

# DC-Motors

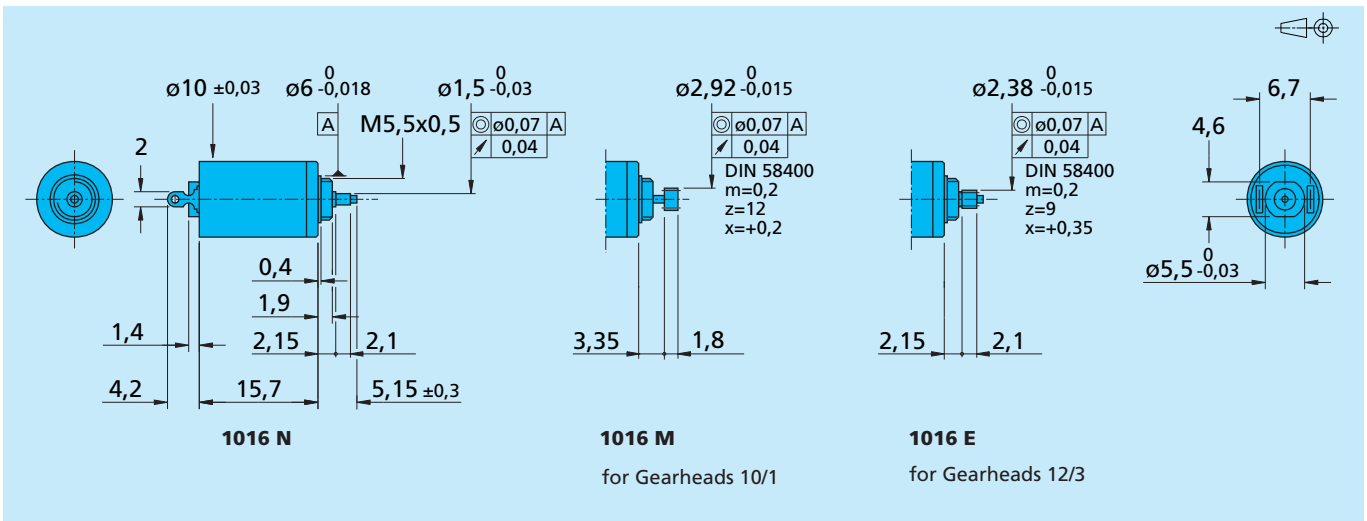
## Precious Metal Commutation

# 0,48 mNm

For combination with  
Gearheads: 10/1, 12/3  
Encoders: HE2-10, HEM3-256, PA2-100

### 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	$P_{2 \max.}$	0,24	0,42	0,36	W
4 Efficiency	$\eta_{\max.}$	63	67	68	%
5 No-load speed	$n_o$	14 200	18 400	16 500	rpm
6 No-load current (with shaft $\varnothing$ 0,8 mm)	$I_o$	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	15	60	310	$\mu$ H
15 Mechanical time constant	$\tau_m$	9	13	10	ms
16 Rotor inertia	J	0,04	0,06	0,05	gcm <sup>2</sup>
17 Angular acceleration	$\alpha_{\max.}$	159	145	165	$\cdot 10^3$ rad/s <sup>2</sup>
18 Thermal resistance	$R_{th 1} / R_{th 2}$	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)			$^{\circ}$ C
- rotor, max. permissible		+ 85 (optional + 125)			$^{\circ}$ C
21 Shaft bearings		sintered bronze sleeves (standard)	ball bearings (optional)		
22 Shaft load max.:					
- 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	$n_e \max.$	13 000	13 000	13 000	rpm
28 Torque up to	$M_e \max.$	0,48	0,48	0,48	mNm
29 Current up to (thermal limits)	$I_e \max.$	0,260	0,170	0,080	A



## How to Order a 1016 ... G

Part number	Voltage	Description	Stocked items
1016N003G	3	Standard motor	no
1016N006G	6	Standard motor	no
1016N012G	12	Standard motor	no
1016M003G	3	Standard motor with pinion for 10/1 gearhead	yes
1016M006G	6	Standard motor with pinion for 10/1 gearhead	yes
1016M012G	12	Standard motor with pinion for 10/1 gearhead	yes
1016E003G	3	Standard motor with pinion for 12/3 gearhead	no
1016E006G	6	Standard motor with pinion for 12/3 gearhead	no
1016E012G	12	Standard motor with pinion for 12/3 gearhead	no