

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		$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	$1,64 \cdot 10^{-5}$	$\text{mNm}/\text{min}^{-1}$
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	$\text{mV}/\text{min}^{-1}$
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	$\text{min}^{-1}/\text{mNm}$
14 Terminal inductance, phase-phase	L		145	613	1 132	2 390	μH
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	$\cdot 10^3 \text{rad}/\text{s}^2$
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					$^{\circ}\text{C}$
– winding, max. permissible		+125					$^{\circ}\text{C}$
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}

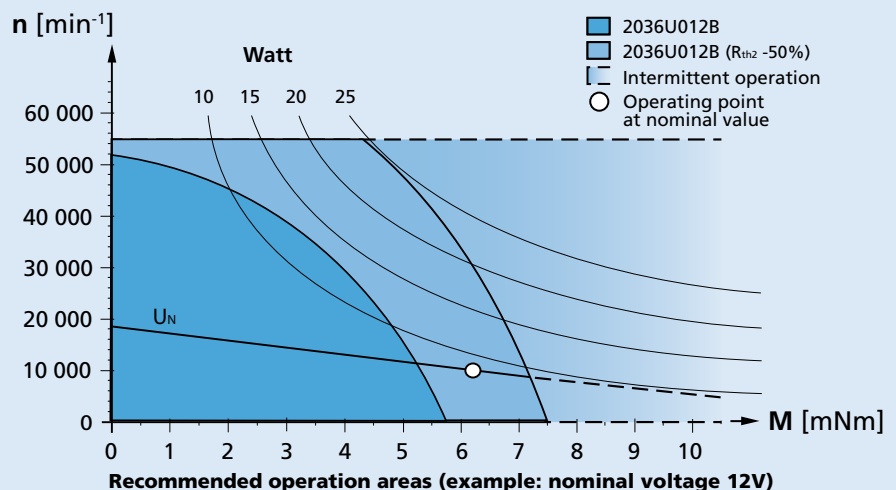
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

Note:

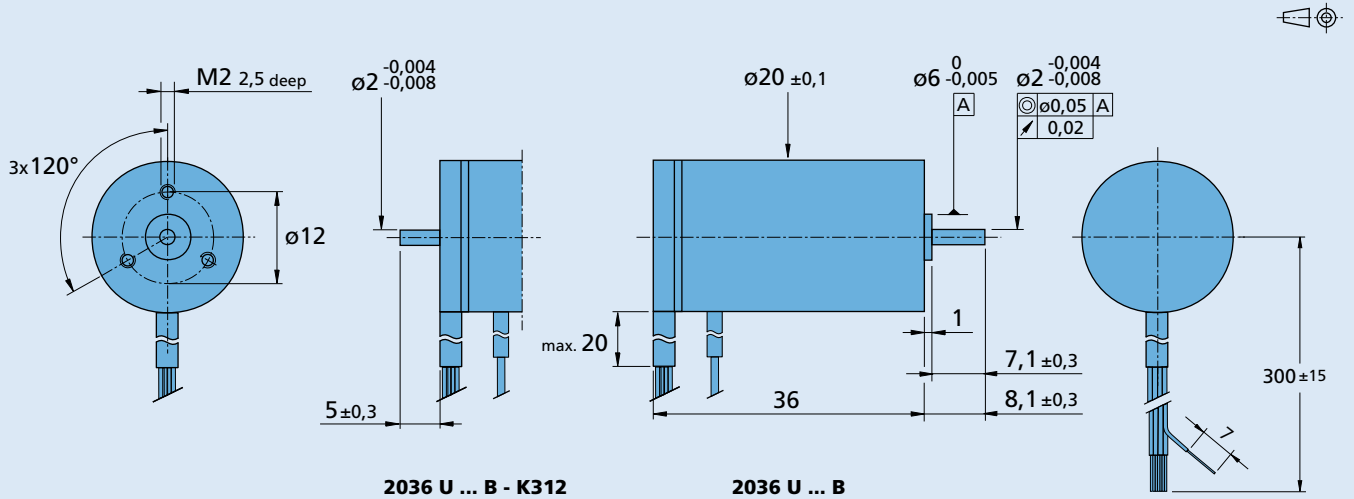
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

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 and Motion Controller MCBL	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	IE2-1024 HEDS 5500 HEDL 5540	SC 1801 SC 2402 SC 2804 SC 5004 MC 5004 MC 5005 MCBL 3002 MCBL 3003	To view our large range of accessory parts, please refer to the "Accessories" chapter.