

## **Brushless DC-Flat Motors**

134 mNm

External rotor technology, without housing

100 W

امرر	use at 22°C and naminal voltage	4224 C		010 DVT D	024 BVT B	A40 DVT D	
<u>Vel</u>	ues at 22°C and nominal voltage Nominal voltage	<b>4221 G</b> <i>U</i> <sub>N</sub>		<b>018 BXT R</b> 18	<b>024 BXT R</b> 24	048 BXT R 48	V
	Terminal resistance, phase-phase	R		0,46	0,74	2,6	Ω
	Efficiency, max.			88	87	88	%
	No-load speed	$\eta_{ extit{max}}$ .		5 670	5 960	6 070	min <sup>-1</sup>
	No-load speed No-load current, typ. (with shaft ø 5 mm)	no Io		0,181	0,186	0.074	A
	Starting torque	M <sub>A</sub>		1 170	1 220	1 390	mNm
	Speed constant	kn		320	253	127	min <sup>-1</sup> /V
	Back-EMF constant	Kn KE		3,13	3,95	7,87	mV/min <sup>-1</sup>
	Torque constant	<b>к</b> е <b>k</b> м		29,8	37,7	75,2	mNm/A
	Current constant	<b>k</b> ı		0,0335	0,0265	0,0133	A/mNm
	Slope of n-M curve	$\Delta n/\Delta M$		4,93	4,97	4,4	min-1/mNm
	Terminal inductance, phase-phase	ΔΠΙΔΙ <b>V</b> I L		396	664	2 550	
	Mechanical time constant	_		3,56		3.18	μH
	Rotor inertia	Tm I			3,59		ms
		•		69 169	69 177	69 201	gcm <sup>2</sup> ·10 <sup>3</sup> rad/s <sup>2</sup>
10	Angular acceleration	<b>ℳ</b> max.		169	177	201	·10 <sup>2</sup> rad/s <sup>2</sup>
10	O						
10	Operating temperature range:  – motor		-40 +100				°C
	– motor – winding, max. permissible		+125				°C
17							C
	Shaft bearings Shaft load max.:		ball bearings, preloaded				
10			5				
	- with shaft diameter						mm
	- radial at 3 000 min <sup>-1</sup> (5 mm from mounting flange) - axial at 3 000 min <sup>-1</sup> (push / pull)		25				N
			4				N
10	– axial at standstill (push / pull)		50				N
19	Shaft play:	_	0.045				
	– radial	≤	0,015				mm
	– axial	=	0				mm
	Mass		127				g
21	Direction of rotation		electronically reversible				
	Speed up to	<b>n</b> max.	10 000				min <sup>-1</sup>
	Number of pole pairs		7				
	Hall sensors		digital				
25	Magnet material		NdFeB				

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

MΝ

 $\Delta n I \Delta M$ 

lΝ



Rated speed

28

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

Rated values for continuous operation

26 Rated torque27 Rated current (thermal limit)

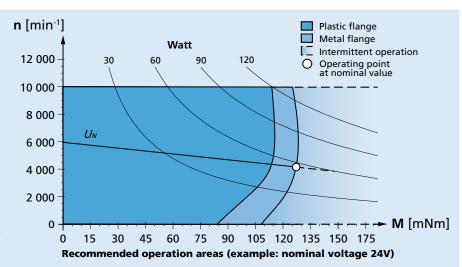
Rated slope of n-M curve

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  $U_{mot} > U_{N.}$ 



122

3,6

3 690

16,3

127

3,17

4 180

134

1,66

12,5

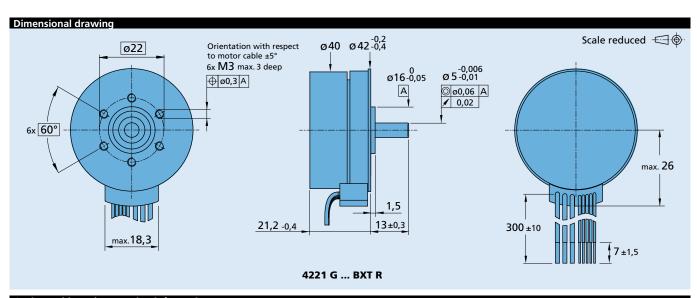
4 390

mNm

min-1

min<sup>-1</sup>/mNm





Option, cable and connection information									
Example product designation: 4221G018BXTR-3830									
Option	Option Type Description								
			No. Function Colour						
3830	2008 1357	Standard cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800	1         Phase C         yellow           2         Phase B         orange           3         Phase A         brown           4         GND         black           5         UDD (+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, UDD, GND						

Product combination								
Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories					
38/1 38/1 S 38/2 38/2 S 42GPT		SC 2804 S SC 5004 P SC 5008 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.					