Brushless DC-Servomotors

5,2 mNm

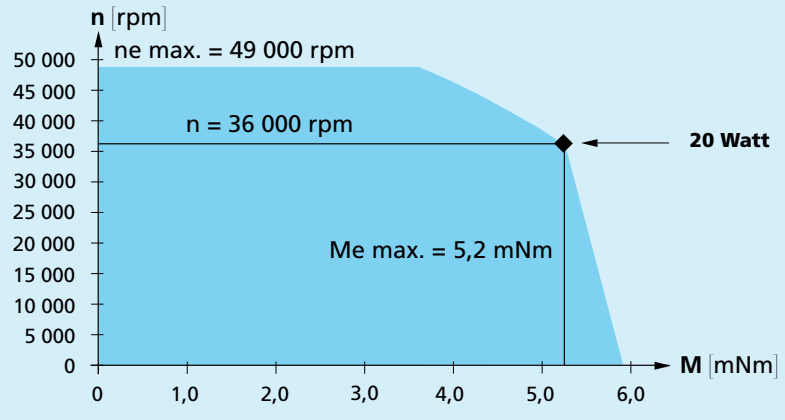
Electronic Commutation

For combination with
Gearheads:
20/1
Encoders:
IE2 – 16 ... 512, 5500, 5540
Drive Electronics:
refer to "Combination Chart", pages 14-15

Series 2036 ... B

		2036 U		012 B	024 B	036 B	048 B	
1	Nominal voltage	U_N		12	24	36	48	Volt
2	Terminal resistance, phase-phase	R		3,4	14,0	26,3	62,2	Ω
3	Output power [1]	$P_{2\ max.}$		20	19	19	18	W
4	Efficiency	$\eta_{max.}$		70	69	70	69	%
5	No-load speed	n_o		17 600	18 000	19 500	17 400	rpm
6	No-load current (with shaft ø 2,0 mm)	I_o		0,102	0,053	0,040	0,025	A
7	Stall torque	M_H		22	21	23	20	mNm
8	Friction torque, static	C_o		0,27	0,27	0,27	0,27	mNm
9	Friction torque, dynamic	C_v		$2{,}14 \cdot 10^{-5}$	$2{,}14 \cdot 10^{-5}$	$2{,}14 \cdot 10^{-5}$	$2{,}14 \cdot 10^{-5}$	mNm/rpm
10	Speed constant	k_n		1 506	773	557	374	rpm/V
11	Back-EMF constant	k_E		0,664	1,294	1,796	2,677	mV/rpm
12	Torque constant	k_M		6,34	12,36	17,15	25,56	mNm/A
13	Current constant	k_I		0,158	0,081	0,058	0,039	A/mNm
14	Slope of n-M curve	$\Delta n/\Delta M$		808	875	854	909	rpm/mNm
15	Terminal inductance, phase-phase	L		148	600	1 160	2 500	µH
16	Mechanical time constant	τ_m		16	18	17	18	ms
17	Rotor inertia	J		1,95	1,95	1,95	1,95	gcm²
18	Angular acceleration	$\alpha_{max.}$		114	107	119	100	$\cdot 10^3$rad/s²
19	Thermal resistance	$R_{th\,1}$ / $R_{th\,2}$	5,7 / 19,9					K/W
20	Thermal time constant	τ_{w1} / τ_{w2}	9 / 577					s
21	Operating temperature range		– 30 ... +125					°C
22	Shaft bearings		ball bearings, preloaded					
23	Shaft load max.:							
	– radial at 3 000/20 000 rpm (4,5 mm from mounting flange)		14 / 7					N
	– axial at 3 000/20 000 rpm (push-on only)		8 / 4					N
	– axial at standstill (push-on only)		30					N
24	Shaft play:							
	– radial	≤	0,015					mm
	– axial	=	0					mm
25	Housing material		aluminium, black anodized					
26	Weight		50					g
27	Direction of rotation		electronically reversible					
Recommended values - mathematically independent of each other								
28	Speed up to [2]	$n_{e\,max.}$		49 000	49 000	49 000	49 000	rpm
29	Torque up to [1] [2]	$M_{e\,max.}$		5,2	4,9	5,0	4,8	mNm
30	Current up to [1] [2]	$I_{e\,max.}$		0,98	0,48	0,35	0,23	A

[1] at 36 000 rpm
[2] thermal resistance $R_{th\,2}$ by 55% reduced

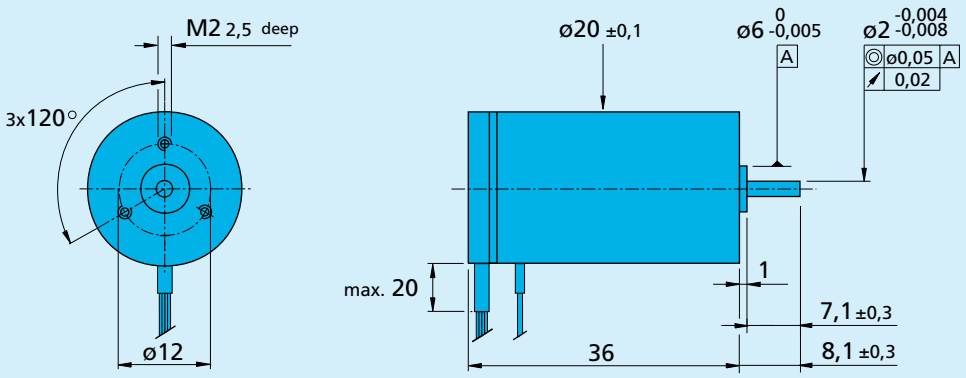


Recommended area for continuous operation

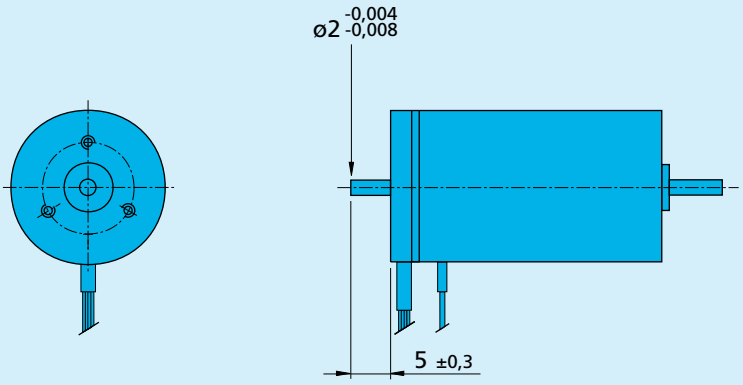
For details on technical information and lifetime performance refer to pages 72-75.

Options
K1000:
Motors in autoclavable version.
K1155:
Motors for operation with Motion Controllers MCBL 3003/06 S, MCBL 3003/06 C.

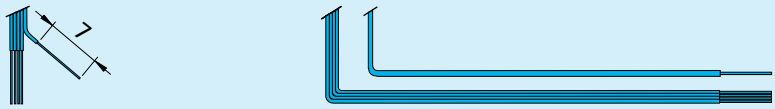
2036 U ... B



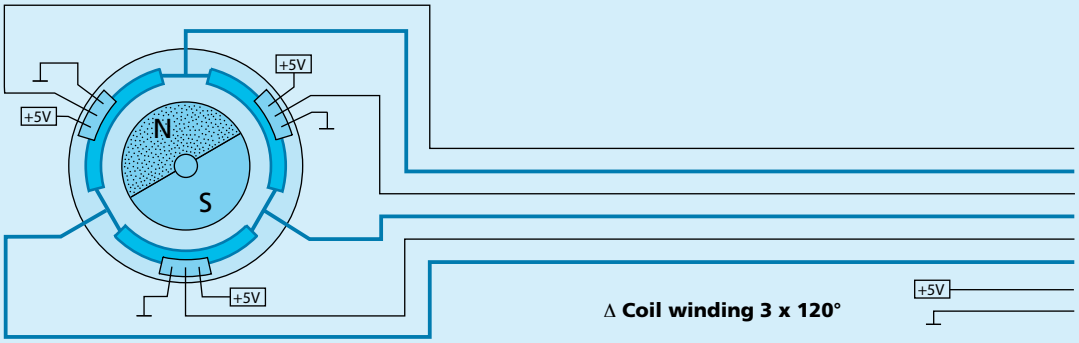
2036 U ... B - K312 with rear end shaft



Cable and connection information



Cable
Single wires, material PTFE
Length 300 mm ± 15 mm
3 conductors, AWG 24
5 conductors, AWG 26



Connection

	Function	Colour
A	Hall sensor	green
A	Phase	brown
B	Hall sensor	blue
B	Phase	orange
C	Hall sensor	grey
C	Phase	yellow
+5V	Logical supply	red
GND	Logical	black

For details on technical information and lifetime performance refer to pages 72-75.