Specifications

Typical values

Model	Rated power	Peak power	Rated speed	Cont. torque	Peak torque	Optimal supply voltage	Cont. current	Peak current
BL42-28	28W	84W	3000 RPM	0.1 Nm	0.3 Nm	24-36 Vdc [2]	1.56 Adc	4.68 Adc
BL42-63	63W	189W	3000 RPM	0.2 Nm	0.6 Nm	24-36 Vdc [2]	3.44 Adc	10.3 Adc
BL70-150	150W	450W	3000 RPM	0.5 Nm	1.5 Nm	50-90 Vdc [2]	5.6 Adc	16.8 Adc
BL70-300	300W	900W	3000 RPM	1.0 Nm	3.0 Nm	90-160 Vdc [2]	6.6 Adc	20.0 Adc
BL86-660	660W	1920W	3000 RPM	2.1 Nm	6.3 Nm	140-160 Vdc [2]	7.3 Addc	22.0 Adc

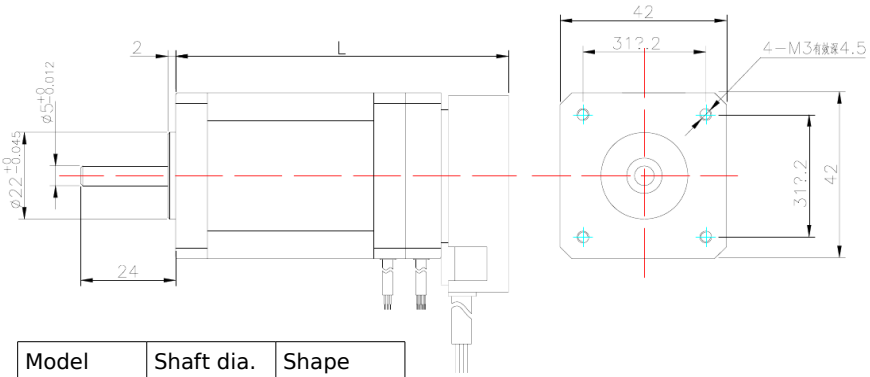
Model	Base length (L)	Frame size	Weight	Encoder resolution	Phase resistance	Phase inductance	Poles	Rotor inertia
BL42-28	65 mm	42 x 42 mm	0.45 kg	4000 CPR [1]	TBD	TBD	8	TBD
BL42-63	85 mm	42 x 42 mm	0.55 kg	4000 CPR [1]	TBD	TBD	8	TBD
BL70-150	60 mm	70 x 70 mm	1.30 kg	4000 CPR [1]	0.4 Ohm	1.0 mH	8	0.000037 kg·m²
BL70-300	90 mm	70 x 70 mm	2.08 kg	4000 CPR [1]	0.74 Ohm	1.5 mH	8	0.000074 kg·m²
BL86-660	125 mm	86 x 86 mm	4.0 kg	4000 CPR [1]	TBD	TBD	8	TBD

[1]) CPR equals effective counts per revolution after 4X decoding. CPR = motor positioning resolution.

[2]) Voltage ratings are not strict. Higher (up to +30%) or lower (to few volts) voltages can be also used. Lower than recommended supply voltage leads to reduced top speed (RPM) but doesn't affect torque output.

BL42

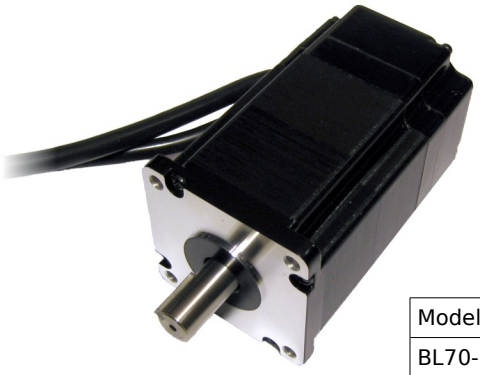
Dimensions in mm

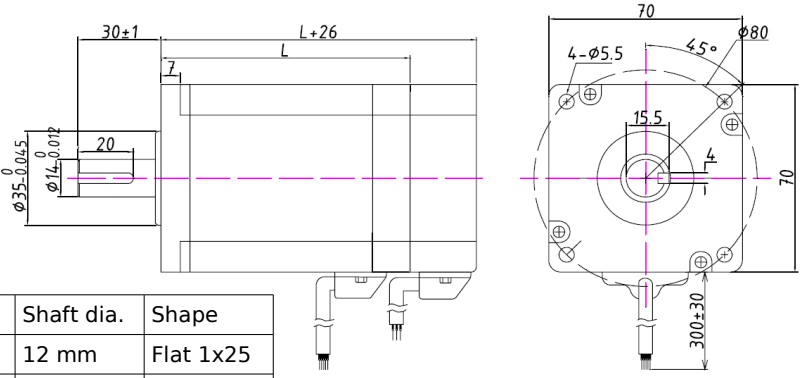


Model	Shaft dia.	Shape
BL42-28	5 mm	Slick
BL42-63	5 mm	Slick

BL70

Dimensions in mm

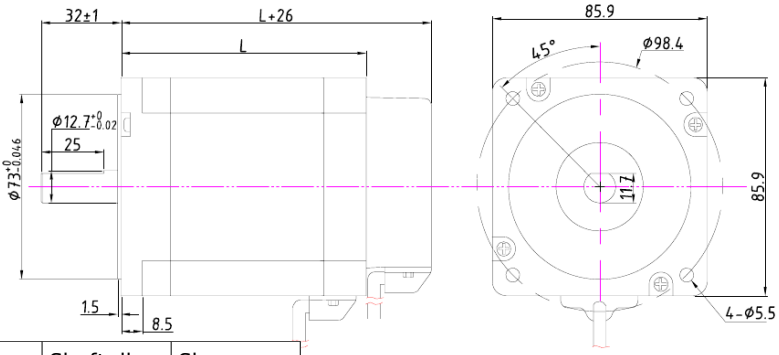




Model	Shaft dia.	Shape
BL70-150	12 mm	Flat 1x25
BL70-300	14 mm	Key 4x20

BL86

Dimensions in mm



Model	Shaft dia.	Shape
BL86-660	14 mm	Flat 1x25

Encoder & hall sensor wiring

Motors are supplied with about 30 cm long unterminated cables. Cable extension is usually necessary.

BL70 & BL86 wiring

BL42 colors	***BL70 & BL86 colors***	***Signal***
2x Black wires	Black	GND
2x Red wires	Red	+5 VDC
Yellow	Yellow	Hall U+
N/A	Yellow/Black	Hall U-
Green	Green	Hall V+
N/A	Green/Black	Hall V-
Blue	White	Hall W+
N/A	White/Black	Hall W-
White	Brown	A+
White/Black	Brown/Black	A-
Green	Gray	B+
Green/Black	Gray/Black	B-
Yellow	Orange	Index+
Yellow/Black	Orange/Black	Index-

Motor phase wiring

Color	***Phase***
Yellow	U
Green	V
Blue	W

Drive configuration parameters

Download VSD-E compatible configuration files from motor product page. Also read the **Getting started with VSD-E & VSD-XE** manual.

Design tips for mechanics

Follow the given guidelines for high servo performance:

- Total reflected **load inertia** should be no more than 10 times the rotor inertia (inertia mismatch ratio). Less than 3:1 ratio is recommended for high performance systems. The optimum ratio is 1:1.
- Recommended way to reduce reflected load inertia is to use **timing belt reduction**
- Coupling to mechanical load should be **as stiff as possible**
- Coupling to mechanical load should have **zero backlash**

Calculation of rotary/linear system reflected inertia is out of this document scope. See our *documents section* of web page for calculation equations.