

Brushless DC-Servomotors

with integrated Speed Controller,
external rotor technology, with housing

35 mNm

20 W

3216 ... BXT H SC

Values at 22°C and nominal voltage	3216 W	012 BXT H SC	024 BXT H SC	
Power supply electronic	U_P	6,5 ... 30	6,5 ... 30	V DC
Power supply motor	U_{mot}	6,5 ... 30	6,5 ... 30	V DC
Nominal voltage for motor	U_N	12	24	V
No-load speed (at U_N)	n_0	6 300	6 300	min ⁻¹
Peak torque (S2 operation for max. 5s)	$M_{max.}$	67	70	mNm
Torque constant	K_M	17	35	mNm/A
PWM switching frequency	f_{PWM}	24	24	kHz
Efficiency electronic	η	95	95	%
Standby current for electronic (@ U_N)	I_{el}	0,02	0,02	A
Speed range (up to 19V / 28V)		200 ... 10 000	200 ... 7 900	min ⁻¹
Shaft bearings	ball bearings, preloaded			
Shaft load max.:				
– with shaft diameter	4			mm
– radial at 3 000 min ⁻¹ (3 mm from mounting flange)	15			N
– axial at 3 000 min ⁻¹ (push / pull)	3			N
– axial at standstill (push / pull)	50			N
Shaft play:				
– radial	≤ 0,015			mm
– axial	= 0			mm
Operating temperature range	-40 ... +100			°C
Housing material	stainless steel			
Mass	64			g

Rated values for continuous operation				
Rated torque	M_N	33,5	35	mNm
Rated current (thermal limit)	I_N	1,95	1	A
Rated speed	n_N	4 100	4 400	min ⁻¹

Interface / range of functions	... SC
Configuration from Motion Manager 6.6	via USB Programming Adapter
Operating modes	Integrated speed control via PI controller and external set value specification; commutation via digital Hall sensors. Can optionally be operated in voltage controller mode or fixed speed mode.
Speed range	Digital Hall = from 200 min ⁻¹
Additional functions	Integrated current limiting to protect against thermal overload. Intermittent operation (S2) with up to double the continuous current. Separate voltage supply for motor and electronics. Direction of rotation changeover through separate switching input; reading of speed signal via frequency output.

Note:

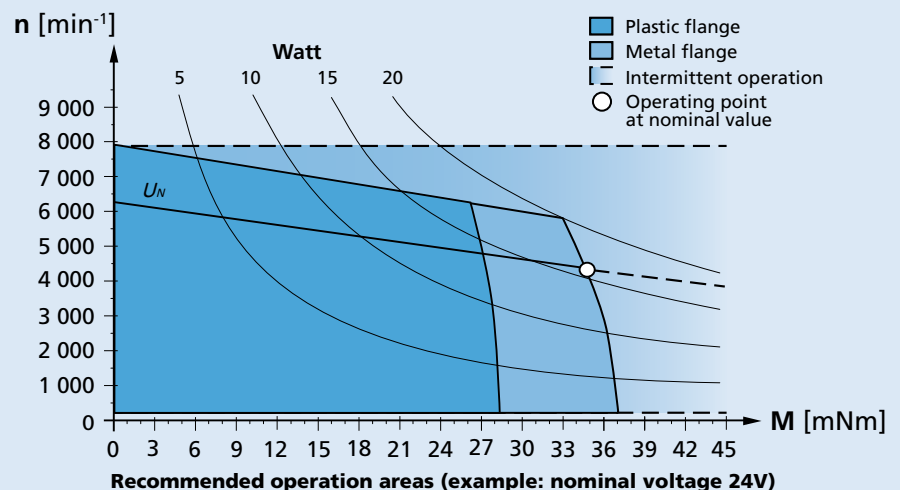
The display shows the range of possible operation points of the drives at a given ambient temperature of 22°C.

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

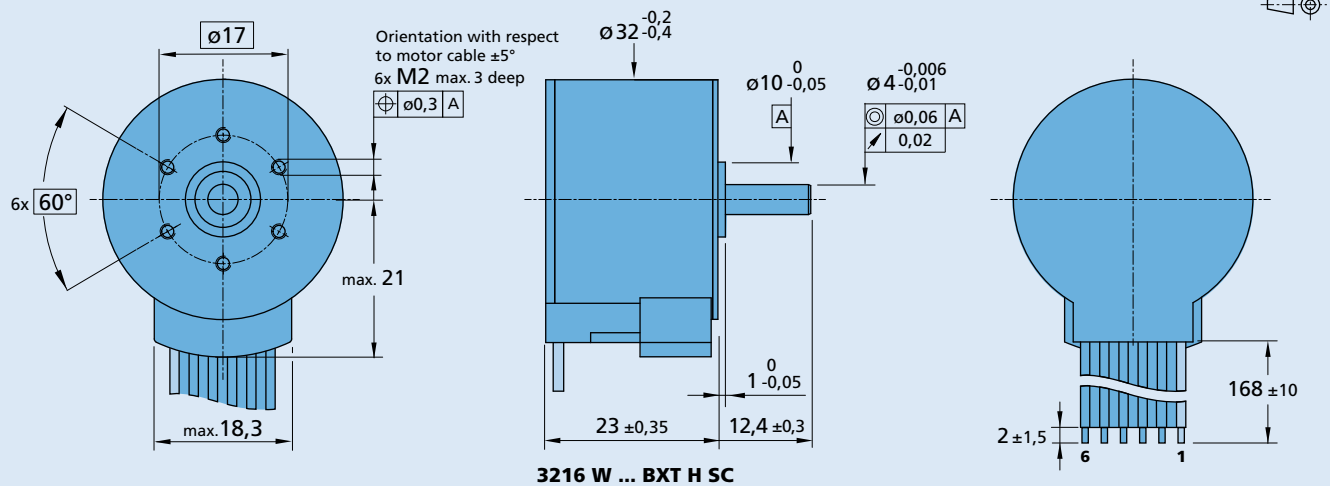
It includes the assembly on a plastic- as well as on a metal flange (assembly method: IM B 5).

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 $U_{mot} > U_N$.



Dimensional drawing



Option, cable and connection information

Example product designation: **3216W024BXT HSC**

Option	Type	Description	Connection																												
3809	Connector	AWG 24 / PVC ribbon cable with connector MOLEX Microfit 3.0, 43025-0600, recommended mating connector 43020-0600	<table> <tr> <th>Name</th><th>Function</th><th>Inputs-outputs</th><th>Description</th></tr> <tr> <td>1</td><td>U_P</td><td>power supply electronic</td><td>6,5 ... 30 V DC</td></tr> <tr> <td>2</td><td>U_{mot}</td><td>power supply motor</td><td>6,5 ... 30 V DC</td></tr> <tr> <td>3</td><td>GND</td><td>ground</td><td></td></tr> <tr> <td>4</td><td>U_{soll}</td><td>input voltage</td><td>$U_{in} = 0 \dots 10 \text{ V} \mid > 10 \text{ V} \dots U_P$ » set speed value not defined $R_{in} \geq 8,9 \text{ k}\Omega$ per 1 V, 1 000 min⁻¹ $U_{in} < 0,15 \text{ V}$ » motor stops $U_{in} > 0,3 \text{ V}$ » motor starts</td></tr> <tr> <td>5</td><td>DIR</td><td>direction of rotation</td><td>to ground or $U < 0,5 \text{ V}$ » counterclockwise $U > 3 \text{ V}$ » clockwise $R_{in} \geq 10 \text{ k}\Omega$</td></tr> <tr> <td>6</td><td>FG</td><td>frequency output</td><td>max. U_P, $I_{max} = 15 \text{ mA}$; open collector with 22 kΩ pull-up resistor 21 lines per revolution</td></tr> </table>	Name	Function	Inputs-outputs	Description	1	U_P	power supply electronic	6,5 ... 30 V DC	2	U_{mot}	power supply motor	6,5 ... 30 V DC	3	GND	ground		4	U_{soll}	input voltage	$U_{in} = 0 \dots 10 \text{ V} \mid > 10 \text{ V} \dots U_P$ » set speed value not defined $R_{in} \geq 8,9 \text{ k}\Omega$ per 1 V, 1 000 min ⁻¹ $U_{in} < 0,15 \text{ V}$ » motor stops $U_{in} > 0,3 \text{ V}$ » motor starts	5	DIR	direction of rotation	to ground or $U < 0,5 \text{ V}$ » counterclockwise $U > 3 \text{ V}$ » clockwise $R_{in} \geq 10 \text{ k}\Omega$	6	FG	frequency output	max. U_P , $I_{max} = 15 \text{ mA}$; open collector with 22 k Ω pull-up resistor 21 lines per revolution
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			Standard cable PVC ribbon cable 6 x AWG 24, 2,54 mm																												
			Note: For details on the connection assignment, see device manual for the SCS.																												

Product combination

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		Integrated	To view our large range of accessory parts, please refer to the "Accessories" chapter.