

Brushless DC-Servomotors

2 Pole Technology

66 mNm
126 W

Series 3564 ... B

Values at 22°C and nominal voltage	3564 K	012 B	024 B	036 B	048 B	
1 Nominal voltage	U_N	12	24	36	48	V
2 Terminal resistance, phase-phase	R	0,56	1,1	2,61	4,1	Ω
3 Efficiency, max.	η_{max}	82	83	83	83	%
4 No-load speed	n_0	8 300	11 500	11 600	12 800	min^{-1}
5 No-load current, typ. (with shaft \varnothing 4 mm)	I_0	0,198	0,166	0,112	0,099	A
6 Stall torque	M_H	293	432	408	418	mNm
7 Friction torque, static	C_0	1,2	1,2	1,2	1,2	mNm
8 Friction torque, dynamic	C_V	$1,8 \cdot 10^{-4}$	$1,8 \cdot 10^{-4}$	$1,8 \cdot 10^{-4}$	$1,8 \cdot 10^{-4}$	$\text{mNm}/\text{min}^{-1}$
9 Speed constant	k_n	696	481	323	266	min^{-1}/V
10 Back-EMF constant	k_E	1,44	2,08	3,1	3,75	$\text{mV}/\text{min}^{-1}$
11 Torque constant	k_M	13,7	19,9	29,6	35,8	mNm/A
12 Current constant	k_I	0,073	0,05	0,034	0,028	A/mNm
13 Slope of n-M curve	$\Delta n/\Delta M$	28	27	28	31	$\text{min}^{-1}/\text{mNm}$
14 Terminal inductance, phase-phase	L	90	190	410	640	μH
15 Mechanical time constant	τ_m	10,4	9,7	10,4	11,1	ms
16 Rotor inertia	J	34,9	34,9	34,9	34,9	gcm^2
17 Angular acceleration	α_{max}	84	124	117	120	$\cdot 10^3 \text{rad}/\text{s}^2$
18 Thermal resistance	R_{th1} / R_{th2}	1,6 / 6,2				K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	15,4 / 820				s
20 Operating temperature range:						
– motor		-30 ... +125				$^{\circ}\text{C}$
– winding, max. permissible		+125				$^{\circ}\text{C}$
21 Shaft bearings		ball bearings, preloaded				
22 Shaft load max.:						
– with shaft diameter		4				mm
– radial at 3 000 min^{-1} (5 mm from mounting flange)		112				N
– axial at 3 000 min^{-1} (push only)		50				N
– axial at standstill (push only)		131				N
23 Shaft play:						
– radial	\leq	0,015				mm
– axial	$=$	0				mm
24 Housing material		aluminium, black anodized				
25 Mass		311				g
26 Direction of rotation		electronically reversible				
27 Speed up to	n_{max}	29 000				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	56,2	55,3	53,5	50,4	mNm
32 Rated current (thermal limit)	I_N	4,43	3,04	1,98	1,55	A
33 Rated speed	n_N	6 160	9 620	9 640	10 800	min^{-1}

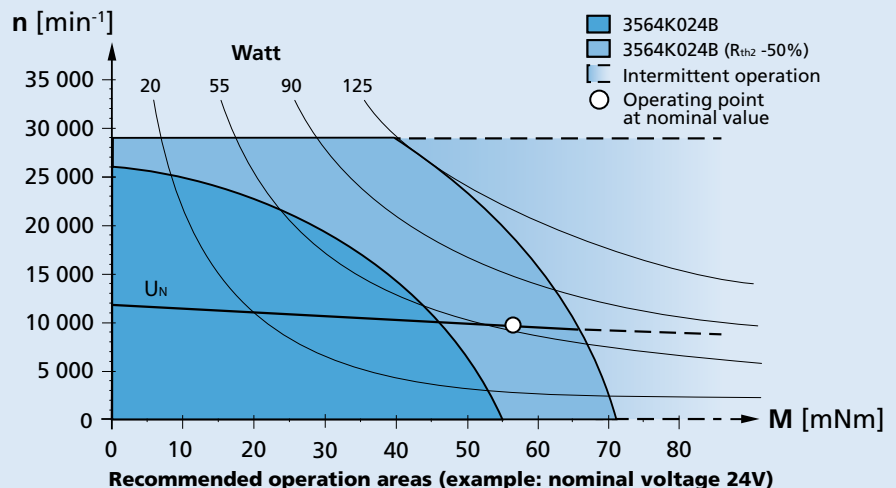
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.

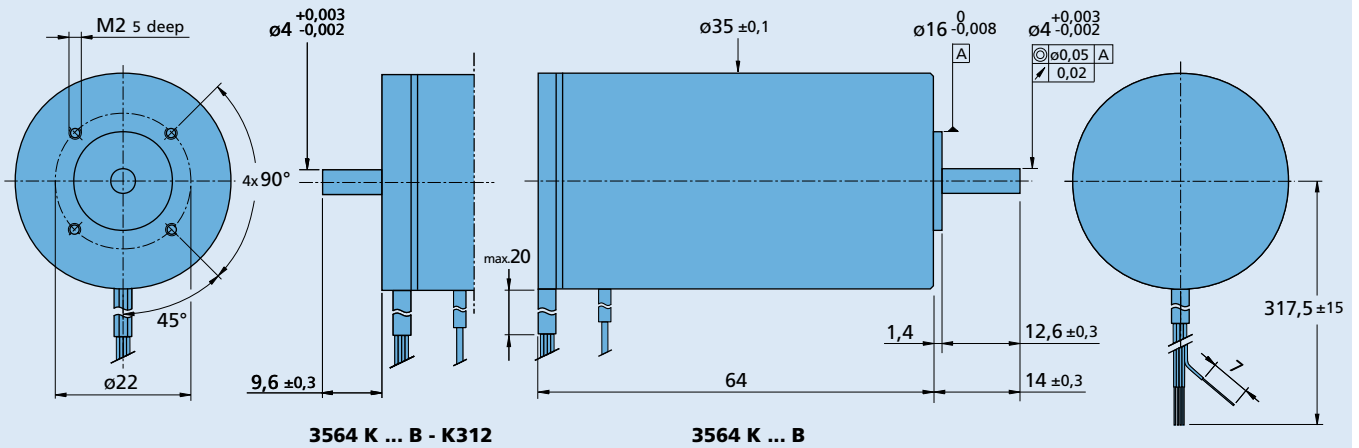
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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.



Dimensional drawing

Scale reduced 



Option, cable and connection information

Example product designation: **3564K012B-K1155**

Option	Type	Description	Connection	
			Function	Colour
K1155	Controller combination	Analog Hall sensors for combination with Speed Controller SC or Motion Controller MC	Phase C	yellow
K1026	Sensorless	Motor without Hall sensors	Phase B	orange
K1838	Encoder combination	Motor with rear end shaft for combination with Encoder IE3	Phase A	brown
K312	Encoder combination	Motor with rear end shaft for combination with Encoder HEDS/HEDL/HEDM	GND	black
K3051	Encoder combination	Motor with rear end shaft for combination with Encoder AES	U _{DD} (+5V)	red
K179	Bearing lubrication	For vacuum of 10 ⁻⁵ Pa @ 22°C	Hall sensor C	grey
			Hall sensor B	blue
			Hall sensor A	green
			Standard cable	
			Single wires, material PTFE	
			AWG 20: Phase A/B/C	
			AWG 26: Hall A/B/C, U _{DD} , GND	

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
30/1	HEDS 5500	SC 2804 S	MBZ To view our large range of accessory parts, please refer to the "Accessories" chapter.
30/1 S	IE3-1024	SC 5004 P	
32GPT	IE3-1024 L	SC 5008 S	
32/3R	HEDL 5540	MC 5005 S	
38/1	AEMT-12/16 L	MC 5010 S	
38/1 S	AES-4096 L		
38/2			
38/2 S			
42GPT			
32L ... TL			
32L ... ML			
32L ... SB			
32L ... PB			