

Brushless DC-Servomotors

4 Pole Technology

158 mNm

152 W

Series 3274 ... BP4

Values at 22°C and nominal voltage		3274 G	012 BP4	018 BP4	024 BP4	036 BP4	048 BP4	
1	Nominal voltage	U_N	12	18	24	36	48	V
2	Terminal resistance, phase-phase	R	0,063	0,139	0,253	0,557	1,01	Ω
3	Efficiency, max.	η_{max}	88	88	88	88	88	%
4	No-load speed	n_0	8 820	9 090	8 820	9 090	8 820	min ⁻¹
5	No-load current, typ. (with shaft ø 5 mm)	I_0	0,76	0,534	0,38	0,267	0,19	A
6	Stall torque	M_H	2 660	2 650	2 650	2 640	2 650	mNm
7	Friction torque, static	C_0	2,04	2,04	2,04	2,04	2,04	mNm
8	Friction torque, dynamic	C_V	9,24·10 ⁻⁴	9,24·10 ⁻⁴	9,24·10 ⁻⁴	9,24·10 ⁻⁴	9,24·10 ⁻⁴	mNm/min ⁻¹
9	Speed constant	k_n	680	465	340	233	170	min ⁻¹ /V
10	Back-EMF constant	k_E	1,47	2,15	2,94	4,3	5,88	mV/min ⁻¹
11	Torque constant	k_M	14	20,5	28,1	41,1	56,2	mNm/A
12	Current constant	k_I	0,071	0,049	0,036	0,024	0,018	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	3,05	3,15	3,06	3,16	3,06	min ⁻¹ /mNm
14	Terminal inductance, phase-phase	L	16	34,3	64,2	137,1	257	μH
15	Mechanical time constant	τ_m	1,53	1,58	1,54	1,59	1,54	ms
16	Rotor inertia	J	48	48	48	48	48	gcm ²
17	Angular acceleration	α_{max}	555	552	553	550	553	·10 ³ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	1,1 / 7,9					K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	22 / 1 100					s
20	Operating temperature range:							
	– motor		-40 ... +125					°C
	– winding, max. permissible		+150					°C
21	Shaft bearings		ball bearings, preloaded					
22	Shaft load max.:							
	– with shaft diameter		5					mm
	– radial at 3 000 min ⁻¹ (5 mm from mounting flange)		50					N
	– axial at 3 000 min ⁻¹ (push / pull)		5					N
	– axial at standstill (push / pull)		50					N
23	Shaft play:							
	– radial	≤	0,015					mm
	– axial	=	0					mm
24	Housing material		stainless steel					
25	Mass		325					g
26	Direction of rotation		electronically reversible					
27	Speed up to		n_{max}	16 000				min ⁻¹
28	Number of pole pairs		2					
29	Hall sensors		digital					
30	Magnet material		NdFeB					
Rated values for continuous operation								
31	Rated torque	M_N	158	153	158	153	158	mNm
32	Rated current (thermal limit)	I_N	13,8	9,18	6,88	4,58	3,44	A
33	Rated speed	n_N	8 420	8 660	8 420	8 660	8 420	min ⁻¹

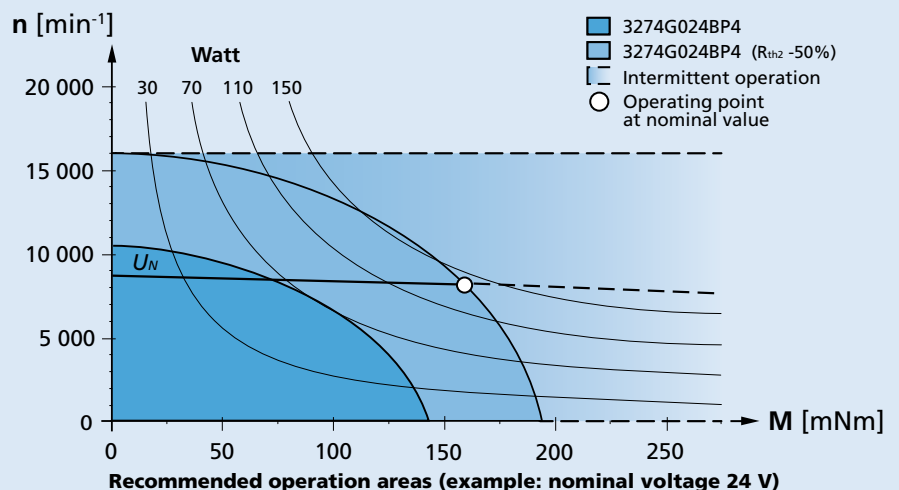
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 50%.

Note:

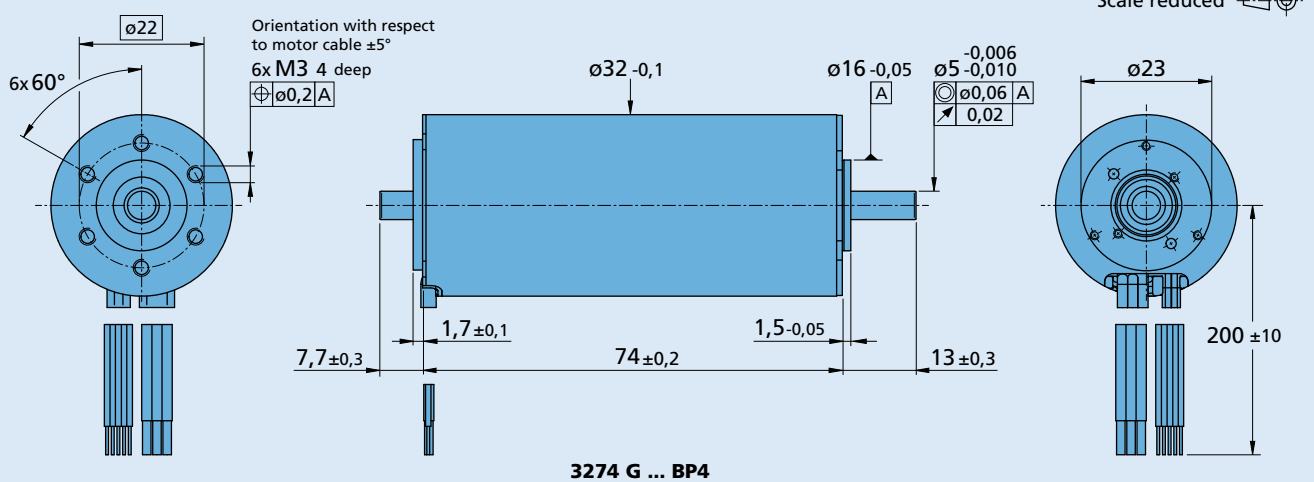
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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.



Dimensional drawing



Option, cable and connection information

Example product designation: **3274G024BP4-3692**

Option	Type	Description	Connection	
			Function	Colour
Y158	Shaft end	Motor without second shaft end	Phase C	yellow
3692	Controller combination	Analog Hall sensors for combination with Speed Controller SC or Motion Controller MC	Phase B	orange
6356	Encoder combination	Motor without Hall sensors cable for combination with Encoder AEMTL	Phase A	brown
			GND	black
			U _{DD} (+5V)	red
			Hall sensor C	grey
			Hall sensor B	blue
			Hall sensor A	green
			Standard cable	
			3 single wires, material FEP, AWG 18, Phase A/B/C	
			5 single wires, material PTFE, AWG 26, Hall A/B/C, U _{DD} , GND	

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
32GPT 32/3R 38/1 38/1 S 38/2 38/2 S 42GPT 32L ... TL 32L ... ML 32L ... SB 32L ... PB	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L AEMT-12/16 L AES-4096 L	SC 5008 S MC 5010 S	PMB32 To view our large range of accessory parts, please refer to the "Accessories" chapter.