

Brushless DC-Gearmotors

4 Pole Technology

30 mNm

Series 1515 ... B

Values at 22°C and nominal voltage		1515 U	006 B	012 B	
1	Nominal voltage	U_N	6	12	V
2	Terminal resistance, phase-phase	R	22	92,7	Ω
3	Efficiency, max.	$\eta_{max.}$	54	53	%
4	No-load speed	n_o	15 000	14 900	min^{-1}
5	No-load current, typ.	I_o	0,019	0,009	A
6	Stall torque	M_H	0,953	0,904	mNm
7	Friction torque, static	C_o	0,019	0,019	mNm
8	Friction torque, dynamic	C_v	$3,42 \cdot 10^{-6}$	$3,42 \cdot 10^{-6}$	$\text{mNm}/\text{min}^{-1}$
9	Speed constant	k_n	2 682	1 339	min^{-1}/V
10	Back-EMF constant	k_E	0,373	0,747	$\text{mV}/\text{min}^{-1}$
11	Torque constant	k_M	3,56	7,13	mNm/A
12	Current constant	k_I	0,281	0,14	A/mNm
13	Slope of n-M curve	$\Delta n/\Delta M$	16 577	17 423	$\text{min}^{-1}/\text{mNm}$
14	Terminal inductance, phase-phase	L	570	2 282	μH
15	Mechanical time constant	τ_m	120	126	ms
16	Rotor inertia	J	0,69	0,69	gcm^2
17	Angular acceleration	$\alpha_{max.}$	14	13	$\cdot 10^3 \text{rad}/\text{s}^2$
18	Thermal resistance	R_{th1} / R_{th2}	65 / 45		K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	12 / 130		s

Integrated Gearhead

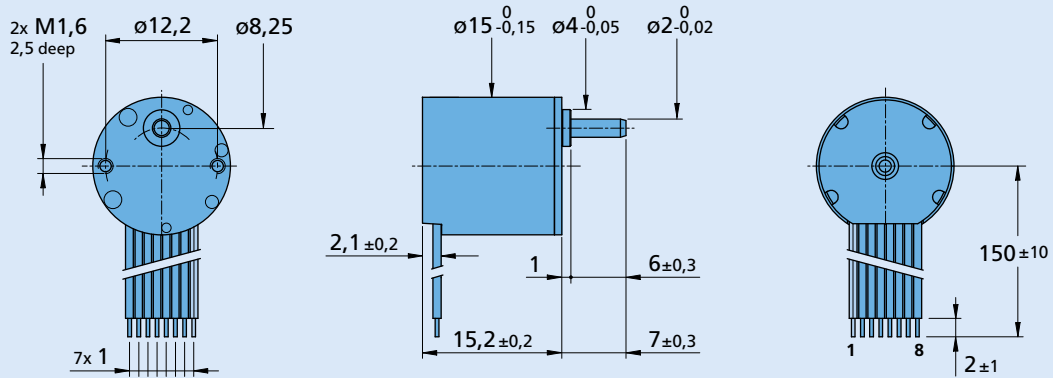
Housing material		plastic	
Geartrain material		metal	
Backlash, at no-load	\leq	4	°
Bearings on output shaft		plastic / brass bearing	
Shaft load max.:			
– radial (5 mm from mounting face)	\leq	1,4	N
– axial	\leq	0,3	N
Shaft press fit force, max.	\leq	5	N
Shaft play:			
– radial (5 mm from mounting face)	\leq	0,08	mm
– axial	\leq	0,25	mm
Operating temperature range		– 25 ... + 80 °C	

Specifications

reduction ratio (rounded)	output speed up to n_{max} min^{-1}	weight with motor g	output torque		direction of rotation (reversible)	efficiency %
			continuous operation M_{max} mNm	intermittent operation M_{max} mNm		
6 : 1	779	6,9	1,4	3	=	81
13 : 1	372	7,0	2,8	5	\neq	73
39 : 1	129	7,2	7,0	10	=	60
112 : 1	45	7,4	19,8	30	\neq	59
324 : 1	15	7,7	30,0	50	=	53

Note: output speed at 5000 min^{-1} input speed. Based on motor 1509 ... B.

Dimensional drawing

 Scale enlarged 

1515 U ... B
Option, cable and connection information

 Example product designation: **1515U006B-4082**

Option	Type	Description	Connection	
4082	Temperature range	Extended temperature range (-40...+85°C)	No.	Function
			1	Phase C
			2	Phase B
			3	Phase A
			4	GND
			5	U _{DD} (+5V)
			6	Hall sensor C
			7	Hall sensor B
			8	Hall sensor A
			Standard cable	
			Insulation: PVC	
			8 conductors, AWG 28	
			pitch 1 mm, wires tinned	

Product Combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
		SC 1801	