

**NEW**

# Brushless DC-Servomotors

16,5 mNm

Electronic Commutation

For combination with

Gearheads:  
20/1, 23/1

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

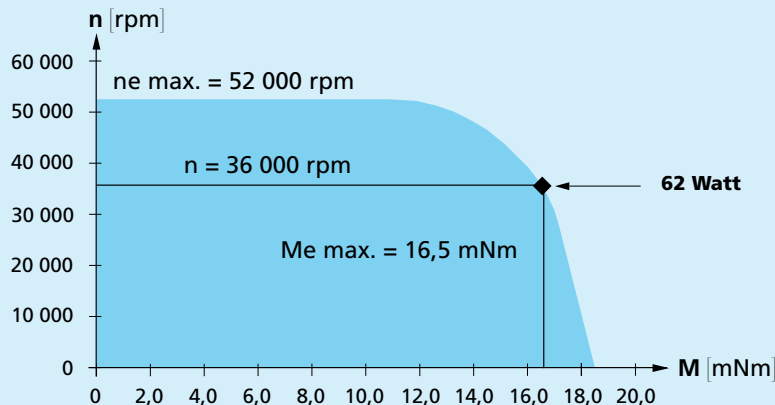
Drive Electronics:  
refer to "Combination Chart", pages 14-15

## Series 2057 ... B

	2057 S	012 B	024 B	
1 Nominal voltage	$U_N$	12	24	Volt
2 Terminal resistance, phase-phase	R	0,55	1,42	$\Omega$
3 Output power <sup>1)</sup>	$P_{2 \max.}$	61	62	W
4 Efficiency	$\eta_{\max.}$	82	83	%
5 No-load speed	$n_o$	21 900	26 500	rpm
6 No-load current (with shaft $\varnothing$ 3,0 mm)	$I_o$	0,210	0,147	A
7 Stall torque	$M_H$	113	144	mNm
8 Friction torque, static	$C_o$	0,28	0,28	mNm
9 Friction torque, dynamic	$C_v$	$3,70 \cdot 10^{-5}$	$3,70 \cdot 10^{-5}$	mNm/rpm
10 Speed constant	$k_n$	1 840	1 116	rpm/V
11 Back-EMF constant	$k_E$	0,543	0,896	mV/rpm
12 Torque constant	$k_M$	5,19	8,56	mNm/A
13 Current constant	$k_i$	0,193	0,177	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	195	185	rpm/mNm
15 Terminal inductance, phase-phase	L	68	117	$\mu H$
16 Mechanical time constant	$\tau_m$	8	8	ms
17 Rotor inertia	J	3,95	3,95	gcm <sup>2</sup>
18 Angular acceleration	$\alpha_{\max.}$	286	365	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{th1} / R_{th2}$	2,8 / 11,5		K/W
20 Thermal time constant	$\tau_{w1} / \tau_{w2}$	10 / 590		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 (4,5 mm from mounting flange)		28 / 14		N
– axial at 3 000/20 000 rpm (push-on only)		17 / 11		N
– axial at standstill (push-on only)		75		N
24 Shaft play:				
– radial	$\leq$	0,015		mm
– axial	$=$	0		mm
25 Housing material		aluminium, black anodized		
26 Weight		95		g
27 Direction of rotation		electronically reversible		
<b>Recommended values - mathematically independent of each other</b>				
28 Speed up to <sup>2)</sup>	$n_{e \max.}$	52 000	52 000	rpm
29 Torque up to <sup>1) 2)</sup>	$M_{e \max.}$	16,1	16,5	mNm
30 Current up to <sup>1) 2)</sup>	$I_{e \max.}$	3,41	2,12	A

<sup>1)</sup> at 36 000 rpm

<sup>2)</sup> thermal resistance  $R_{th2}$  by 55% reduced



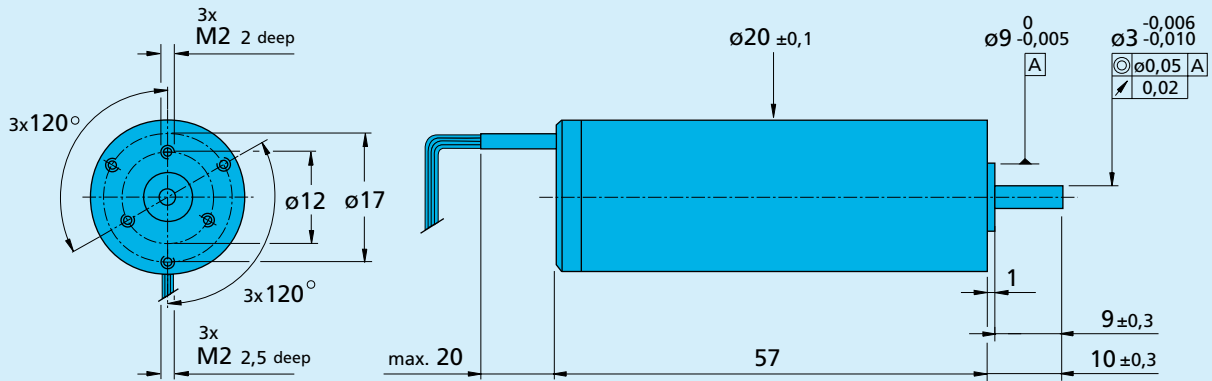
**Recommended area for continuous operation**

**Options**

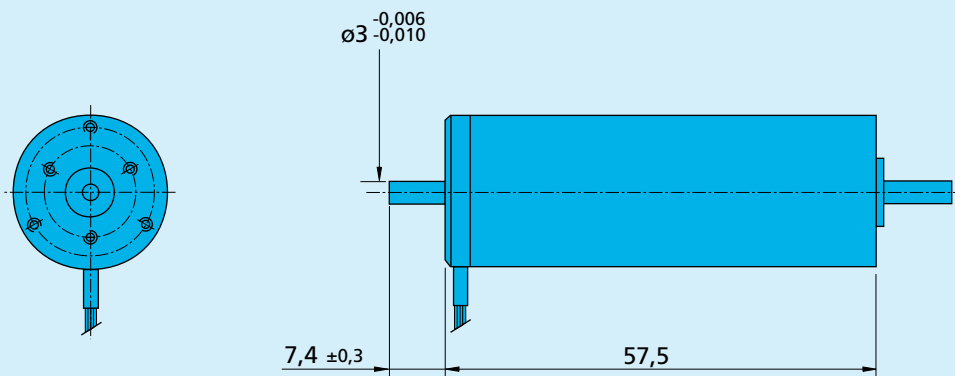
K1000:  
Motors in autoclavable version.

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

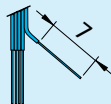
**2057 S ... B**



**2057 S ... B - K312 with rear end shaft**

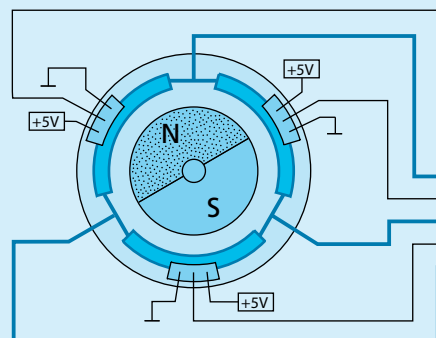


**Cable and connection information**



**Cable**

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



Δ Coil winding 3 x 120°

**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