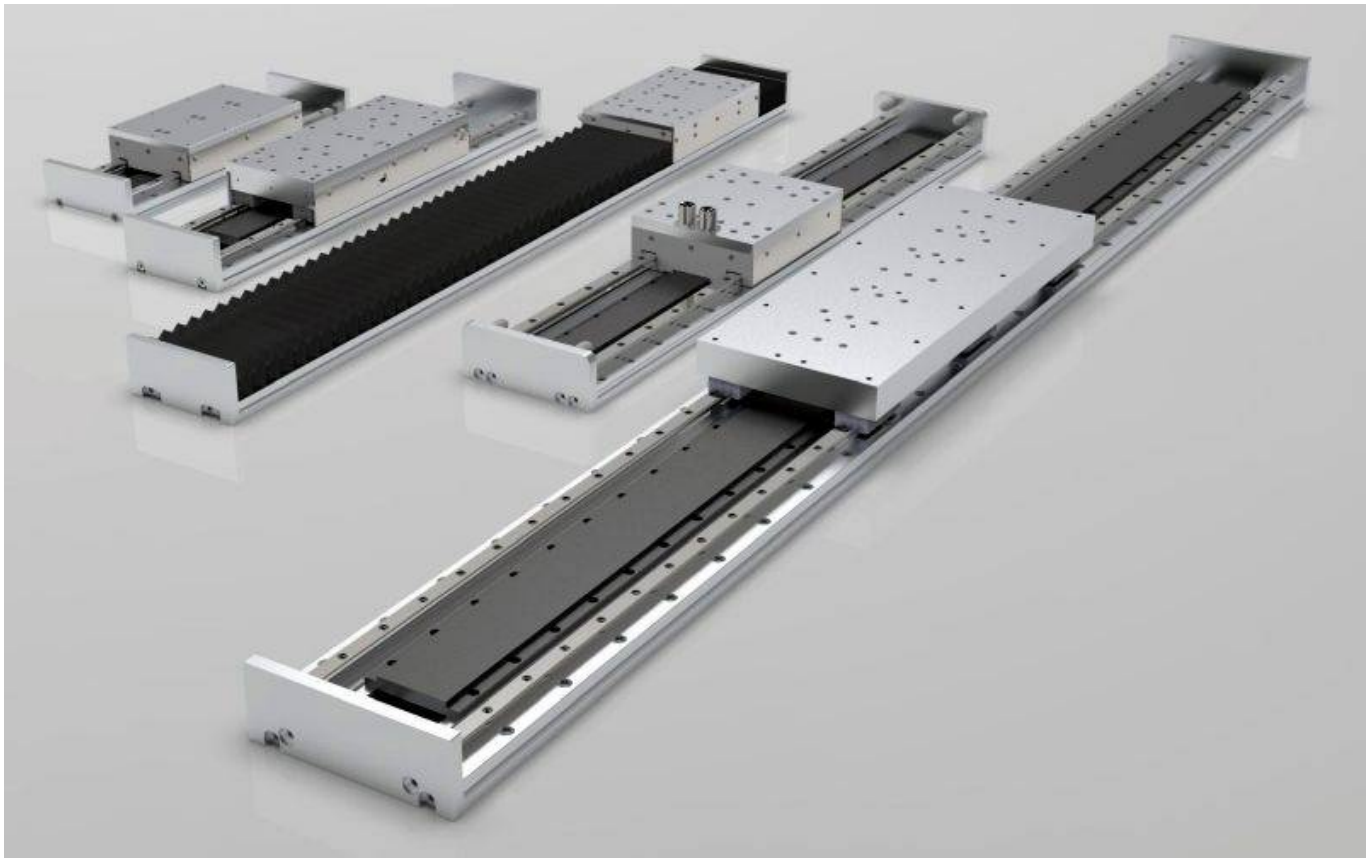
Linear Motion Systems — Axis Selection

This landing page helps you select the right **NILAB linear axis** for your machine. NILAB offers a range of complete linear axes and axes — from compact integrated slides to long-stroke, high-force axes and modular belt-driven units. Use the comparison below to shortlist the family that fits your application, then follow the links to the technical data, sizing, and design pages.



The axis families at a glance

Family	Drive & construction	Peak force	Stroke	Guide	Encoder	Best for
GDM — Tubular Linear Axis	Green Drive motor in module version with carriage	709 – 1749 N	stroke + carriage length	Integrated linear guide system	Integrated magnet-type encoder	Off-axis payload, multi-axis systems, bellows version on request
LM — Linear Axis	Ironcore linear motor L-series on aluminium profile	up to 3000 N (LM030/050/075)	up to 8500 mm	WON ball recirculating guides (maintenance-free, LF lubrication)	SIN/COS, ABZ, Hiperface, SSI, driveCliq	Long stroke, high force, high performance, multi-fieldbus

RM — Linear Axis	High-speed linear axis with integrated guide	up to ~1058 N per model	up to ~260 mm per model	High-performance integrated linear guide	Absolute encoder	High speed, high acceleration, packaging / food & beverage
MCSS — Mini Linear Slides	Integrated miniature tubular linear motors (dual-slider)	82.7 – 187.7 N	10 – 100 mm	Integrated guides and rails	Integrated drive with encoder feedback	Compact, high precision, plug-and-play
ULCO — Belt-driven linear units	Modular belt-driven units (44/66/88/132)	per size (see family page)	per size (see family page)	Profile with unified T-slots (M5/M6/M8)	optional (see family page)	Modular, multi-axis, self-supporting, small to medium power
NL-BCJ — Eco Linear axis	Flat ironcore linear motor with integrated guide	195 – 1700 N (up to 3700 N)	per model (see family page)	Integrated linear guiding	Integrated encoder	Economic, integrated, medium force, 8 sizes (MEL10 – MEL23)

Which axis should you use?

Choose GDM if your payload is **off-axis** or you need a **multi-axis** system: it is the module version of the Green Drive motor with a carriage and an integrated linear guide, and it is available with a bellows on request.

Choose LM if you need a **long stroke, high force, high-performance** axis with a wide choice of encoders and fieldbuses (EtherCAT, ProfiNET, CANopen) and compatibility with common servo drives.

Choose RM for **high-speed, high-acceleration** applications such as packaging, wrapping, diaper production, and food & beverage: it combines an integrated linear guide with an absolute encoder.

Choose MCSS when you need a **compact, high-precision** slide with an integrated drive — it is plug-and-play and is built around integrated miniature tubular linear motors.

Choose ULCO for a **modular, self-supporting, cost-effective** system on one or multiple axes: the belt-driven units integrate easily thanks to unified T-slots and cover small to medium power.

Choose NL-BCJ for an **economic, integrated** linear axis with a flat ironcore motor, available in 8 sizes (MEL10 – MEL23) up to a peak force of 3700 N.

How to proceed

1. **Define the requirements** — payload, stroke, speed, acceleration, precision, duty cycle, environment (IP, washdown, bellows). 2. **Shortlist the family** from the comparison above. 3. **Size the motor** — use the Motor sizing procedure and the Websmart tool. 4. **Design the machine** — see the Machine design requirements (mass reduction, rigidity, natural frequencies). 5. **Integrate the axes** — see the Engineer's Guide and the fieldbus/motion-control pages.

Related pages

* Multi-axis systems — combining linear axes * How a linear axis works * Installation and alignment of linear axes * Linear axis sizing and selection * Linear axes terminology * Application examples * GDM Tubular Linear Axis * LM Linear Axis * RM Linear Axis * MCSS Mini Linear Slides * ULCO Belt-driven linear units * NL-BCJ Eco Linear axis * Motor sizing * Machine design * Engineer's Guide

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