

# Brushless DC-Servomotors

## 2 Pole Technology

2,6 mNm  
9,9 W

### Series 1226 ... B

Values at 22°C and nominal voltage		1226 S	006 B	012 B	
1	Nominal voltage	$U_N$	6	12	V
2	Terminal resistance, phase-phase	$R$	2,2	5,45	$\Omega$
3	Efficiency, max.	$\eta_{max}$	71	72	%
4	No-load speed	$n_0$	21 000	27 400	min <sup>-1</sup>
5	No-load current, typ. (with shaft $\varnothing$ 1,2 mm)	$I_0$	0,07	0,054	A
6	Stall torque	$M_H$	7,24	8,99	mNm
7	Friction torque, static	$C_0$	0,073	0,073	mNm
8	Friction torque, dynamic	$C_V$	$5,3 \cdot 10^{-6}$	$5,3 \cdot 10^{-6}$	mNm/min <sup>-1</sup>
9	Speed constant	$k_n$	3 563	2 318	min <sup>-1</sup> /V
10	Back-EMF constant	$k_E$	0,281	0,431	mV/min <sup>-1</sup>
11	Torque constant	$k_M$	2,68	4,12	mNm/A
12	Current constant	$k_I$	0,373	0,243	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	2 925	3 066	min <sup>-1</sup> /mNm
14	Terminal inductance, phase-phase	$L$	36	85	$\mu$ H
15	Mechanical time constant	$\tau_m$	4,4	4,7	ms
16	Rotor inertia	$J$	0,15	0,15	gcm <sup>2</sup>
17	Angular acceleration	$\alpha_{max}$	499	621	$\cdot 10^3$ rad/s <sup>2</sup>
18	Thermal resistance	$R_{th1} / R_{th2}$	7,3 / 36,6		K/W
19	Thermal time constant	$\tau_{w1} / \tau_{w2}$	3,2 / 207		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 <sup>-1</sup> (4 mm from mounting flange)		5		N
	– axial at 10 000 min <sup>-1</sup> (push only)		2,5		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		13		g
26	Direction of rotation		electronically reversible		
27	Speed up to	$n_{max}$	79 000		min <sup>-1</sup>
28	Number of pole pairs		1		
29	Hall sensors		digital		
30	Magnet material		NdFeB		
<b>Rated values for continuous operation</b>					
31	Rated torque	$M_N$	2,13	1,97	mNm
32	Rated current (thermal limit)	$I_N$	0,932	0,573	A
33	Rated speed	$n_N$	12 480	19 670	min <sup>-1</sup>

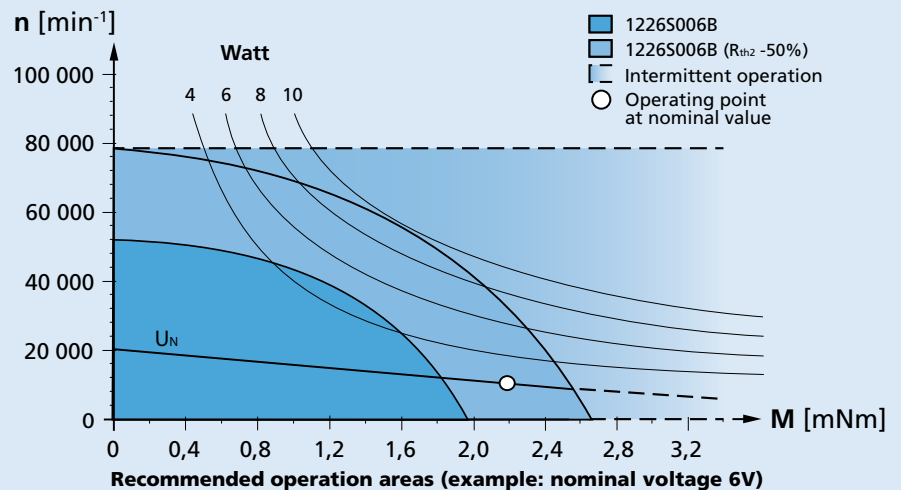
**Note:** Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The  $R_{th2}$  value has been reduced by 25%.

**Note:**

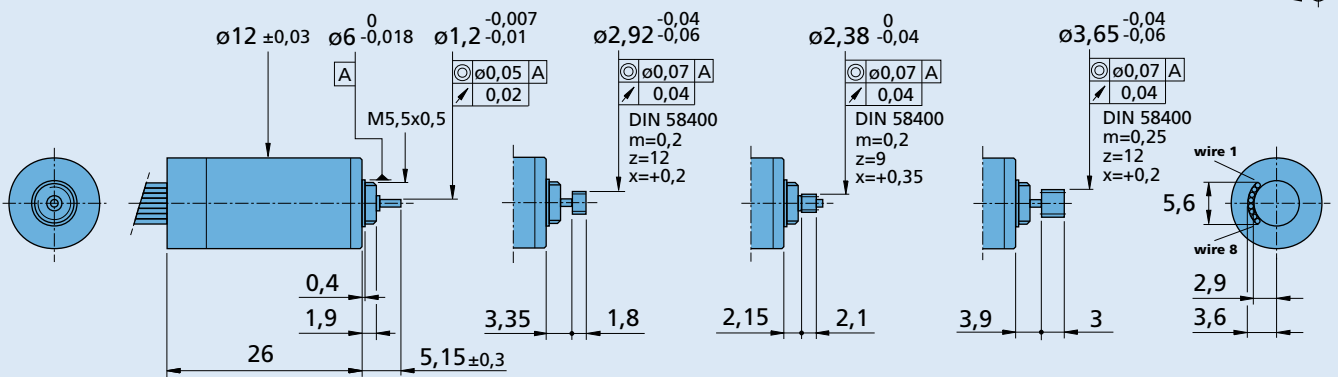
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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



**1226 S ... B**

**1226 M ... B**  
for Gearheads 10/1

**1226 E ... B**  
for Gearheads 12/3, 12/5

**1226 A ... B**  
for Gearheads 12/4

### Option, cable and connection information

Example product designation: **1226S006B-K1855**

Option	Type	Description	Connection		
			No.	Function	Colour
K1855	Controller combination	Analog Hall sensors for combination with Motion Controller MCBL	1	Phase C	yellow
K179	Bearing lubrication	For vacuum of $10^{-7}$ Torr @ 20°C	2	Phase B	orange
			3	Phase A	brown
			4	GND	black
			5	U <sub>DD</sub> (+5V)	red
			6	Hall sensor C	grey
			7	Hall sensor B	blue
			8	Hall sensor A	green
			<b>Standard cable</b>		
			Single wires, material PTFE		
			8 conductors, AWG 30		
			Length: 80 mm ±3 mm		

### Product Combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
10/1		SC 1801	
12/4		SC 2402	
12/3		SC 2804	
12/5		MCBL 3002	
		MCBL 3003	