

Brushless DC-Servomotors

11,8 mNm

For combination with
 Gearheads:
 23/1, 26/1(S), 30/1(S), 38/3
 Encoders:
 IE2-1024, 5500, 5540
 Drive Electronics:
 Speed Controller, Motion Controller

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	Ω
3 Output power ¹⁾	$P_{2 \text{ max.}}$	36	37	W
4 Efficiency	$\eta_{\text{ max.}}$	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	μH
16 Mechanical time constant	τ_m	14	13	ms
17 Rotor inertia	J	6,5	6,5	gcm^2
18 Angular acceleration	$\alpha_{\text{ max.}}$	171	177	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{\text{th} 1} / R_{\text{th} 2}$	4,1 / 14,8		K/W
20 Thermal time constant	τ_{w1} / τ_{w2}	16 / 680		s
21 Operating temperature range		- 30 ... +125		$^{\circ}\text{C}$
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		
Recommended values - mathematically independent of each other				
28 Speed up to ²⁾	$n_{e \text{ max.}}$	38 000	38 000	rpm
29 Torque up to ^{1) 2)}	$M_{e \text{ max.}}$	11,4	11,8	mNm
30 Current up to ^{1) 2)}	$I_{e \text{ max.}}$	1,37	0,69	A

¹⁾ at 30 000 rpm

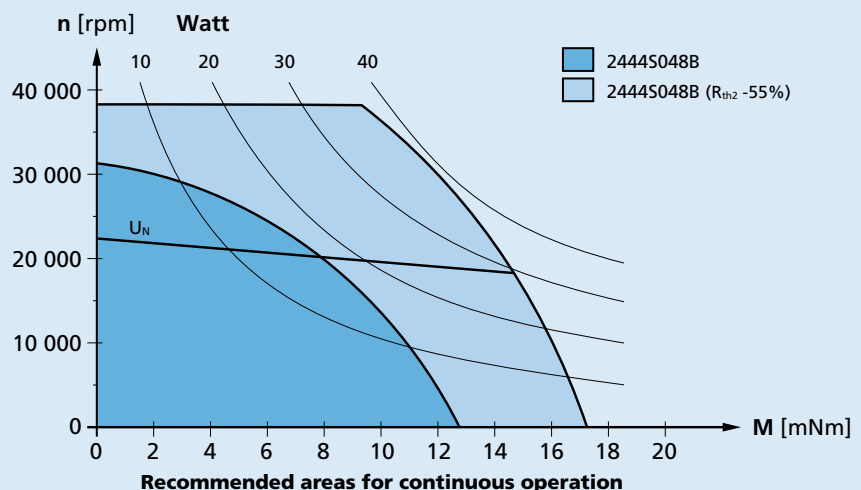
²⁾ thermal resistance $R_{\text{th} 2}$ by 55% reduced

Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition ($R_{\text{th} 2}$ 55% reduced).

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.

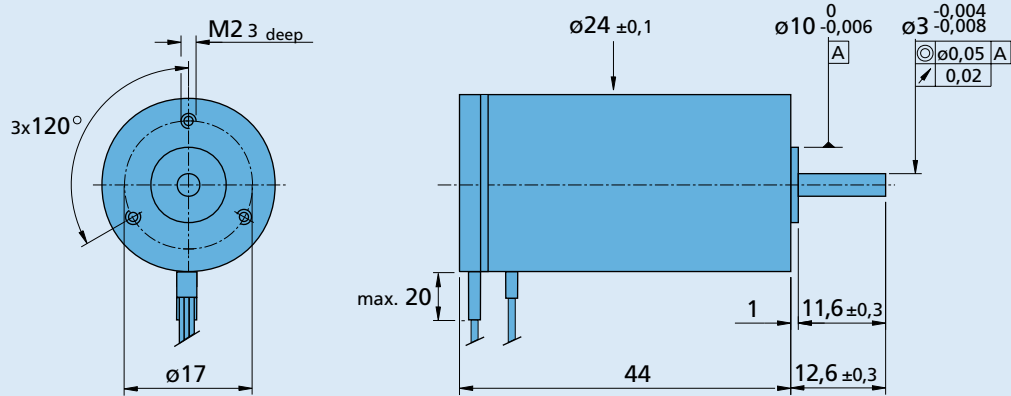


Options

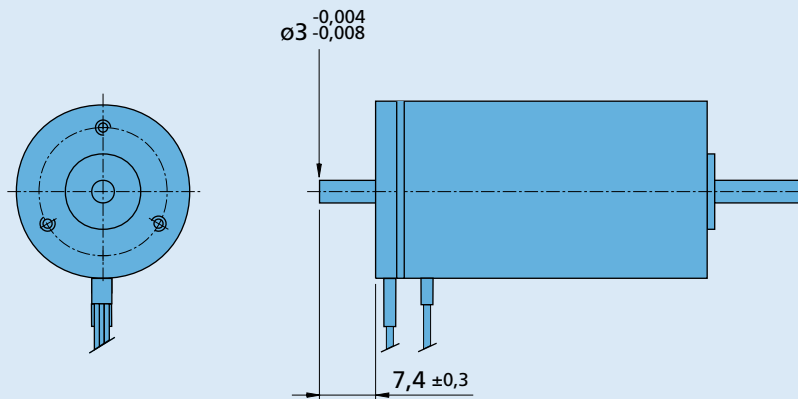
K1000:
Motors in autoclavable version.

K1155:
Motors for operation with Motion Controllers

2444 S ... B



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



Cable and connection information

