

Brushless DC-Flat Motors

External rotor technology, with housing

38 mNm

20 W

Series 3216 ... BXT H

Values at 22°C and nominal voltage		3216 W	009 BXT H	012 BXT H	024 BXT H	
1	Nominal voltage	U_N	9	12	24	V
2	Terminal resistance, phase-phase	R	0,55	0,88	3,26	Ω
3	Efficiency, max.	η_{max}	83	84	81	%
4	No-load speed	n_0	6 060	6 230	6 250	min ⁻¹
5	No-load current, typ. (with shaft $\varnothing$ 4 mm)	I_0	0,165	0,126	0,068	A
6	Starting torque	M_A	225	245	263	mNm
7	Speed constant	k_n	691	530	267	min ⁻¹ /V
8	Back-EMF constant	k_E	1,45	1,89	3,75	mV/min ⁻¹
9	Torque constant	k_M	13,8	18	35,8	mNm/A
10	Current constant	k_I	0,0724	0,0555	0,0279	A/mNm
11	Slope of n-M curve	$\Delta n/\Delta M$	27,5	25,9	24,3	min ⁻¹ /mNm
12	Terminal inductance, phase-phase	L	191	331	1 290	μH
13	Mechanical time constant	τ_m	5,28	4,97	4,66	ms
14	Rotor inertia	J	18,3	18,3	18,3	gcm ²
15	Angular acceleration	α_{max}	123	134	144	·10 ³ rad/s ²
16	Operating temperature range:					
	– motor	-40 ... +100				°C
	– winding, max. permissible	+125				°C
17	Shaft bearings	ball bearings, preloaded				
18	Shaft load max.:					
	– with shaft diameter	4				mm
	– radial at 3 000 min ⁻¹ (5 mm from mounting flange)	15				N
	– axial at 3 000 min ⁻¹ (push / pull)	3				N
	– axial at standstill (push / pull)	50				N
19	Shaft play:					
	– radial	≤ 0,015				mm
	– axial	= 0				mm
20	Mass	65,3				g
21	Direction of rotation	electronically reversible				
22	Speed up to	n_{max} 10 000				min ⁻¹
23	Number of pole pairs	7				
24	Hall sensors	digital				
25	Magnet material	NdFeB				
Rated values for continuous operation						
26	Rated torque	M_N	37	38	38	mNm
27	Rated current (thermal limit)	I_N	2,76	2,18	1,1	A
28	Rated speed	n_N	3 400	3 860	4 320	min ⁻¹
29	Rated slope of n-M curve	$\Delta n/\Delta M$	71,9	62,4	50,8	min ⁻¹ /mNm

Note: Rated values are measured at nominal voltage and 22°C ambient temperature.

Note:

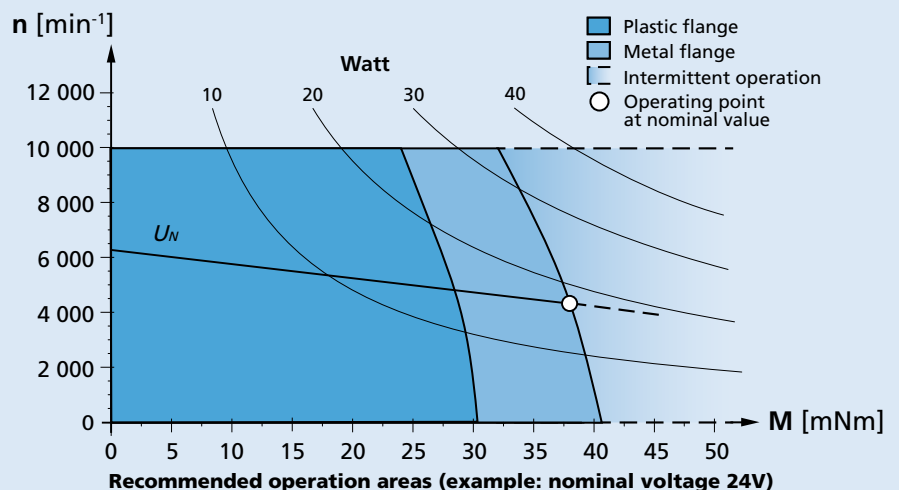
The display shows the range of possible operation points of the drives at a given ambient temperature of 22°C.

The diagram indicates the recommended speed in relation to the available torque at the output shaft.

It includes the assembly on a plastic- as well as on a metal flange (assembly method: IM B 5).

The nominal voltage linear slope describes the maximal achievable operating points at nominal voltage.

Any points of operation above this linear slope will require a supply voltage $U_{mot} > U_N$.



Technical drawing of the 3216 W ... BXT H motor terminal box, showing three views: front, side, and top.

Front View:

- Overall diameter: $\varnothing 17$
- Orientation with respect to motor cable $\pm 5^\circ$
- 6x M2 max. 3 deep
- Surface finish: $\sqrt{Ra} 0,3$ A
- Angle: 60°
- Max. height of terminal block: max. 18,3

Side View:

- Main body diameter: $\varnothing 32_{-0,2}^0$
- Mounting flange diameter: $\varnothing 10_{-0,05}^0$
- Terminal block diameter: $\varnothing 4_{-0,01}^{-0,006}$
- Surface finish: $\sqrt{Ra} 0,06$ A
- Surface finish: $\sqrt{Ra} 0,02$
- Dimension: $16,8 \pm 0,3$
- Dimension: $12,4 \pm 0,3$
- Dimension: $1_{-0,15}^{+0,05}$

Top View:

- Max. height of terminal block: max. 21
- Dimension: 300 ± 10
- Dimension: $7 \pm 1,5$

3216 W ... BXT H

Example product designation: 3216W012BXT-3830				
Option	Type	Description	Connection	
3830	Connector 	Standard cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800	No.	Function Colour
			1	Phase C yellow
			2	Phase B orange
			3	Phase A brown
			4	GND black
			5	U _{DD} (+5V) red
			6	Hall sensor C grey
			7	Hall sensor B blue
			8	Hall sensor A green
			Standard cable	
			Single wires, material PVC,	
			AWG 20, Phase A/B/C	
			AWG 26, Hall A/B/C, U _{DD} , GND	

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
22GPT 22GPT HT 26A 26/1R 32GPT 32GPT HT 32/3R 22L ... ML 22L ... SB 22L ... PB 32L ... TL 32L ... ML 32L ... SB 32L ... PB	IE3-1024 IE3-1024 L IEF3-4096 IEF3-4096 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L IERF3-16384 L	SC 2402 P SC 2804 S MC 3602 B MC 3603 S MC 3606 B MC 5004 P MC 5005 S	PMB32 To view our large range of accessory parts, please refer to the "Accessories" chapter.