PRODUCT SPECIFICATION

Ø16 mm Coreless BLDC Linear Actuator

TSL-LEC-1625 + GPS16-19 + MENC16-1024

Coreless motor + planetary gearbox + encoder + stainless-steel lead screw

Product Configuration

- Coreless BLDC motor with Hall sensors
- GPS16 planetary gearbox, 1 to 4 stages
- MENC16-1024 encoder
- Ø5 × 2 mm stainless-steel lead screw
- Threaded nut supplied as standard

Available Options

RATED VOLTAGE	**4.5 / 6 / 9 / 12 V**
NOMINAL POWER	**1.8 to 2.0 W**
GEAR RATIOS	**5.3:1 / 19:1 / 128:1 / 370:1**
SCREW LENGTH	**102 mm standard; up to 200 mm optional**
MOTOR SHAFT	**6 to 20 mm optional**

Coreless BLDC Motor Performance Data

TSL-LEC-1625 series · all models with Hall sensors

No.	Parameter	Symbol	Unit	TSL-LEC-1625-011	TSL-LEC-1625-012	TSL-LEC-1625-013	TSL-LEC-1625-014	TSL-LEC-1625-015	TSL-LEC-1625-016
1	Nominal Power	P	W	1.8	2	1.8	1.8	2	2
2	Rated Voltage	U	V	4.5	6	9	9	12	12
3	No-load Speed ±10%	n_0	rpm	13060	13770	12850	12850	13700	14080
4	No-load Current ±50%	I_0	mA	170.2	138	112	93.3	79.2	85.6
5	Nominal Speed	n_N	rpm	5270	5800	7010	4910	7160	8350
6	Nominal Torque	M_N	mNm	3.39	3.26	3.0	3.29	3.3	3.0
7	Nominal Current	I_N	A	1.20	0.921	0.6	0.62	0.510	0.47
8	Stall Torque	M_H	mNm	5.93	5.91	6.6	5.4	7.8	8.426
9	Stall Current	I_H	A	1.92	1.52	1.2	0.97	1.1	1.18
10	Speed Constant	K_n	rpm/V	2900	2295	1422	1400	1125	1166.67
11	Torque Constant	K_u	mNm/A	2.82	3.54	4.89	6.19	7.86	7.63
12	Terminal Resistance ±10%	R	Ω	2.38	4.44	6.06	9.3	11.27	10.2
13	Terminal Inductance	L	mH	0.0436	0.0697	0.09	0.179	0.317	0.260
14	Rotor Inertia	J	g·cm²	0.471	0.471	0.471	0.471	0.471	0.49
15	Mechanical Time Constant	T_m	ms	11.24	11.97	11.65	11.45	11.66	12.865

General Motor Specifications

Weight	36 g	**Motor shaft length**	6-20 mm (optional)
Ambient temperature	-40°C to +100°C	**Max. winding temperature**	130°C
Number of phases	3	**Number of pole pairs**	1
Wire length (standard)	300 ± 10 mm	**Hall sensors**	Included

Planetary Gearbox Data

GPS16 standard planetary gearbox · performance includes the lead screw

No.	Parameter	Unit	1 Stage	2 Stages	3 Stages	4 Stages
1	Number of Stages	-	1	2	3	4
2	Max. Feed Velocity	mm/s	67.0	19.0	2.80	1.0
3	Max. Feed Force (Continuous)	N	62	93	177	252
4	Max. Feed Force (Intermittent)	N	170	258	362	362
5	Max. Efficiency, Gearhead Incl. Screw	%	78	71	63	57
6	Weight	g	64	37	71.5	76
7	Gearhead Length L1	mm	24.5	30.1	34.1	38.1
8	Reduction Ratio	-	5.3:1	19:1	128:1	370:1

1 STAGE
5.3:1
67.0 mm/s · 62 N continuous

2 STAGES
19:1
19.0 mm/s · 93 N continuous

3 STAGES
128:1
2.80 mm/s · 177 N continuous

4 STAGES
370:1
1.0 mm/s · 252 N continuous

Lead Screw & Mechanical Specifications

Ø5 × 2 mm stainless-steel screw with standard threaded nut

Parameter	Specification
Screw	Ø5 × 2 mm stainless steel
Standard Length	102 mm
Max. Optional Length	200 mm max.
Nut (Standard)	Threaded nut
Radial Play, 6 mm from Flange	< 0.08 mm
Ambient Temperature	-40°C to +85°C
Max. Axial Load (Static)	500 N

Permissible Radial Load by Gearbox Stage

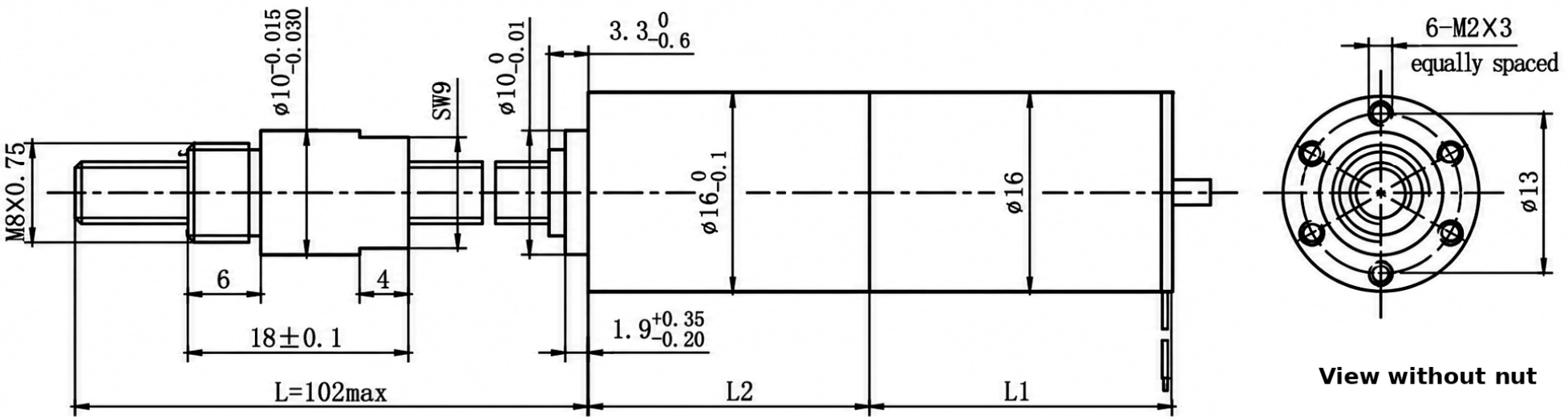
Number of Stages	1	2	3	4
Max. Radial Load	35 N	55 N	75 N	75 N

Mechanical Notes

- Radial play is measured 6 mm from the flange.
- The 102 mm screw is the standard configuration; lengths up to 200 mm are optional.
- The allowable radial load depends on the selected gearbox stage.

Outline Dimensions

All dimensions are in millimetres unless otherwise specified.



Reference	Value / Description	Reference	Value / Description
Lead Screw	Ø5 × 2 mm stainless steel	**Flange Diameter**	Ø13 mm
Standard Screw Length	102 mm	**Mounting Holes**	6-M2 × 3, equally spaced
Gearhead Length L1	24.5 / 30.1 / 34.1 / 38.1 mm	**View**	Front view without nut