

NEW

Brushless DC-Servomotors

1,1 mNm

For combination with
 Gearheads:
 08/1, 08/2, 08/3, 10/1
 Encoder:
 IEM3 – 1024, AESM – 4096
 Drive Electronics:
 Speed Controller, Motion Controller

Series 0824 ... B

	0824 K	006 B	012 B	
1 Nominal voltage	U_N	6	12	Volt
2 Terminal resistance, phase-phase	R	3,10	10,80	Ω
3 Output power ¹⁾	$P_{2 \text{ max.}}$	4,56	4,34	W
4 Efficiency	$\eta \text{ max.}$	67	66,6	%
5 No-load speed	n_0	33 200	37 200	rpm
6 No-load current (with shaft \varnothing 1,0 mm)	I_0	0,070	0,043	A
7 Stall torque	M_H	3,2	3,3	mNm
8 Friction torque, static	C_0	0,031	0,031	mNm
9 Friction torque, dynamic	C_v	$2,59 \cdot 10^{-6}$	$2,59 \cdot 10^{-6}$	mNm/rpm
10 Speed constant	k_n	5 753	3 215	rpm/V
11 Back-EMF constant	k_E	0,174	0,311	mV/rpm
12 Torque constant	k_M	1,66	2,97	mNm/A
13 Current constant	k_I	0,602	0,337	A/mNm
14 Slope of n-M curve	$\Delta n / \Delta M$	10 743	11 692	rpm/mNm
15 Terminal inductance, phase-phase	L	30	104	μH
16 Mechanical time constant	τ_m	2	2	ms
17 Rotor inertia	J	0,0210	0,0210	gcm^2
18 Angular acceleration	$\alpha \text{ max.}$	1 513	1 561	$\cdot 10^3 \text{ rad/s}^2$
19 Thermal resistance	$R_{th 1} / R_{th 2}$	10 / 60		K/W
20 Thermal time constant	τ_{w1} / τ_{w2}	3,2 / 201		s
21 Operating temperature range:				
– motor		- 20 ... +100		$^{\circ}\text{C}$
– coil, max. permissible		+125		$^{\circ}\text{C}$
22 Shaft bearings		ball bearings, preloaded		
23 Shaft load max.:				
– radial at 10 000/50 000 rpm (3,7 mm from mounting flange)		1,5 / 1,0		N
– axial at 10 000/50 000 rpm (push-on only)		0,4 / 0,2		N
– axial at standstill (push-on only)		10		N
24 Shaft play:				
– radial	\leq	0,012		mm
– axial	$=$	0		mm
25 Housing material		aluminium, black anodized		
26 Weight		5,2		g
27 Direction of rotation		electronically reversible		
Recommended values - mathematically independent of each other				
28 Speed up to ²⁾	$n_e \text{ max.}$	85 000	85 000	rpm
29 Torque up to ^{1) 2)}	$M_e \text{ max.}$	1,09	1,04	mNm
30 Current up to ^{1) 2)}	$I_e \text{ max.}$	0,74	0,39	A

¹⁾ at 40 000 rpm

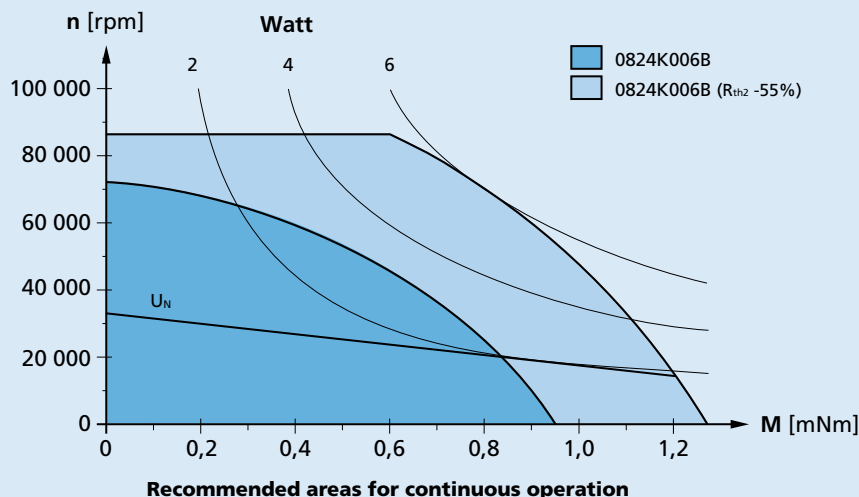
²⁾ thermal resistance $R_{th 2}$ by 55% reduced

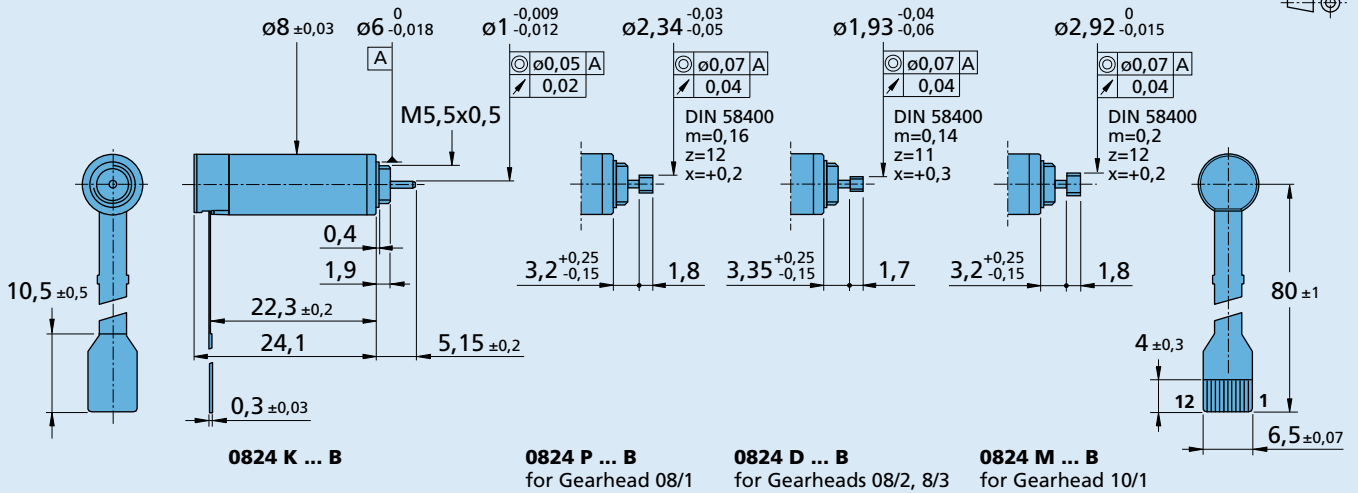
Note:

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

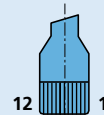
The diagram shows the motor in a completely insulated as well as thermally coupled condition ($R_{th 2}$ 55% reduced).

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.



0824 ... B

Cable and connection information
Recommended connector

Top contact style
12 circuits, 0,5 mm pitch, e.g.:
Molex: 52745-1296/1297


Flexboard

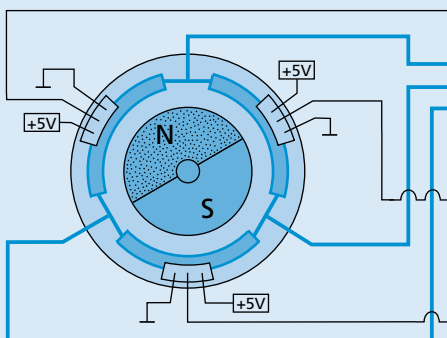
12 circuits, 0,5 mm pitch

Note

Hallsensors digital
Number of pole pairs = 1

Connection

No.	Function
1	Phase C
2	Phase B
3	Phase A
4	GND
5	+5V
6	Hall sensor C
7	Hall sensor B
8	Hall sensor A
9	Hall sensor B̄
10	Hall sensor Ā
11	Hall sensor C̄
12	Reserved



Δ Coil winding 3 x 120°