

# Brushless DC-Servomotors

## 11,8 mNm

Electronic Commutation

For combination with

Gearheads:  
23/1, 26/1, 30/1, 38/3

Encoders:  
IE2 – 16 ... 512, 5500, 5540

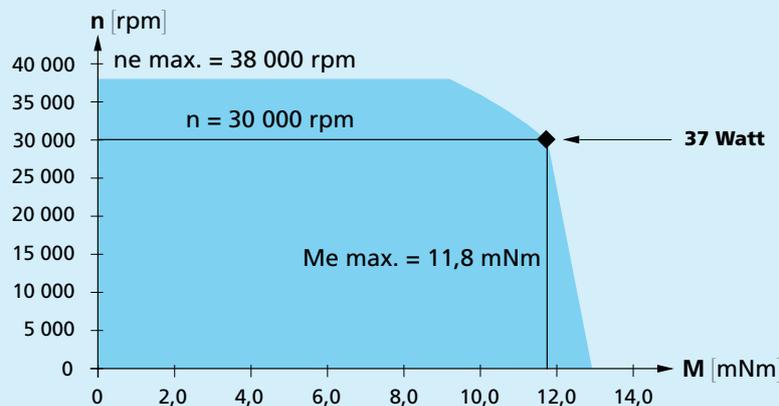
Drive Electronics:  
refer to "Combination Chart", pages 14-15

### Series 2444 ... B

	2444 S	024 B	048 B	
1 Nominal voltage	$U_N$	24	48	Volt
2 Terminal resistance, phase-phase	R	2,1	8,4	$\Omega$
3 Output power <sup>1)</sup>	$P_{2 \max.}$	36	37	W
4 Efficiency	$\eta_{\max.}$	77	77	%
5 No-load speed	$n_o$	23 000	22 500	rpm
6 No-load current (with shaft $\varnothing$ 3,0 mm)	$I_o$	0,184	0,088	A
7 Stall torque	$M_H$	111	115	mNm
8 Friction torque, static	$C_o$	1,00	1,00	mNm
9 Friction torque, dynamic	$C_v$	$3,5 \cdot 10^{-5}$	$3,5 \cdot 10^{-5}$	mNm/rpm
10 Speed constant	$k_n$	974	473	rpm/V
11 Back-EMF constant	$k_E$	1,026	2,115	mV/rpm
12 Torque constant	$k_M$	9,8	20,2	mNm/A
13 Current constant	$k_i$	0,102	0,050	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	209	197	rpm/mNm
15 Terminal inductance, phase-phase	L	180	760	$\mu H$
16 Mechanical time constant	$\tau_m$	14	13	ms
17 Rotor inertia	J	6,5	6,5	gcm <sup>2</sup>
18 Angular acceleration	$\alpha_{\max.}$	171	177	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	4,1 / 14,8		K/W
20 Thermal time constant	$\tau_{w1} / \tau_{w2}$	16 / 680		s
21 Operating temperature range		- 30 ... +125		$^{\circ}C$
22 Shaft bearings		ball bearings, preloaded		
23 Shaft load max.:				
– radial at 3 000/20 000 rpm (6 mm from mounting flange)		30 / 17		N
– axial at 3 000/20 000 rpm (push-on only)		16 / 10		N
– axial at standstill (push-on only)		57		N
24 Shaft play:				
– radial	$\leq$	0,015		mm
– axial	$=$	0		mm
25 Housing material		aluminium, black anodized		
26 Weight		100		g
27 Direction of rotation		electronically reversible		
<b>Recommended values - mathematically independent of each other</b>				
28 Speed up to <sup>2)</sup>	$n_{e \max.}$	38 000	38 000	rpm
29 Torque up to <sup>1) 2)</sup>	$M_{e \max.}$	11,4	11,8	mNm
30 Current up to <sup>1) 2)</sup>	$I_{e \max.}$	1,37	0,69	A

<sup>1)</sup> at 30 000 rpm

<sup>2)</sup> thermal resistance  $R_{th 2}$  by 55% reduced



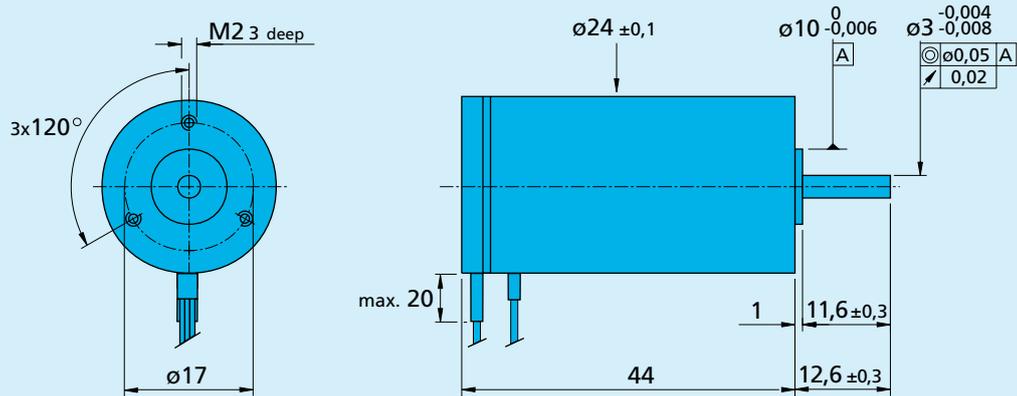
**Recommended area for continuous operation**

**Options**

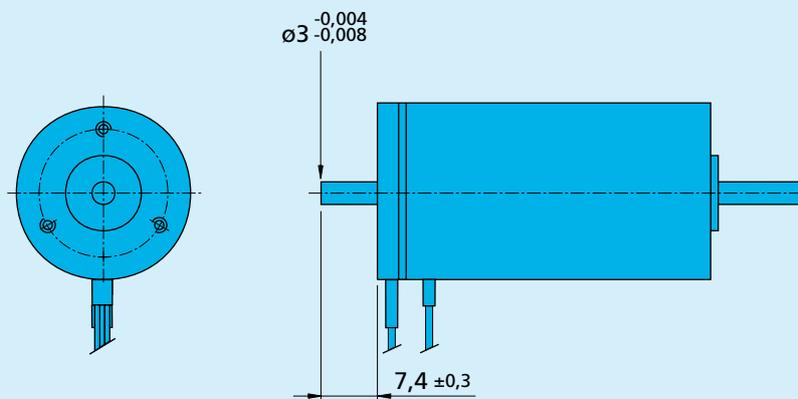
K1000:  
Motors in autoclavable version.

K1155:  
Motors for operation with Motion Controllers  
MCBL 3003/06 S, MCBL 3003/06 C.

**2444 S ... B**



**2444 S ... B - K312 with rear end shaft**



**Cable and connection information**

