

Brushless DC-Servomotors

2 Pole Technology, sensorless

0,13 mNm

0,44 W

Series 0515 ... B

Values at 22°C and nominal voltage		0515 G	006 B
1	Nominal voltage	U_N	6 V
2	Terminal resistance, phase-phase	R	16,1 Ω
3	Efficiency, max.	η_{max}	39 %
4	No-load speed	n_0	43 000 min^{-1}
5	No-load current, typ. (with shaft \varnothing 0,8 mm)	I_0	0,056 A
6	Stall torque	M_H	0,4 mNm
7	Friction torque, static	C_0	0,033 mNm
8	Friction torque, dynamic	C_V	$6,5 \cdot 10^{-7}$ mNm/ min^{-1}
9	Speed constant	k_n	8 282 min^{-1}/V
10	Back-EMF constant	k_E	0,121 mV/ min^{-1}
11	Torque constant	k_M	1,15 mNm/A
12	Current constant	k_I	0,867 A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	115 600 $\text{min}^{-1}/\text{mNm}$
14	Terminal inductance, phase-phase	L	140 μH
15	Mechanical time constant	τ_m	2,4 ms
16	Rotor inertia	J	0,002 gcm^2
17	Angular acceleration	α_{max}	1 983 $\cdot 10^3 \text{rad}/\text{s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	21 / 140 K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	1,9 / 89 s
20	Operating temperature range:		
	– motor	-30 ... +80	$^{\circ}\text{C}$
	– winding, max. permissible	+80	$^{\circ}\text{C}$
21	Shaft bearings	sintered bearings	
22	Shaft load max.:		
	– with shaft diameter	0,8	mm
	– radial at 3 000 min^{-1} (1 mm from mounting flange)	0,2	N
	– axial at 3 000 min^{-1} (push only)	0,2	N
	– axial at standstill (push only)	2	N
23	Shaft play:		
	– radial	\leq 0,03	mm
	– axial	\leq 0,15	mm
24	Housing material	steel, nickel plated	
25	Mass	1,6	g
26	Direction of rotation	electronically reversible	
27	Speed up to	n_{max}	77 000 min^{-1}
28	Number of pole pairs	1	
29	Hall sensors	without	
30	Magnet material	NdFeB	
Rated values for continuous operation			
31	Rated torque	M_N	0,084 mNm
32	Rated current (thermal limit)	I_N	0,127 A
33	Rated speed	n_N	30 880 min^{-1}

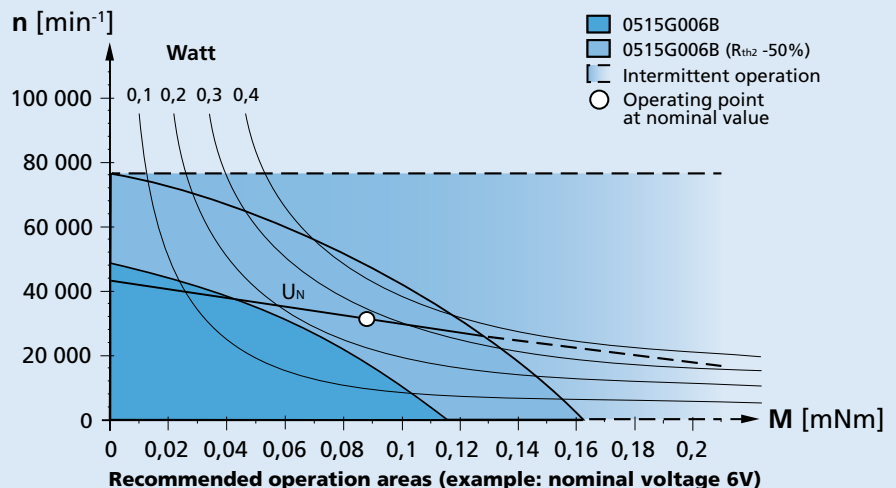
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

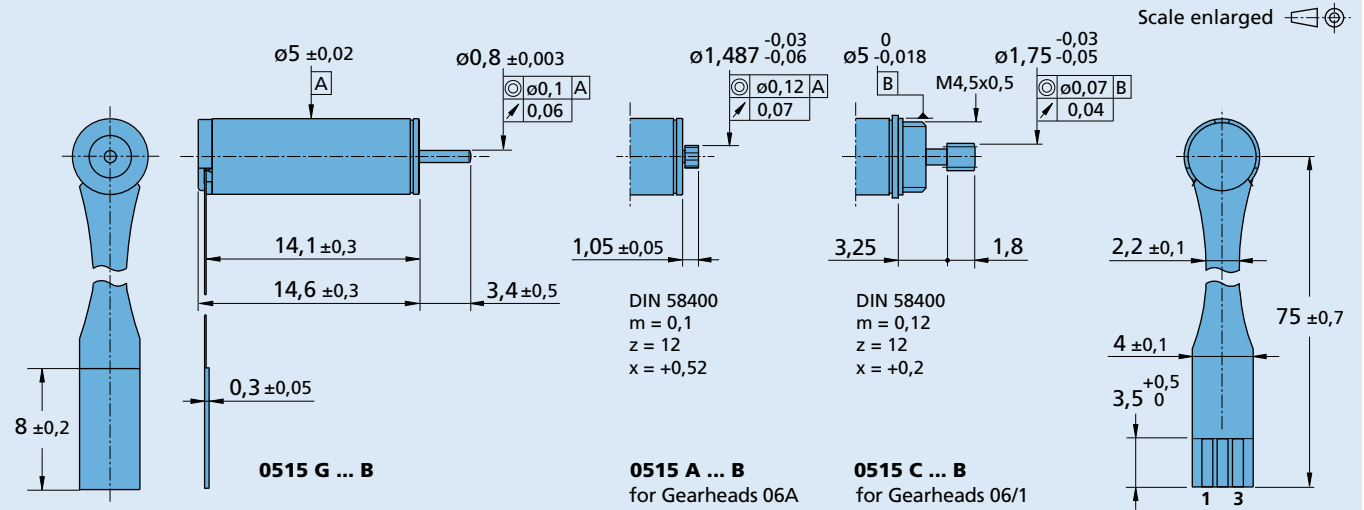
Note:

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: **0515G006B**

Option	Type	Description	Connection								
			<table border="1"> <thead> <tr> <th>No.</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Phase A</td> </tr> <tr> <td>2</td> <td>Phase B</td> </tr> <tr> <td>3</td> <td>Phase C</td> </tr> </tbody> </table>	No.	Function	1	Phase A	2	Phase B	3	Phase C
No.	Function										
1	Phase A										
2	Phase B										
3	Phase C										
			Flex Print connector 3-pole; 1mm pitch, e.g.: Molex 52207-0333								

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
06A 06/1		SC 1801	To view our large range of accessory parts, please refer to the "Accessories" chapter.