



SlimLinePlus

Translation Stage with BLDC Motor for high precision Positioning

The translation stages of the **SlimLinePlus series** offer high repeatability at moderate costs. The resolution in the sub- μm range suggests the stages for demanding applications like the positioning of measurement equipment, miniature sensors, optical elements, and analytical probe heads.

The body of the stages is manufactured of **high strength and stress-free aluminium**. This ensures high stability over long periods of time. The body is manufactured in one piece in order to achieve highest torsional stability and bending strength.

The height of the translation stage of 31 mm is ideal if there are space constraints. Combinations of multiple axes are possible without the need for adapter stages providing lowest space requirements. M6 mounting holes with a 25 mm pattern on the carriage simplify the mounting of the payload.

Guiding profiles made of corrosion-resistant, hardened steel and precision ground bearings lead the carriages with recirculating preloaded ball bearings. The load capacity is 10 kg in any direction. The special design of the stages containing the circulating balls guarantees smooth motion and a long lifetime with a runout of less than 3 μm over a distance of 200 mm.

Extra long carriages avoid wobbling of the platform. Each carriage has **preloaded and recirculating ball bearings** of highest quality. The special design of the guiding for the recirculating balls ensures smooth operation and a long lifetime.

The leadscrew of the stage consists of high quality steel. The thread is ground for lowest friction and efficiency. The absolute linear error is less than 6 μm over a travel range of 350 mm. The combination of the lead screw and the preloaded nut provides high dynamics and minimal backlash.

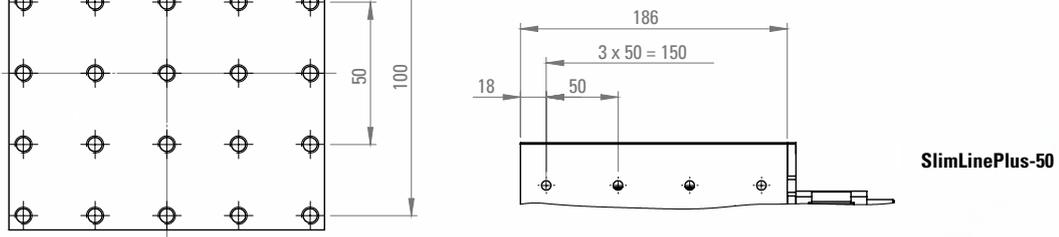
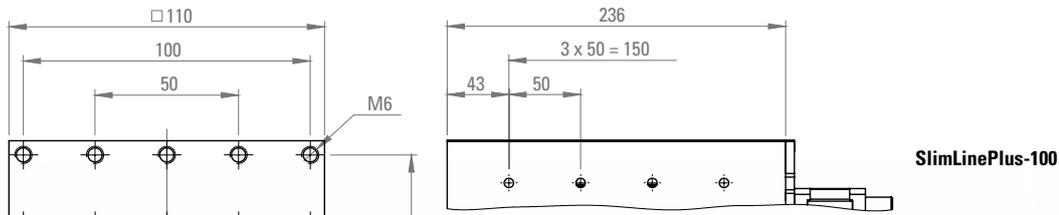
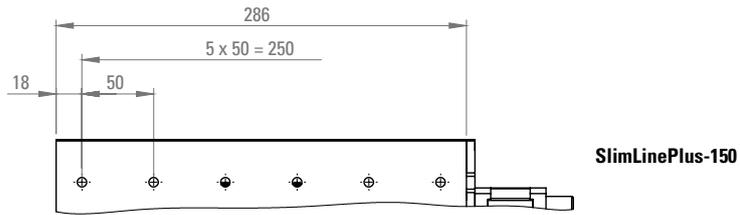
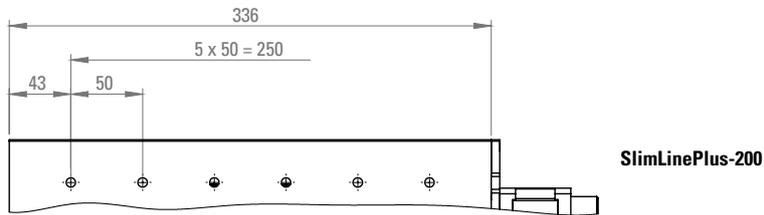
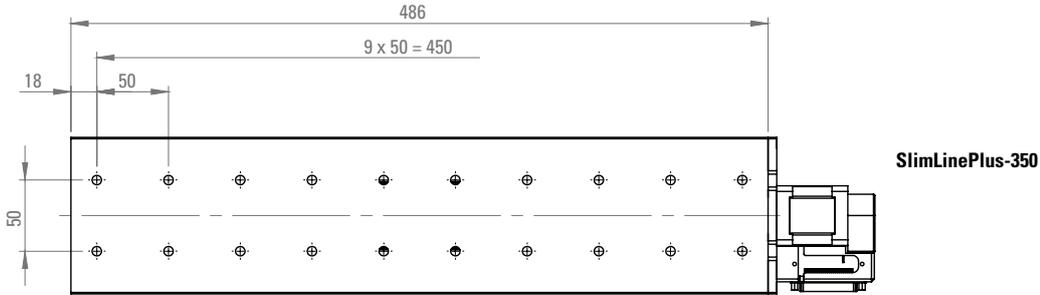
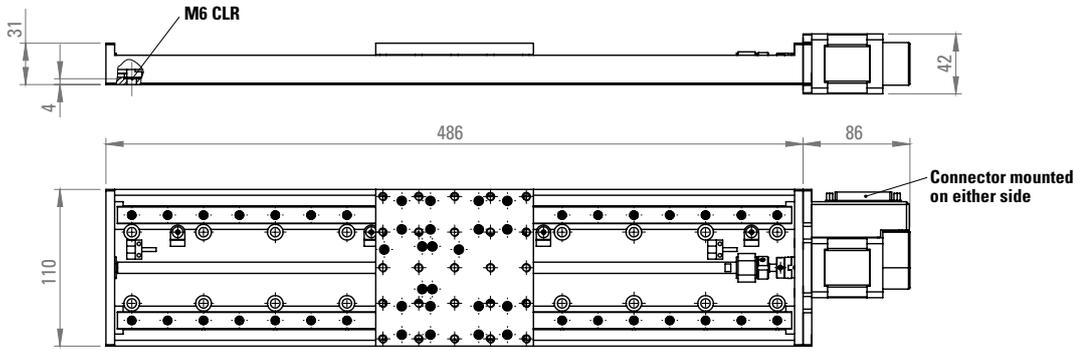
The brushless DC motor which drives the lead screw has excellent electrical and mechanical characteristics. The operation is quiet and therefore significantly different from a stepper motor. The dynamic performance of the motor is ideal for **precise motion control with high acceleration and speed**.

An optical encoder generates 5000 pulses per revolution. This is key for the precise and reproduceable positioning of the platform. Two optical limit switches at each end of the travel range prevent a hard stop of the platform.

- Low profile
- XY assembly without adapter plates
- Brushless DC motor with high dynamics
- Precision ground lead screw
- Repeatability < 1 μm
- Position control with optical encoder

Technical Data

Travel range	50 mm, 100 mm, 150 mm, 200 mm, 350 mm
Speed	up to 100 mm/s
Resolution	0.3 μm
Repeatability	1 μm
Load capacity	10 kg
Weight	1.8 kg (SlimLinePlus-50) 2.0 kg (SlimLinePlus-100) 2.2 kg (SlimLinePlus-150) 2.4 kg (SlimLinePlus-200) 3.0 kg (SlimLinePlus-350)



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