

# Brushless DC-Servomotors

## 4 Pole Technology

## 56 mNm

For combination with  
 Gearheads:  
 32A  
 Encoders:  
 IE3 ...  
 Drive Electronics:  
 SC 2804

### Series 3242 ... BX4

	3242 G	012 BX4	024 BX4	
1 Nominal voltage	$U_N$	12	24	Volt
2 Terminal resistance, phase-phase	R	0,89	3,6	$\Omega$
3 Output power <sup>1)</sup>	$P_2 \text{ max.}$	21,7	21,7	W
4 Efficiency	$\eta \text{ max.}$	77,4	77,3	%
5 No-load speed	$n_0$	5 500	5 500	rpm
6 No-load current	$I_0$	0,206	0,103	A
7 Stall torque	$M_H$	282	279	mNm
8 Friction torque, static	$C_0$	1,3	1,3	mNm
9 Friction torque, dynamic	$C_v$	$5,2 \cdot 10^{-4}$	$5,2 \cdot 10^{-4}$	mNm/rpm
10 Speed constant	$k_n$	455	227	rpm/V
11 Back-EMF constant	$k_E$	2,199	4,409	mV/rpm
12 Torque constant	$k_M$	21,0	42,1	mNm/A
13 Current constant	$k_I$	0,0476	0,0238	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	19,3	19,4	rpm/mNm
15 Terminal inductance, phase-phase	L	60	240	$\mu\text{H}$
16 Mechanical time constant	$\tau_m$	6,1	6,1	ms
17 Rotor inertia	J	30	30	$\text{gcm}^2$
18 Angular acceleration	$\alpha \text{ max.}$	94	93	$\cdot 10^3 \text{rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	1,6 / 11,9		K/W
20 Thermal time constant	$\tau_{w1} / \tau_{w2}$	9 / 780		s
21 Operating temperature range		- 40 ... + 100		$^{\circ}\text{C}$
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	$\equiv$	0		mm
25 Housing material		stainless steel		
26 Weight		177		g
27 Direction of rotation		electronically reversible		
28 Number of pole pairs		2		
<b>Recommended values - mathematically independent of each other</b>				
29 Speed up to	$n_e \text{ max.}$	14 500	14 500	rpm
30 Torque up to <sup>1) 2)</sup>	$M_e \text{ max.}$	33 / 56	33 / 56	mNm
31 Current up to <sup>1) 2)</sup>	$I_e \text{ max.}$	1,95 / 3,19	0,97 / 1,59	A

<sup>1)</sup> at 5 000 rpm

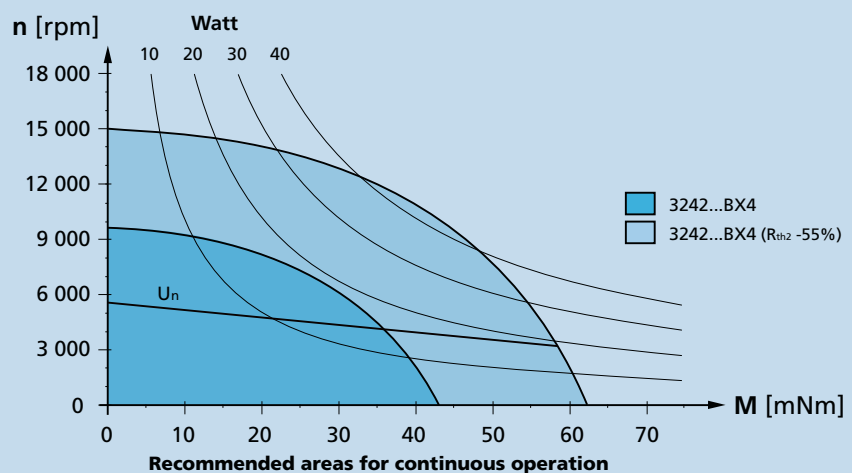
<sup>2)</sup> thermal resistance  $R_{th 2}$  not reduced / thermal resistance  $R_{th 2}$  by 55% reduced

#### Note:

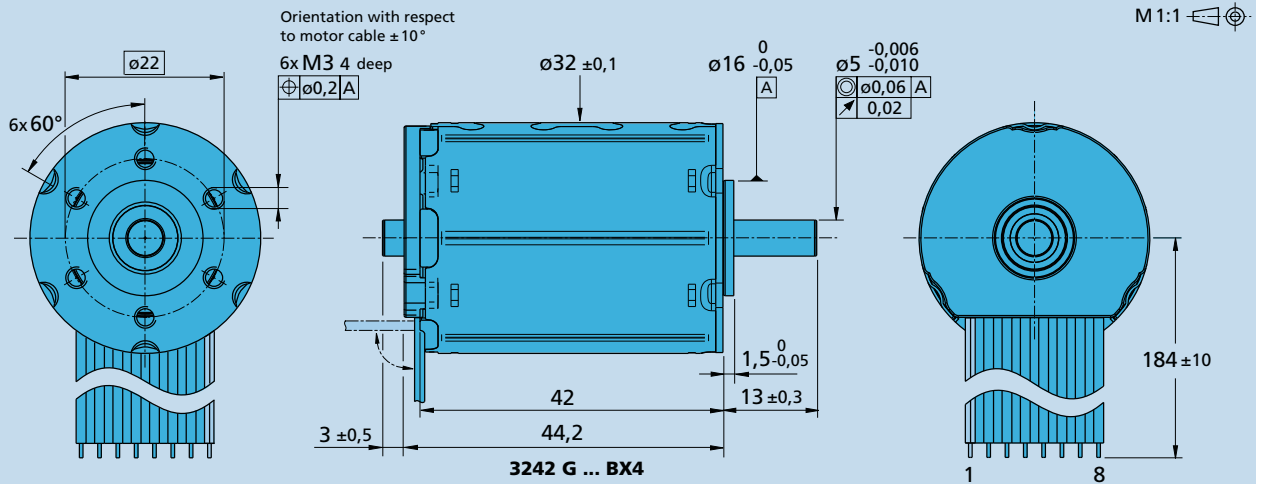
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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

The nominal voltage ( $U_N$ ) 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.

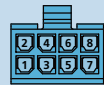


**Dimensional drawing**



**Options**

- Connector variant (Option no. 3830)
- Motor:  
AWG 24 / PVC ribbon cable with connector Micro-Fit
- Analog Hall sensors (Option no. 3692)



**Full product description**

- Examples:  
3242G012BX4  
3242G024BX4

**Cable and connection information**

