

## **Brushless Flat DC-Micromotors**

## 3,8 mNm

For combination with Drive Electronics: Speed Controller

1 Nominal voltage UN			2610 T		006 B	012 B	
2 Terminal resistance, phase-phase	1	Nominal voltage					Volt
3 Output power   1			R				Ω
Second							
5 No-load speed							
6 No-load current   10   0,012   0,006   A   7,73   7,88   mNm   7,73   7,78   mNm   7,73   7,78   mNm   7,73   7,78   mNm   7,73   7,78   mNm   7,78   7,78   mNm   7,78   7,78   mNm   7		,				1.0	
Stall torque   MH	5	No-load speed	no		6 200	6 200	rpm
Friction torque, static   Co   1,35 :10 -5   1,35 :10 -	6	No-load current	lo		0,012	0,006	Α
9 Friction torque, dynamic C <sub>V</sub> 1,35 - 10-5 1,35 - 10-5 mNm/rpm 10 Speed constant kn 1 1055 528 rpm/V 11 Back-EMF constant kE 0,948 1,895 mV/rpm 12 Torque constant kM 9,05 18,1 mNm/rbm 13 Current constant kI 0,0111 0,055 A/mNm 14 Slope of n-M curve Δn/ΔM 816 822 rpm/mN 15 Terminal inductance, phase-phase L 480 1,940 μH 16 Mechanical time constant J 7 m 69 70 ms square acceleration C <sub>V max</sub> 9,5 9,5 10 <sup>3</sup> rad/l 17 Rotor inertia J 8,1 8,1 gcm² 10 <sup>3</sup> rad/l 18 Angular acceleration C <sub>V max</sub> 9,5 9,5 10 <sup>3</sup> rad/l 19 Thermal resistance Rth 1 / Rth 2 20 / 230	7	Stall torque	Мн		7,73	7,68	mNm
10   Speed constant	8	Friction torque, static	Co		0,025	0,025	mNm
11 Back-EMF constant	9	Friction torque, dynamic	Cv		1,35 ·10 <sup>-5</sup>	1,35 ·10 <sup>-5</sup>	mNm/rpm
11 Back-EMF constant	40						0.7
12 Torque constant							
Slope of n-M curve							
14 Slope of n-M curve Δη/ΔΜ 15 Terminal inductance, phase-phase L 16 Mechanical time constant τ m 17 Rotor inertia J 18 Angular acceleration α max.  19 Thermal resistance Rth 1 / Rth 2 20 Thermal time constant τ w1 / τ w2 20 Thermal time constant τ w1 / τ w2 21 Operating temperature range 22 Shaft bearings 23 Shaft load max.:  - radial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - axial at 3 000/7 000 rpm (μωsh-on only) - αxial at 3 000/7 000 rpm (μωsh-o							
15 Terminal inductance, phase-phase   L	13	Current constant	kι		0,111	0,055	A/mNm
15 Terminal inductance, phase-phase   L	1 /	Clana of n M survo	Am/AN4		016	022	rn na /na Nine
16   Mechanical time constant							
17   Rotor inertia   J   Angular acceleration   Ωt   max.   33 / 27   20 / 230   5   10³ rad/.     19   Thermal resistance   Rth 1 / Rth 2   Thermal time constant   T w1 / T w2   20 / 230   5							•
18 Angular acceleration							
19 Thermal resistance			•				
20 Thermal time constant  T w1 / T w2 20 / 230  21 Operating temperature range  -25 +80  °C  22 Shaft bearings 23 Shaft load max.:  - radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only)  T y y y y y y y y y y y y y y y y y y	18	Angular acceleration	Ct max.		9,5	9,5	·10³rad/s²
20 Thermal time constant  T w1 / T w2 20 / 230  21 Operating temperature range  -25 +80  °C  22 Shaft bearings 23 Shaft load max.:  - radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only)  T y y y y y y y y y y y y y y y y y y	19	Thermal resistance	Rth 1 / Rth 2	33 / 27			KΛW
21 Operating temperature range  -25 +80  22 Shaft bearings 23 Shaft load max.:  - radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only) - axial at standstill (push-on only)  24 Shaft play:  - radial - axial  - radial - axial    0							-
Shaft bearings   Shaft load max.:   - radial at 3 000/7 000 rpm (push-on only)   3,5 / 3,4   N     - axial at 3 000/7 000 rpm (push-on only)   17,5   N    - axial at 3 dat		memar time constant	0 0017 0 002	207 230			,
23 Shaft load max.: - radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only) 3,5 / 3,4 - axial at standstill (push-on only) 17,5 N  24 Shaft play: - radial - axial = 0,015 - axial = 0 mm - axial  25 Housing material 26 Weight 20,1 27 Direction of rotation 28 Number of pole pairs 29 Speed up to 10 Re max. 17 000 18 memax. 18 memax. 19	21	Operating temperature range		-25 +80			°C
23 Shaft load max.: - radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only) 3,5 / 3,4 - axial at standstill (push-on only) 17,5 N  24 Shaft play: - radial - axial = 0,015 - axial = 0 mm - axial  25 Housing material 26 Weight 20,1 27 Direction of rotation 28 Number of pole pairs 29 Speed up to 10 Re max. 17 000 18 memax. 18 memax. 19							
- radial at 3 000/7 000 rpm (3 mm from mounting flange) - axial at 3 000/7 000 rpm (push-on only) - axial at standstill (push-on only) 17,5 N  24 Shaft play: - radial - axial Shaft play: - radial - axial Show the standstill (push-on only) Shaft play: - radial - axial Show the standstill (push-on only) Shaft play: - radial - axial Show the standstill (push-on only) Shaft play: - radial - axial Show the standstill (push-on only) Shaft play: - radial - axial Show the standstill (push-on only) Shaft play: - radial - axial - a	22	Shaft bearings		ball bearing, preloaded			
- axial at 3 000/7 000 rpm (push-on only)  - axial at standstill (push-on only)  24 Shaft play:  - radial  - axial  Short play:  - radial  - axial  Short play:  - radial  Short play:  Sho	23	Shaft load max.:					
- axial at standstill (push-on only)  24 Shaft play: - radial - axial Standstill (push-on only)  25 Housing material Standstill (push-on only) Standstandstill (push-on only) Standstandstill (push-on only) Standstandstill (push-on only) Standstandstandstandstandstandstandstands		- radial at 3 000/7 000 rpm (3 mm from moun	ting flange)	4,0 / 3,5			N
24 Shaft play: - radial - axial  Solution = 0  Housing material  Weight 20,1 27 Direction of rotation 28 Number of pole pairs  Recommended values - mathematically independent of each other  29 Speed up to 30 Torque up to 1) 2)  Me max.  Mmm  plastic  g  g  g  T 000  T 000  T 000  T pm  Me max.  3,24/3,77  3,23/3,75  MNm		<ul> <li>axial at 3 000/7 000 rpm (push-on only)</li> </ul>		3,5 / 3,4			N
- radial ≤ 0,015 mm - axial = 0  25 Housing material plastic 26 Weight 20,1 g 27 Direction of rotation electronically reversible 2  28 Number of pole pairs 2  Recommended values - mathematically independent of each other 29 Speed up to ne max. 7 000 7 000 rpm 30 Torque up to 1) 2) Me max. 3,24/3,77 3,23/3,75 mNm		<ul> <li>axial at standstill (push-on only)</li> </ul>		17,5			N
- axial = 0 mm  25 Housing material plastic 26 Weight 20,1 g 27 Direction of rotation electronically reversible 2 28 Number of pole pairs 2  Recommended values - mathematically independent of each other 29 Speed up to ne max. 7 000 7 000 rpm 30 Torque up to 1) 2) Me max. 3,24/3,77 3,23/3,75 mNm	24	Shaft play:					
plastic 25 Housing material 26 Weight 27 Direction of rotation 28 Number of pole pairs 29 Speed up to 29 Speed up to 30 Torque up to 1) 2) 20 Plastic 30 Me max. 30 Me max. 30 Torque up to 1) 2) 30 Plastic 30 P		– radial	≤	0,015			mm
26 Weight 20,1 g 27 Direction of rotation electronically reversible 2  Recommended values - mathematically independent of each other 29 Speed up to ne max. 7 000 7 000 rpm mom 30 Torque up to 1) 2) Me max. 3,24/3,77 3,23/3,75 mNm		– axial	=	0			mm
26 Weight 20,1 g 27 Direction of rotation electronically reversible 2  Recommended values - mathematically independent of each other 29 Speed up to ne max. 7 000 7 000 rpm mom 30 Torque up to 1) 2) Me max. 3,24/3,77 3,23/3,75 mNm							
27 Direction of rotation 28 Number of pole pairs  2 PRecommended values - mathematically independent of each other 29 Speed up to 30 Torque up to 1) 2)  Me max.  Recommended values - mathematically independent of each other  7 000   7 000   rpm							
28 Number of pole pairs 2  Recommended values - mathematically independent of each other 29 Speed up to ne max. 7 000 7 000 rpm 30 Torque up to <sup>1) 2)</sup> Me max. 3,24/3,77 3,23/3,75 mNm							g
Recommended values - mathematically independent of each other  29 Speed up to ne max. 7 000 7 000 rpm  30 Torque up to 1) 2) Me max. 3,24/3,77 3,23/3,75 mNm							
29 Speed up to     ne max.     7 000     7 000     rpm       30 Torque up to <sup>1) 2)</sup> Me max.     3,24/3,77     3,23/3,75     mNm	28	Number of pole pairs		2			
29 Speed up to     ne max.     7 000     7 000     rpm       30 Torque up to <sup>1) 2)</sup> Me max.     3,24/3,77     3,23/3,75     mNm	Pα	commanded values - mathematically indepe	andont of each	othor			
30 Torque up to <sup>1) 2)</sup> Me max. 3,24 / 3,77 3,23 / 3,75 mNm				Tottler	7 000	7 000	rnm
3.1 Current un to 1) 2)	30	Torque un to 1) 2)					
	21	Current up to 1) 2)					

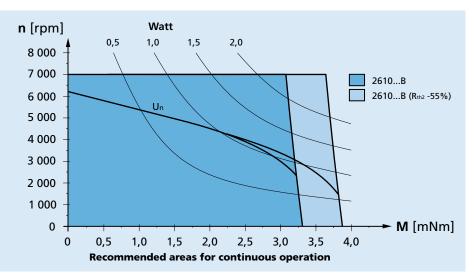
<sup>1)</sup> at 5 000 rpm

## 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 (Rth 2 55% reduced).

The nominal voltage 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.



<sup>2)</sup> thermal resistance Rth 2 not reduced / thermal resistance Rth 2 by 55% reduced



