

# DC-Micromotors

## Precious Metal Commutation

### 0,6 mNm

For combination with  
Gearheads:  
10/1, 12/3  
Encoders:  
30B

### Series 1219 ... G

	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	$\Omega$	
3 Output power	$P_{2 \max}$	0,46	0,49	0,5	0,41	W	
4 Efficiency, max.	$\eta_{\max}$	74	73	72	70	%	
5 No-load speed	$n_0$	15 300	16 000	16 000	16 200	rpm	
6 No-load current (with shaft $\varnothing$ 0,8 mm)	$I_0$	0,008	0,007	0,004	0,003	A	
7 Stall torque	$M_H$	1,14	1,17	1,19	0,96	mNm	
8 Friction torque	$M_R$	0,02	0,02	0,03	0,03	mNm	
9 Speed constant	$k_n$	3 460	2 721	1 364	1 109	rpm/V	
10 Back-EMF constant	$k_E$	0,289	0,368	0,733	0,902	mV/rpm	
11 Torque constant	$k_M$	2,76	3,51	7	8,61	mNm/A	
12 Current constant	$k_i$	0,362	0,285	0,143	0,116	A/mNm	
13 Slope of n-M curve	$\Delta n / \Delta M$	13 413	13 642	13 447	16 875	rpm/mNm	
14 Rotor inductance	L	150	300	1 200	1 600	$\mu$ H	
15 Mechanical time constant	$\tau_m$	20	20	18	19	ms	
16 Rotor inertia	J	0,14	0,14	0,13	0,11	gcm <sup>2</sup>	
17 Angular acceleration	$\alpha_{\max}$	81	84	92	87	$\cdot 10^3 \text{ rad/s}^2$	
18 Thermal resistance	$R_{th 1} / R_{th 2}$	17 / 48				K/W	
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	3,5 / 386				s	
20 Operating temperature range:							
– motor		-30 ... +85 (optional version	-30 ... +125)			$^{\circ}$ C	
– rotor, max. permissible		+85 (optional version	+125)			$^{\circ}$ C	
21 Shaft bearings		sintered bearings	ball bearings				
22 Shaft load max.:		(standard)	(optional version)				
– with shaft diameter		0,8	1			mm	
– radial at 3 000 rpm (1,5 mm from bearing)		0,5	5			N	
– axial at 3 000 rpm		0,1	0,5			N	
– axial at standstill		20	5			N	
23 Shaft play							
– radial	$\leq$	0,03	0,02			mm	
– axial	$\leq$	0,2	0,2			mm	
24 Housing material		steel, nickel plated					
25 Weight		11				g	
26 Direction of rotation		clockwise, viewed from the front face					
<b>Recommended values - mathematically independent of each other</b>							
27 Speed up to	$n_{e \max}$		12 000	12 000	12 000	12 000	rpm
28 Torque up to	$M_{e \max}$		0,6	0,6	0,6	0,6	mNm

