

Brushless DC-Servomotors

with integrated Motion Controller
and RS232 or CAN interface

18 mNm

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

2232 ... BX4 CxD

	2232 S		024 BX4 CSD/CCD/COD	
1 Nominal voltage	U_N		24	Volt
2 Terminal resistance, phase-phase	R		12,4	Ω
3 Output power ¹⁾	$P_{2\ max.}$		6,4	W
4 Efficiency	$\eta_{\ max.}$		67,7	%
5 No-load speed	n_o		6 800	min ⁻¹
6 No-load current ³⁾	I_o		0,061	A
7 Stall torque at 1,8A	M_{H1}		57	mNm
8 Friction torque, static	C_o		0,85	mNm
9 Friction torque, dynamic	C_v		$1,5 \cdot 10^{-4}$	mNm/min ⁻¹
10 Speed constant	k_n		304	min ⁻¹ /V
11 Back-EMF constant	k_E		3,288	mV/min ⁻¹
12 Torque constant	k_M		31,40	mNm/A
13 Current constant	k_I		0,031	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$		120	min ⁻¹ /mNm
15 Terminal inductance, phase-phase	L		440	μ H
16 Mechanical time constant	τ_m		6,5	ms
17 Rotor inertia	J		5,2	gcm ²
18 Angular acceleration	$\alpha_{\ max.}$		109	$\cdot 10^3$ rad/s ²
19 Thermal resistance	R_{th1} / R_{th2}	2 / 17		K/W
20 Thermal time constant	τ_{w1} / τ_{w2}	4,1 / 360		s
21 Operating temperature range		- 25 ... + 85		°C
22 Shaft bearings		ball bearings, preloaded		
23 Shaft load max.:				
- radial at 3 000 min ⁻¹ (4 mm from mounting flange)		20		N
- axial at 3 000 min ⁻¹		2		N
- axial at standstill		20		N
24 Shaft play:				
- radial	\leq	0,015		mm
- axial	$=$	0		mm
25 Housing material		stainless steel		
26 Weight		77		g
27 Direction of rotation		electronically reversible		
Recommended values - mathematically independent of each other				
28 Speed up to	$n_{e\ max.}$		5 - 8 000	min ⁻¹
29 Torque up to ^{1) 2)}	$M_{e\ max.}$		11 / 18	mNm
30 Current up to ^{1) 2) 3)}	$I_{e\ max.}$		0,44 / 0,69	A

¹⁾ at 4 000 min⁻¹ ²⁾ thermal resistance R_{th2} not reduced / thermal resistance R_{th2} by 55% reduced

³⁾ total standby current 0,04 A at $U_B = 24V$

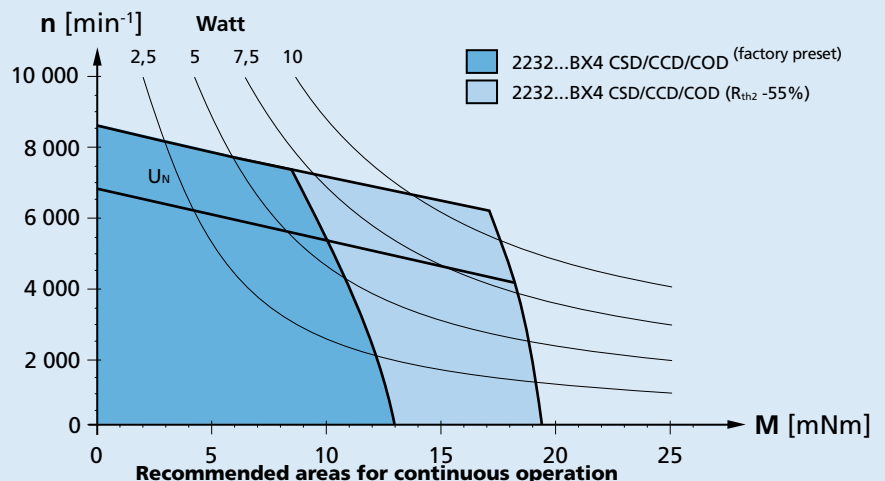
Note:

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

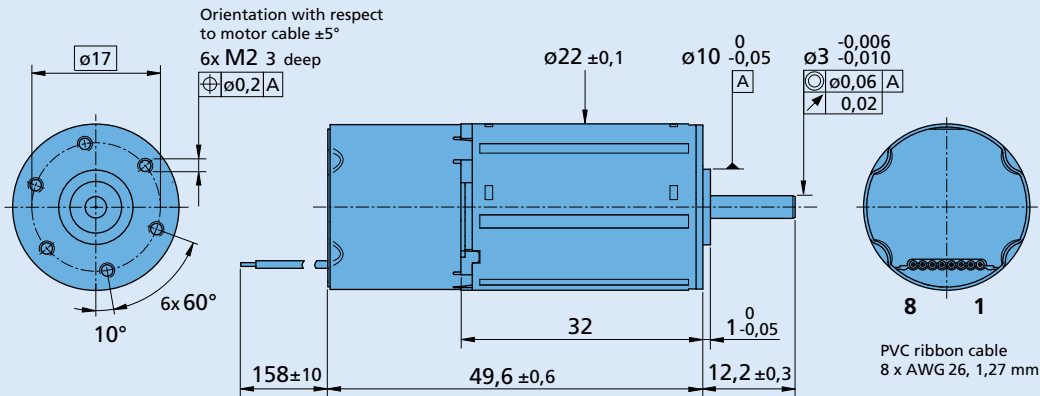
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 55% reduced).

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 at higher continuous current.

The nominal voltage (U_N) 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.



Dimensional drawing



2232 ... BX4 CSD/CCD/COD

Connection

No.	Function
1	3.input
2	+24V
3	GND
4	Analog input
5	Analog GND
6	Fault output
7	RS232 RXD / CAN_L
8	RS232 TXD / CAN_H

Caution:

Incorrect lead connection will damage the motor electronics!

Options

Options

- Connector variant (Option no. 3830)
AWG 26 / PVC ribbon cable with connector Micro-Fit



Accessories

- Adapter board BX4 CxD (Part No.: 6501.00113)

Full product description

- Example:
2232S024 BX4 CSD

Motion Controller

Supply voltage ¹⁾	U_B		5 ... 30	V DC
Peak current ²⁾	I_{max}		3	A
Connection "Analog input":				
- Speed command analog input		voltage range	±10	V
- Speed command PWM input		frequency range	100 ... 2 000	Hz
		pulse duty factor 50%	0	min ⁻¹
- Digital input		input resistance (at 24V)	5	kΩ
- External encoder	f_{max}		400	kHz
- Step frequency input	f_{max}		400	kHz
Connection "Fault output":				
- Fault output		no error	switched to GND	
- Digital output		open collector	max. U_B / 30 mA	
- Digital input		input resistance	100	kΩ
Connection "3.input":				
- Digital input		input resistance	22	kΩ
- Electronic supply voltage ¹⁾	U_B		5 ... 30	V DC
Encoder:				
- Scanning rate			200	μs
- Resolution internal encoder			3 000	Inc./turn

The signal level of the digital inputs can be set using the above commands:
Standard (PLC): Low 0...4,5V / High 12,5V... U_B , TTL: Low 0...0,5V / High 2,5V... U_B

¹⁾ Separate supply of motor and control electronics for safetyrelevant applications is optionally available (Option no. 2993).
In this case the 3rd input is not available for digital signals.

²⁾ Preset value. Can be changed over the interface.