

# 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 $\Omega$
3	Efficiency, max.	$\eta_{max}$	39 %
4	No-load speed	$n_0$	43 000 min <sup>-1</sup>
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 · 10 <sup>-7</sup> mNm/min <sup>-1</sup>
9	Speed constant	$k_n$	8 282 min <sup>-1</sup> /V
10	Back-EMF constant	$k_E$	0,121 mV/min <sup>-1</sup>
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 min <sup>-1</sup> /mNm
14	Terminal inductance, phase-phase	$L$	140 $\mu$ H
15	Mechanical time constant	$\tau_m$	2,4 ms
16	Rotor inertia	$J$	0,002 gcm <sup>2</sup>
17	Angular acceleration	$\alpha_{max}$	1 983 · 10 <sup>3</sup> rad/s <sup>2</sup>
18	Thermal resistance	$R_{th1} / R_{th2}$	21 / 140 K/W
19	Thermal time constant	$\tau_{w1} / \tau_{w2}$	1,9 / 89 s
20	Operating temperature range:		
	– motor	-30 ... +80	°C
	– winding, max. permissible	+80	°C
21	Shaft bearings	sintered bearings	
22	Shaft load max.:		
	– with shaft diameter	0,8	mm
	– radial at 3 000 min <sup>-1</sup> (1 mm from mounting flange)	0,2	N
	– axial at 3 000 min <sup>-1</sup> (push only)	0,2	N
	– axial at standstill (push only)	2	N
23	Shaft play:		
	– radial	≤ 0,03	mm
	– axial	≤ 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 <sup>-1</sup>
28	Number of pole pairs	1	
29	Hall sensors	without	
30	Magnet material	NdFeB	
<b>Rated values for continuous operation</b>			
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 <sup>-1</sup>

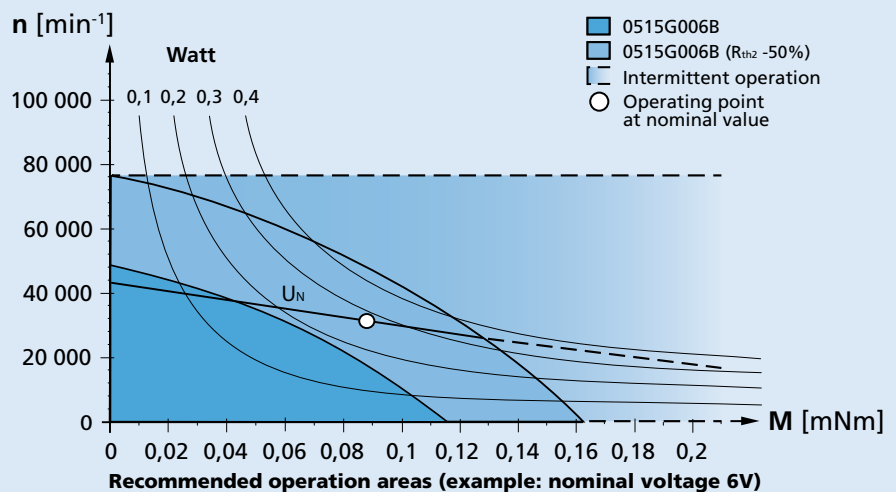
**Note:** Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The  $R_{th2}$  value has been reduced by 25%.

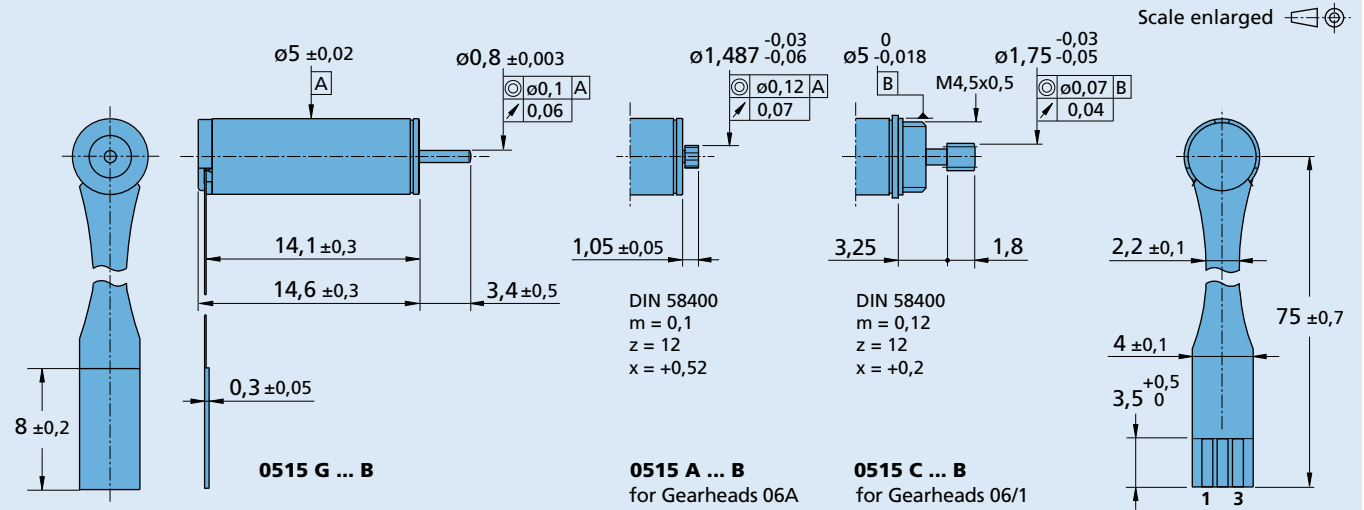
**Note:**

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										
			<b>Flex Print connector</b> 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 F	To view our large range of accessory parts, please refer to the "Accessories" chapter.