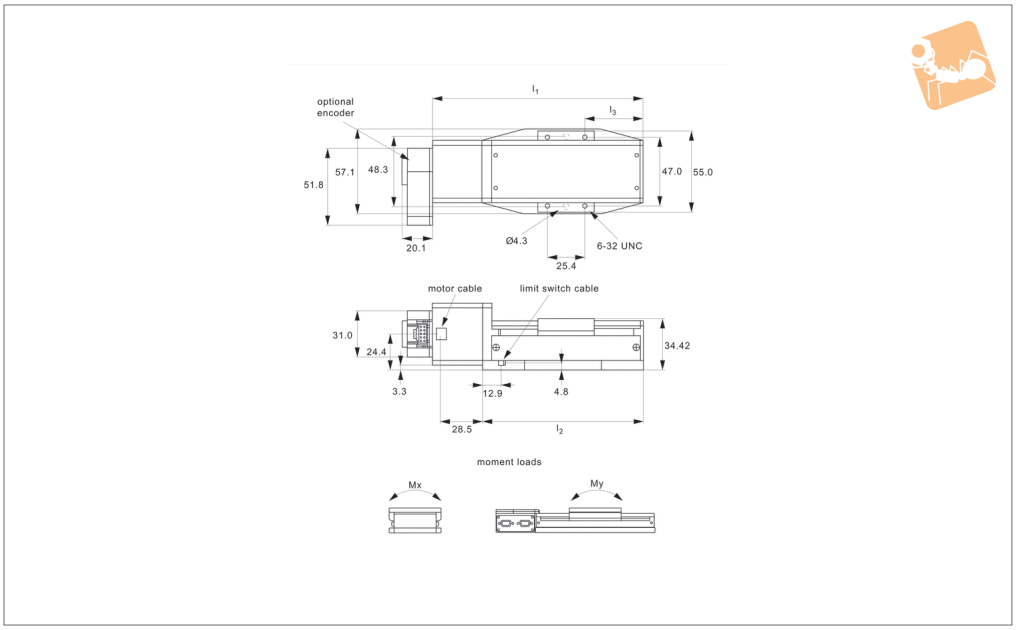


L3506

Material
Black anodised aluminium body (6061). Hardened linear guideways, stainless steel Acme lead screw (with internally lubricated anti-backlash nut).

Technical Notes
Compact, high precision slide.
Easy plug and play system. Controllable from PC or PLC when used in conjunction with a motion controller. Controllers come with their own software but many pre-existing software packages (such as Labview) can be used.
Can be readily supplied in XY, XZ and XYZ configurations.
Applications - research, semi-conductors, fibre optics, automation etc.
Max. speed 8 mm/sec.
Accuracy ±50µ. Uni-directional repeatability ±5µ, resolution ±0,7µ.

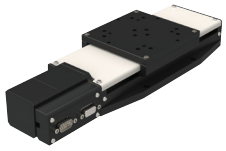
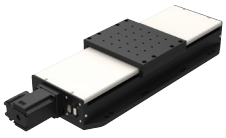
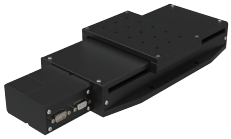
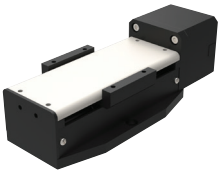
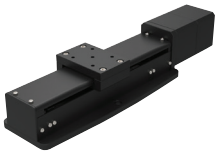
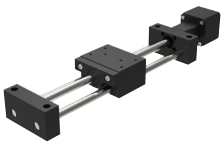
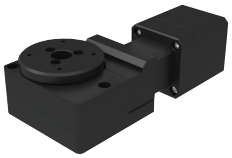
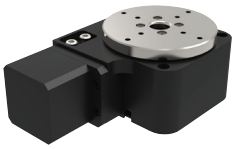
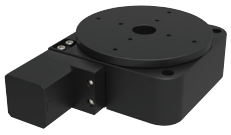
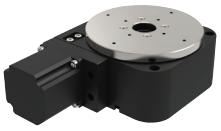
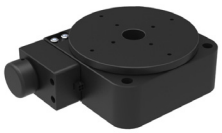
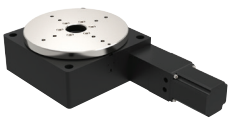
Tips
Motor options:
Stepper - Nema 17, high torque, brushless. 0.95 Amp/phase, 5.0 Ohm/phase, 3.1 mH/phase, 1.8°/step. Option with 1000 line rotary encoder.
Intelligent stepper - Nema 17 high torque 1.8° stepper motor with a fully programmable motion controller inbuilt (ie no need for an external motion controller). Two +5 to +24VDC I/O lines. One 10 bit analogue input selectable 0 to +10VDC, 0 to +5VDC. RS-422/485 communications. Input voltage 24VDC.
Limit switches are wired normally open.
Drawings show stepper motor configuration. See special pages for further motor options.

Important Notes
Max. moment loads:
Mx = 4,0 Nm
My = 6,5 Nm
For combined stages, add suffixes:
XY - for XY stage
XZ - for XZ stage
XYZ - for XYZ stage

Order No.	Travel	Horizontal load kg max.	Axial load kg max.	Side load kg max.	Lead screw pitch	l_1	Motor code	Motor type	Weight kg
L3506.025-STA	25	2.2	2.2	0.9	1.058	109.2	-STA	Stepper	0.46
L3506.050-STA	50	2.2	2.2	0.9	1.058	143.3	-STA	Stepper	0.59
L3506.025-STB	25	2.2	2.2	0.9	1.058	109.2	-STB	Stepper & enc.	0.46
L3506.050-STB	50	2.2	2.2	0.9	1.058	143.3	-STB	Stepper & enc.	0.59
L3506.025-IMA	25	2.2	2.2	0.9	1.058	109.2	-IMA	Int. stepper	0.46
L3506.050-IMA	50	2.2	2.2	0.9	1.058	143.3	-IMA	Int. stepper	0.59

Order No.	l_2	l_3	Speed mm/s max.	Resolution ±	Accuracy ±	Uni-directional repeatability ±
L3506.025-STA	83.9	41.9	8	0,7µ	50µ	5µ
L3506.050-STA	117.9	54.6	8	0,7µ	50µ	5µ
L3506.025-STB	83.9	41.9	8	0,7µ	50µ	5µ
L3506.050-STB	117.9	54.6	8	0,7µ	50µ	5µ
L3506.025-IMA	83.9	41.9	8	0,7µ	50µ	5µ
L3506.050-IMA	117.9	54.6	8	0,7µ	50µ	5µ

Miniature Motorised Stages
high precision

L3500 **Medium duty motorised stage** 	**L3504** **Heavy-duty motorised stage** 	**L3505** **Motorised linear stage** 	**L3506** **Miniature motorised stage** 
L3508 **Motorised linear stage** 	**L3510** **Motorised linear stage** 	**L3521** **Single axis stepper controller** 	**L3522** **Two axes stepper controller** 
L3524 **Multi-axes stepper controller** 	**L3525** **Single axis servo controller** 	**L3550** **Motorised rotary stage Ø50** 	**L3552** **Motorised rotary stage Ø75** 
L3554 **Motorised rotary stage Ø75** 	**L3556** **Motorised rotary stage Ø125** 	**L3558** **Motorised rotary stage Ø125** 	**L3559** **Manual rotary stage Ø125** 
L3562 **Motorised rotary stage Ø200** 	**L3569** **High speed rotary table** 	**L3591** **Vertical lift stage motorised** 	**L3592** **Vertical lift stage motorised** 

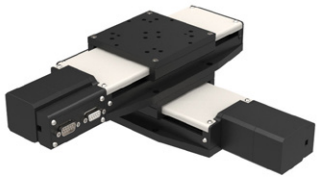
Motorised Stages

Overview

Our motorised linear stages are precise, heavy duty and available from 25mm stroke to 800mm.
They can be easily controlled either with an Intelligent motor (this is a motor with an inbuilt driver and controller) or with a motor and one of our motion controller stages.
Programming for both the intelligent motor (less expensive) and the motion controllers is very simple and we provide free software and sample source code for Labview, VB, C++, OSX etc. It is also possible to download a stand-alone programmed to the device so it can run independently of a host.
We also offer a Joystick controller.

The stages can be readily supplied in X, XY, XZ and XYZ configurations and can also be used with our range of rotary tables (L3550 to L3562).

XY Assembly



XY Assembly

XY Assembly

Using intelligent motors

- RS-485 - USB connection.
- Can run independently from host.
- Joystick control option

Using motion controllers

- RS-485 - USB connection.
- Can run independently from host.
- Joystick control option

Stepper limitations

For all of their advantages, stepper motors have a number of limitations which can cause significant implementation and operational issues depending on your application. Stepper motors do not have any reserve power. In fact, stepper motors lose a significant amount of their torque as they approach their maximum driver speed. A loss of 80% of the rated torque at 90% of the maximum speed is typical.

Stepper motors are also not as good as servo motors in accelerating a load. Attempting to accelerate a load too fast where the stepper cannot generate enough torque to move to the next step before the next drive pulse will result in a skipped step and a loss in position. If positional accuracy is essential, either the load on the motor must never exceed its torque or the stepper must be combined with a position encoder to ensure positional accuracy.

Stepper motors may also suffer from vibration and resonance problems. At certain speeds, partially depending on the load dynamics, they may resonate and be unable to drive the load. This may result in skipped steps, stalled motors, excessive vibration and noise.

Servo limitations

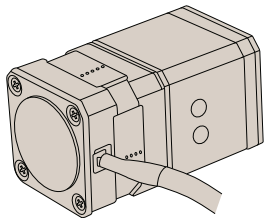
Servo motors are capable of delivering more power than stepper motors, but do require much more complex drive circuitry and positional feedback for accurate positioning. Servo motors are also much considerably expensive than stepper motors and are often harder to find. Servo motors often require gear boxes, especially for lower speed operation.

The requirement for a gearbox and a position encoder makes servo motor designs more mechanically complex and increases the maintenance requirements for the system. To top it all off, servo motors are more expensive than stepper motors before adding on the cost of a position encoder.

Summary

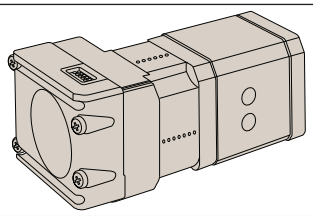
Selecting the best motor for your application depends on a few key design criteria for your system including cost, positional accuracy requirements, torque requirements, drive power availability, and acceleration requirements. Overall, servo motors are best for high speed, high torque applications while stepper motors are better suited for lower acceleration, high holding torque applications as well as generally being less expensive and easier to control.

Motor options



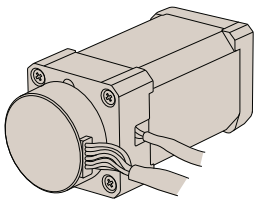
Stepper motor

- Standard
- With rotary encoder (1000 line)



Intelligent stepper motor

- Standard
- With rotary encoder (512 line)



Servo motor

- Standard
- With rotary encoder (1000 line)