Brushless Flat DC-Micromotors 3,7 mNm

with integrated Speed Controller

Series 2610 ... B SC

		2610 T		006 B	012 B	SC
1	Nominal voltage	U_N		6	12	Volt
2	Terminal resistance, phase-phase	R		7,0	28,2	Ω
3	Output power [1]	$P_{2\ max.}$		1,92	1,91	W
4	Efficiency	$\eta_{max.}$		78	78	%
5	No-load speed	n_o		6 200	6 200	rpm
6	No-load current	I_o		0,012	0,006	A
7	Stall torque	M_H		7,73	7,68	mNm
8	Friction torque, static	C_o		0,025	0,025	mNm
9	Friction torque, dynamic	C_v		$1,35 \cdot 10^{-5}$	$1,35 \cdot 10^{-5}$	mNm/rpm
10	Speed constant	k_n		1 055	528	rpm/V
11	Back-EMF constant	k_E		0,948	1,895	mV/rpm
12	Torque constant	k_M		9,05	18,1	mNm/A
13	Current constant	k_I		0,111	0,055	A/mNm
14	Slope of n-M curve	$\Delta n/\Delta M$		816	822	rpm/mNm
15	Terminal inductance, phase-phase	L		480	1 940	µH
16	Mechanical time constant	τ_m		69	70	ms
17	Rotor inertia	J		8,1	8,1	gcm^2
18	Angular acceleration	$\alpha_{max.}$		9,5	9,5	$\cdot 10^3 rad/s^2$
19	Thermal resistance	$R_{th\,1}$ / $R_{th\,2}$	33 / 27			K/W
20	Thermal time constant	τ_{w1} / τ_{w2}	20 / 230			s
21	Operating temperature range		-25 ... +80			°C
22	Shaft bearings		ball bearing, preloaded			
23	Shaft load max.:					
	– radial at 3 000/7 000 rpm (3 mm from mounting flange)		4,0 / 3,5			N
	– axial at 3 000/7 000 rpm (push-on only)		3,5 / 3,4			N
	– axial at standstill (push-on only)		17,5			N
24	Shaft play:					
	– radial	≤	0,015			mm
	– axial	=	0			mm
25	Housing material		plastic			
26	Weight		20,1			g
27	Direction of rotation		electronically reversible			
Recommended values - mathematically independent of each other						
28	Speed up to	$n_{e\ max.}$		7 000	7 000	rpm
29	Torque up to [1] [2]	$M_{e\ max.}$		3,14 / 3,72	3,13 / 3,70	mNm
30	Current up to [1] [2]	$I_{e\ max.}$		0,403 / 0,475	0,201 / 0,236	A

[1] at 5 000 rpm

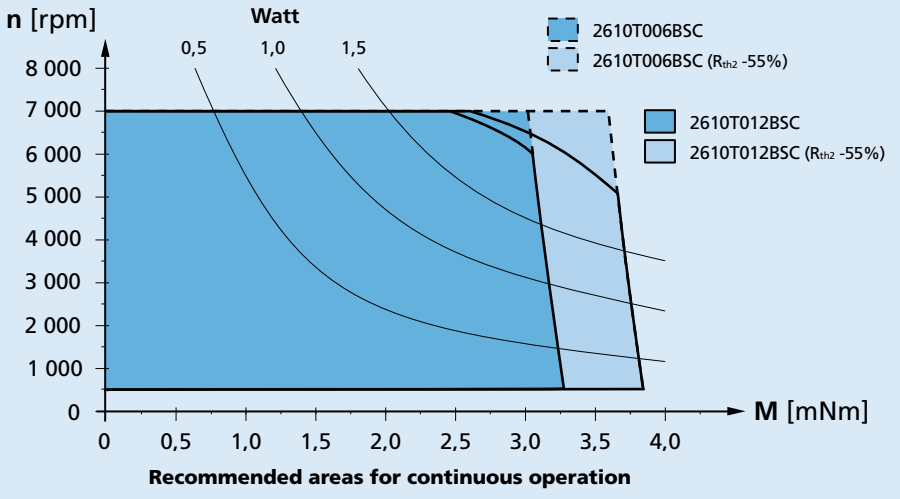
[2] thermal resistance $R_{th\,2}$ not reduced / thermal resistance $R_{th\,2}$ by 55% reduced

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 ($R_{th\,2}$ 55% reduced).

The area of the curve is defined by the maximum allowable supply voltage of the integrated speed controller as well as the control performance characteristics.



For notes on technical data and lifetime performance refer to "Technical Information".

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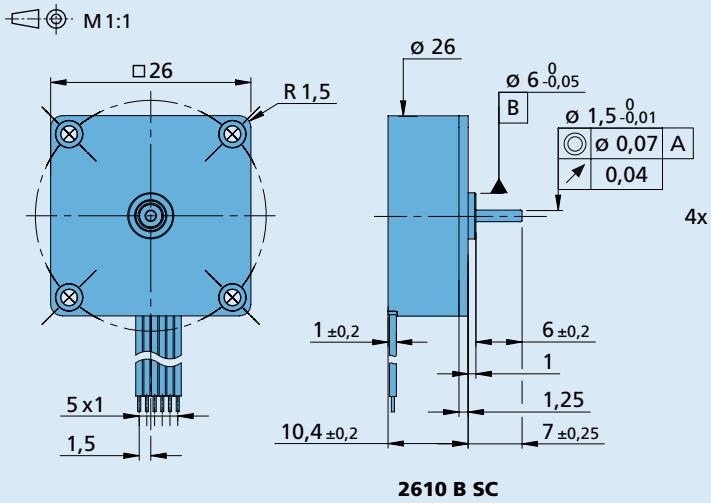

2610 B SC

Option

- connector variants AWG 28 / PVC ribbon cable with connector Picoblade

connector pin assignment:

Connection

No.	Function
1	Up
2	Umot
3	GND
4	Unsoll
5	DIR
6	FG

Speed Controller	006 B	012 B	SC
PWM switching frequency	96	96	kHz
Efficiency	95	95	%
Max. continuous output current [1]	0,8	0,8	A
Max. peak output current	1,6	1,6	A
Total standby current	0,020		A
Speed range electronic	500 ... 60 000 [2]		rpm
Scanning range	500		µs

[1] at 22°C ambient temperature and max. 60°C motor temperature respectively
[2] speed depend on motor operating voltage

Connection information		006 B	012 B	SC
Connection 1 "U_P":	power supply electronic	U_P = 4 ... 18 V		
Connection 2 "U_{mot}":	power supply electronic coil	U_{mot} = 1,7 ... 18 V		
Connection 3 "GND":	ground	ground		
Connection 4 "U_{nsoll}":				
– analog input	input voltage	U_{in} = 0 ... 10 V (max. Up)		
	input resistance	R_{in} ≥ 8 kΩ		
	set speed value	per 1 V: 1 000	1 000	rpm
		U_{in} < 0,15 V » motor stops		
		U_{in} > 0,3 V » motor starts		
Connection 5 "DIR":				
– digital input	direction of rotation	to ground or level < 0,5 V » counterclockwise		
		open or level > 3 V » clockwise (max. Up)		
	input resistance	R_{in} ≥ 10 kΩ		
Connection 6 "FG":		with max. U_P » I_{max} = 15 mA; open collector with 22 kΩ pull-up resistor		
– digital output	frequency output	6 lines per revolution		

Features

In this variant, the brushless DC-Micromotors have an integrated Speed Controller. The motor is commutated using Hall sensors integrated into the motor. Speed control is via a PI regulator. The Speed Controller has a current limiting device which limits the maximum motor current if the thermal load is too high. Twice the continuous current is possible over a short time.

Using the **"FAULHABER Motion Manager"** software, the customer can modify the Speed Controller to special conditions of use.

The following parameters can be changed: current limit and regulator parameters.

Full product description

- Examples:

2610T006B SC

2610T012B SC