PRELIMINARY

FAULHABER

Brushless Flat DC-Servomotors 112 mNm

External rotor technology, with housing 60 W

Series 4221 ... BXT H

Values at 22°C and nominal voltage		4221 G	018 BXT H	024 BXT H	048 BXT H	
1	Nominal voltage	U_N	18	24	48	V
2	Terminal resistance, phase-phase	R	0,46	0,74	2,6	Ω
3	Efficiency, max.	$\eta_{max.}$	88	87	88	%
4	No-load speed	n_0	5 710	6 040	6 070	min⁻¹
5	No-load current, typ. (with shaft ø 5 mm)	I_0	0,177	0,139	0,103	A
6	Starting torque	M_A	1 170	1 220	1 390	mNm
7	Speed constant	k_n	320	253	127	min⁻¹/V
8	Back-EMF constant	k_E	3,13	3,95	7,87	mV/min⁻¹
9	Slope of n-M curve	$\Delta n/\Delta M$	4,93	4,97	4,4	min⁻¹/mNm
10	Terminal inductance, phase-phase	L	396	664	2 550	µH
11	Mechanical time constant	τ_m	3,56	3,59	3,18	ms
12	Rotor inertia	J	69	69	69	gcm²
13	Angular acceleration	$\alpha_{max.}$	169	177	201	·10³rad/s²
14	Operating temperature range:					
	– motor		-40 ... +100			°C
	– winding, max. permissible		+125			°C
15	Shaft bearings		ball bearings, preloaded			
16	Shaft load max.:					
	– with shaft diameter		5			mm
	– radial at 3 000 min⁻¹ (5 mm from mounting flange)		25			N
	– axial at 3 000 min⁻¹ (push / pull)		4			N
	– axial at standstill (push / pull)		50			N
17	Shaft play:					
	– radial	≤	0,015			mm
	– axial	=	0			mm
18	Mass		142			g
19	Direction of rotation		electronically reversible			
20	Speed up to	$n_{max.}$	10 000			min⁻¹
21	Number of pole pairs		7			
22	Hall sensors		digital			
23	Magnet material		NdFeB			
Rated values for continuous operation						
24	Rated torque	M_N	102	112	107	mNm
25	Rated current (thermal limit)	I_N	3,33	2,87	1,39	A
26	Rated speed	n_N	3 980	4 380	4 700	min⁻¹
27	Rated slope of n-M curve	$\Delta n/\Delta M$	17	14,8	12,8	min⁻¹/mNm

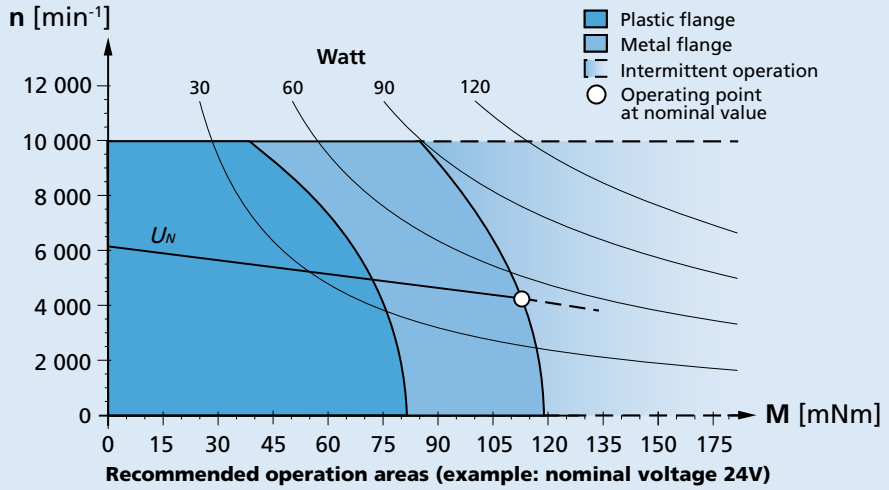
Note: Rated values are measured at nominal voltage and 22°C ambient temperature.

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).

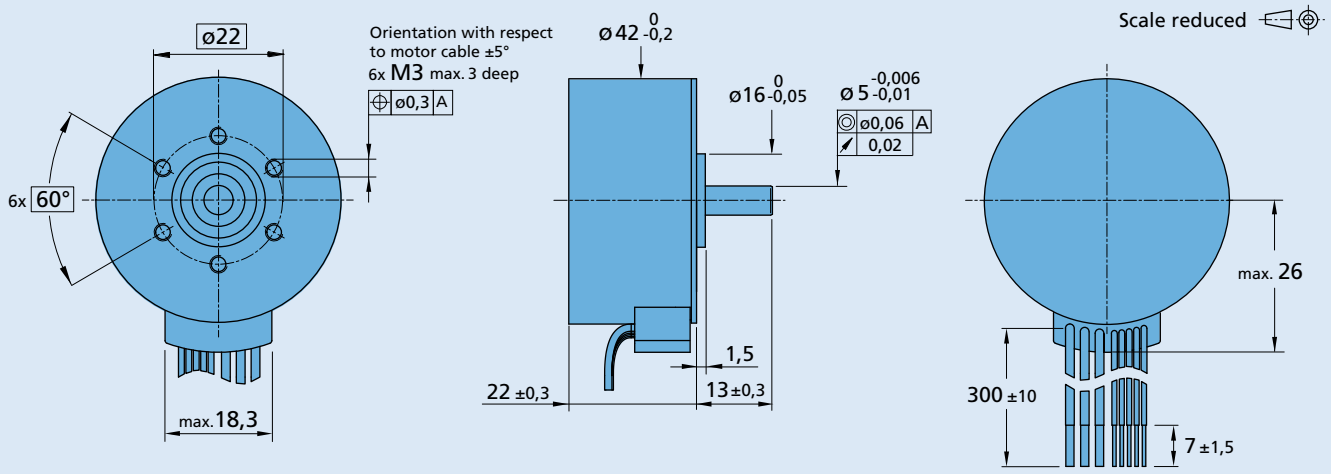
The nominal voltage linear slope describes the maximal achievable operating points at nominal voltage.
Any points of operation above this linear slope will require a supply voltage $U_{mot} > U_N$.



Recommended operation areas (example: nominal voltage 24V)

For notes on technical data and lifetime performance refer to "Technical Information".

Dimensional drawing



4221 G ... BXT H

Option, cable and connection information

Example product designation: **4221G018BXTH-3830**

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

Connection

Function	Colour
Phase C	yellow
Phase B	orange
Phase A	brown
GND	black
U_{DD} (+5V)	red
Hall sensor C	grey
Hall sensor B	blue
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
32A 38/1 S 38/2 S	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L	SC 2804 S SC 5004 P SC 5008 S MC 5004 P MC 5005 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.