

Brushless DC-Servomotors

with integrated Speed Controller

4 Pole Technology

58 mNm

For combination with

Gearheads:

32A, 32ALN, 32/3, 32/3 S, 38/1, 38/1S, 38/2, 38/2 S

Series 3268 ... BX4 SCDC

	3268 G		024 BX4	SCDC
1 Nominal voltage	U_N		24	Volt
2 Terminal resistance, phase-phase	R		1,45	Ω
3 Output power ¹⁾	$P_{2 \text{ max.}}$		32,7	W
4 Efficiency	$\eta_{\text{ max.}}$		79,5	%
5 No-load speed	n_0		5 300	rpm
6 No-load current	I_0		0,210	A
7 Stall torque	M_H		137	mNm
8 Friction torque, static	C_0		1,7	mNm
9 Friction torque, dynamic	C_v		$1,3 \cdot 10^{-3}$	mNm/rpm
10 Speed constant	k_n		220	rpm/V
11 Back-EMF constant	k_E		4,555	mV/rpm
12 Torque constant	k_M		43,5	mNm/A
13 Current constant	k_I		0,0230	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$		7,3	rpm/mNm
15 Terminal inductance, phase-phase	L		110	μH
16 Mechanical time constant	τ_m		4,6	ms
17 Rotor inertia	J		60	gcm^2
18 Angular acceleration	$\alpha_{\text{ max.}}$		23	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	1,9 / 9,6		K/W
20 Thermal time constant	τ_{w1} / τ_{w2}	17 / 1 060		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 (4,5 mm from mounting flange)		50		N
– axial at 3 000 rpm		5		N
– axial at standstill		50		N
24 Shaft play:				
– radial	\leq	0,015		mm
– axial	$=$	0		mm
25 Housing material		stainless steel		
26 Weight		305		g
27 Direction of rotation		electronically reversible		
28 Number of pole pairs		2		
Recommended values - mathematically independent of each other				
29 Speed up to	$n_{e \text{ max.}}$		6 500	rpm
30 Torque up to ^{1) 2)}	$M_{e \text{ max.}}$		37 / 58	mNm
31 Current up to ^{1) 2)}	$I_{e \text{ max.}}$		1,11 / 1,60	A

¹⁾ at 5000 rpm

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

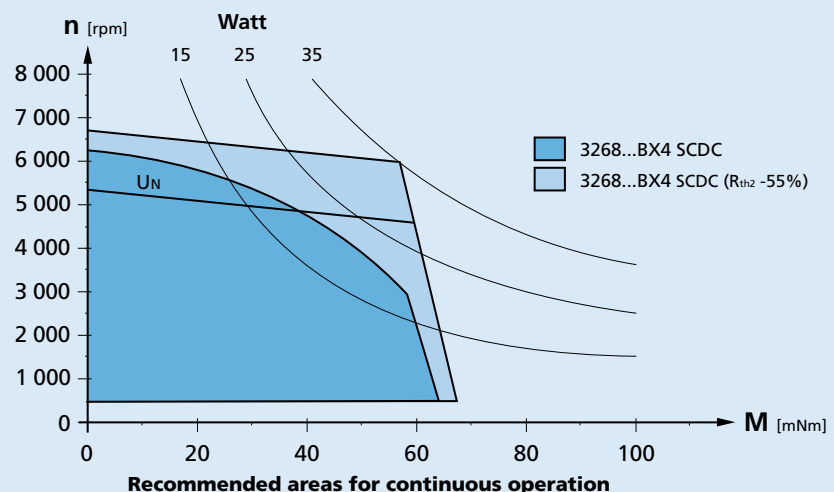
Note:

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

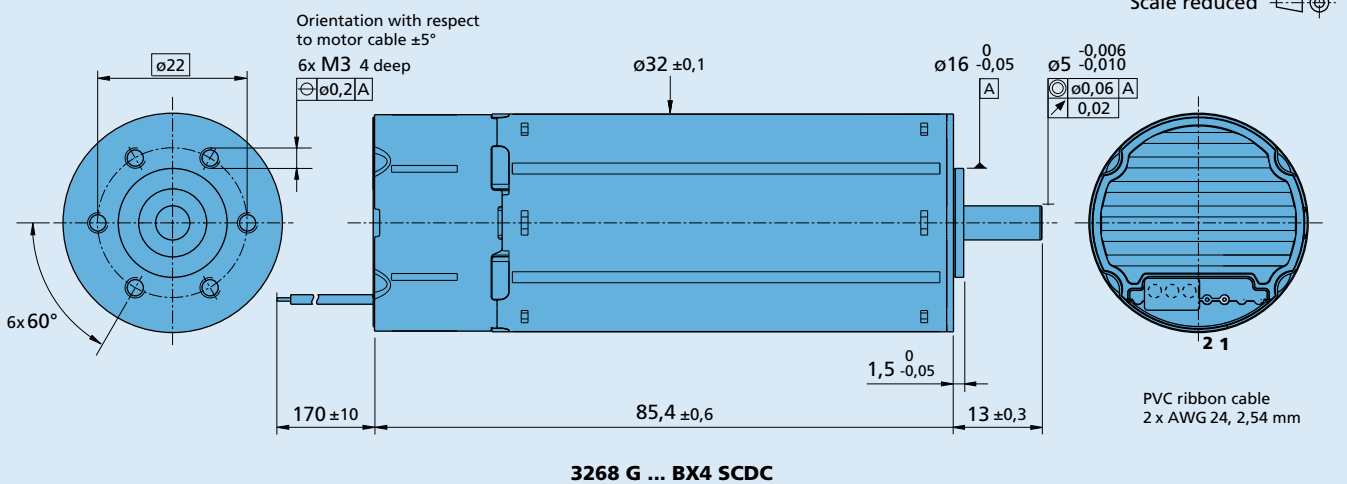
The diagram shows the motor in a completely insulated as well as thermally coupled condition ($R_{th 2} \geq 55\%$ reduced).

The motor is factory pre-configured to perform at the recommended continuous current. Non-standard configurations are only possible upon request from the manufacturer.

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



Speed Controller		024 BX4	SCDC
Power supply electronic	U_p	6,5 ... 30	V DC
Power supply motor	U_{mot}	6,5 ... 30	V DC
PWM switching frequency	f_{PWM}	96	kHz
Efficiency	η	95	%
Max. continuous output current ¹⁾	I_{dauer}	1,6	A
Max. peak output current	I_{max}	4	A
Total standby current at U_N	I_{el}	10	mA
Speed range, electronics		400 ... 50 000 ²⁾	rpm
Scanning rate		500	μs

¹⁾ at 22°C ambient temperature and max. 60°C motor temperature at the nominal voltage of motor and electronics

²⁾ speed is dependent on the motor operating voltage

Connection information

Connection 1 "Mot +": positive power supply

Connection 2 "Mot -": negative power supply

Features

In this version, the brushless DC servomotors have an integrated Speed Controller. The motor is commutated using the integrated digital hall sensors. Speed control is via a PI regulator.

The Speed Controller has a current limiting device which limits the maximum motor current if the thermal load is too high. Twice the continuous current is possible over a short time.

The direction of rotation is dependent on the polarity of the voltage.

Full product description

■ Examples:
3268G024BX4 SCDC

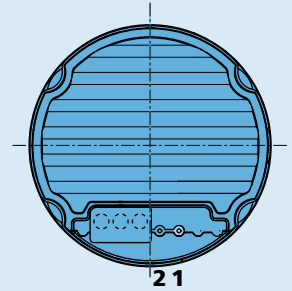
Connection information

Options

- Connector variants (Option no. 4140)
AWG 24 / PVC ribbon cable
with connector Micro-Fit
connector pin assignment:



Cable connection



Connection

No.	Function
1	Mot +
2	Mot -