DC-Micromotors

Precious Metal Commutation

0,72 mNm

2 W

Series 1219 ... G

Values at 22°C and nominal voltage		1219 N		4,5 G	006 G	012 G	015 G	
1	Nominal voltage	U_N		4,5	6	12	15	V
2	Terminal resistance	R		10,7	17,6	69	131	Ω
3	Efficiency, max.	$\eta_{max.}$		74	73	72	70	%
4	No-load speed	n_0		15 300	16 000	16 000	16 200	min⁻¹
5	No-load current, typ. (with shaft ø 0,8 mm)	I_0		0,008	0,007	0,004	0,003	A
6	Stall torque	M_H		1,14	1,17	1,19	0,96	mNm
7	Friction torque	M_R		0,02	0,02	0,03	0,03	mNm
8	Speed constant	k_n		3 460	2 721	1 364	1 109	min⁻¹/V
9	Back-EMF constant	k_E		0,289	0,368	0,733	0,902	mV/min⁻¹
10	Torque constant	k_M		2,76	3,51	7	8,61	mNm/A
11	Current constant	k_I		0,362	0,285	0,143	0,116	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$		13 413	13 642	13 447	16 875	min⁻¹/mNm
13	Rotor inductance	L		150	300	1 200	1 600	µH
14	Mechanical time constant	τ_m		20	20	18	19	ms
15	Rotor inertia	J		0,14	0,14	0,13	0,11	gcm²
16	Angular acceleration	$\alpha_{max.}$		81	84	92	87	·10³rad/s²
17	Thermal resistance	R_{th1} / R_{th2}		17 / 48				K/W
18	Thermal time constant	τ_{w1} / τ_{w2}		3,5 / 386				s
19	Operating temperature range:							
	– motor			-30 ... +85 (optional version -30 ... +125)				°C
	– winding, max. permissible			+85 (optional version +125)				°C
20	Shaft bearings			sintered bearings				
21	Shaft load max.:							
	– with shaft diameter			0,8				mm
	– radial at 3 000 min⁻¹ (1,5 mm from bearing)			0,5				N
	– axial at 3 000 min⁻¹			0,1				N
	– axial at standstill			20				N
22	Shaft play:							
	– radial	≤		0,03				mm
	– axial	≤		0,2				mm
23	Housing material			steel, nickel plated				
24	Mass			11				g
25	Direction of rotation			clockwise, viewed from the front face				
26	Speed up to	$n_{max.}$		19 000				min⁻¹
27	Number of pole pairs			1				
28	Magnet material			AlNiCo				

Rated values for continuous operation								
29	Rated torque	M_N		0,72	0,71	0,7	0,62	mNm
30	Rated current (thermal limit)	I_N		0,27	0,21	0,11	0,077	A
31	Rated speed	n_N		3 120	3 870	4 040	2 770	min⁻¹

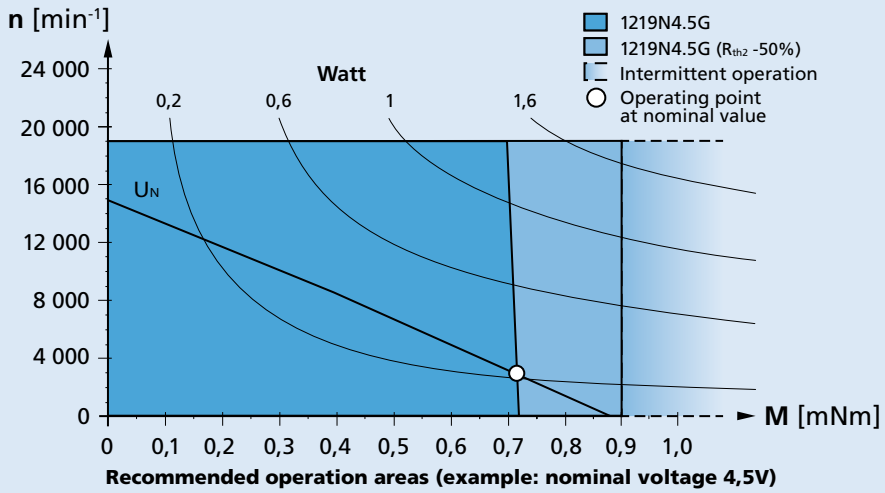
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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 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 4,5V)

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

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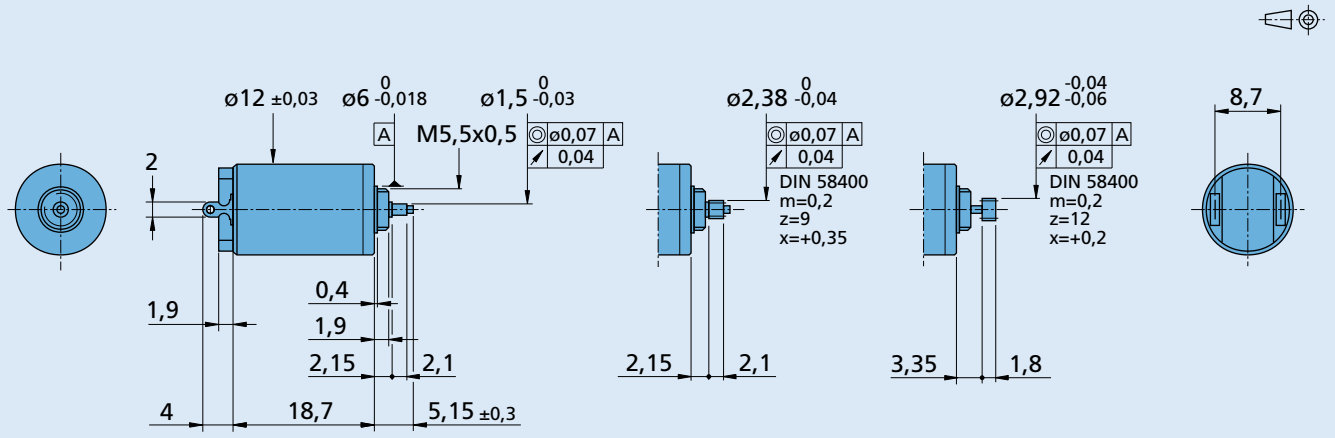
Dimensional drawing



1219 N ... G

1219 E ... G
for Gearhead 12/3

1219 M ... G
for Gearhead 10/1

Options

Example product designation: **1219N012G-K179**

Option	Type	Description
K179	Bearing lubrication	For vacuum of 10^{-5} Pa @ 22°C
K188	Temperature range	Extended temperature range (-30…+125°C)
K380	Second shaft end	Ø 1 mm x 3 mm
K440	Bearing	Front ball bearing

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
10/1 12/3		SC 1801 MCDC 3002	To view our large range of accessory parts, please refer to the “Accessories” chapter.

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