

Brushless DC-Servomotors

202 mNm

For combination with
 Gearheads:
 38A, 44/1
 Encoders:
 IE3-1024(L), 40B
 Drive Electronics:
 Speed Controller, Motion Controller

Series 4490 ... BS

	4490 H	024 BS	036 BS	048 BS	
1 Nominal voltage	U_N	24	36	48	Volt
2 Terminal resistance, phase-phase	R	0,690	1,340	2,130	Ω
3 Output power ¹⁾	$P_{2 \text{ max.}}$	207	210	212	W
4 Efficiency	$\eta_{\text{ max.}}$	85	85	86	%
5 No-load speed	n_0	5 450	5 790	6 060	rpm
6 No-load current (with shaft \varnothing 6,0 mm)	I_0	0,217	0,160	0,129	A
7 Stall torque	M_H	1 455	1 584	1 689	mNm
8 Friction torque, static	C_0	3,65	3,65	3,65	mNm
9 Friction torque, dynamic	C_v	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	$1,0 \cdot 10^{-3}$	mNm/rpm
10 Speed constant	k_n	228	162	127	rpm/V
11 Back-EMF constant	k_E	4,384	6,185	7,871	mV/rpm
12 Torque constant	k_M	41,86	59,06	75,16	mNm/A
13 Current constant	k_I	0,024	0,017	0,013	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	3,8	3,7	3,6	rpm/mNm
15 Terminal inductance, phase-phase	L	220	435	720	μH
16 Mechanical time constant	τ_m	5	5	5	ms
17 Rotor inertia	J	130	130	130	gcm^2
18 Angular acceleration	$\alpha_{\text{ max.}}$	112	122	130	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{\text{th} 1} / R_{\text{th} 2}$	1,35 / 3,94			K/W
20 Thermal time constant	τ_{w1} / τ_{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			
Coil connection		Y Star-circuit			
Recommended values - mathematically independent of each other					
28 Speed up to ²⁾	$n_{e \text{ max.}}$	16 000	16 000	16 000	rpm
29 Torque up to ^{1) 2)}	$M_{e \text{ max.}}$	197,8	200,4	202,4	mNm
30 Current up to ^{1) 2)}	$I_{e \text{ max.}}$	5,05	3,63	2,88	A

¹⁾ at 10 000 rpm

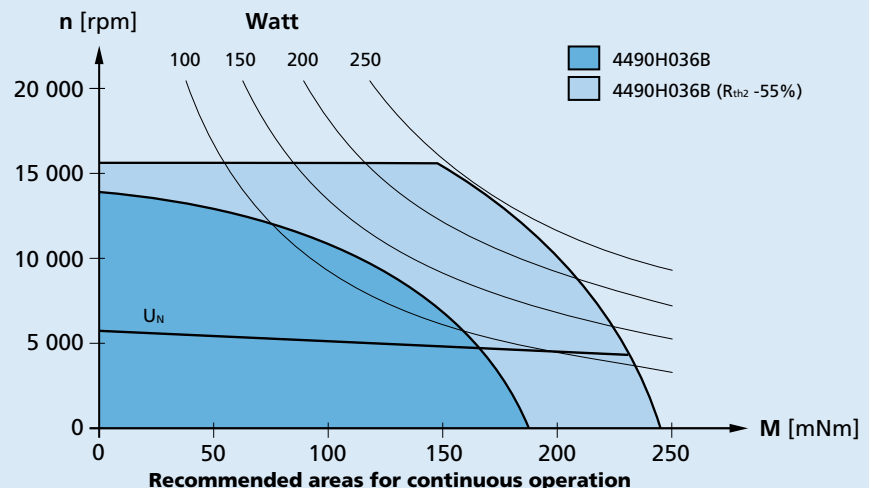
²⁾ thermal resistance $R_{\text{th} 2}$ by 55% reduced

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.

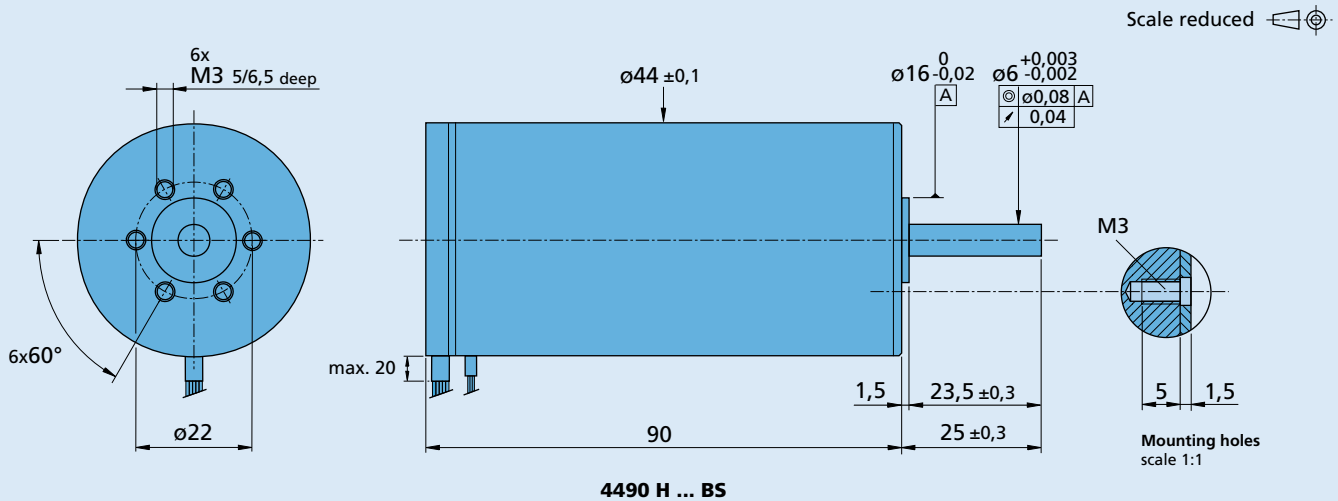
The diagram shows the motor in a completely insulated as well as thermally coupled condition ($R_{\text{th} 2}$ 55% reduced).

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.

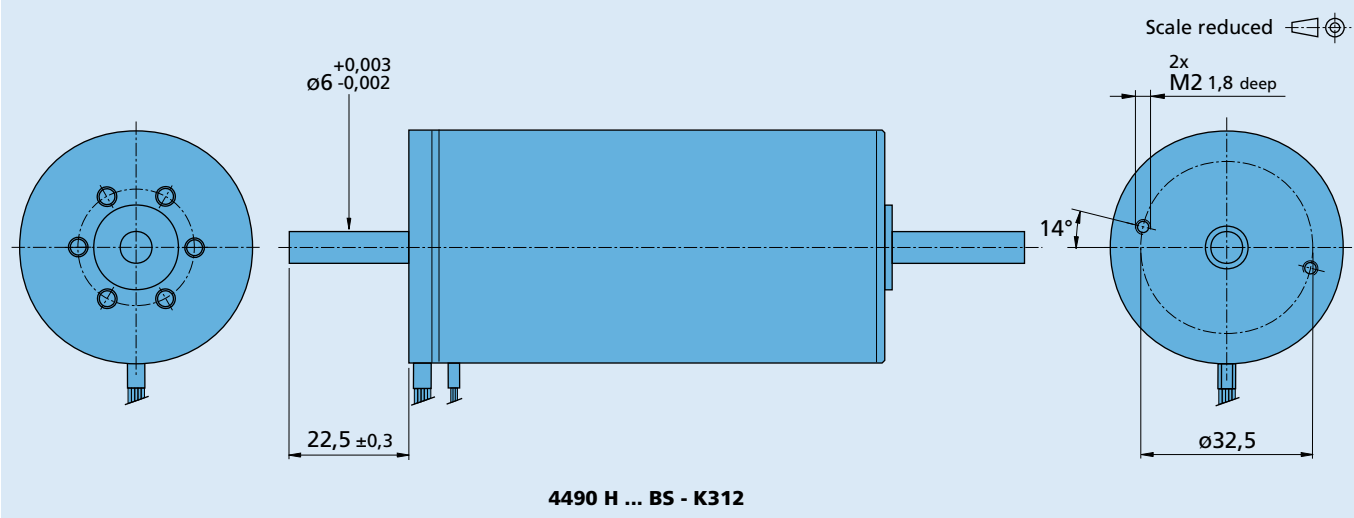


Options
K1155:
 Motors for operation with Motion Controllers

4490 H ... BS



4490 H ... BS - K312 with rear end shaft



Cable and connection information

