

NEW

Brushless Flat DC-Micromotors

0,6 mNm

For combination with
Speed Controller:
SC 1801

Series 1509 ... B

	1509 T	006 B	012 B	
1 Nominal voltage	U _N	6	12	Volt
2 Terminal resistance, phase-phase	R	22,0	92,8	Ω
3 Output power ¹⁾	P _{2 max.}	0,31	0,30	W
4 Efficiency	η _{max.}	56	55	%
5 No-load speed	n ₀	14 700	14 700	rpm
6 No-load current	I ₀	0,0174	0,0087	A
7 Stall torque	M _H	0,97	0,92	mNm
8 Friction torque, static	C ₀	0,025	0,025	mNm
9 Friction torque, dynamic	C _v	2,6 · 10 ⁻⁶	2,6 · 10 ⁻⁶	mNm/rpm
10 Speed constant	k _n	2 623	1 312	rpm/V
11 Back-EMF constant	k _E	0,381	0,762	mV/rpm
12 Torque constant	k _M	3,64	7,28	mNm/A
13 Current constant	k _I	0,275	0,137	A/mNm
14 Slope of n-M curve	Δn/ΔM	15 856	16 721	rpm/mNm
15 Terminal inductance, phase-phase	L	590	2 350	μH
16 Mechanical time constant	τ _m	115	121	ms
17 Rotor inertia	J	0,69	0,69	gcm ²
18 Angular acceleration	α _{max.}	14	13	· 10 ³ rad/s ²
19 Thermal resistance	R _{th 1} / R _{th 2}	65 / 45		K/W
20 Thermal time constant	τ _{w1} / τ _{w2}	10 / 130		s
21 Operating temperature range		-25 ... +80		°C
22 Shaft bearings		ball bearing, preloaded		
23 Shaft load max.:				
– radial at 3 000/16 000 rpm (3 mm from mounting flange)		2,0 / 0,5		N
– axial at 3 000/16 000 rpm (push-on only)		2,0 / 1,7		N
– axial at standstill (push-on only)		15		N
24 Shaft play:				
– radial	≤	0,015		mm
– axial	≡	0		mm
25 Housing material		plastic		
26 Weight		6,9		g
27 Direction of rotation		electronically reversible		
Recommended values - mathematically independent of each other				
28 Speed up to	n _{e max.}	16 000	16 000	rpm
29 Torque up to ^{1) 2)}	M _{e max.}	0,52 / 0,60	0,51 / 0,58	mNm
30 Current up to ^{1) 2)}	I _{e max.}	0,174 / 0,198	0,085 / 0,096	A

¹⁾ at 5 000 rpm

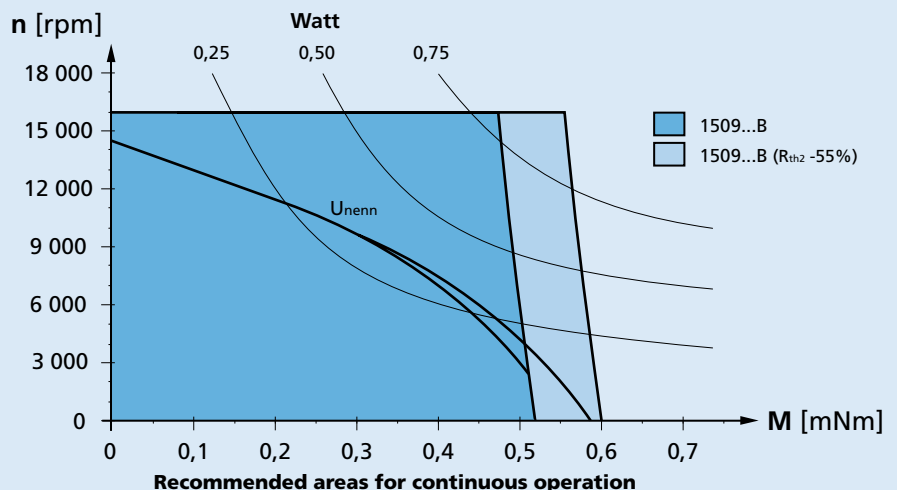
²⁾ thermal resistance R_{th 2} not reduced / thermal resistance R_{th 2} by 55% reduced

Note:


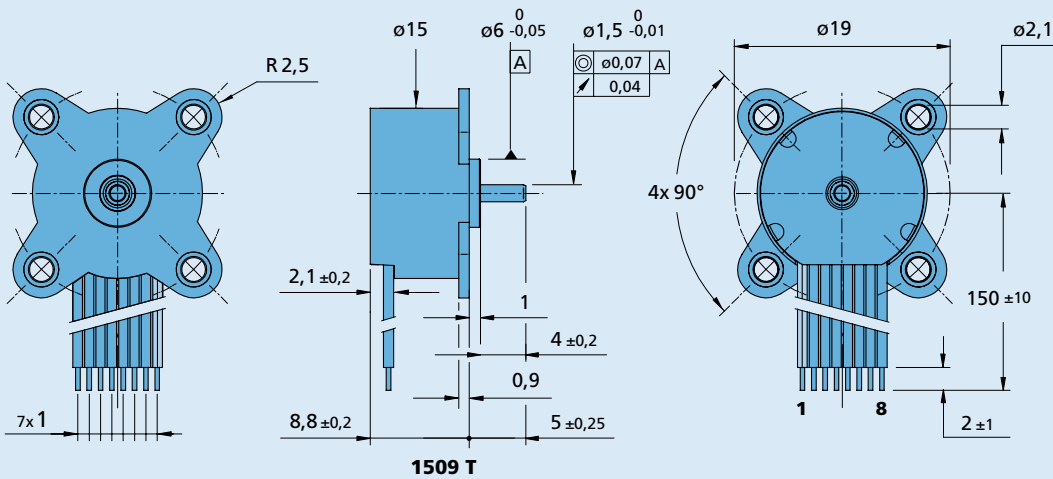
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th 2} 55% reduced).

The 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.



1509 T ... B

 Scale enlarged 

Connection

No.	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	+ 5V
6	Hall sensor C
7	Hall sensor B
8	Hall sensor A