

# Brushless DC-Servomotors

## 202 mNm

For combination with

Gearheads:  
38A, 44/1

Encoders:  
40B

Servo Amplifiers: BLD 5018, BLD 7010

Motion Controllers: contact the manufacturer

### Series 4490 ... B, 4490 ... BS

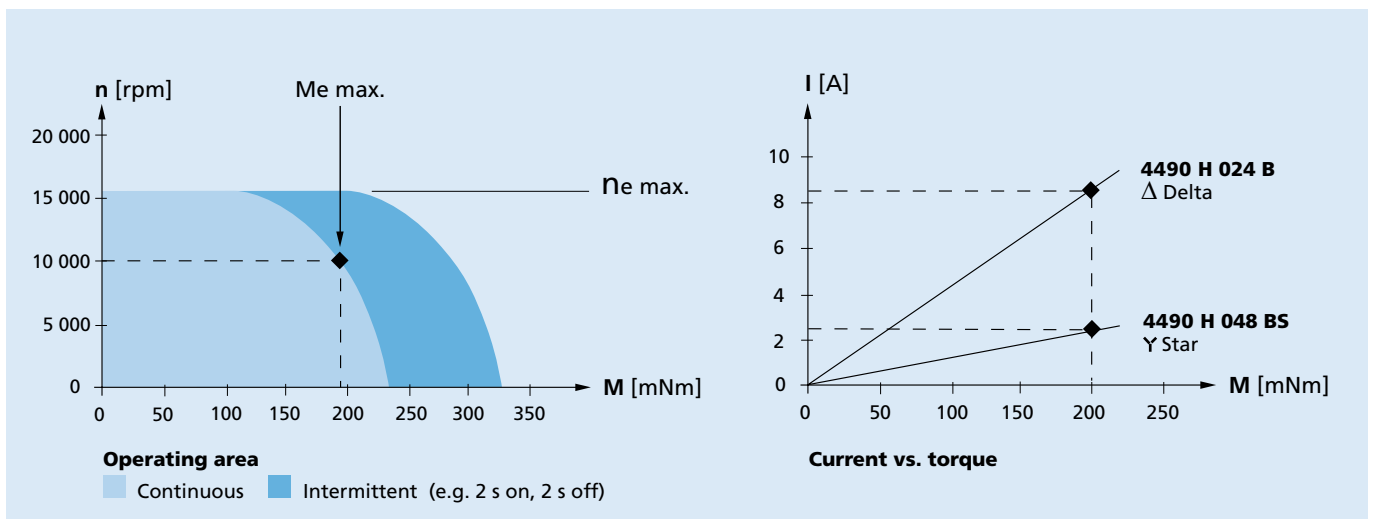
	4490 H	024 B	036 B	048 B	024 BS	036 BS	048 BS	
Coil connection			$\Delta$ Delta			$\Upsilon$ Star		
1 Nominal voltage	$U_N$	24	36	48	24	36	48	Volt
2 Terminal resistance, phase-phase	R	0,237	0,445	0,720	0,690	1,340	2,130	$\Omega$
3 Output power <sup>1)</sup>	$P_2 \text{ max.}$	201	201	200	207	210	212	W
4 Efficiency	$\eta \text{ max.}$	86	86	86	85	85	86	%
5 No-load speed	$n_0$	9 550	10 450	11 000	5 450	5 790	6 060	rpm
6 No-load current (with shaft $\varnothing$ 6,0 mm)	$i_0$	0,554	0,432	0,354	0,217	0,160	0,129	A
7 Stall torque	$M_H$	2 406	2 637	2 758	1 455	1 584	1 689	mNm
8 Friction torque, static	$C_0$	3,65	3,65	3,65	3,65	3,65	3,65	mNm
9 Friction torque, dynamic	$C_v$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	mNm/rpm
10 Speed constant	$k_n$	401	292	231	228	162	127	rpm/V
11 Back-EMF constant	$k_E$	2,495	3,422	4,335	4,384	6,185	7,871	mV/rpm
12 Torque constant	$k_M$	23,83	32,68	41,40	41,86	59,06	75,16	mNm/A
13 Current constant	$k_i$	0,042	0,031	0,024	0,024	0,017	0,013	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	4,0	4,0	4,0	3,8	3,7	3,6	rpm/mNm
15 Terminal inductance, phase-phase	L	76	143	236	220	435	720	$\mu\text{H}$
16 Mechanical time constant	$\tau_m$	5	5	5	5	5	5	ms
17 Rotor inertia	J	130	130	130	130	130	130	gcm <sup>2</sup>
18 Angular acceleration	$\alpha \text{ max.}$	185	203	212	112	122	130	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	1,35 / 3,94						K/W
20 Thermal time constant	$\tau_{w1} / \tau_{w2}$	29 / 1 756						s
21 Operating temperature range		- 30 ... +125						$^{\circ}\text{C}$
22 Shaft bearings		ball bearings, preloaded						
23 Shaft load max.:								
– radial at 3 000/10 000 rpm (13,5 mm from mounting flange)		103 / 66						N
– axial at 3 000/10 000 rpm (push-on only)		45 / 30						N
– axial at standstill (push-on only)		135						N
24 Shaft play:								
– radial	$\leq$	0,015						mm
– axial	$=$	0						mm
25 Housing material		aluminium, black anodized						
26 Weight		750						g
27 Direction of rotation		electronically reversible						

#### Recommended values - mathematically independent of each other

28 Speed up to <sup>2)</sup>	$n_e \text{ max.}$	16 000	16 000	16 000	16 000	16 000	16 000	rpm
29 Torque up to <sup>1) 2)</sup>	$M_e \text{ max.}$	191,8	191,9	191,1	197,8	200,4	202,4	mNm
30 Current up to <sup>1) 2)</sup>	$i_e \text{ max.}$	8,62	6,29	4,95	5,05	3,63	2,88	A

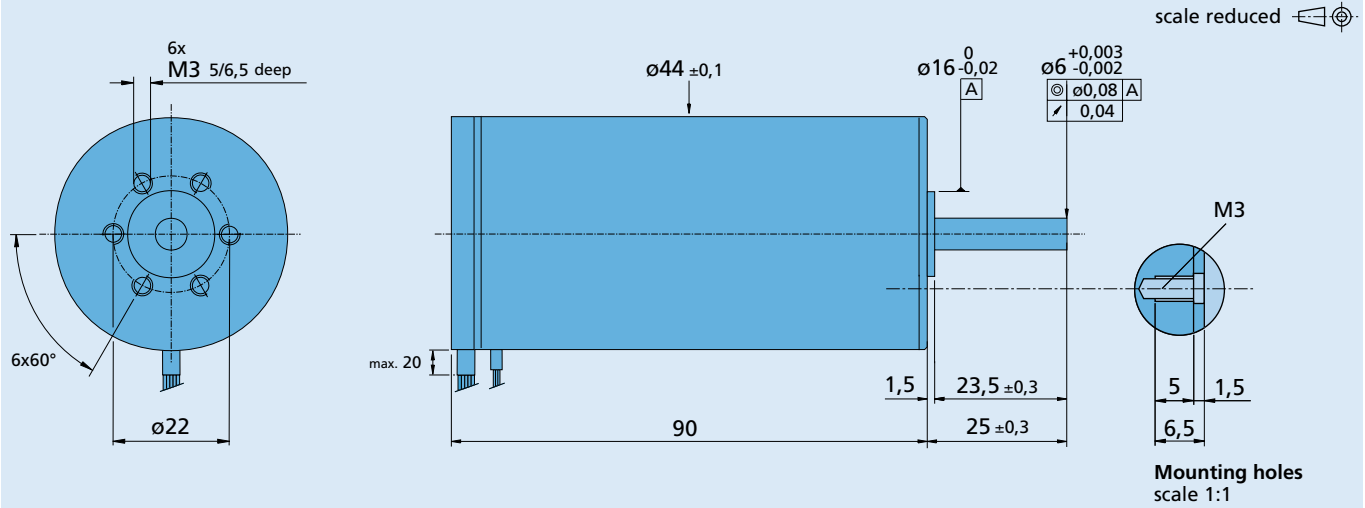
<sup>1)</sup> at 10 000 rpm

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

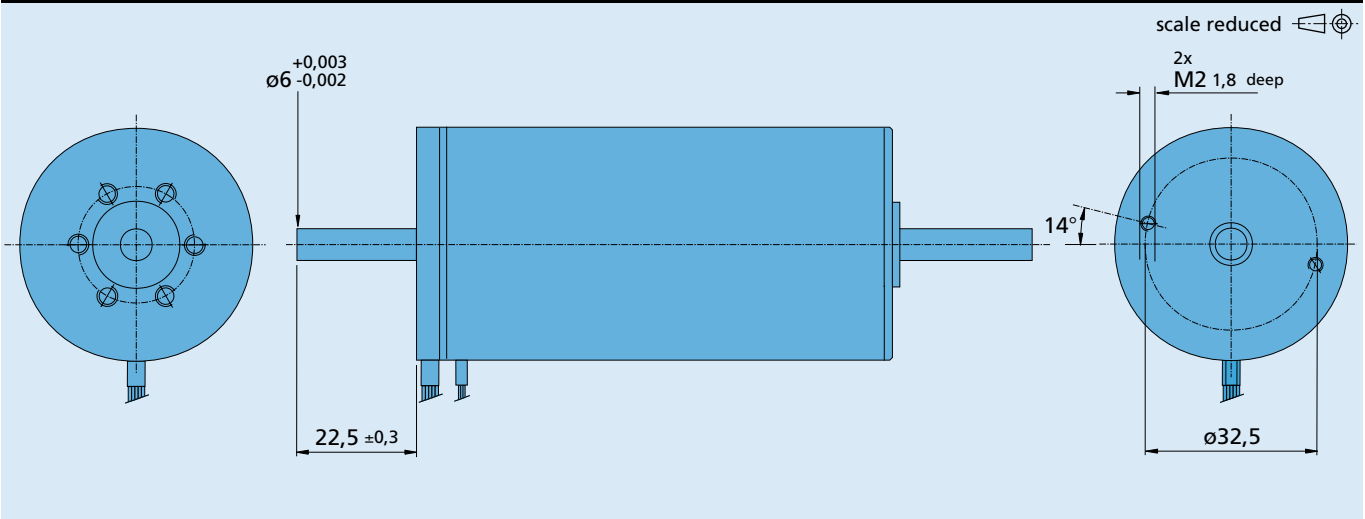


**Options**  
 K1155:  
 Motors with linear Hall sensors.

**4490 H ... B, ... BS**



**4490 H ... B, ... BS - K312 with rear end shaft**



**Cable and connection information**

