	0,34	A
Rated speed	n_N		7 430	6 300	5 980	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 0%.

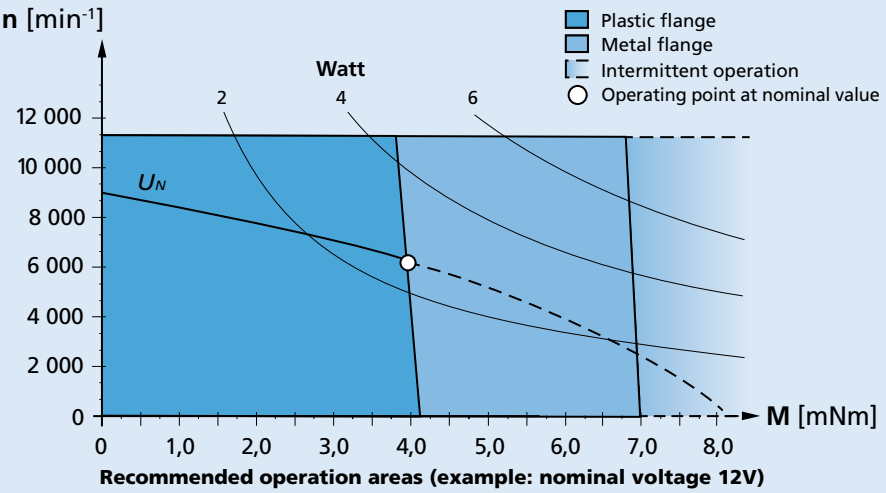
Note:

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.

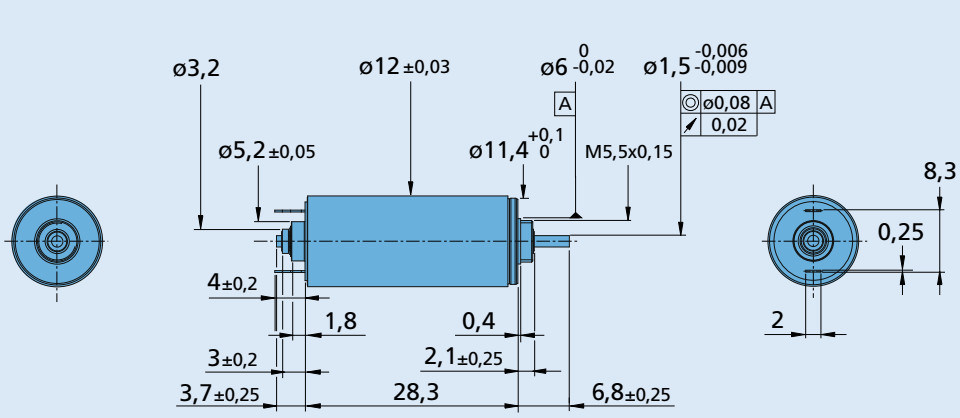
Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Recommended operation areas (example: nominal voltage 12V)

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

Dimensional drawing



1228 V ... SXR

Options

Example product designation: **1228V012SXR-K4585**

Option	Type	Description
K4584	Bearings	Motor with 2 preloaded ball bearings
K4585	Encoder combination	Motor with rear end shaft for combination with Encoder IEP3
K4613	Temperature range	Extended temperature range (-30°C + 125°C)
K4614	Temperature range	Motor with 2 preloaded ball bearings, extended temperature range (-30°C + 125°C)
K4615	Bearings	Special sintered bearings for vacuum of 10^{-5} Pa @ 22°C
K4616	Bearings	Special ball bearings for vacuum of 10^{-5} Pa @ 22°C
K4670	Leads	Motor with twin leads (PVC), length 50 mm, red (+) / black (-), radial exit
K4671	Leads	Motor with twin leads (PVC), length 100 mm, red (+) / black (-), radial exit
K4672	Leads	Motor with twin leads (PVC), length 150 mm, red (+) / black (-), radial exit
K4673	Leads	Motor with single leads (PTFE), length 150 mm, red (+) / black (-), radial exit
K4686	Shaft end	Motor front shaft end 1,5 mm x 5,6 mm from motor front

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
10/1 12/3 12/4 12/5 13A 14GPT	IEP3-4096	SC 1801 S SC 2804 S MC 3001 B MC 3603 S	To view our large range of accessory parts, please refer to the “Accessories” chapter.