

Brushless DC-Servomotors

2 Pole Technology

7,2 mNm
25 W

Series 2036 ... B

Values at 22°C and nominal voltage	2036 U	012 B	024 B	036 B	048 B		
1 Nominal voltage	U_N		12	24	36	48	V
2 Terminal resistance, phase-phase	R		3,24	13,4	26,4	62,3	Ω
3 Efficiency, max.	η_{max}		71	72	71	69	%
4 No-load speed	n_0		18 800	18 400	20 300	18 500	min ⁻¹
5 No-load current, typ. (with shaft \varnothing 2 mm)	I_0		0,089	0,043	0,033	0,022	A
6 Stall torque	M_H		21,9	21,6	22,4	18,4	mNm
7 Friction torque, static	C_0		0,22	0,22	0,22	0,22	mNm
8 Friction torque, dynamic	C_V		$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	mNm/min ⁻¹
9 Speed constant	k_n		1 602	783	575	396	min ⁻¹ /V
10 Back-EMF constant	k_E		0,624	1,28	1,74	2,52	mV/min ⁻¹
11 Torque constant	k_M		5,96	12,2	16,6	24,1	mNm/A
12 Current constant	k_I		0,168	0,082	0,06	0,042	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$		871	860	915	1 024	min ⁻¹ /mNm
14 Terminal inductance, phase-phase	L		145	613	1 132	2 390	μ H
15 Mechanical time constant	τ_m		17,8	17,6	18,7	20,9	ms
16 Rotor inertia	J		1,95	1,95	1,95	1,95	gcm ²
17 Angular acceleration	α_{max}		112	111	115	94	$\cdot 10^3$ rad/s ²
18 Thermal resistance	R_{th1} / R_{th2}	4,1 / 16,6					K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	6 / 397					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		2					mm
– radial at 3 000 min ⁻¹ (4 mm from mounting flange)		14,5					N
– axial at 3 000 min ⁻¹ (push only)		8					N
– axial at standstill (push only)		30					N
23 Shaft play:							
– radial	\leq	0,015					mm
– axial	$=$	0					mm
24 Housing material		aluminium, black anodized					
25 Mass		56					g
26 Direction of rotation		electronically reversible					
27 Speed up to	n_{max}	55 000					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		6,08	6,14	5,87	5,62	mNm
32 Rated current (thermal limit)	I_N		1,14	0,559	0,396	0,26	A
33 Rated speed	n_N		11 430	11 010	12 810	10 450	min ⁻¹

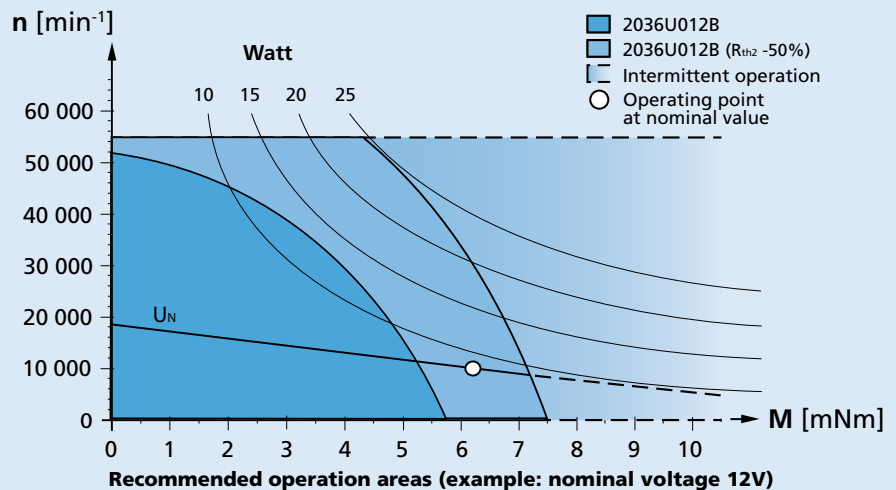
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

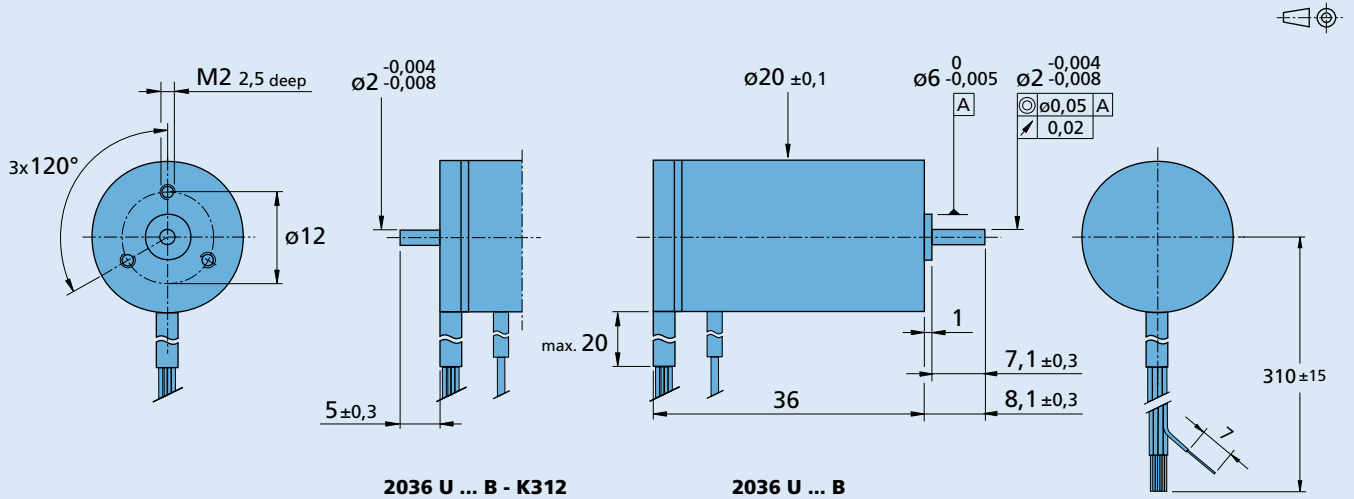
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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



Option, cable and connection information

Example product designation: **2036U012B-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
K903	Lead wires length	Single lead wires 1000 mm long in PTFE	Phase A	brown
K313	Encoder combination	Motor with rear end shaft for combination with Encoder IE2	GND	black
K312	Encoder combination	Motor with rear end shaft for combination with Encoder HEDS/HEDL/HEDM	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 24: Phase A/B/C	
			AWG 26: Hall A/B/C, U _{DD} , GND	

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
20/1R 22GPT 22L ... ML 22L ... SB 22L ... PB	IE2-1024 HEDS 5500 HEDL 5540	SC 1801 P SC 1801 S SC 2402 P SC 2804 S SC 5004 P MC 3001 B MC 3001 P MC 3603 S MC 5004 P MC 5005 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.