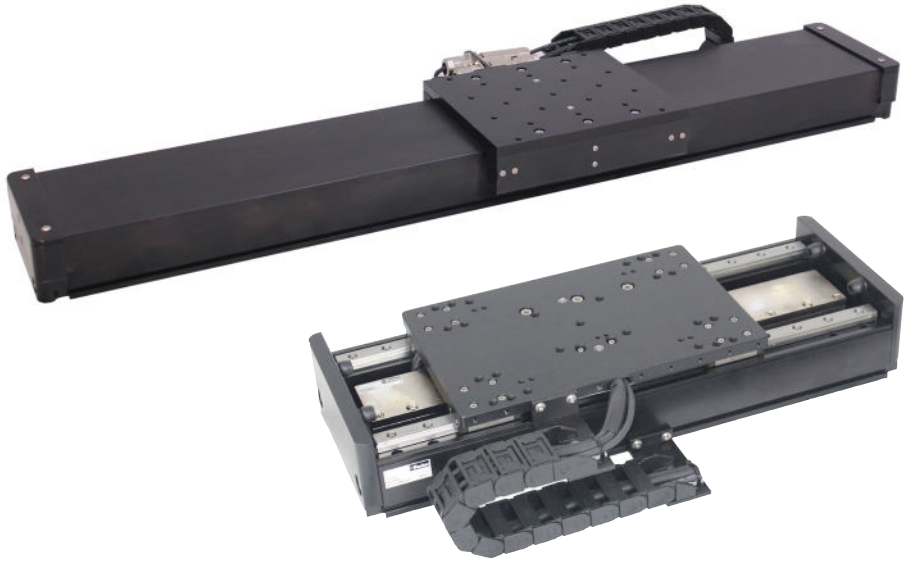
XLM Series

Linear Motor Stages for Positioning with Ultra-High Precision

General Information

For machinery or instrument builders who need smooth motion and high precision, Parker offers the XLM series. The XLM is a linear positioner that provides micron level precision in three different profile widths from 125mm to 200mm.

The XLM series is a precision machined, profiled guide linear positioner which is driven with linear servo motor technology, and utilizes selectable levels of linear encoder technology that are configured to match the application need.



Key Features

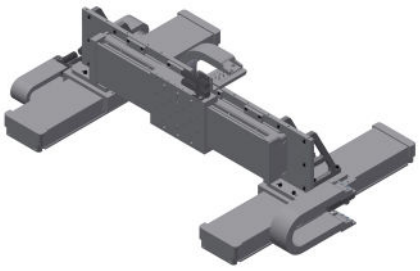
- **Three form factors: 125mm, 145mm, and 200mm width**
- **Three ingress protection options**
- **Six different linear encoder options**
- **Ironless linear motor technology**
- **Standard travel options ranging from 40mm to 1500mm stroke**
- **Efficient cable management system**
- **Integrated with limit sensing**
- **Complete error mapping on each unit with linear slope correction value provided**
- **CE and RoHS Compliance**

Configurations for a variety of environments

Applications for precision machinery and instruments can vary from factory floor to clean room. In some cases the stage is protected inside machinery where an open design allows for maximum use of space, while in others it is subject to adverse conditions requiring integrated protection. These variables were taken into account in the design of the XLM family, resulting in three distinct product configurations to cover the gamut of possibilities.

Multi-Axis Configurations

Using optional Z-brackets and pre-configured carriages, the XLM can be combined with additional XLMs or Parker mSR, mPR, 400XE, or 400XR series positioners to build multiple axis positioning systems, whether the application calls for a relatively simple X-Y configuration or a more complex multi-axis gantry.



Parker

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XLM Series Linear Motor Stages

Basic Specifications

	Units	XLM125	XLM145	XLM200
Size - Open style (W x H)	mm	125 x 55	145 x 65	200 x 77
Travel (Max)	mm	1010	1225	1500
Normal Load (Max)	kg	170	300	630
Thrust (Max, less friction) [3]				
Continuous Peak	N N	27.47 98.42	79.35 262.06	127.35 414.04
Acceleration (Max – no load)	G	3	3	3
Speed (Max – no load)	m/s	3	3	3
Rated Bus Voltage	VDC	330	330	330
Repeatability [1]	µm	+/- 0.5	+/- 0.5	+/- 0.5
Accuracy [1, 2]	µm	+/- 4	+/- 4	+/- 8
Straightness & Flatness [1]	µm	+/- 3	+/- 3	+/- 4
Feedback Compatibility				
1 µm Optical (incremental) 0.1 µm Optical (incremental) 0.01 µm Optical (incremental) Analog Sine/Cosine 0.05 µm BiSS-C (absolute) 0.005 µm BiSS-C (absolute)		• • • • • •	• • • • • •	• • • • • •

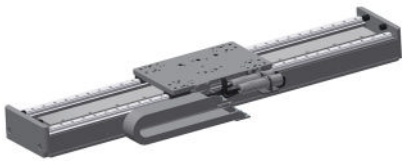
[1] Stage mounted to granite surface, 0.01 micron optical encoder
[2] Measurements taken at 35 mm above the center of the carriage, with linear slope correction.
[3] Please refer to XLM catalog for more details.

Ingress Protection Options

Open Design "U"

Type UA/UB

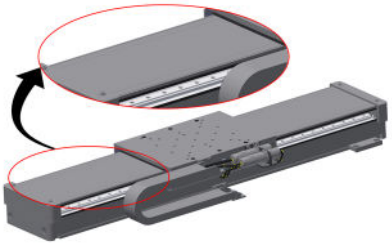
- **Lower profile**
- **Narrower width**
- **Less operating friction**



Covered Design "C"

Type CA, CB, CC

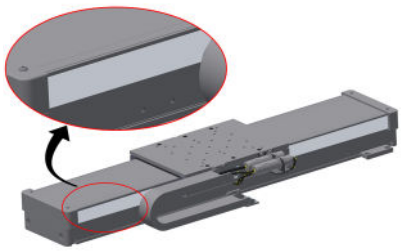
- **Solid top cover**
- **Protection against falling materials**
- **No increase in friction**



Sealed Design "S"

Type SA, SB, SC

- **IP30 environmental protection**
- **Protection against objects >2.5mm**

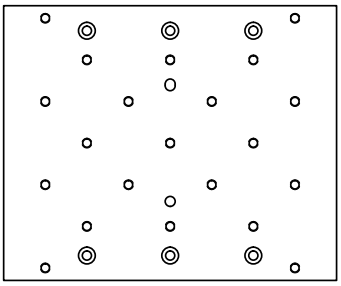


XLM Series Linear Motor Stages

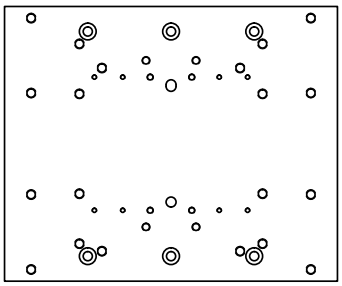
XLM Series - Options and Accessories -

Carriage Options

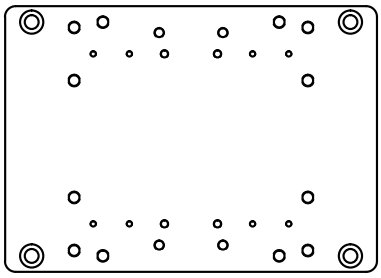
A number of carriage choices are available for each XLM size. Carriages are available with standard “X” pattern holes to accomodate XML Z-brackets, toe clamps, or RT/R adapters, with base holes for additional XLMs in a multi-axis configuration, and with hole patterns for other Parker positioners.



X Pattern



XE/XR Pattern



mSR/mPR Pattern

Z-Brackets

Multiple styles of Z-Brackets are available for additional flexibility of carriage configuration or building multi-axis systems. The brackets can mount at 3, 6, 9, and 12 o’clock positions, and can mount directly to XLM125 and XLM145 open, closed, and sealed versions. Z-Brackets can accept Parker 401XE, 402XE, 403XE, 404XE, and 404XR stages. See full catalog for compatibility.

RTR Modules

These accessory assemblies are used to mechanically couple multiple XLM units and allow for flexibility in the geometry of the system. The “R” module allows for rotation between axes, while the “RT” incorporates both rotation and translation.

Toe Clamps

A range of Toe Clamps can be used to connect multiple XLM units together to create a multi-axis system. They are also recommended for covered and sealed versions to eliminate the need to open the unit for mounting. All hardware is included with Toe Clamps.

XLM Ordering Information

Fill in an order code from each of the numbered fields to create a complete part number

Order Example:

①	②		③	④		⑤		⑥	⑦		⑧	⑨
XLM	200	–	P3	UA	–	0300	–	E3	S	–	C1	K0

① Series

XLM	Series

② Base Size (width in mm)

125	125 mm wide profile
145	145 mm wide profile
200	200 mm wide profile

③ Winding & Pole Length

P2	Parallel, 2 pole length
P3	Parallel, 3 pole length
P4	Parallel, 4 pole length

④ Sealing and Carriage Type

UA	Uncovered with Carriage A Mount
UB	Uncovered with Carriage B Mount
CA	Covered with Carriage A Mount
CB	Covered with Carriage B Mount
CC	Covered with Carriage C Mount
SA	Sealed with Carriage A Mount
SB	Sealed with Carriage B Mount
SC	Sealed with Carriage C Mount

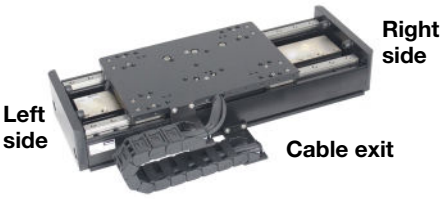
⑤ Travel (mm) - See XLM catalog for available travel lengths by base size and features.

⑥ Encoder

E1	1µ optical incremental
E2	0.1µ optical incremental
E3	0.01µ optical incremental
SC	Sine/Cosine 1V p-p
R1	Absolute BiSS-C 50 nm, 32 Bit, value increases right to left
R2	Absolute BiSS-C 5 nm, 32 Bit, value increases right to left
R3	Absolute BiSS-C 50 nm, 32 Bit, value increases left to right
R4	Absolute BiSS-C 5 nm, 32 Bit, value increases left to right

⑦ Scale

S	Steel



⑧ Cable Type

C1	3 meter cable direct from carriage, no connectors
C2	5 meter cable direct from carriage, no connectors, Sine/Cosine and Absolute ONLY (SC, R1, R2, R3, & R4)
C3	Carriage-mounted connectors with 3m universal extension cables
C4	Carriage-mounted connectors with 5m universal extension cables
C5	Carriage-mounted connectors with 3m P-Drive extension cables (Not available with SC, R1, R2, R3, and R4 configurations)
C6	Carriage-mounted connectors with 5m P-Drive extension cables (Not available with SC, R1, R2, R3, and R4 configurations)

⑨ Cable Carrier

K0	None
K1	Side carrier, narrow, cable exit to right
K2	Side carrier, medium, cable exit to right
K3	Side carrier, wide, cable exit to right
K4	Side carrier, narrow, cable exit to left
K5	Side carrier, medium, cable exit to left
K6	Side carrier, wide, cable exit to left

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