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.	$\eta_{max.}$	83	84	81	%
4	No-load speed	n_0	6 060	6 230	6 250	min^{-1}
5	No-load current, typ. (with shaft ø 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	gcm²
15	Angular acceleration	$\alpha_{max.}$	123	134	144	·10³rad/s²
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

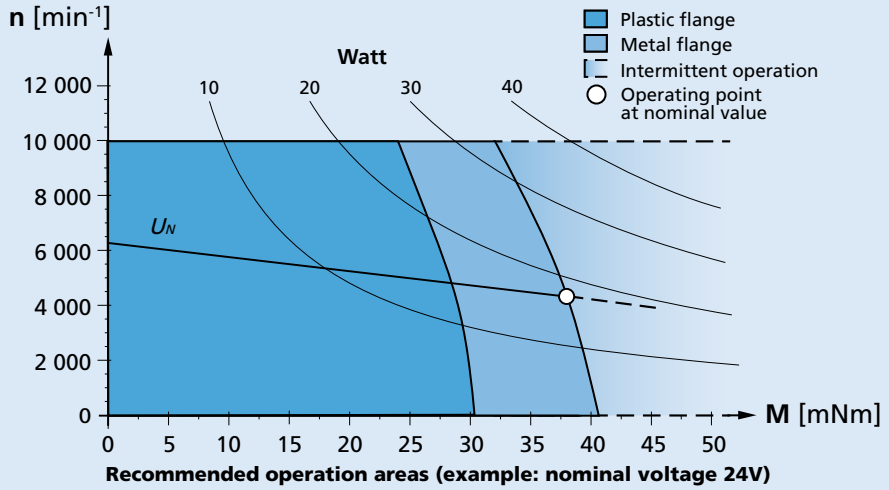
Note: Rated values are measured at nominal voltage and 22°C ambient temperature.

Note:

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

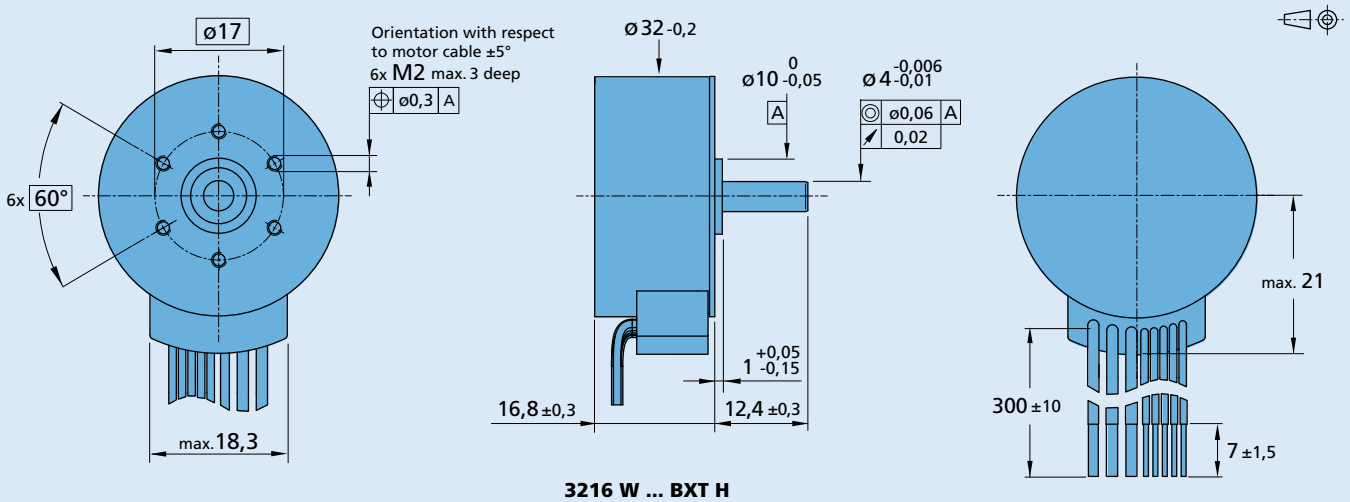
The diagram indicates the recommended speed in relation to the available torque at the output shaft.
It includes the assembly on a plastic- as well as on a metal flange (assembly method: IM B 5).

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 $U_{mot} > U_N$.



Recommended operation areas (example: nominal voltage 24V)

Dimensional drawing



3216 W ... BXT H

Option, cable and connection information

Example product designation: **3216W012BXTH-3830**

Option	Type	Description
3830	Connector 	Standard cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800

Connection

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

Product combination

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