

Brushless DC-Servomotors

2 Pole Technology

1,2 mNm
4,9 W

Series 1218 ... B

Values at 22°C and nominal voltage		1218 S	006 B	012 B	
1	Nominal voltage	U_N	6	12	V
2	Terminal resistance, phase-phase	R	3,14	12	Ω
3	Efficiency, max.	η_{max}	62	62	%
4	No-load speed	n_0	30 500	31 500	min^{-1}
5	No-load current, typ. (with shaft \varnothing 1,2 mm)	I_0	0,089	0,047	A
6	Stall torque	M_H	3,39	3,44	mNm
7	Friction torque, static	C_0	0,066	0,066	mNm
8	Friction torque, dynamic	C_V	$3,06 \cdot 10^{-6}$	$3,06 \cdot 10^{-6}$	$\text{mNm}/\text{min}^{-1}$
9	Speed constant	k_n	5 276	2 721	min^{-1}/V
10	Back-EMF constant	k_E	0,19	0,368	$\text{mV}/\text{min}^{-1}$
11	Torque constant	k_M	1,81	3,51	mNm/A
12	Current constant	k_I	0,553	0,285	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	9 153	9 301	$\text{min}^{-1}/\text{mNm}$
14	Terminal inductance, phase-phase	L	35	132	μH
15	Mechanical time constant	τ_m	7,7	7,8	ms
16	Rotor inertia	J	0,08	0,08	gcm^2
17	Angular acceleration	α_{max}	424	431	$\cdot 10^3 \text{rad}/\text{s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	10,6 / 48,3		K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	2,8 / 169		s
20	Operating temperature range:				
	– motor		-20 ... +100		$^{\circ}\text{C}$
	– winding, max. permissible		+125		$^{\circ}\text{C}$
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)		3,5		N
	– axial at 10 000 min^{-1} (push only)		2		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		8,3		
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	0,96	0,95	mNm
32	Rated current (thermal limit)	I_N	0,663	0,34	A
33	Rated speed	n_N	18 280	19 150	min^{-1}

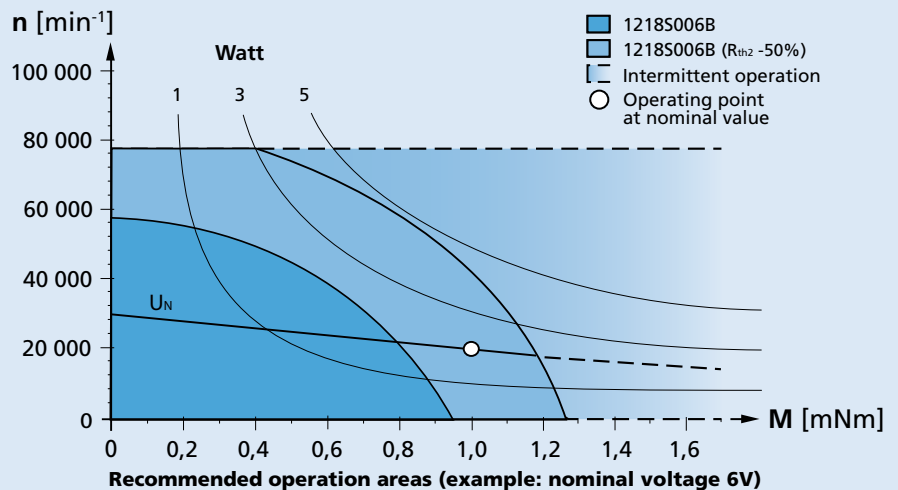
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

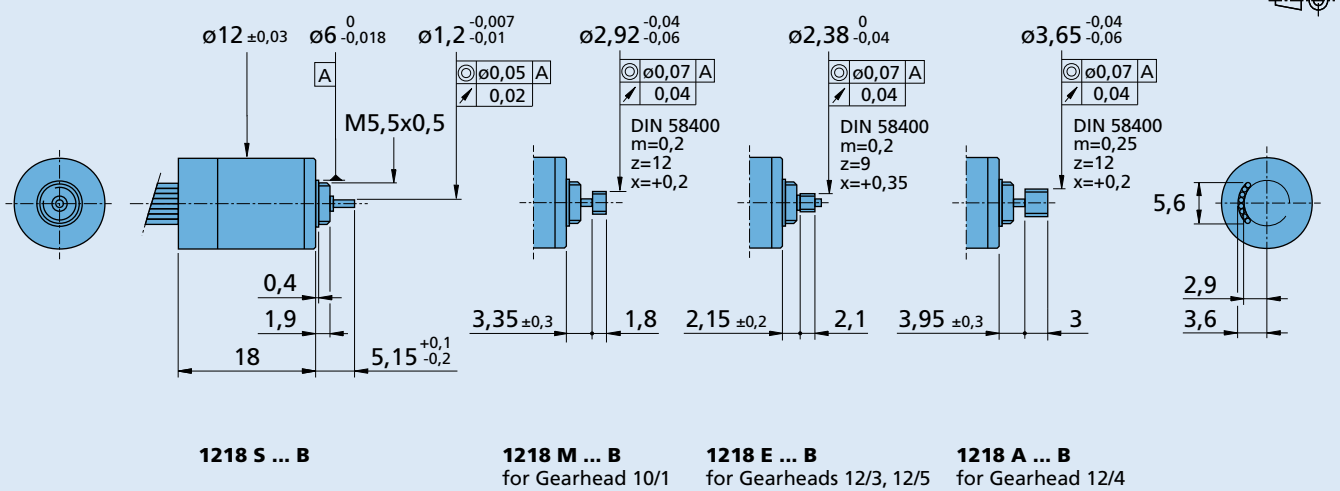
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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: **1218S006B-K1855**

Option	Type	Description	Connection	
			Function	Colour
K1855	Controller combination	Analog Hall sensors for combination with Motion Controller MCBL	Phase C	yellow
K179	Bearing lubrication	For vacuum of 10^{-5} Pa @ 22°C	Phase B	orange
			Phase A	brown
			GND	black
			U _{DD} (+5V)	red
			Hall sensor C	grey
			Hall sensor B	blue
			Hall sensor A	green
			Standard cable	
			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 12/3 12/4 12/5		SC 1801 P SC 1801 S SC 2402 P SC 2804 S MCBL 3002 P MCBL 3002 S MCBL 3003 P MC 3001 B MC 3001 P MC 5004 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.