

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

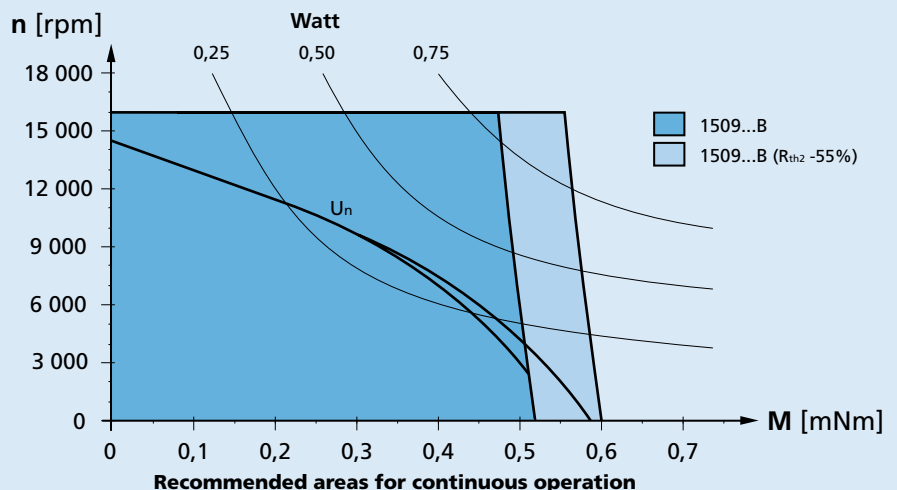
²⁾ thermal resistance R_{th 2} not reduced / thermal resistance R_{th 2} by 55% reduced

Note:


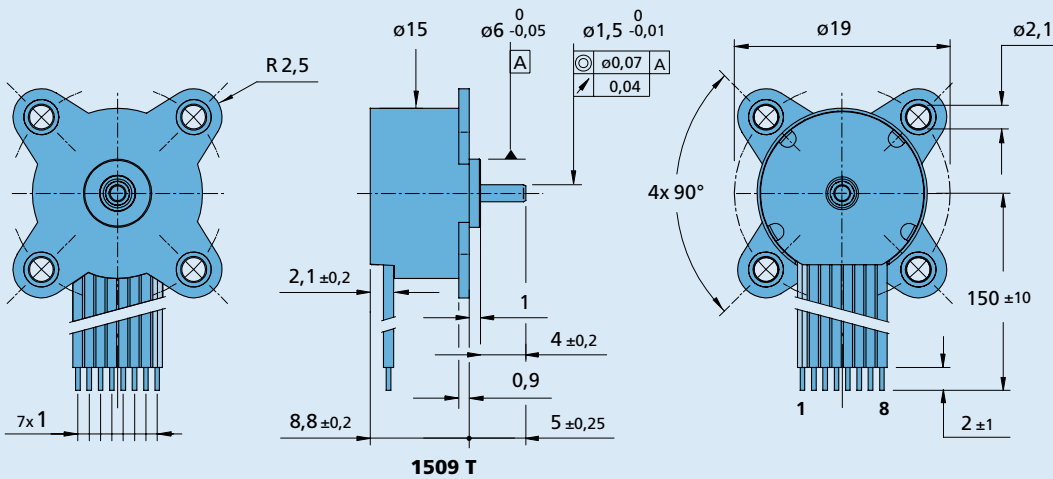
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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 |