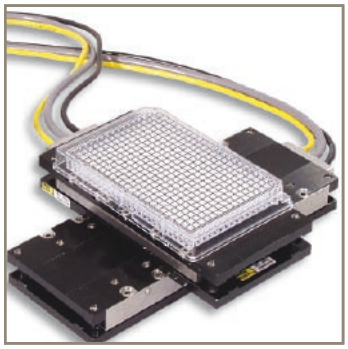
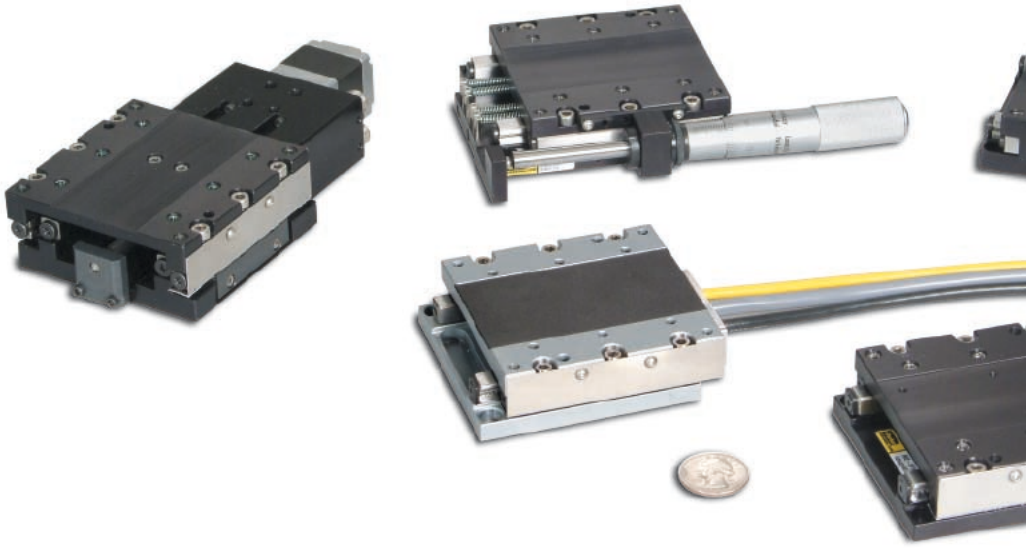
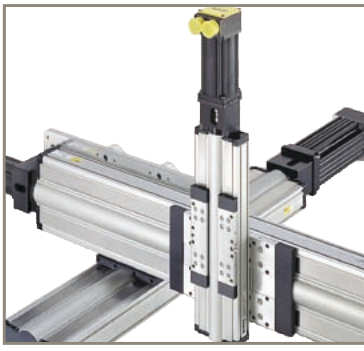


aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



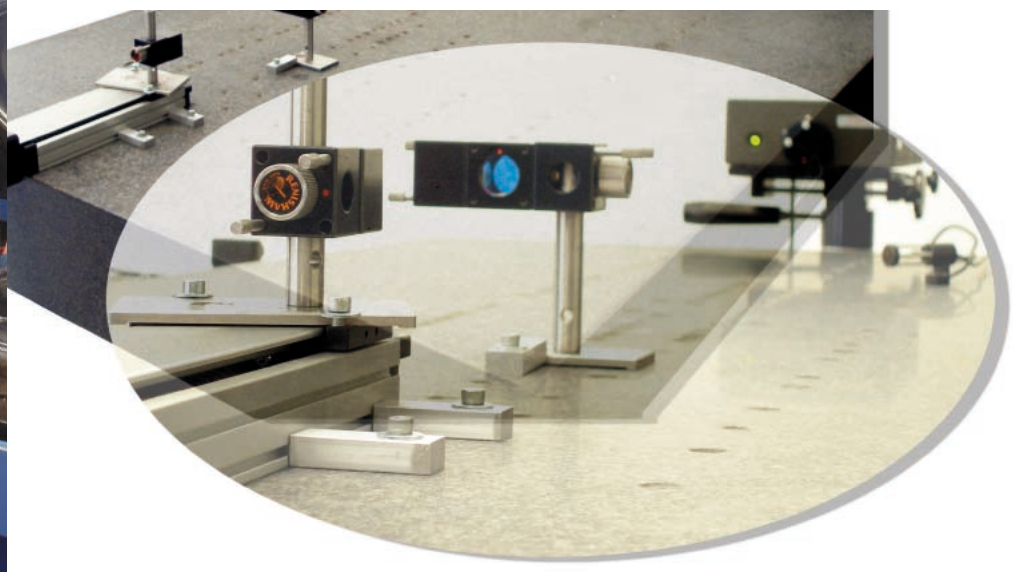
Precision Technology

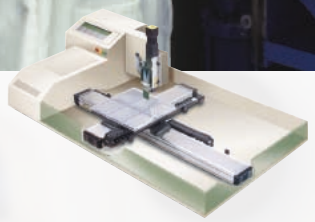
MX80 Series Miniature Tables



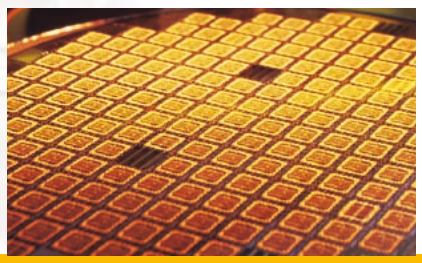
Parker

ENGINEERING YOUR SUCCESS.





Parker Facility in Offenburg, Germany
Manufacturing and Service for Precision Components in Europe



Precision Automation

Applications and industries integrating precision motion control have requirements that exceed most motion product capabilities - levels of accuracy, repeatability, straightness, flatness and orthogonality that demand specialized product designs and manufacturing capabilities. With more than 25 years of product design and manufacturing experience in the most demanding precision motion markets, Parker is ready to provide the products and systems to serve our customers' most challenging needs.

Customization and Services

Unlike many other motion technologies, precision electromechanical applications often require custom solutions. Many solutions are complete one-of-a kind systems.

Our experienced engineers and technicians provide:

- Application advice
- Product sizing and selection, including mechanics, motors, drives and controls
- System design
- System manufacturing including testing and axis alignment
- System commissioning
- System maintenance

Parker Precision Automation customers can receive many optional services such as:

- 3D Custom assembly drawings
- Matches motor control systems
- Life-load diagrams
- Customized cabling systems

Advanced Manufacturing Capabilities

Our advanced manufacturing and assembly process allows us to build quality and consistency into every element of your motion system. Each mechanical system is fully assembled prior to shipment and each component is properly handled to protect finish and appearance. While providing advanced manufacturing capabilities, we also strive to maintain the industry's best lead times for precision motion products.

Performance and specifications are verified with state-of-the-art testing, including

- **Cleanroom-approved versions** - Parker is equipped with in house particulate testing facilties to certify materials for cleanroom ratings.
- **EMI testing** - Parker has an EMI test chamber, which allows us to test equipment to verify levels of electromagnetic interference.
- **Precision Metrology Lab** - When precision is critical to your process, you need validated, proven performance data. Parker certifies all precision-grade positioners using state-of-the-art laser interferometers, and provides reports to validate accuracy and bidirectional repeatability.

Parker Automation Technology Centers

Parker Automation Technology Centers are a network of premier product and service providers who can serve you locally for your automation needs. Each Automation Technology Center is certified to have completed significant product training and has the ability to provide subsystem solutions with local support. Parker Automation Technology Centers are located throughout Europe, and are served by our European manufacturing facility in Offenburg, Germany.

Selectable Levels of Integration

Parker's **Selectable Levels of Integration** is a philosophy of product development and management that allows the machine builder to select an appropriate system, subsystem, or component to meet a specific need. Parker has solutions for machine builders of all types, from those who want a complete integrated system to those who want to build their own system from "best of breed" components.

Systems

Machine builders and OEMs often choose to integrate a complete electromechanical system into their machine. They have confidence in knowing that our knowledge, experience, and support will ensure that their goals are met. Minimal design engineering ensures component compatibility from a single source.

Subsystems and Bundled Products

For a cost-effective and efficient solution, Parker offers bundled or kitted systems. We can combine motors, gearheads, and positioning systems to deliver a configured subsystem ready for installation. Parker configuration and setup software accommodates the rest of the product line, making start-up a snap. Combining this with our custom product modification capabilities gives the machine builder an economical custom-fit solution, with reduced engineering effort, straightforward integration, and modular compatibility.

Component Products

We offer the broadest range of linear and rotary motion products available for automation systems. If you have the capability and experience to develop your own systems, our innovative, easy-to-use products will help you get the job done. Parker provides short lead times, large selection, and proven reliability.

MX80 Series

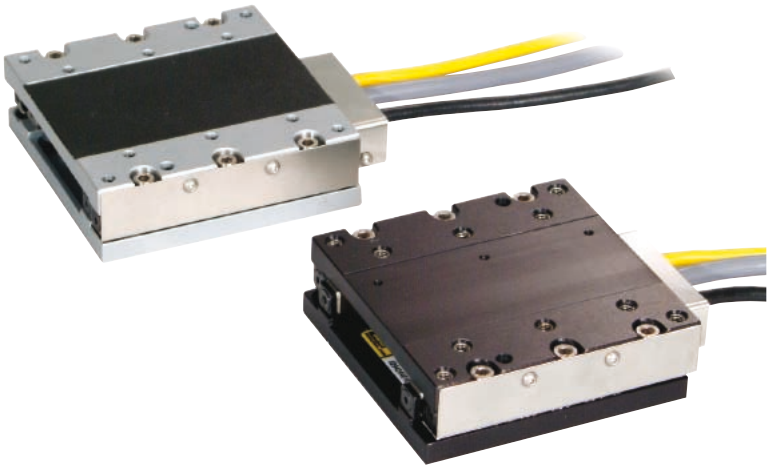
www.parker-eme.com/mx80

MX80L Features

www.parker-eme.com/mx80l

MX80L Linear Motor Driven Stages

- Miniature size
- Acceleration 49 m/s²
- Short settling times
- Submicrometer precision
- High velocity 2 m/s
- Multi-axis platform



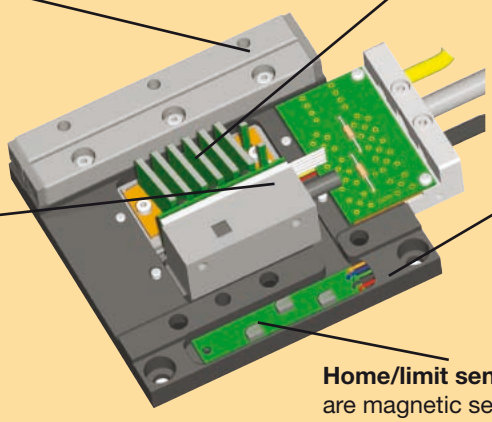
Miniaturization of fiber optics, photonics, electronics and biomedical processes has driven the need for smaller and more efficient positioners. Parker's MX80 miniature stage, the smallest linear servomotor driven positioner in the industry, is loaded with high-performance features for both rapid linear translation and precise positioning of lighter loads in small work envelopes.
Designed for today's 24/7 production demands, the MX80 has redefined „high-throughput automation" in the world of miniature positioners.

Features

- Low profile miniature size (25 mm high x 80 mm wide)
- Linear Servo Motor Drive
- Six linear encoder resolutions (0.01 µm to 5.0 µm)
- 25, 50, 100, 150 and 200 mm travels
- Cross roller bearing (zero cage creep design)
- Precision or standard grade
- Cleanroom and low ESD options
- Fully adjustable home and limit sensors
- Dowel holes for repeatable payload mounting
- Master reference surface to travel path
- Plug-in intelligent drive
- Pneumatic Z-axis counterbalance
- No moving cables

Cross roller bearings
provide high stiffness and extremely smooth linear translation. A rack and pinion anti-cage creep design within the bearing races prevents cage creep even at 49 m/s² acceleration, or with cantilevered loads.

Optical linear encoders
are available in six standard resolutions (10 nm, 20 nm, 0.1 µm, 0.5 µm, 1.0 µm, 5.0 mm) and is fully integrated within the body of the stage. The non-contact design offers long life and clean operation.



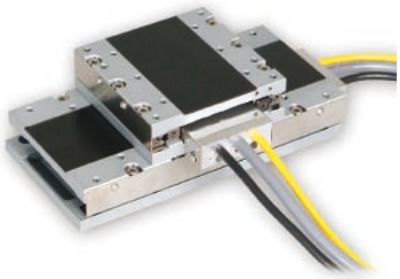
Linear servo motors
features a patent pending ironcore design that provides high thrust density for linear acceleration to 49 m/s² and velocities to 2 m/s. The non-contact design offers long life and clean operation.

Master teference durface
is a feature unique to the MX80 that enables customers to align their process to the actual travel path within micrometer.

Home/limit sensors
are magnetic sensors completely housed within the body of the stage, and fully adjustable over the entire travel range.

High performance in a small package

While the MX80 is small in size, it is large on performance and reliability. All key components are „built-in“ - residing within the body of the stage to provide a clean looking, reliable, unobstructed package. At the heart of the MX80 is an innovative non-contact linear servo motor (patent pending). This direct drive motor has been optimized for force, speed, and acceleration, to deliver outstanding performance and response. A high-precision non-contact linear encoder



provides submicrometer resolution, repeatability and accuracy. Selectable resolutions range from 10 nm to 5 µm.
Precision ground cross roller bearing sets with a zero cage creep feature provide extremely smooth, precise linear translation. Digital Hall effect travel limit and home sensors are conveniently designed into the unit for easy adjustment over the entire travel of the stage. Although there are no moving cables, a meter of high-flex cabling is included and wired directly into the units. This high-flex cabling addresses cable flexing concerns associated with the second or third axis in multi-axis system.

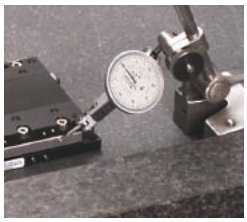
Zero cage creep feature

High acceleration and smooth translation are both desired attributes in a linear-motor stage. The cross roller bearing system found in the MX80 provides extremely smooth linear translation, and with an anti-cage creep design, operates very well in high acceleration applications. This design employs a rack and pinion feature within the bearing races to eliminate bearing creep. As a result, the MX80 performs well, even at 49 m/s² acceleration.

Tooling features

Innovative tooling features make mounting and alignment much quicker and easier.

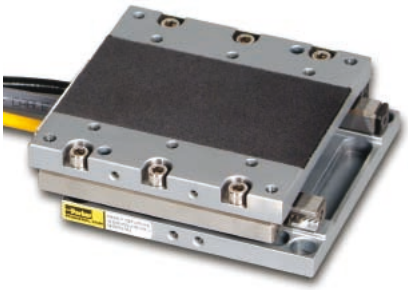
- A hardened steel master reference surface is provided along the side of the stage to allow fixturing or other tooling elements to be precisely aligned with the actual travel path.
- Two dowel pin holes are provided on the carriage top and base for repeatable mounting of positioner or tooling.



MX80LP Precision Series

- Acceleration 39.2 m/s²
- Repeatability to ±0.4 µm
- Straightness 4 µm
- Steel body construction
- Precision ground mounting and bearing surfaces
- Electroless nickel protective finish

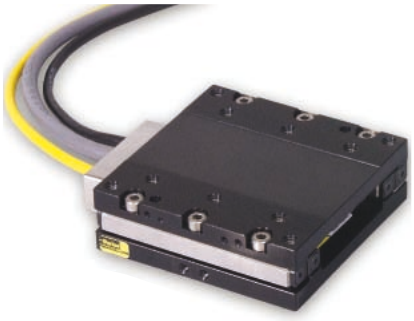
Precision grade models are designed for high-performance applications requiring the highest degree of positioning accuracy. They offer a steel body design with precisely ground mounting surfaces & bearing ways. They include higher resolution linear encoders, and are slope corrected, laser tested and certified for optimum precision.



MX80LS Standard Series

- Acceleration 49 m/s²
- Repeatability to ±0.8 µm
- Straightness 6 µm
- Steel body construction
- Light weight aluminum body
- Low luster black anodize finish

Standard grade units offer a lower cost alternative for applications requiring high throughput performance with less demanding positioning requirements. They are constructed of high alloy aluminum, providing a lighter weight design which can accelerate to 49 m/s².



MX80L Technical Data

	Unit	MX80LP Precision Grade				MX80LS Standard Grade				
Travel	[mm]	T01 25	T02 50	T03 100	T04 150	T01 25	T02 50	T03 100	T04 150	T05 200
Continuous force	[N]	4	4	8	8	4	4	8	8	8
Peak force	[N]	12	12	24	24	12	12	24	24	24
Continuous current	[A_{rms}]	0.8	0.8	1.6	1.6	0.8	0.8	1.6	1.6	1.6
Peak current**	[A]	2.4	2.4	4.8	4.8	2.4	2.4	4.8	4.8	4.8
Force constant	[N/A_{rms}]	5.51	5.51	5.51	5.51	5.51	5.51	5.51	5.51	5.51
Nominal load	[kg]	8	8	8	8	8	8	8	8	8
Max. speed Encoder resolution: 5.0 µm 1.0 µm 0.5 µm 0.1 µm 0.02 µm 0.01 µm Sine Cosine	[mm/s]	 1100 1100 1100 300 60 30 1100	 1500 1500 1500 300 60 30 1500	 2000 2000 1500 300 60 30 2000	 2000 2000 1500 300 60 30 2000	 1100 1100 1100 300 60 30 1100	 1500 1500 1500 300 60 30 1500	 2000 2000 1500 300 60 30 2000	 2000 2000 1500 300 60 30 2000	 2000 2000 1500 300 60 30 2000
Max. acceleration	[mm/s²]	1544	1544	1544	1158	1930	1930	1930	1544	1175
Bidirectional repeatability* Encoder resolution: 5.0 µm 1.0 µm 0.5 µm 0.1 µm 0.02 µm 0.01 µm Sine Cosine	[µm]	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.5 ±0.4 ±0.4 ±0.4	 ±10.0 ±2.0 ±1.0 ±0.7 ±0.5 ±0.5 ±0.5
Positional accuracy* Encoder resolution: 5.0 µm 1.0 µm 0.5 µm 0.1 µm 0.02 µm 0.01 µm Sine Cosine	[µm]	 13 5 4 3 3 3 3	 14 6 5 4 4 4 4	 15 7 6 5 5 5 5	 15 7 6 5 5 5 5	 25 15 12 12 12 12 12	 30 20 15 15 15 15 15	 35 25 20 20 20 20 20	 35 25 20 20 20 20 20	 35 25 20 20 20 20 20
Straightness & flatness	[µm]	4	4	5	6	6	6	10	12	14
Duty cycle	[%]	100	100	100	100	100	100	100	100	100
Unit weight	[kg]	0.590	0.590	1.027	1.345	0.475	0.475	0.875	1.125	1.370
Carriage weight (unloaded)	[kg]	0.282	0.282	0.509	0.676	0.213	0.213	0.405	0.537	0.695

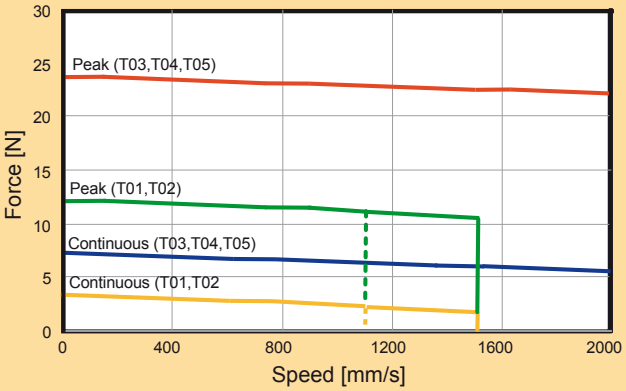
** based on a winding temperature of up to 60 °C for a period of
T01, T02: 1.2 s
T03, T04, T05: 5 s

* Notes on the MX80LP:
(1) Measured at the carriage center, 35 mm above the mounting surface @ 20 °C with no load. Unit bolted to granite surface, flat to within 1 µm/300 mm.
(2) Total accuracy and bi-directional repeatability over full travel (peak to peak).
(3) Precision grade with slope correction value. Consult factory if better accuracy is required.

* Notes on the MX80LS:
(1) Total accuracy and bi-directional repeatability over full travel (peak to peak).

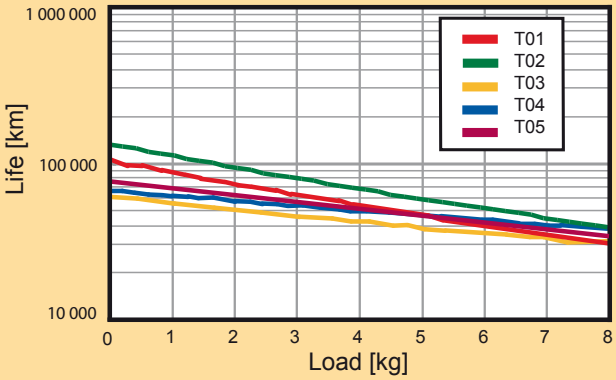
MX80L Life / Load Diagrams

Force - Speed

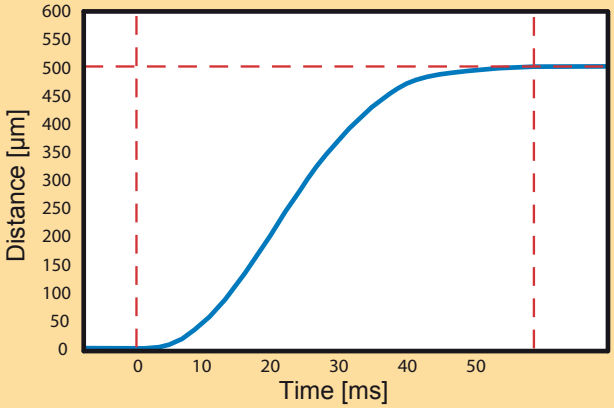


Note:
T01 (25 mm travel) is limited to a maximum speed of 1100 mm/s.
T02 (50 mm) is limited to 1500 mm (due to limited travel).

Life - Load (Normal Load)

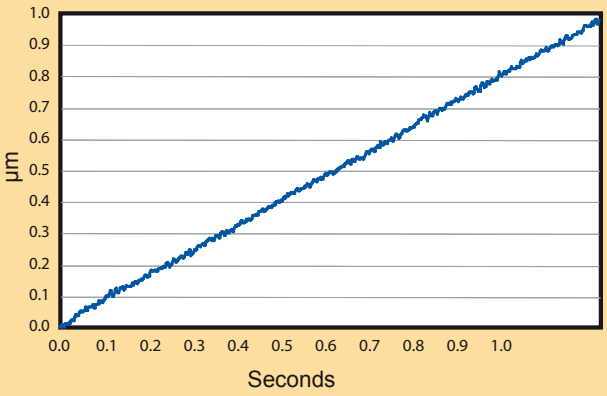


Distance vs Time



Note:
1 kg payload, 500 µm move: Move and settle to within 1 µm in 47 ms.

Velocity Ripple



Note:
Tests were performed using a model MX80LT04D13E8 with a 20 nm linear encoder.

MX80L Options & Accessories

Simple configuration digital drive options

Tuning is easy and intuitive for users and is available via a variety of methods. The motor and loading information must be known by the drive to determine the baseline tuning gains. These are simple parameter entries the user can complete with the help of several Parker tools. Seamless integration of drives and controls ensures performance matched functionality of the completed motion system.

ViX Intelligent Servo & Microstepping Drives/ Control

The ViX servo and microstepping drives are the perfect drive solution to be paired with the MX80 family. These drives use advanced field oriented digital control technology to enhance dynamic performance and improve efficiency. In addition to servo and microstepping versions, the ViX family is offered with different levels of control.

ViX Servo Drive/Control

Order separately

XL-PSU Power Supply Module Accessory

Order separately

The Parker XL-PSU power supply offers a convenient way of powering a ViX series servo drive.

Compax3 Intelligent Servo Drives/Controllers

Order separately

With a Compax3 series drive, a transformer must be used. Parker provides a suitable transformer.
Part number: TO255

"Plug & Play" cable options

Order codes: CMxx

"User convenience" is high on the list of cable attributes found in the MX80. The high-flex cabling and connectors are reliable, durable and offer easy hook-up for „plug and run" installation.

- High-flex cables
- Plug-in compatibility with ViX drive
- CE compliant connectors and shielding
- Color coded jackets and labeling
- Connectors simplify installation

Encoder options

Order codes: Ex

A non-contact linear optical encoder provides a quadrature output and offers resolution ranging from 10 nm to 5 µm. On the MX80L, the encoder is internal to the stage body. There is no increase to the footprint of the unit and no additional external cabling is required.

Home and limit sensor options

Order codes: Hx, Lx

Magnetic home and limit sensors are completely housed within the body of the stage. An innovative design adds functionality without sacrificing geometry. Sensor triggers can be easily adjusted over the travel. The output format is an open collector type capable of sinking up to 50 mA, and be set as N.O. or N.C.:

For additional information, please refer to the internet www.parker-eme.com or contact us.

Cleanroom option

Order codes: Rxx

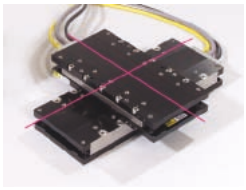
Both precision and standard grade products can be prepared for cleanroom compatibility. Preparation

involves material changes, element modification and cleanroom compatible lubricants. MX80L and MX80S stages with this option are class 10 cleanroom compatible. When applying an XY or XYZ combination in a cleanroom environment, moving wires need to be considered - please consult a Parker application engineer.

System orthogonality option

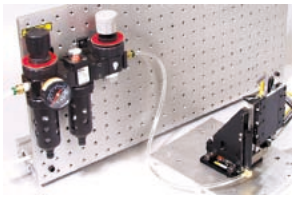
Order codes: Sx

In any multi-axis positioning system, the perpendicular alignment of the axes must be clearly specified. Degree of orthogonality defines the perpendicular alignment of axis one to another. The MX80 offers two choices for orthogonality. As standard, perpendicularity is held to within 60 arc seconds. For more exacting applications the MX80 can be optioned for 15 arc seconds orthogonality.



Pneumatic accessory package

This accessory is offered for use with the pneumatic counterbalance option. It consists of a pre-filter, a pressure regulator, a coalescing filter, and a precision regulator to precisely regulate air pressure and remove oil, water or debris down to 3 µm.



Part number: 002-2236-01

Low ESD finish

Order codes: Rxx

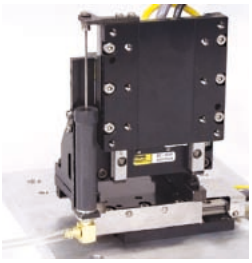
An optional low ESD electroless nickel or Armoloy coating is offered

for improved electrically conductivity, providing a low resistance to ground path for electric discharge.

Z-axis counterbalance option

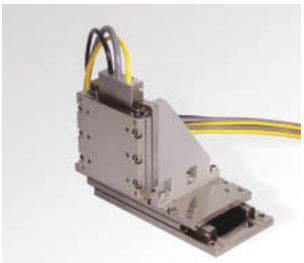
Order codes: Xx

A pneumatic Z-axis counterbalance is offered to prevent a sudden load drop if power to the motor is interrupted. A controlled vertical force is applied to the stage top to negate the effect of gravity and achieve equilibrium. A precisely regulated clean air supply of 0 to 413.7 kPa is required for operation.



Z-axis bracket accessory

Lightweight aluminum Z-brackets are available for easy construction of vertical axis combinations.



Standard model order numbers:

25 & 50 mm: 002-2238-01100 &
150 mm: 002-2240-01

Order number with ESD-protection:

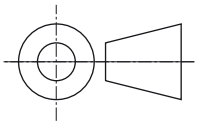
5 & 50 mm: 002-2239-01100 &
150 mm: 002-2241-01

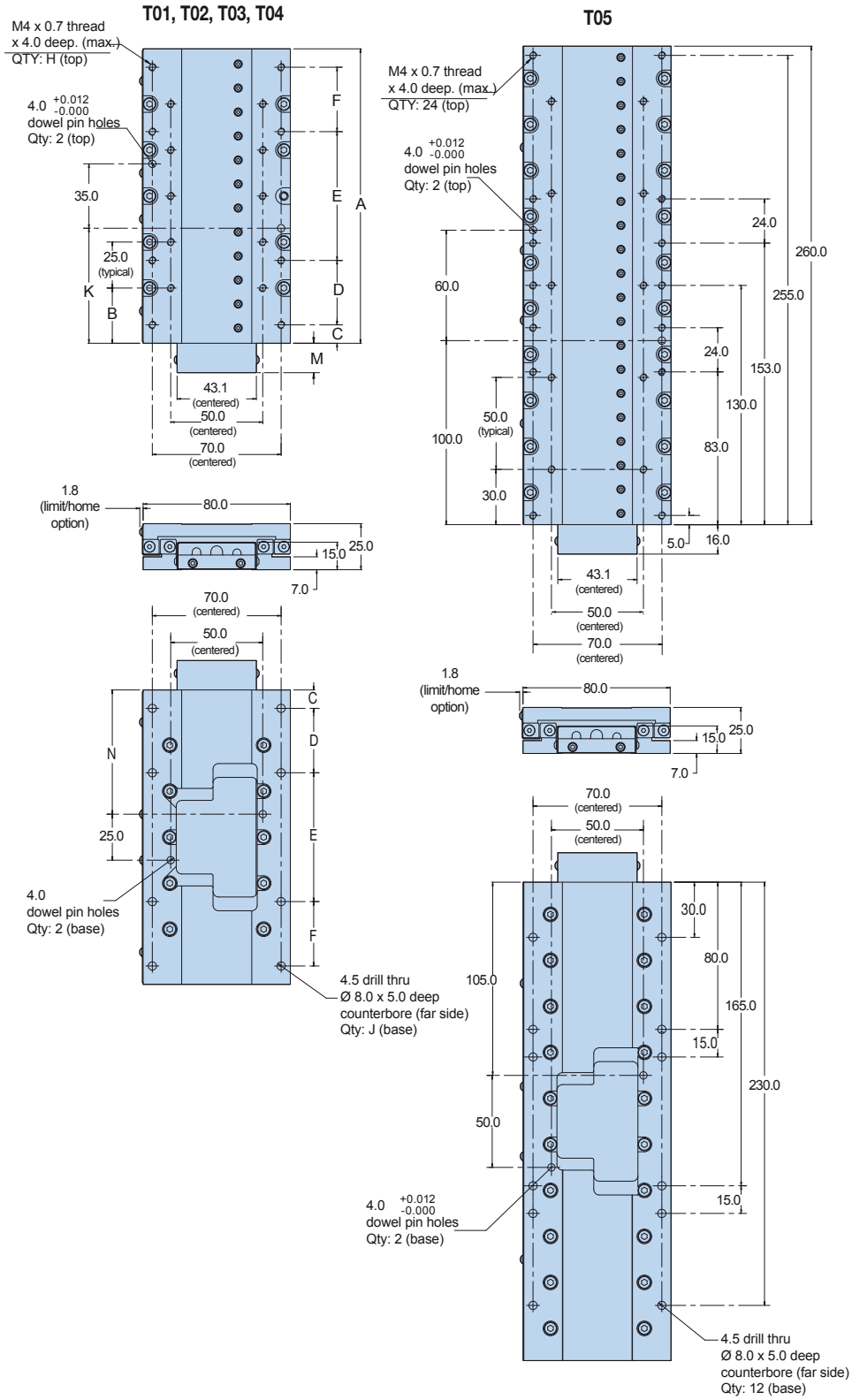
Environmental protection option

Both precision and standard grade units have a hard coat protective finish. The precision units have a hard coat (Rc 78) satin chrome finish, and the standard units have a low luster black anodized finish.

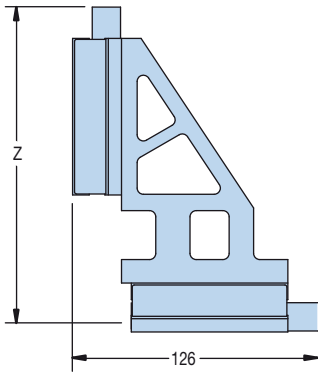
MX80L Dimensions

Dimensions [mm]



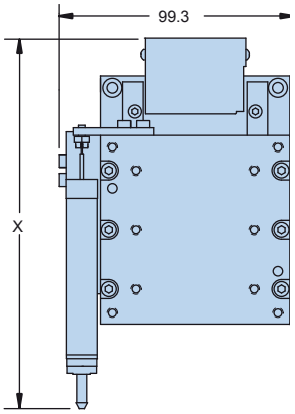


Z-axis



Travel	Dimensions [mm] Z
25	166
50	166
100	251
150	326
200	-

Pneumatic vertical axis counter balance



Travel	Dimensions [mm] X
25	156.6
50	156.6
100	230.6
150	310.6
200	-

Travel	Dimensions [mm]										
	A	B	C	D	E	F	H	J	K	M	N
25	80	15	5	70	—	—	10	4	22.5	22	27.5
50	80	15	5	70	—	—	10	4	22.5	22	27.5
100	160	30	10	35	70	35	18	8	62.5	16	67.5
150	210	30	5	65	70	65	22	8	87.5	16	92.5

MX80S Features

www.parker-eme.com/mx80s

MX80S Ballscrew and Leadscrew Driven Stages

- Miniature Size - low profile (35 mm high x 80 mm wide)
- Normal or cleanroom environments
- 25, 50, 100, 150 mm travels
- Multi-axis platform
- Ballscrew or Leadscrew Drive Options

Features

- Low profile miniature size
- Up to 123 N axial thrust
- 19.62 m/s² acceleration
- Cross roller bearing (zero cage creep option)
- Stepper or servo motor driven
- Digital limit/home system
- Optional linear encoder
- Cleanroom preparation option
- Low ESD option for electrically sensitive applications

The MX80S miniature positioner is the screw driven member of Parker s MX80 family. Like its counterparts, the MX80L linear motor driven stage and MX80M manual stage, the MX80S is designed for applications requiring reliable linear positioning in space restricted applications. It is the complementary product that bridges the product spectrum between the high dynamic linear motor performance of the MX80L, and the manual precision of the MX80M. The MX80S can be supplied with a high-efficiency leadscrew drive capable of reaching 200 mm/s velocity, or a precision ground ballscrew drive offering axial thrust to 123 N.

The leadscrew drive employs a PTFE coated leadscrew with a preloaded nut to produce extremely smooth linear translation. A choice of three leads provides improved opportunity for matching desired velocity/resolution requirements.

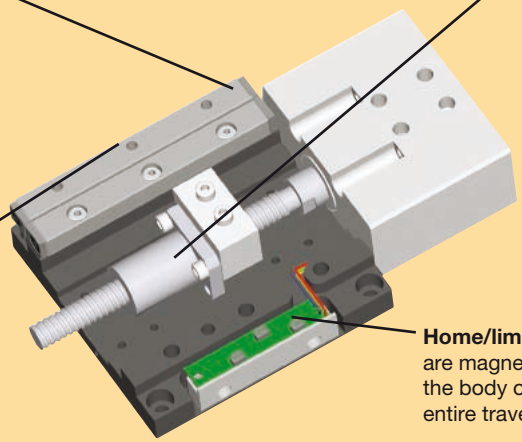
The 2.0 mm lead ballscrew driven stage offers high performance 24/7 operation with a thrust load capacity of 123 N and velocity to 100 mm/s at 100 % duty cycle.

Leadscrew drive

Ballscrew drive

Cross roller bearings
provide high stiffness and extremely smooth linear translation. A rack and pinion anti-cage creep design within the bearing races prevents cage creep even at 49 m/s² acceleration, or with cantilevered loads.

Master reference surface
is a feature unique to the MX80 that enables customers to align their process to the actual travel path within micrometer.



Ballscrew drive or leadscrew drive
The 2.0 mm lead ballscrew driven stage offers high performance 24/7 operation with a thrust load capacity of 123 N and velocity to 100 mm/s at 100 % duty cycle. Leadscrew driven stages are available with 1, 2 or 10 mm leads. The PTFE coated leadscrew provides extremely smooth linear translation at velocities up to 200 mm/s.

Home/limit sensors
are magnetic sensors completely housed within the body of the stage, and fully adjustable over the entire travel range.

MX80S Technical Data

	Unit	MX80S Leadscrew Drive				MX80SP Ballscrew Drive			
Travel	[mm]	T01 25	T02 50	T03 100	T04 150	T01 25	T02 50	T03 100	T04 150
Nominal load	[kg]	8	8	8	8	8	8	8	8
Axial thrust force	[N]	44	44	44	44	123	123	123	123
Breakaway torque	[Nm]	0.021	0.021	0.021	0.021	0.050	0.050	0.050	0.050
Running torque 1.0 mm lead 2.0 mm lead 10.0 mm lead	[Nm]	 0.028 0.028 0.021	 0.028 0.028 0.021	 0.035 0.035 0.021	 0.035 0.035 0.028	 — 0.085 —	 — 0.085 —	 — 0.085 —	 — 0.085 —
Inertia(without motor and coupling) 1.0 mm lead 2.0 mm lead 10.0 mm lead	[10^{-7}kgm^2]	 1.47 1.62 6.34	 1.47 1.62 6.34	 2.42 2.68 11.30	 3.06 3.42 14.90	 — 4.19 —	 — 4.19 —	 — 6.08 —	 — 7.68 —
Screw speed (max)	[s^{-1}]	20	20	20	20	50	50	50	50
Screw diameter	[mm]	6.35	6.35	6.35	6.35	8.00	8.00	8.00	8.00
Maximum speed 1.0 mm lead 2.0 mm lead 10.0 mm lead	[mm/s]	 20 40 200	 20 40 200	 20 40 200	 20 40 200	 — 100 —	 — 100 —	 — 100 —	 — 100 —
Bidirectional repeatability* 1.0 mm lead 2.0 mm lead 10.0 mm lead	[µm]	 ±5.0 ±5.0 ±10.0	 ±5.0 ±5.0 ±10.0	 ±5.0 ±5.0 ±10.0	 ±5.0 ±5.0 ±10.0	 — ±1.5 —	 — ±1.5 —	 — ±1.5 —	 — ±1.5 —
Positional accuracy* 1.0 mm lead 2.0 mm lead 10.0 mm lead	[µm]	 30 30 35	 45 45 50	 75 75 80	 100 100 105	 — 10 —	 — 15 —	 — 18 —	 — 20 —
Straightness & flatness	[µm]	8	12	16	20	8	12	16	20
Screw efficiency 1.0 mm lead 2.0 mm lead 10.0 mm lead	[%]	 40 59 78	 40 59 78	 40 59 78	 40 59 78	 — 90 —	 — 90 —	 — 90 —	 — 90 —
Bearing friction coefficient	-	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Duty cycle	[%]	50	50	50	50	100	100	100	100
Unit weight Table only With 2-stack stepper	[kg]	 0.597 0.748	 0.597 0.748	 1.003 1.154	 1.268 1.419	 0.694 0.845	 0.694 0.845	 1.114 1.265	 1.392 1.513
Carriage weight (unloaded)	[kg]	0.194	0.194	0.353	0.471	0.291	0.291	0.464	0.595

* Notes: MX80SS (leadscrew)
(1) Measured at the carriage center, 35 mm above the mounting surface @ 20 °C with no load. Unit bolted to granite surface, flat to within 1 µm/300 mm.
(2) Total accuracy and bi-directional repeatability over full travel (peak to peak).

* Notes: MX80SP (Ballscrew drive)
(1) Measured at the carriage center, 35 mm above the mounting surface @ 20 °C with no load. Unit bolted to granite surface, flat to within 1 µm/300 mm.
(2) Total accuracy and bi-directional repeatability over full travel (peak to peak).
(3) Repeatability valid with M21 servo motor.

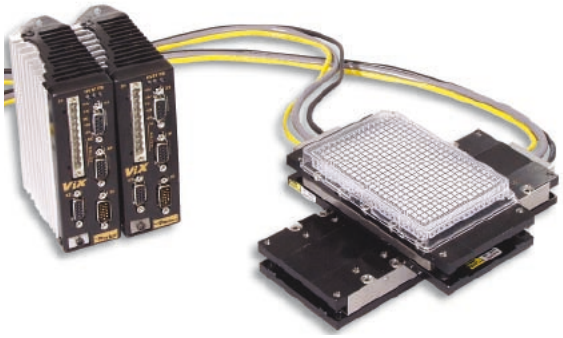
MX80S Options & Accessories

Simple configuration digital drive options

Tuning is easy and intuitive for users and is available via a variety of methods. The motor and loading information must be known by the drive to determine the baseline tuning gains. These are simple parameter entries the user can complete with the help of several Parker tools. Seamless integration of drives and controls ensures performance matched functionality of the completed motion system.

ViX Intelligent Servo & Microstepping Drives/ Control

The ViX servo and microstepping drives are the perfect drive solution to be paired with the MX80 family. These drives use advanced field oriented digital control technology to enhance dynamic performance and improve efficiency. In addition to servo and microstepping versions, the ViX family is offered with different levels of control.



ViX Servo Drive/Control

Order separately

ViX Micro Stepper Drive/Control

Order separately

XL-PSU Power Supply Module Accessory

Order separately

The Parker XL-PSU power supply offers a convenient way of powering a ViX series servo drive.

„Plug & Play“ cable options

Order codes: CMxx

“User convenience” is high on the list of cable attributes found in the MX80. The high-flex cabling and connectors are reliable, durable and offer easy hook-up for „plug and run“ installation.

- High-flex cables

- Plug-in compatibility with ViX drive
- CE compliant connectors and shielding
- Color coded jackets and labeling
- Connectors simplify installation

Encoder options

Order codes: Ex

A non-contact linear optical encoder provides a quadrature output and offers resolution ranging from 10 nm to 5 µm. On the MX80L, the encoder is internal to the stage body. There is no increase to the footprint of the unit and no additional external cabling is required.

Home and limit sensor options

Order codes: HxLx

Magnetic home and limit sensors are completely housed within the body of the stage. An innovative design adds functionality without sacrificing geometry. Sensor triggers can be easily adjusted over the travel. The output format is an open collector type capable of sinking up to 50 mA, and be set as N.O. or N.C.:

For additional information, please refer to the internet www.parker-eme.com/mx80s or contact us.

Cleanroom option

Order codes: Rxx

Both precision and standard grade products can be prepared for cleanroom compatibility. Preparation

involves material changes, element modification and cleanroom compatible lubricants. MX80L and MX80S stages with this option are class 10 cleanroom compatible. When applying an XY or XYZ combination in a cleanroom environment, moving wires need to be considered - please consult a Parker application engineer.

Low ESD finish

Order codes: Rxx

An optional low ESD electroless nickel or Armoloy coating is offered

for improved electrically conductivity, providing a low resistance to ground path for electric discharge.

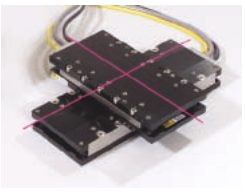
Environmental protection option

Both precision and standard grade units have a hard coat protective finish. The precision units have a hard coat (Rc 78) satin chrome finish, and the standard units have a low luster black anodized finish.

System orthogonality option

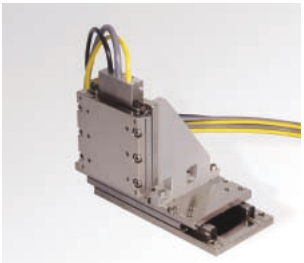
Order codes: Sx

In any multi-axis positioning system, the perpendicular alignment of the axes must be clearly specified. „Degree of orthogonality“ defines the perpendicular alignment of axis one to another. The MX80 offers two choices for orthogonality. As standard, perpendicularity is held to within 60 arc seconds. For more exacting applications the MX80 can be optioned for 15 arc seconds orthogonality.



Z-axis bracket accessory

Lightweight aluminium Z-brackets are available for easy construction of vertical axis combinations.



Standard model order numbers:

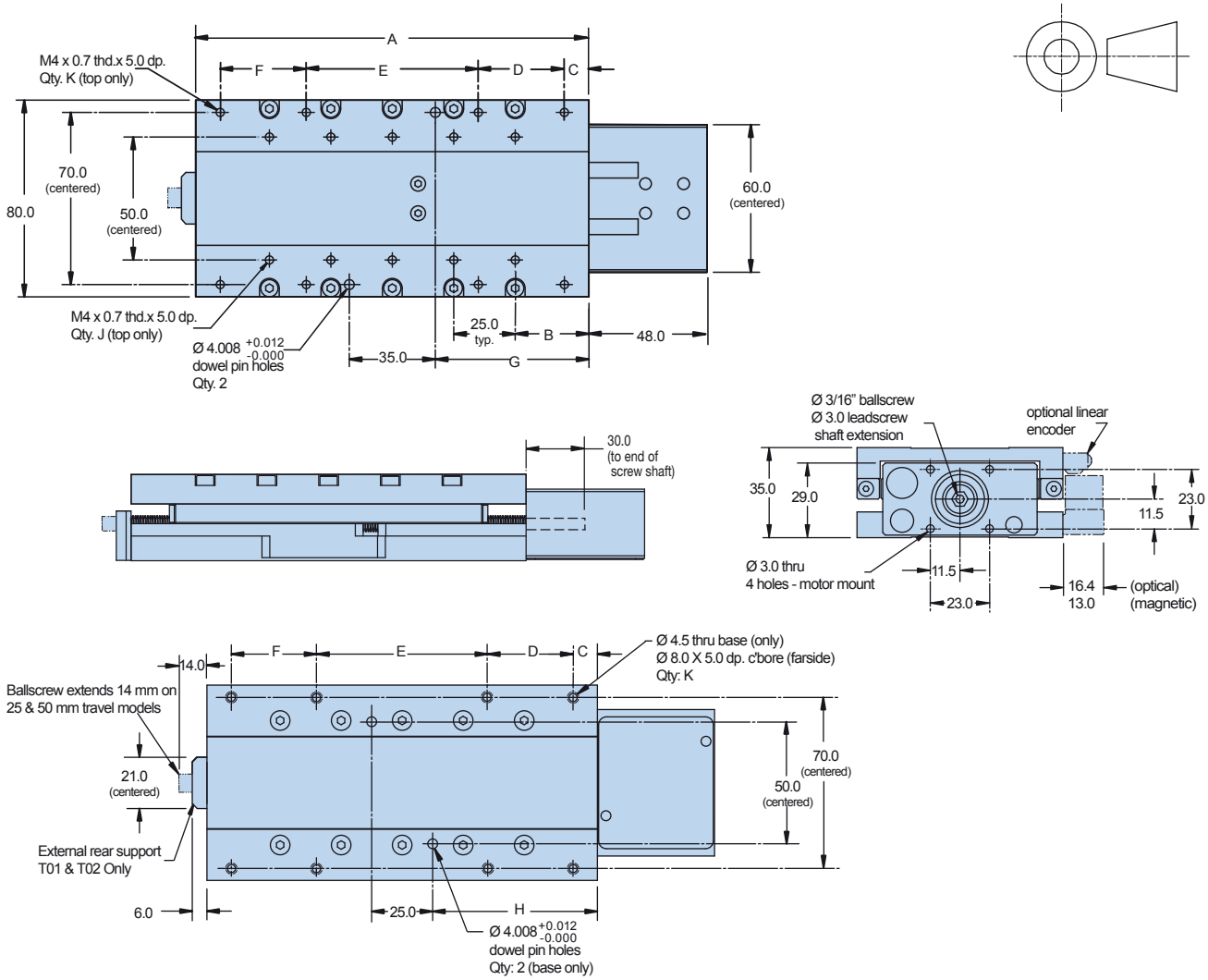
25 & 50 mm: 002-2238-01
100 & 150 mm: 002-2240-01

Order number with ESD-protection:

5 & 50 mm: 002-2239-01
100 & 150 mm: 002-2241-01

MX80S Dimensions

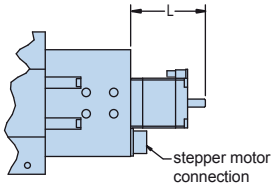
Dimensions [mm]



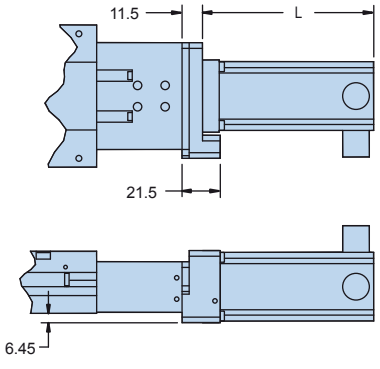
Travel	Dimensions [mm]									
	A	B	C	D	E	F	G	H	J	K
25	80	15	5	70	—	—	22.5	27.5	6	4
50	80	15	5	70	—	—	22.5	27.5	6	4
100	160	30	10	35	70	35	62.5	67.5	10	8
150	210	30	5	65	70	65	87.5	92.5	14	8

Mounting

Stepper motor



Servo motor



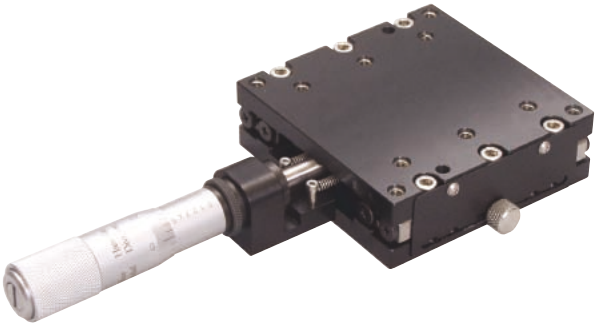
Model	Stack	NEMA	L [mm]
Stepper motor	1 2 3	11	42.0 50.0 61.5
Servo motor	1	16	83.6

MX80M Features

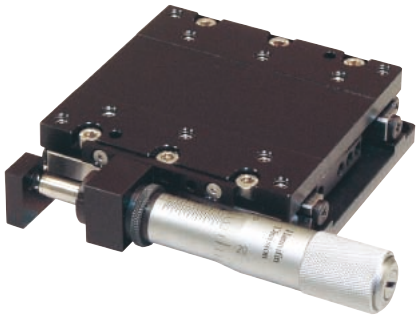
www.parker-eme.com/mx80m

MX80M Free Travel and Micrometer Driven Stages

- Precision cross roller bearings
- Optional clean room preparation
- Optional low ESD coating
- Dowel holes in top & base
- Interchangable mounting with motorized MX80 models
- Positive position lock



The MX80M stages are offered as free travel or micrometer driven units with 25 mm or 50 mm travel. They include innovative tooling features to make mounting and precision alignment quicker and easier. A hardened steel master reference surface is provided along the side of the stage to allow fixturing or other tooling elements to be precisely aligned with the actual travel path. Dowel pin holes are provided on the carriage top for repeatable mounting or tooling. Also available are custom features such as a steel body design, vacuum prepped units, and anti cage creep bearings for high dynamic applications up to 150 mm travel.



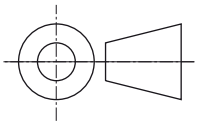
MX80M Technical Data

	Unit	MX80M free travel		MX80LM micrometer driven	
Travel	[mm]	T01 25	T02 50	T01 25	T02 50
Nominal load	[kg]	20	20	20	20
Axial force [1] F_a F_b	[N]	 — —	 — —	 44.1 5.9	 44.1 9.8
Straight line accuracy (per 25 mm travel)	[µm]	2	2	2	2
Micrometer resolution 0.001 in 0.01 mm	-	 — —	 — —	 Yes Yes	 Yes Yes
Digital micrometer 0.00005 in 0.001 mm	-	 — —	 — —	 Yes Yes	 Yes Yes

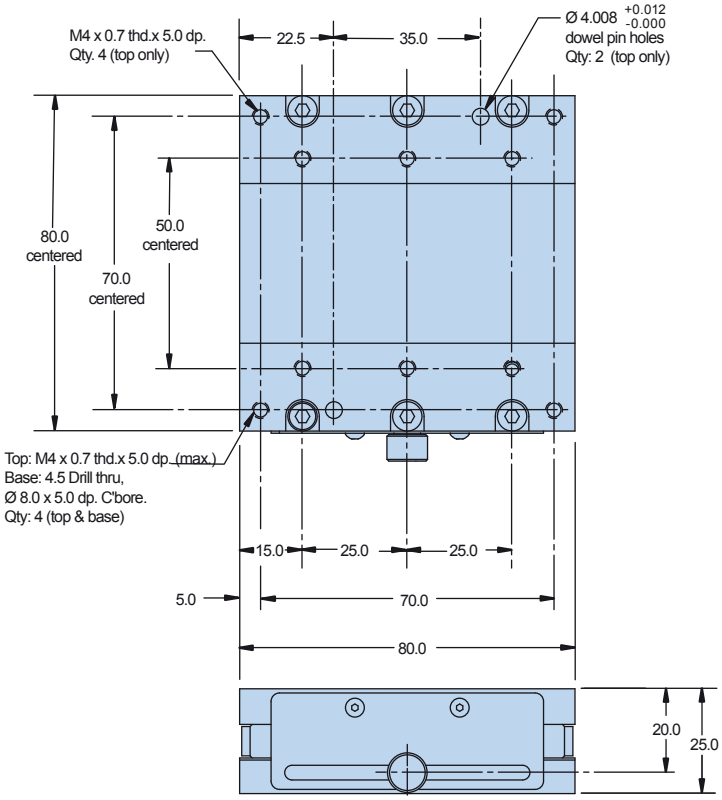
[1] F_a (Force acting against micrometer)
F_b (Force acting against spring)

MX80M Dimensions

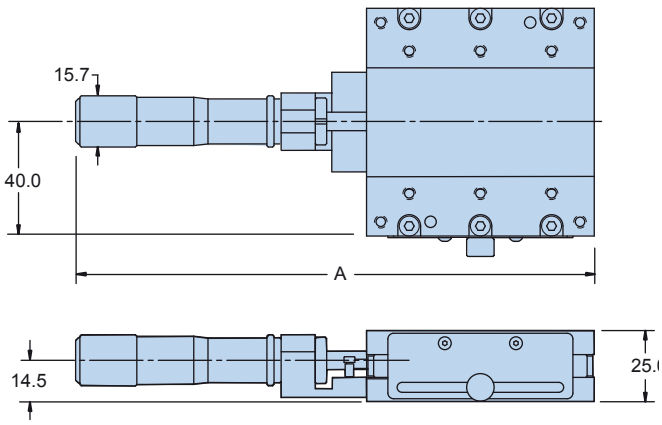
Dimensions [mm]



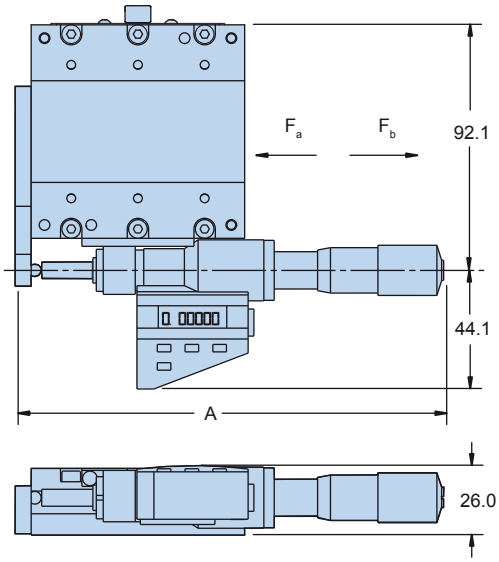
Free travel (with position lock)



Standard micrometer (center drive shown)



Digital micrometer (side drive shown)



Drive orientation	Travel [mm]	A [mm]
Center	25	182.2
	50	231.4
Side	25	117.2
	50	167.4

Drive orientation	Travel [mm]	A [mm]
Center	25	225.6
	50	273.5
Side	25	160.6
	50	209.5

MX80 Series Ordering Information

MX80L Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Order example	**MX80L**	**T02**	**M**	**P**	**D11**	**H3**	**L2**	**CM08**	**Z3**	**E7**	**R1**	**A1**	**X1**	**S1**

1 Series

MX80L

2 Travel - mm

T01	25
T02	50
T03	100
T04	150
T05	200

3 Mounting

M	Metric

4 Grade

S	Standard
P	Precision (not available with T05 travel)

5 Drive type

D1	None - free travel/idler
D11	4 pole (25 & 50 mm travel only)
D13	8 pole (100, 150 & 200 mm travel only)

6 Home sensor

H1	None - for Drive type D1
H2	N.C., sinking
H3	N.O., sinking

7 Travel limit sensor

L1	None - for Drive type D1
L2	N.C., sinking
L3	N.O., sinking

8 Cable options

CM03	None - for Drive type D1
CM04	High-flex cables with ViX connector (1 m)
CM05	High-flex cables with ViX connector (3 m)
CM06	High-flex cables with ViX connector, no limit/ home cable (1 m)
CM07	High-flex cables with ViX connector, no limit/ home cable (3 m)
CM08*	High-flex cables with Compax3 connector (1 m)
CM09*	High-flex cables with Compax3 connector (3 m)

*Please note:
With a Compax3 controller, a transformator (e.g. TO255) must be used, i.e. the intermediate voltage must not exceed 80 VDC.

9 Z channel location

Z1	None
Z3	Center position

10 Digital linear encoder option

E1	None
E2	1.0 µm resolution
E3	0.5 µm resolution
E4	0.1 µm resolution
E7	Sine Cosine V_{ss} (for C3F12)
E8	0.02 µm resolution (20 nm)
E9	0.01 µm resolution (10 nm)

11 Finish

R1	Standard finish (black anodized)
R2	Cleanroom preparation
R10	Low ESD finish
R20	Low ESD finish & cleanroom preparation

12 Digital drive

A1	None

13 Additional options

X1	None
X2	Z-axis pneumatic counter balance*

* Not available with T05 Travel

14 Orthogonality

S1	None (single-axis)
S2	X-axis base unit (cables @ 12 o'clock)
S3	Y-axis 60 arcsec (cables @ 3 o'clock)
S4	Y-axis 60 arcsec (cables @ 9 o'clock)
S5	Y-axis 15 arcsec (cables @ 3 o'clock)
S6	Y-axis 15 arcsec (cables @ 9 o'clock)

MX80S Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Order example	**MX80S**	**T04**	**M**	**P**	**K**	**D4**	**M1**	**H3L3**	**CM08**	**E3**	**Z1**	**R1**	**A1**	**S1**	**X1**

1 Series

MX80S

2 Travel - mm

T01	25
T02	50
T03	100
T04	150

3 Mounting

M	Metric

4 Grade

S	Standard
P	Precision*

* Must order E3 or E4 digital option to meet catalog specification.

5 Bearing type

J	Standard cross rollers
K	ACS cross roller

6 Drive type (lead)

D1	1 mm Leadscrew (1)
D2	2 mm leadscrew (1)
D3	10 mm leadscrew(1.3)
D4	2 mm ballscrew(2.3)

(1) only standard grade (2) only precision grade
(3) Not available with 1- or 2-stack stepper motor.

7 Motor

M0	None motor, none flange, none coupling
M1	NEMA 16 flange, (none motor, none coupling)
M14	LV111 (Steppermotor, 1 stack, NEMA 11)
M15	LV112 (Steppermotor, 2 stack, NEMA 11)
M16	LV113 (Steppermotor, 3 stack, NEMA 11)
M21	Servomotor (1 stack, NEMA 16)

8 Limit/home switches

H1L1	None
H2L2	N.C. home/N.C. limit
H2L3	N.C. home/N.O. limit
H3L2	N.O. home/N.C. limit
H3L3	N.O. home/N.O. limit

9 Cable options (high-flex)

CM01	None
CM02	Limits (only) with flying leads (1 m)
CM03	Limits (only) with flying leads (3 m)
CM04	Limits (only) with ViX connector (1 m)
CM05	Limits (only) with ViX connector (3 m)
CM06	Stepper motor & limits with ViX Connector (1 m)
CM07	Stepper motor & limits with ViX Connector (3 m)
CM08	Stepper motor (no limits) with ViX connector (1 m)
CM09	Stepper motor (no limits) with ViX connector (3 m)
CM15	Servo motor, encoder & limits with ViX connector (3 m)
CM17	Servo motor, encoder (no limits) with ViX connector (3 m)

10 Digital option

E1	None
E2	1.0 µm resolution
E3	0.5 µm resolution
E4	0.1 µm resolution
E5	5.0 µm resolution
E7	Sine output

11 Z channel location

Z1	None
Z3	Center position

12 Finish

R1	Standard finish (black anodized)
R2	Cleanroom preparation
R10	Low ESD finish
R20	Low ESD finish & cleanroom preparation

13 Digital drive

A1	None

14 Orthogonality

S1	None (single-axis)
S2	X-axis base unit (cables @ 12 o'clock)
S3	Y-axis 60 arcsec (cables @ 3 o'clock)
S4	Y-axis 60 arcsec (cables @ 9 o'clock)
S5	Y-axis 15 arcsec (cables @ 3 o'clock)
S6	Y-axis 15 arcsec (cables @ 9 o'clock)

15 Required designator

X1

MX80M Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

	1	2	3	4	5	6	7	8	9
Order example	**MX80M**	**T02**	**M**	**S**	**C2**	**D22**	**R1**	**X4**	**S1**

1 Series

MX80M

2 Travel - mm

T01	25
T02	50

3 Mounting

M	Metric

4 Grade

S	Standard

5 Type

C1	None - free travel/idler
C2	Center drive
C3	Lateral drive

6 Drive type

D1	None
D20	Metric micrometer
D21	English micrometer
D22	Digital micrometer

7 Finish

R1	Standard finish (black anodized)
R2	Cleanroom preparation
R10	Low ESD finish
R20	Low ESD finish & cleanroom preparation

8 Lock options

X1	None
X4	With lock

9 Axis designator

S1	None (single-axis)
S2	X-axis base unit (micrometer @ 12 o'clock)
S3	Y-axis 60 arcsec (micrometer @ 3 o'clock)
S4	Y-axis 60 arcsec (micrometer @ 9 o'clock)
S5	Y-axis 15 arcsec (micrometer @ 3 o'clock)
S6	Y-axis 15 arcsec (micrometer @ 9 o'clock)

WARNING — USER RESPONSIBILITY

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