

Brushless DC-Servomotors

2 Pole Technology

2,2 mNm
8,7 W

Series 1028 ... B

Values at 22°C and nominal voltage		1028 S	006 B	012 B	
1	Nominal voltage	U_N	6	12	V
2	Terminal resistance, phase-phase	R	1,08	4,37	Ω
3	Efficiency, max.	η_{max}	73	72	%
4	No-load speed	n_0	32 300	33 600	min ⁻¹
5	No-load current, typ. (with shaft \varnothing 1,2 mm)	I_0	0,121	0,065	A
6	Stall torque	M_H	9,72	9,22	mNm
7	Friction torque, static	C_0	0,06	0,06	mNm
8	Friction torque, dynamic	C_V	$4,62 \cdot 10^{-6}$	$4,62 \cdot 10^{-6}$	mNm/min ⁻¹
9	Speed constant	k_n	5 426	2 825	min ⁻¹ /V
10	Back-EMF constant	k_E	0,184	0,354	mV/min ⁻¹
11	Torque constant	k_M	1,76	3,38	mNm/A
12	Current constant	k_I	0,568	0,296	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	3 329	3 653	min ⁻¹ /mNm
14	Terminal inductance, phase-phase	L	24	87	μ H
15	Mechanical time constant	τ_m	1,9	2,1	ms
16	Rotor inertia	J	0,0622	0,0622	gcm ²
17	Angular acceleration	α_{max}	1 803	1 711	$\cdot 10^3$ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	6,6 / 42,4		K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	4,2 / 152		s
20	Operating temperature range:				
	– motor		-20 ... +100		°C
	– winding, max. permissible		+125		°C
21	Shaft bearings		ball bearings, preloaded		
22	Shaft load max.:				
	– with shaft diameter		1,2		mm
	– radial at 10 000 min ⁻¹ (4 mm from mounting flange)		2,5		N
	– axial at 10 000 min ⁻¹ (push only)		1,3		N
	– axial at standstill (push only)		11		N
23	Shaft play:				
	– radial	\leq	0,012		mm
	– axial	$=$	0		mm
24	Housing material		aluminium, black anodized		
25	Mass		9,4		g
26	Direction of rotation		electronically reversible		
27	Speed up to	n_{max}	79 000		min ⁻¹
28	Number of pole pairs		1		
29	Hall sensors		digital		
30	Magnet material		NdFeB		
Rated values for continuous operation					
31	Rated torque	M_N	1,68	1,57	mNm
32	Rated current (thermal limit)	I_N	1,16	0,57	A
33	Rated speed	n_N	25 660	26 800	min ⁻¹

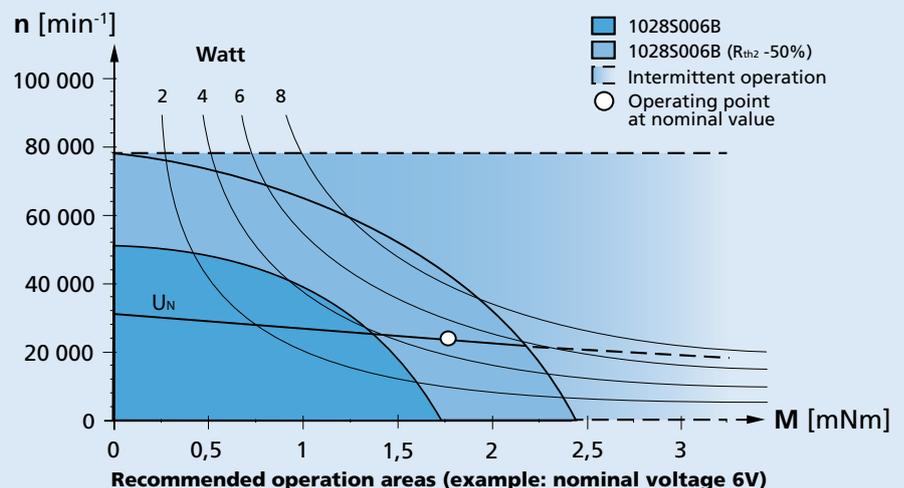
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

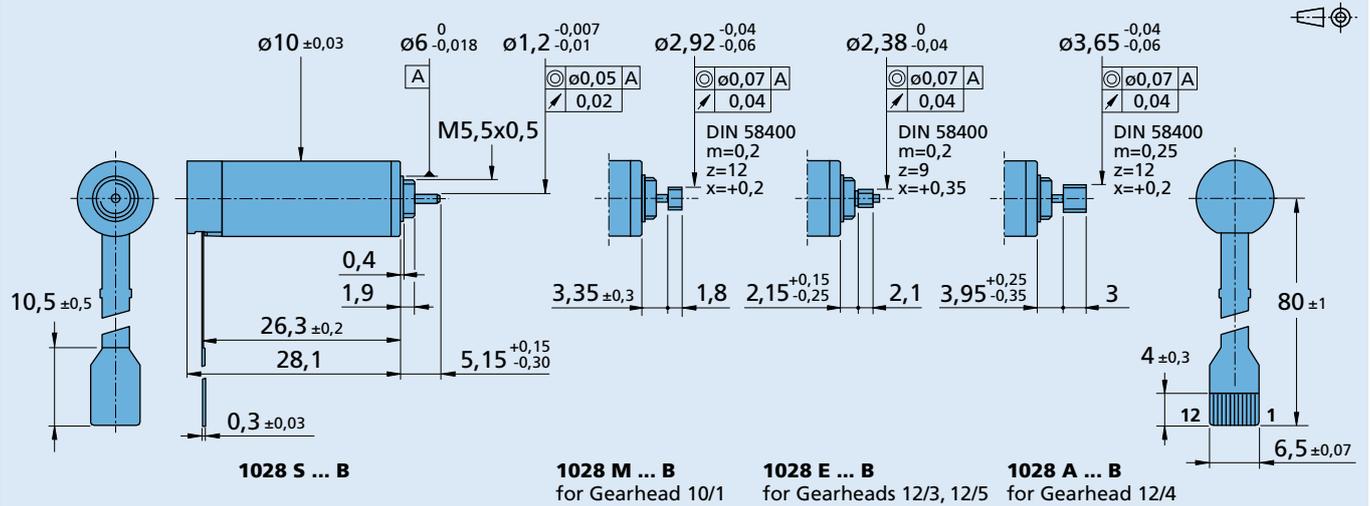
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% 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.



Dimensional drawing



Option, cable and connection information

Example product designation: **1028S006B-K179**

Option	Type	Description	Connection																										
K179	Bearing lubrication	For vacuum of 10^{-5} Pa @ 22°C	<table border="1"> <thead> <tr> <th>No.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>Phase C</td></tr> <tr><td>2</td><td>Phase B</td></tr> <tr><td>3</td><td>Phase A</td></tr> <tr><td>4</td><td>GND</td></tr> <tr><td>5</td><td>U_{DD} (+5V)</td></tr> <tr><td>6</td><td>Hall sensor C</td></tr> <tr><td>7</td><td>Hall sensor B</td></tr> <tr><td>8</td><td>Hall sensor A</td></tr> <tr><td>9</td><td>Hall sensor \bar{B}</td></tr> <tr><td>10</td><td>Hall sensor \bar{A}</td></tr> <tr><td>11</td><td>Hall sensor \bar{C}</td></tr> <tr><td>12</td><td>Reserved</td></tr> </tbody> </table> <p>Standard flexboard 12 pole, 0,5 mm pitch Recommended connector Molex - ZIF Connector, No. 52745-1297.</p>	No.	Function	1	Phase C	2	Phase B	3	Phase A	4	GND	5	U _{DD} (+5V)	6	Hall sensor C	7	Hall sensor B	8	Hall sensor A	9	Hall sensor \bar{B}	10	Hall sensor \bar{A}	11	Hall sensor \bar{C}	12	Reserved
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Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
10/1 12/3 12/4 12/5 10L ... SL	IEM3-1024 AESM-4096	SC 1801 P SC 1801 S SC 2402 P SC 2804 S MC 3001 B MC 3001 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.