Brushless DC-Servomotors

2 Pole Technology

3,3 mNm

17 W

Series 1628 ... B

Values at 22°C and nominal voltage		1628 T		012 B	024 B	
1	Nominal voltage	U_N		12	24	V
2	Terminal resistance, phase-phase	R		4,36	15,2	Ω
3	Efficiency, max.	$\eta_{max.}$		68	69	%
4	No-load speed	n_0		30 800	31 600	min⁻¹
5	No-load current, typ. (with shaft ø 1,5 mm)	I_0		0,087	0,045	A
6	Stall torque	M_H		9,79	11	mNm
7	Friction torque, static	C_0		0,148	0,148	mNm
8	Friction torque, dynamic	C_V		$5{,}33 \cdot 10^{-6}$	$5{,}33 \cdot 10^{-6}$	mNm/min⁻¹
9	Speed constant	k_n		2 645	1 349	min⁻¹/V
10	Back-EMF constant	k_E		0,378	0,741	mV/min⁻¹
11	Torque constant	k_M		3,61	7,08	mNm/A
12	Current constant	k_I		0,277	0,141	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$		3 195	2 896	min⁻¹/mNm
14	Terminal inductance, phase-phase	L		134	517	µH
15	Mechanical time constant	τ_m		18,1	16,4	ms
16	Rotor inertia	J		0,54	0,54	gcm²
17	Angular acceleration	$\alpha_{max.}$		181	204	$\cdot 10^3$rad/s²
18	Thermal resistance	R_{th1} / R_{th2}	5,6 / 22,5			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	5,7 / 283			s
20	Operating temperature range:					
	– motor		-30 ... +125			°C
	– winding, max. permissible		+125			°C
21	Shaft bearings		ball bearings, preloaded			
22	Shaft load max.:					
	– with shaft diameter		1,5			mm
	– radial at 3 000 min⁻¹ (4 mm from mounting flange)		17			N
	– axial at 3 000 min⁻¹ (push only)		10			N
	– axial at standstill (push only)		20			N
23	Shaft play:					
	– radial	≤	0,015			mm
	– axial	=	0			mm
24	Housing material		aluminium, black anodized			
25	Mass		30			g
26	Direction of rotation		electronically reversible			
27	Speed up to	$n_{max.}$	70 000			min⁻¹
28	Number of pole pairs		1			
29	Hall sensors		digital			
30	Magnet material		SmCo			
Rated values for continuous operation						
31	Rated torque	M_N		2,62	2,74	mNm
32	Rated current (thermal limit)	I_N		0,829	0,442	A
33	Rated speed	n_N		19 130	20 540	min⁻¹

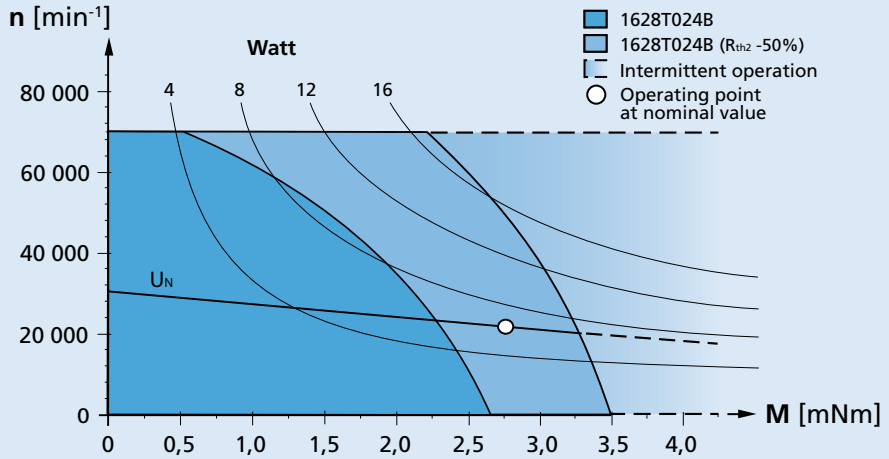
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

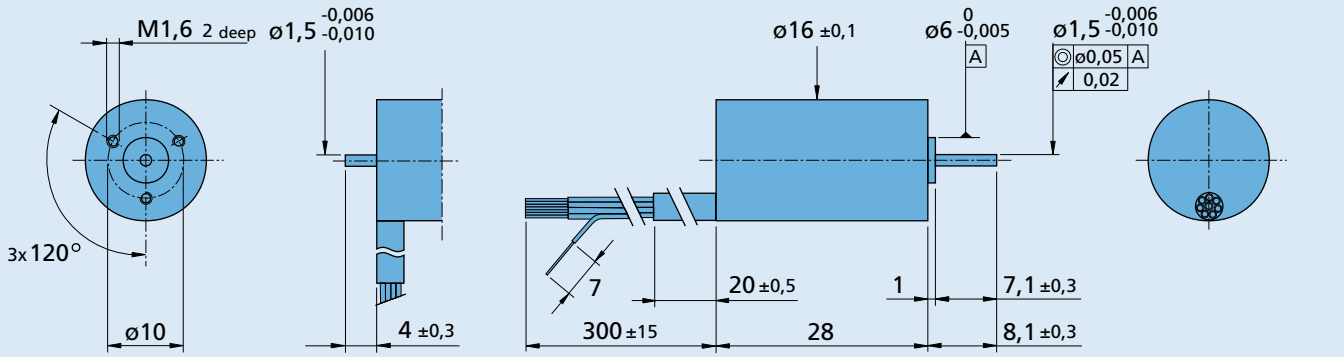
The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Recommended operation areas (example: nominal voltage 24V)

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

Dimensional drawing



1628 T ... B - K312 **1628 T ... B**

Option, cable and connection information

Example product designation: **1628T012B-K1155**

Option	Type	Description
K1155	Controller combination	Analog Hall sensors for combination with Speed Controller SC and Motion Controller MCBL
K903	Lead wires length	Single lead wires 1000 mm long in PTFE
K313	Encoder combination	Motor with rear end shaft for combination with Encoder IE2
K312	Encoder combination	Motor with rear end shaft
K179	Bearing lubrication	For vacuum of 10^{-5} Pa @ 22°C

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 PTFE
8 conductors, AWG 26

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
15/10 16/7 17/1	IE2-1024	SC 1801 P SC 1801 S SC 2402 P SC 2804 S MCBL 3002 P MCBL 3002 S MCBL 3003 P MC 5004 P MC 5004 P STO	To view our large range of accessory parts, please refer to the "Accessories" chapter.