

# DC-Motors

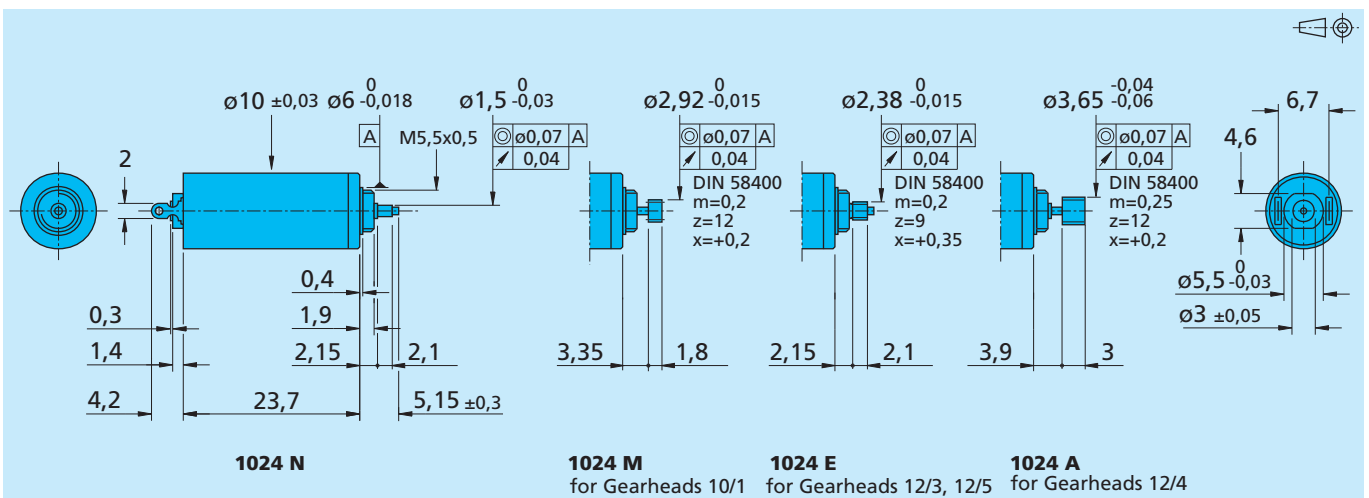
## Precious Metal Commutation

# 1,28 mNm

For combination with  
 Gearheads: 10/1, 12/3, 12/4, 12/5  
 Encoders: HEM, HEM3-256, PA2-100

### Series 1024 ... S

	1024 N	003 S	006 S	012 S	
1 Nominal voltage	$U_N$	3	6	12	Volt
2 Terminal resistance	R	2,3	10,8	31,6	$\Omega$
3 Output power	$P_{2\ max.}$	0,97	0,81	1,11	W
4 Efficiency	$\eta_{\ max.}$	79	78	79	%
5 No-load speed	$n_o$	13 800	13 200	14 700	rpm
6 No-load current (with shaft $\varnothing$ 1,0 mm)	$I_o$	0,016	0,008	0,004	A
7 Stall torque	$M_H$	2,69	2,34	2,89	mNm
8 Friction torque	$M_R$	0,03	0,03	0,03	mNm
9 Speed constant	$k_n$	4 658	2 231	1 240	rpm/V
10 Back-EMF constant	$k_E$	0,215	0,448	0,806	mV/rpm
11 Torque constant	$k_M$	2,05	4,28	7,70	mNm/A
12 Current constant	$k_i$	0,488	0,234	0,130	A/mNm
13 Slope of n-M curve	$\Delta n/\Delta M$	5 135	5 630	5 090	rpm/mNm
14 Rotor inductance	L	26	100	344	$\mu H$
15 Mechanical time constant	$\tau_m$	6	7	6	ms
16 Rotor inertia	J	0,12	0,12	0,12	gcm <sup>2</sup>
17 Angular acceleration	$\alpha_{\ max.}$	224	195	241	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{th\ 1} / R_{th\ 2}$	14 / 41			K/W
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	5,0 / 289			s
20 Operating temperature range:					
- motor		- 30 ... + 85			$^{\circ}C$
- rotor, max. permissible		+ 85			$^{\circ}C$
21 Shaft bearings		sintered bronze sleeves			
22 Shaft load max.:					
- with shaft diameter		1,0			mm
- radial at 3 000 rpm (1,5 mm from bearing)		0,5			N
- axial at 3 000 rpm		0,1			N
- axial at standstill		20			N
23 Shaft play:					
- radial	$\leq$	0,03			mm
- axial	$\leq$	0,2			mm
24 Housing material		steel, black coated			
25 Weight		8,8			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	rpm
28 Torque up to	$M_{e\ max.}$	1,27	1,21	1,28	mNm
29 Current up to (thermal limits)	$I_{e\ max.}$	0,636	0,291	0,170	A



## How to Order a 1024 ... S

Part number	Voltage	Description	Stocked items
1024N003S	3	Standard motor	no
1024N006S	6	Standard motor	no
1024N012S	12	Standard motor	no
1024M003S	3	Standard motor with pinion for 10/1 gearhead	yes
1024M006S	6	Standard motor with pinion for 10/1 gearhead	yes
1024M012S	12	Standard motor with pinion for 10/1 gearhead	yes
1024E003S	3	Standard motor with pinion for 12/3, 12/5 gearheads	yes
1024E006S	6	Standard motor with pinion for 12/3, 12/5 gearheads	yes
1024E012S	12	Standard motor with pinion for 12/3, 12/5 gearheads	yes
1024A003S	3	Standard motor with pinion for 12/4 gearhead	yes
1024A006S	6	Standard motor with pinion for 12/4 gearhead	yes
1024A012S	12	Standard motor with pinion for 12/4 gearhead	yes