

# DC-Micromotors

## Precious Metal Commutation

### 0,48 mNm

For combination with  
Gearheads:  
10/1, 12/3  
Encoders:  
30B, PA2-100, HEM3-256-W

DC-Micromotors

### Series 1016 ... G

	1016 N	003 G	006 G	012 G	
1 Nominal voltage	$U_N$	3	6	12	Volt
2 Terminal resistance	R	8,7	20,1	95,0	$\Omega$
3 Output power	$P_2 \text{ max.}$	0,24	0,42	0,36	W
4 Efficiency	$\eta \text{ max.}$	63	67	68	%
5 No-load speed	$n_0$	14 200	18 400	16 500	rpm
6 No-load current (with shaft $\varnothing$ 0,8 mm)	$I_0$	0,015	0,010	0,004	A
7 Stall torque	$M_H$	0,64	0,87	0,82	mNm
8 Friction torque	$M_R$	0,03	0,03	0,03	mNm
9 Speed constant	$k_n$	4 948	3 173	1 419	rpm/V
10 Back-EMF constant	$k_E$	0,202	0,315	0,705	mV/rpm
11 Torque constant	$k_M$	1,93	3,01	6,73	mNm/A
12 Current constant	$k_I$	0,518	0,332	0,149	A/mNm
13 Slope of n-M curve	$\Delta n/\Delta M$	22 304	21 185	20 029	rpm/mNm
14 Rotor inductance	L	28	60	310	$\mu\text{H}$
15 Mechanical time constant	$\tau_m$	9	13	10	ms
16 Rotor inertia	J	0,04	0,06	0,05	$\text{gcm}^2$
17 Angular acceleration	$\alpha \text{ max.}$	159	145	165	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{th1} / R_{th2}$	26 / 56			K/W
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	3,1 / 260			s
20 Operating temperature range:					
– motor		– 30 ... + 85 (optional – 30 ... + 125)			$^{\circ}\text{C}$
– rotor, max. permissible		+ 85 (optional + 125)			$^{\circ}\text{C}$
21 Shaft bearings		sintered bronze sleeves	ball bearings		
22 Shaft load max.:		(standard)	(optional)		
– with shaft diameter		0,8	1,0		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		6,5			g
26 Direction of rotation		clockwise, viewed from the front face			
<b>Recommended values - mathematically independent of each other</b>					
27 Speed up to	$n_e \text{ max.}$	13 000	13 000	13 000	rpm
28 Torque up to	$M_e \text{ max.}$	0,48	0,48	0,48	mNm
29 Current up to (thermal limits)	$I_e \text{ max.}$	0,260	0,170	0,080	A

