

**NEW**

**DC-Micromotors**  
Precious Metal Commutation

**2 mNm**  
**3,6 W**

**Series 1218 ... SXR**

Values at 22°C and nominal voltage		1218 V	003 SXR	006 SXR	012 SXR	
Nominal voltage	$U_N$		3	6	12	V
Terminal resistance	$R$		1,13	4,81	18,2	$\Omega$
Rotor inductance	$L$		31,8	133	498	$\mu\text{H}$
Efficiency, max.	$\eta_{max}$		79	78	78	%
No-load current, typ.	$I_0$		0,034	0,016	0,009	A
No-load speed	$n_0$		11 200	11 000	11 400	$\text{min}^{-1}$
Stall torque	$M_{H1}$		6,64	6,36	6,5	mNm
Rotor inertia	$J$		0,3	0,3	0,3	$\text{gcm}^2$
Friction torque	$M_R$		0,083	0,083	0,083	mNm
Torque constant	$k_M$		2,53	5,17	10	$\text{mNm/A}$
Speed constant	$k_n$		3 770	1 850	959	$\text{min}^{-1}/\text{V}$
Slope of n-M curve	$\Delta n/\Delta M$		1 680	1 720	1 750	$\text{min}^{-1}/\text{mNm}$
Thermal resistance:						
- winding to housing	$R_{th1}$	16				K/W
- housing to ambient (external plastic flange)	$R_{th2p}$	47				K/W
- housing to ambient (external metal flange)	$R_{th2m}$	6,1				K/W
Thermal time constant:						
- winding	$\tau_{w1}$	11				s
- housing (external plastic flange)	$\tau_{w2p}$	190				s
- housing (external metal flange)	$\tau_{w2m}$	25				s
Operating temperature range:						
- motor		-30 ... +85				$^{\circ}\text{C}$
- winding, max. permissible		+100				$^{\circ}\text{C}$
Shaft bearings		sintered bearings	ball bearings, preloaded			
Shaft diameter		1,5	1,5			mm
Radial shaft load max.:						
- dynamic at 3 000 $\text{min}^{-1}$ (3 mm from bearing)		1,2	5			N
Axial shaft load max.:						
- dynamic at 3 000 $\text{min}^{-1}$		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	$n_{max}$	14 000				$\text{min}^{-1}$
Number of pole pairs		1				
Mass		10				g
Housing material		steel, nickel plated				
Magnet material		NdFeB				
<b>Rated values for continuous operation</b>						
Rated torque	$M_N$		1,82	2	1,97	mNm
Rated current (thermal limit)	$I_N$		0,8	0,438	0,225	A
Rated speed	$n_N$		7 650	6 620	7 050	$\text{min}^{-1}$

**Note:** Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The  $R_{th2p}$  value has been reduced by 0%.

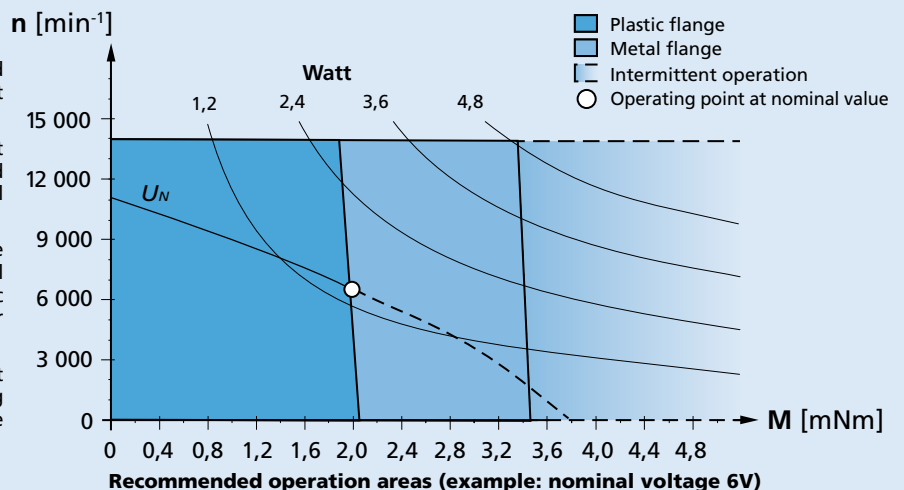
**Note:**

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

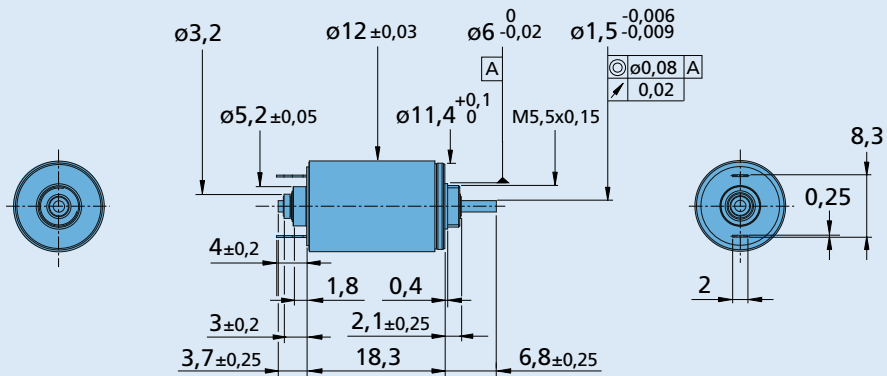
The diagram shows the motor in different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

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.



### Dimensional drawing



1218 V ... SXR

### Options

Example product designation: **1218V012SXR-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 <sup>-5</sup> Pa @ 22°C
K4616	Bearings	Special ball bearings for vacuum of 10 <sup>-5</sup> 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.