

Brushless DC-Servomotors

with integrated Speed Controller

4 Pole Technology

25 mNm

For combination with
Gearheads:
22F, 22/7, 26A

Series 2250 ... BX4 SC

	2250 S	024 BX4	SC
1 Nominal voltage	U_N	24	Volt
2 Terminal resistance, phase-phase	R	5,9	Ω
3 Output power ¹⁾	$P_{2 \text{ max.}}$	17,3	W
4 Efficiency	$\eta_{\text{ max.}}$	75,0	%
5 No-load speed	n_o	6 000	rpm
6 No-load current (with shaft \varnothing 3,0 mm)	I_o	0,072	A
7 Stall torque	M_H	149,0	mNm
8 Friction torque, static	C_o	1,2	mNm
9 Friction torque, dynamic	C_v	$2,4 \cdot 10^{-4}$	mNm/rpm
10 Speed constant	k_n	259	rpm/V
11 Back-EMF constant	k_E	3,860	mV/rpm
12 Torque constant	k_M	36,9	mNm/A
13 Current constant	k_I	0,027	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	41,4	rpm/mNm
15 Terminal inductance, phase-phase	L	240	μH
16 Mechanical time constant	τ_m	4,30	ms
17 Rotor inertia	J	10	gcm^2
18 Angular acceleration	$\alpha_{\text{ max.}}$	149	$\cdot 10^3 \text{rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	1,2 / 10,5	K/W
20 Thermal time constant	τ_{w1} / τ_{w2}	4,2 / 424	s
21 Operating temperature range		- 40 ... + 85	$^{\circ}\text{C}$
22 Shaft bearings		ball bearings, preloaded	
23 Shaft load max.:			
– radial at 3 000 rpm (4 mm from mounting flange)		20	N
– axial at 3 000 rpm		2	N
– axial at standstill		20	N
24 Shaft play:			
– radial	\leq	0,015	mm
– axial	\equiv	0	mm
25 Housing material		stainless steel	
26 Weight		117	g
27 Direction of rotation		electronically reversible	
28 Number of pole pairs		2	
Recommended values - mathematically independent of each other			
29 Speed up to	$n_e \text{ max.}$	7 200	rpm
30 Torque up to ^{1) 2)}	$M_e \text{ max.}$	25	mNm
31 Current up to ^{1) 2)}	$I_e \text{ max.}$	0,79	A

¹⁾ at 5 000 rpm

²⁾ thermal resistance $R_{th 2}$ not reduced

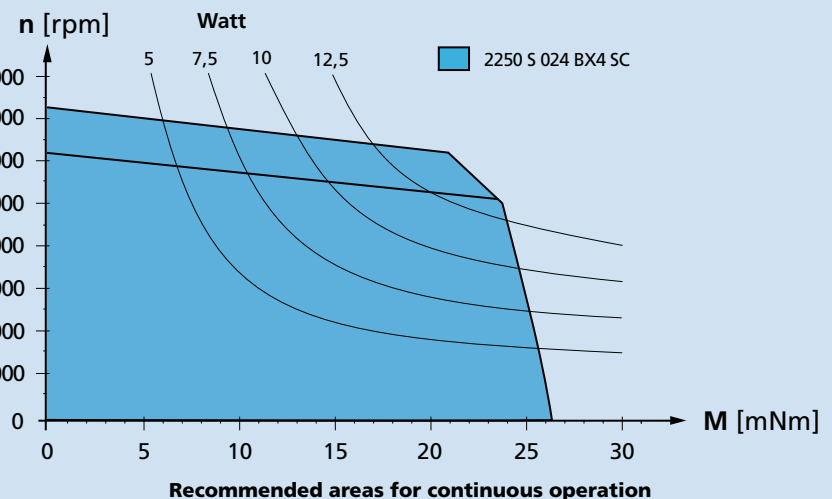
Note:

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 condition.

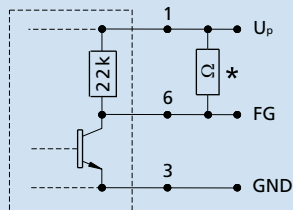
The motor is factory pre-configured to a continuous current for the thermally insulated condition. The controller must be reconfigured with the easy to use Motion Manager Software for use with other parameter settings.

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated 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.



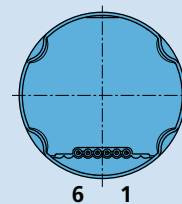
Circuit diagram / Connection information

Output circuit



* An additional external pull-up resistor can be added to improve the rise time.
 Caution: I_{OUT} max. 15 mA must not be exceeded!

Cable connection



Connection

No.	Function
1	U_p
2	U_{mot}
3	GND
4	U_{soll}
5	DIR
6	FG

Caution:
 Incorrect lead connection will damage the motor electronics!

Options

- Connector variant (Option no.: 3809)
 AWG 26 / PVC ribbon cable with connector Micro-Fit



Accessories

- Programming board (Part No.: 6501.00088)

Full product description

- Example:
 2250S024BX4 SC