

Brushless DC-Servomotors

4 Pole Technology

53 mNm
45 W

Series 3242 ... BX4

Values at 22°C and nominal voltage		3242 G	012 BX4	024 BX4	
1	Nominal voltage	U_N	12	24	V
2	Terminal resistance, phase-phase	R	0,92	3,67	Ω
3	Efficiency, max.	$\eta_{max.}$	78	78	%
4	No-load speed	n_0	5 600	5 600	min ⁻¹
5	No-load current, typ. (with shaft ø 5 mm)	I_0	0,179	0,089	A
6	Stall torque	M_H	268,7	269,4	mNm
7	Friction torque, static	C_0	1,3	1,3	mNm
8	Friction torque, dynamic	C_V	4,1·10 ⁻⁴	4,1·10 ⁻⁴	mNm/min ⁻¹
9	Speed constant	k_n	461	231	min ⁻¹ /V
10	Back-EMF constant	k_E	2,168	4,335	mV/min ⁻¹
11	Torque constant	k_M	20,7	41,4	mNm/A
12	Current constant	k_I	0,048	0,024	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	20,5	20,4	min ⁻¹ /mNm
14	Terminal inductance, phase-phase	L	60	240	μ H
15	Mechanical time constant	τ_m	6,4	6,4	ms
16	Rotor inertia	J	30	30	gcm ²
17	Angular acceleration	$\alpha_{max.}$	90	90	·10 ³ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	2,3 / 11,6		K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	13 / 880		s
20	Operating temperature range:				
	– motor		-40 ... +100		°C
	– winding, max. permissible		+125		°C
21	Shaft bearings		ball bearings, preloaded		
22	Shaft load max.:				
	– with shaft diameter		5		mm
	– radial at 3 000 min ⁻¹ (5 mm from mounting flange)		50		N
	– axial at 3 000 min ⁻¹ (push only)		5		N
	– axial at standstill (push only)		50		N
23	Shaft play:				
	– radial	≤	0,015		mm
	– axial	=	0		mm
24	Housing material		stainless steel		
25	Mass		179		g
26	Direction of rotation		electronically reversible		
27	Speed up to	$n_{max.}$	17 000		min ⁻¹
28	Number of pole pairs		2		
29	Hall sensors		digital		
30	Magnet material		NdFeB		
Rated values for continuous operation					
31	Rated torque	M_N	41,8	41,8	mNm
32	Rated current (thermal limit)	I_N	2,43	1,21	A
33	Rated speed	n_N	4 600	4 600	min ⁻¹

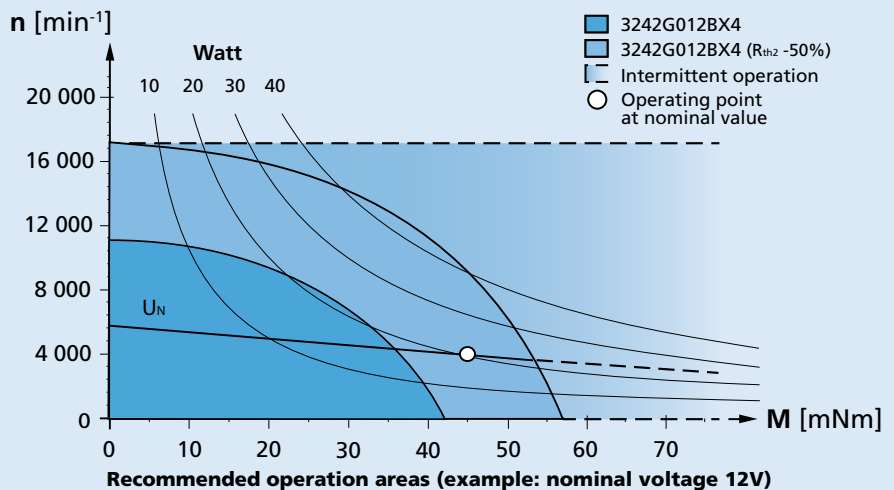
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

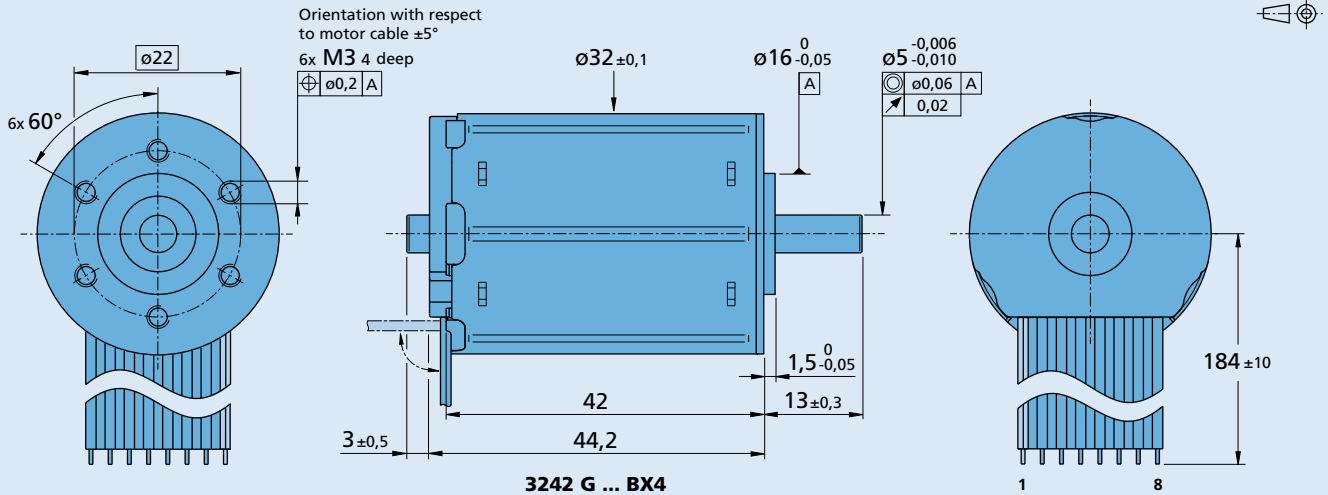
Note:

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} 50% 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

Option, cable and connection information

 Example product designation: **3242G012BX4-3692**

Option	Type	Description
3830	Connector	AWG 26 / PVC ribbon cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800
4935	Single wires	Motor with single wires (PTFE), length 184 mm, AWG22
X4935	Single wires	Motor with single wires (PTFE), length 300 mm, AWG22
Y4935	Single wires	Motor with single wires (PTFE), length 600 mm, AWG22
4747	Temperature range	Up to 150°C, winding max. 150°C, with single wires (PTFE), length 184 mm, AWG22
X4747	Temperature range	Up to 150°C, winding max. 150°C, with single wires (PTFE), length 300 mm, AWG22
Y4747	Temperature range	Up to 150°C, winding max. 150°C, with single wires (PTFE), length 600 mm, AWG22
Y158	Shaft end	Motor without second shaft end
3692	Controller combination	Analog Hall sensors for combination with Motion Controller MCBL

Connection standard

No.	Function	Function	Colour
1	Phase C	Phase C	yellow
2	Phase B	Phase B	orange
3	Phase A	Phase A	brown
4	GND	GND	black
5	U _{DD} (+5V)	U _{DD} (+5V)	red
6	Hall sensor C	Hall sensor C	grey
7	Hall sensor B	Hall sensor B	blue
8	Hall sensor A	Hall sensor A	green

Option: 4935/4747
Standard cable

 Insulation: PVC
 8 conductors, AWG 24
 pitch 2,54 mm, wires tinned

Product Combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
32A 32ALN 32/3 32/3 S 38/1 38/1 S 38/2 38/2 S BS32-2.0	IE3-1024 IE3-1024 L AES-4096	SC 2402 SC 2804 SC 5004 SC 5008 MCBL 3002 MCBL 3003 MCBL 3006	6501.00085 Motor adapter for MCBL 3002 S / SC 1801 (motor with connector 3830) 6501.00086 Motor adapter for MCBL 3006 S / SC 2804 and 5008 (motor with connector 3830) 6501.00134 Braking chopper BC5004 6501.00141 Extension cable, motor with connector 3830, 8 single wires, length 300 mm for combination with SC and MC 6501.00142 Extension cable, motor with connector 3830, 8 single wires, length 1000 mm for combination with SC and MC