

NEW

Brushless DC-Servomotors

2,1 mNm

For combination with
 Gearheads:
 10/1, 12/3, 12/4, 12/5
 Encoder:
 IEM3 – 1024, AESM – 4096
 Drive Electronics:
 Speed Controller, Motion Controller

Series 1028 ... B

	1028 S	006 B	012 B	
1 Nominal voltage	U _N	6	12	Volt
2 Terminal resistance, phase-phase	R	1,35	4,64	Ω
3 Output power ¹⁾	P _{2 max.}	8,8	8,5	W
4 Efficiency	η _{max.}	68	68	%
5 No-load speed	n ₀	30 200	33 500	rpm
6 No-load current (with shaft ø 1,2 mm)	I ₀	0,148	0,089	A
7 Stall torque	M _H	8,2	8,4	mNm
8 Friction torque, static	C ₀	0,104	0,104	mNm
9 Friction torque, dynamic	C _v	5,65 · 10 ⁻⁶	5,65 · 10 ⁻⁶	mNm/rpm
10 Speed constant	k _n	5 159	2 890	rpm/V
11 Back-EMF constant	k _E	0,194	0,346	mV/rpm
12 Torque constant	k _M	1,85	3,30	mNm/A
13 Current constant	k _I	0,540	0,303	A/mNm
14 Slope of n-M curve	Δn/ΔM	3 763	4 060	rpm/mNm
15 Terminal inductance, phase-phase	L	24,3	86,7	μH
16 Mechanical time constant	τ _m	2	2	ms
17 Rotor inertia	J	0,0539	0,0539	gcm ²
18 Angular acceleration	α _{max.}	1 521	1 566	· 10 ³ rad/s ²
19 Thermal resistance	R _{th 1} / R _{th 2}	5 / 41		K/W
20 Thermal time constant	τ _{w1} / τ _{w2}	3,4 / 247		s
21 Operating temperature range:				
– motor		– 20 ... +100		°C
– coil, max. permissible		+125		°C
22 Shaft bearings		ball bearings, preloaded		
23 Shaft load max.:				
– radial at 10 000/30 000 rpm (3.7 mm from mounting flange)		2,5 / 2,0		N
– axial at 10 000/30 000 rpm (push-on only)		1,3 / 0,8		N
– axial at standstill (push-on only)		11		N
24 Shaft play:				
– radial	≤	0,015		mm
– axial	=	0		mm
25 Housing material		aluminium, black anodized		
26 Weight		9,1		g
27 Direction of rotation		electronically reversible		
Recommended values - mathematically independent of each other				
28 Speed up to ²⁾	n _{e max.}	66 000	66 000	rpm
29 Torque up to ^{1) 2)}	M _{e max.}	2,1	2,0	mNm
30 Current up to ^{1) 2)}	I _{e max.}	1,32	0,71	A

¹⁾ at 40 000 rpm

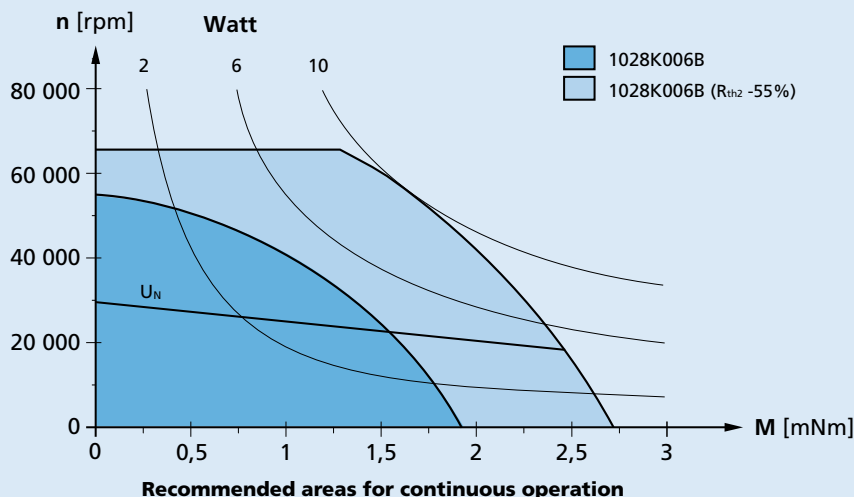
²⁾ thermal resistance R_{th 2} by 55% reduced

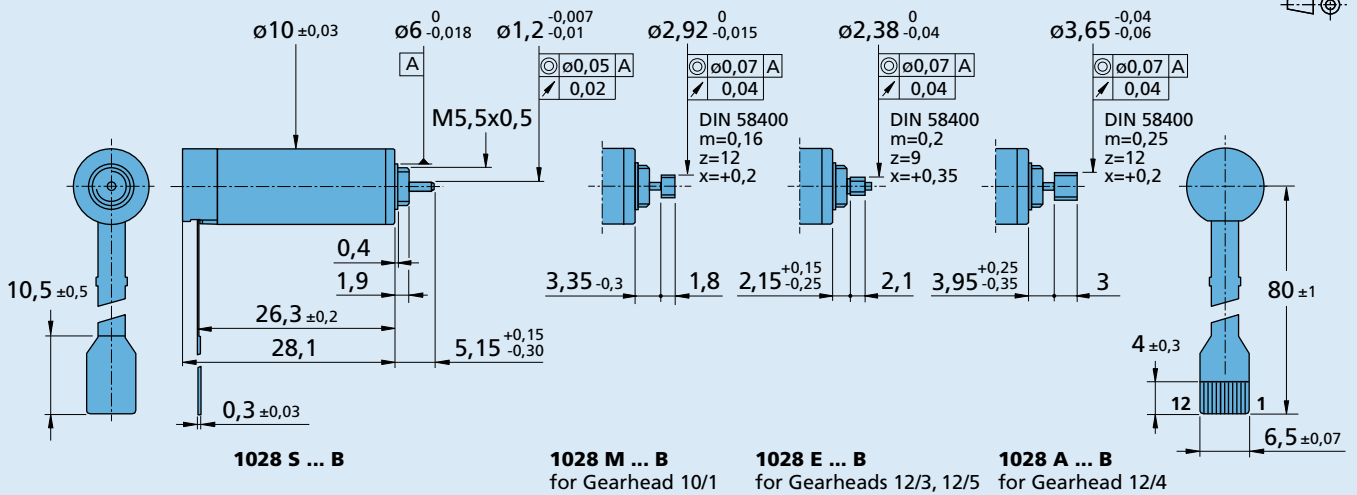
Note:

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

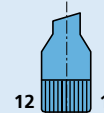
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th 2} 55% reduced).

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.



1028 ... B

Cable and connection information
Recommended connector

Top contact style
12 circuits, 0,5 mm pitch, e.g.:
Molex: 52745-1296/1297


Flexboard

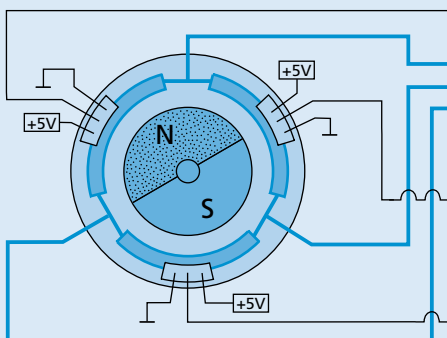
12 circuits, 0,5 mm pitch

Note

Hallsensors digital
Number of pole pairs = 1

Connection

No.	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	+5V
6	Hall sensor C
7	Hall sensor B
8	Hall sensor A
9	Hall sensor B̄
10	Hall sensor Ā
11	Hall sensor C̄
12	Reserved



△ Coil winding 3 x 120°