

# Brushless DC-Servomotors

with integrated Speed Controller  
4 Pole Technology

25 mNm  
14,6 W

## 2250 ... BX4 SC

Values at 22°C and nominal voltage	2250 S	012BX4 SC	024BX4 SC	
Power supply electronic	$U_P$	5 ... 28	5 ... 28	V DC
Power supply motor	$U_{mot}$	6 ... 28	6 ... 28	V DC
Nominal voltage for motor	$U_N$	12	24	V
No-load speed (at $U_N$ )	$n_0$	6 300	6 100	min <sup>-1</sup>
Peak torque (S2 operation for max. 1s/2s)	$M_{max}$	50	50	mNm
Torque constant	$k_M$	19	36,9	mNm/A
PWM switching frequency	$f_{PWM}$	96	96	kHz
Efficiency electronic	$\eta$	95	95	%
Standby current for electronic (@ $U_N$ )	$I_{el}$	0,02	0,02	A
Speed range (up to 24V / 28V)		400 ... 12 300	400 ... 7 300	min <sup>-1</sup>
Shaft bearings		ball bearings, preloaded		
Shaft load max.:				
– with shaft diameter	3			mm
– radial at 3 000 min <sup>-1</sup> (4 mm from mounting flange)	20			N
– axial at 3 000 min <sup>-1</sup> (push / pull)	2			N
– axial at standstill (push / pull)	20			N
Shaft play:				
– radial	≤ 0,015			mm
– axial	= 0			mm
Operating temperature range		-40 ... +85		°C
Housing material		stainless steel		
Mass		117		g

### Rated values for continuous operation

Rated torque	$M_N$	25	25	mNm
Rated current (thermal limit)	$I_N$	1,5	0,86	A
Rated speed	$n_N$	4 300	4 800	min <sup>-1</sup>

### Interface / range of functions

	... SC
Configuration from Motion Manager 5.0	via USB Programming Adapter
Operating modes	Integrated speed control via PI controller and external set value specification; commutation via digital Hall sensors (or optionally via analog Hall sensors). Can optionally be operated in voltage controller mode or fixed speed mode.
Speed range	Digital Hall = from 400 min <sup>-1</sup> , analog Hall = from 50 min <sup>-1</sup>
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.

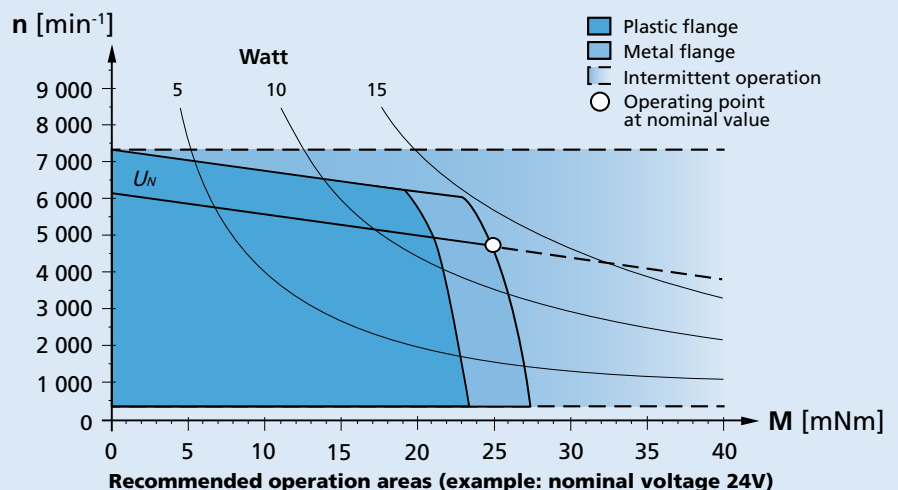
#### Note:

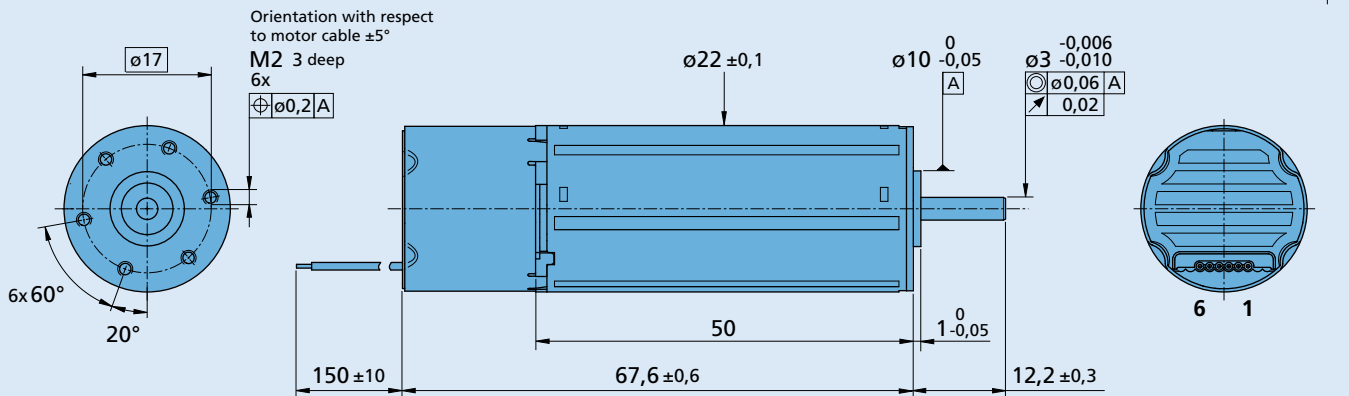
The display shows the range of possible operation points of the drives at a given ambient temperature of 22°C.

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**

**2250 S ... BX4 SC**
**Option, cable and connection information**

 Example product designation: **2250S024BX4SC-3809**

Option	Type	Description	Connection			
			Name	Function	Inputs-outputs	Description
3809	Connector	AWG 26 / PVC ribbon cable with connector MOLEX Microfit 3.0, 43025-0600, recommended mating connector 43020-0600	1	$U_p$	power supply electronic	5 ... 28 V DC
			2	$U_{mot}$	power supply motor	6 ... 28 V DC
			3	GND	ground	
3692	Sensors	Analog Hall Sensors	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 <sup>-1</sup> $U_{in} < 0,15 \text{ V}$ » 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. $U_i$ ; $I_{max} = 15 \text{ mA}$ ; open collector with 22 k $\Omega$ pull-up resistor 6 lines per revolution
			<b>Standard cable</b> PVC ribbon cable 6 x AWG 26, 1,27 mm			
			<b>Note:</b> For details on the connection assignment, see device manual for the SCS.			

**Product combination**

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
22GPT 22/7 26A 32GPT 22L ... ML 22L ... PB 22L ... SB 32L ... ML 32L ... PB 32L ... SB 32L ... TL		Integrated	To view our large range of accessory parts, please refer to the "Accessories" chapter.