Miniature Precision Contents

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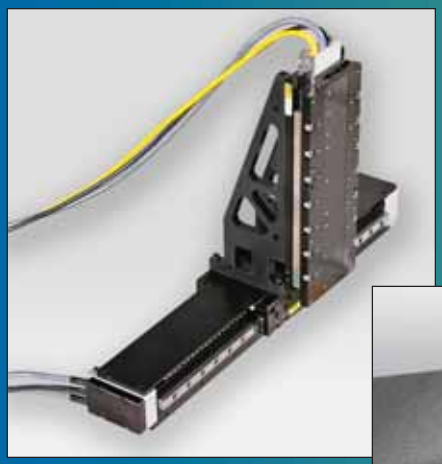
Miniature Precision

Linear Motor and Screw Driven Stages



Miniaturization of fiber optics, photonics, electronics and biomedical processes has driven the need for smaller and more efficient positioners. Parker's MX80L Miniature Linear Motor Stage, the smallest linear servo motor 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. The LX80L offers a small profile and linear motor performance with travel distances to 750 mm. The MX80S, with either a ballscrew or leadscrew drive, is ideal for higher thrust application.

The direct mounting compatibility of MX80 stages enables a large variety of two and three axis combinations to be configured with ease. When optioned with Parker's "Intelligent Servo Drives", 2 or 3 axis stages are transformed into complete *plug & run* systems with easy hookup and direct operation from a PC via the RS232 interface.

Miniature System Features:

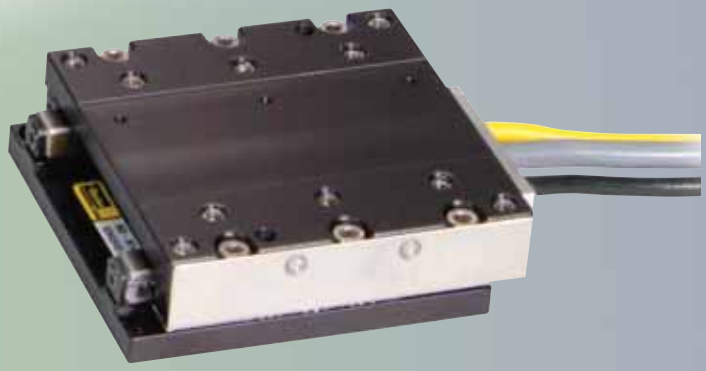
- ***Miniature profile stage (25 X 80 mm)***
- ***Travel lengths to 750mm***
- ***Linear servo motor or ballscrew drives***
- ***Acceleration to 5gs; Velocity to 3 meters /sec,***
- ***Internal cable management***
- ***Square rail or cross roller bearing systems***
- ***Compatible mounting for multi-axis systems***
- ***Cleanroom prep, low ESD coating and vacuum prep options***
- ***Submicron precision***
- ***Thorough testing and certification***

Parker Miniature Stages

- ***Small size***
- ***High acceleration***
- ***High velocity***
- ***High resolution***
- ***High repeatability***
- ***High accuracy***

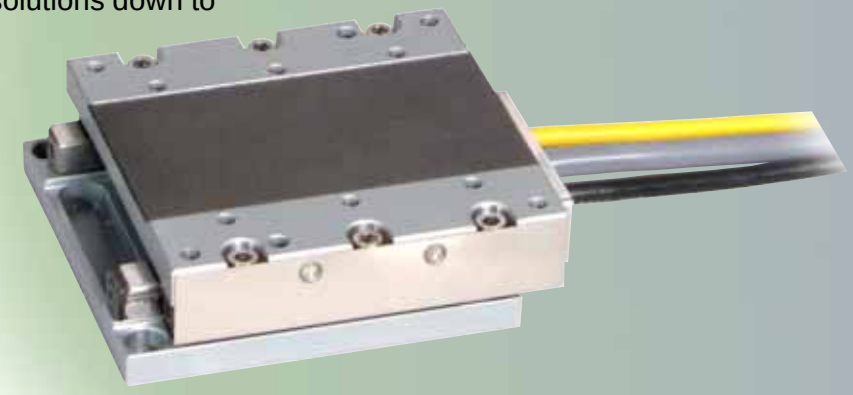
MX80LS Linear Motor Driven Stages

offer unmatched dynamics for rapid fire positioning of light work loads (5g acceleration) in applications requiring high throughput performance in a compact package.



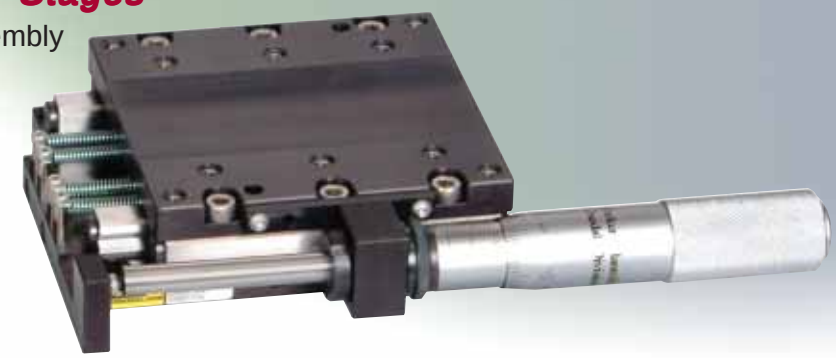
MX80LP Precision Grade Linear Motor Driven Stages

provide high precision positioning and linear motor dynamics for positioning light loads within a small workspace. They offer exceptional straightness and flatness of travel, and can position repeatedly within +/-0.4 microns with encoder resolutions down to 10 nanometers.



MX80M Micrometer Driven Stages

have a precision micrometer drive assembly for manually controlled point to point positioning along a linear path.

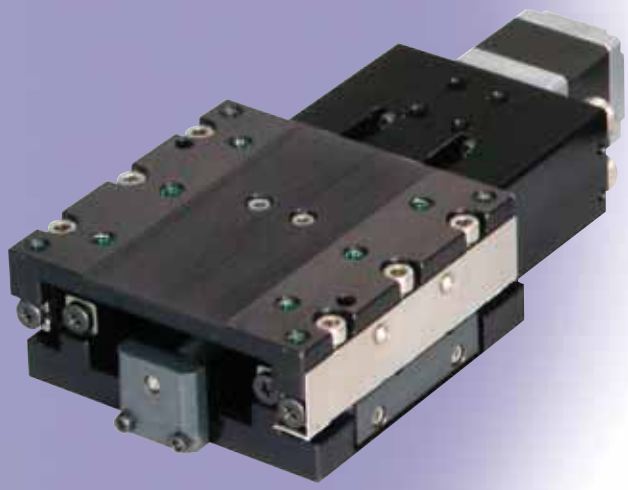


MX80S Ballscrew Driven Motorized Stages

offer high performance 100% duty operation with higher thrust (128 N) and velocities up to 100 mm/second.

MX80S Leadscrew Driven Motorized Stages

feature a PTFE coated leadscrew drive assembly for cost effective linear translation at velocities to 200 mm/second.



LX80L Long Travel Tables

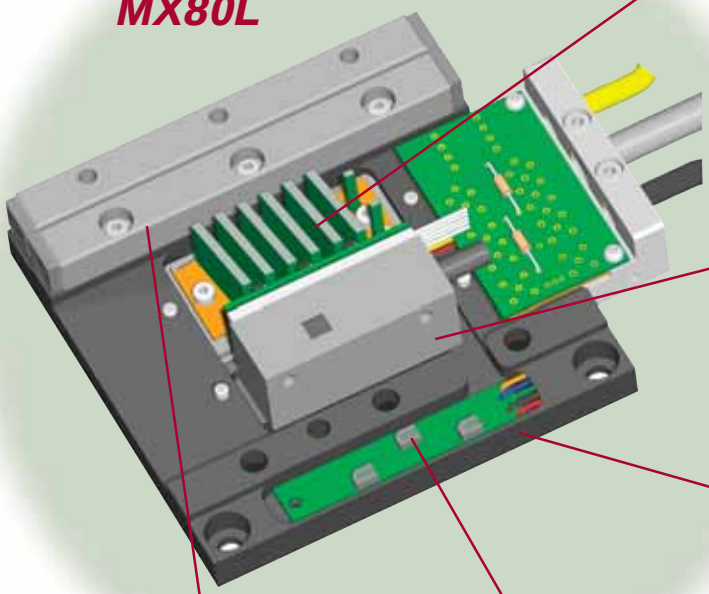
offer linear motor dynamics and travels up to 750mm while maintaining a very small profile.

MX80 Minitiature Stages

Linear Servo Motor

features a patent pending ironcore design that provides high thrust density for linear acceleration to 5g's and velocities to 2 meters/second. The non-contact design offers long life and clean operation.

MX80L



Optical Linear Encoders

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

Master Reference Surface

is a feature unique to the MX80 that enables customers to align their process to the actual travel path within microns.

Home/Limit Sensors

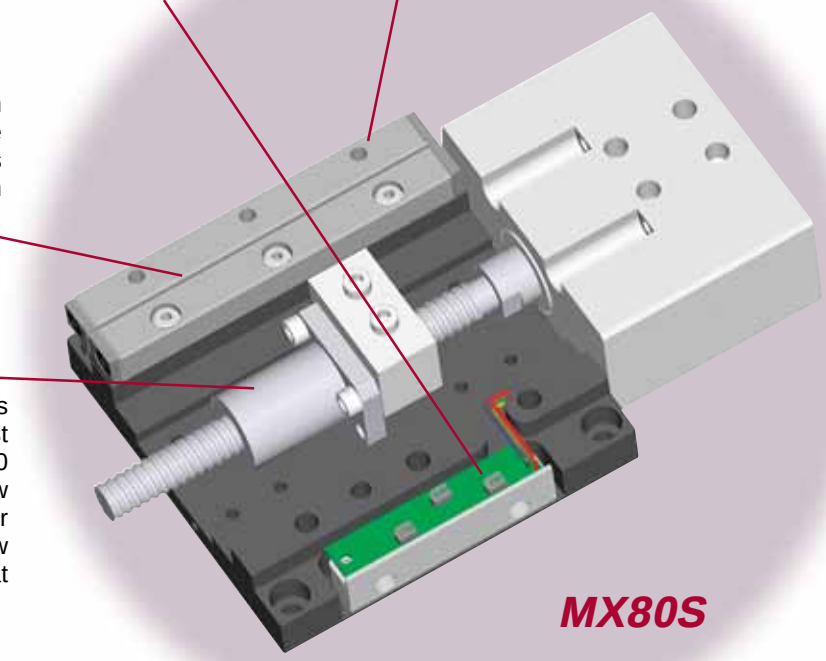
are reflective optical sensors completely housed within the body of the stage, and fully adjustable over the entire travel range.

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 5g acceleration, or with cantilevered loads.

Ballscrew or leadscrew drive

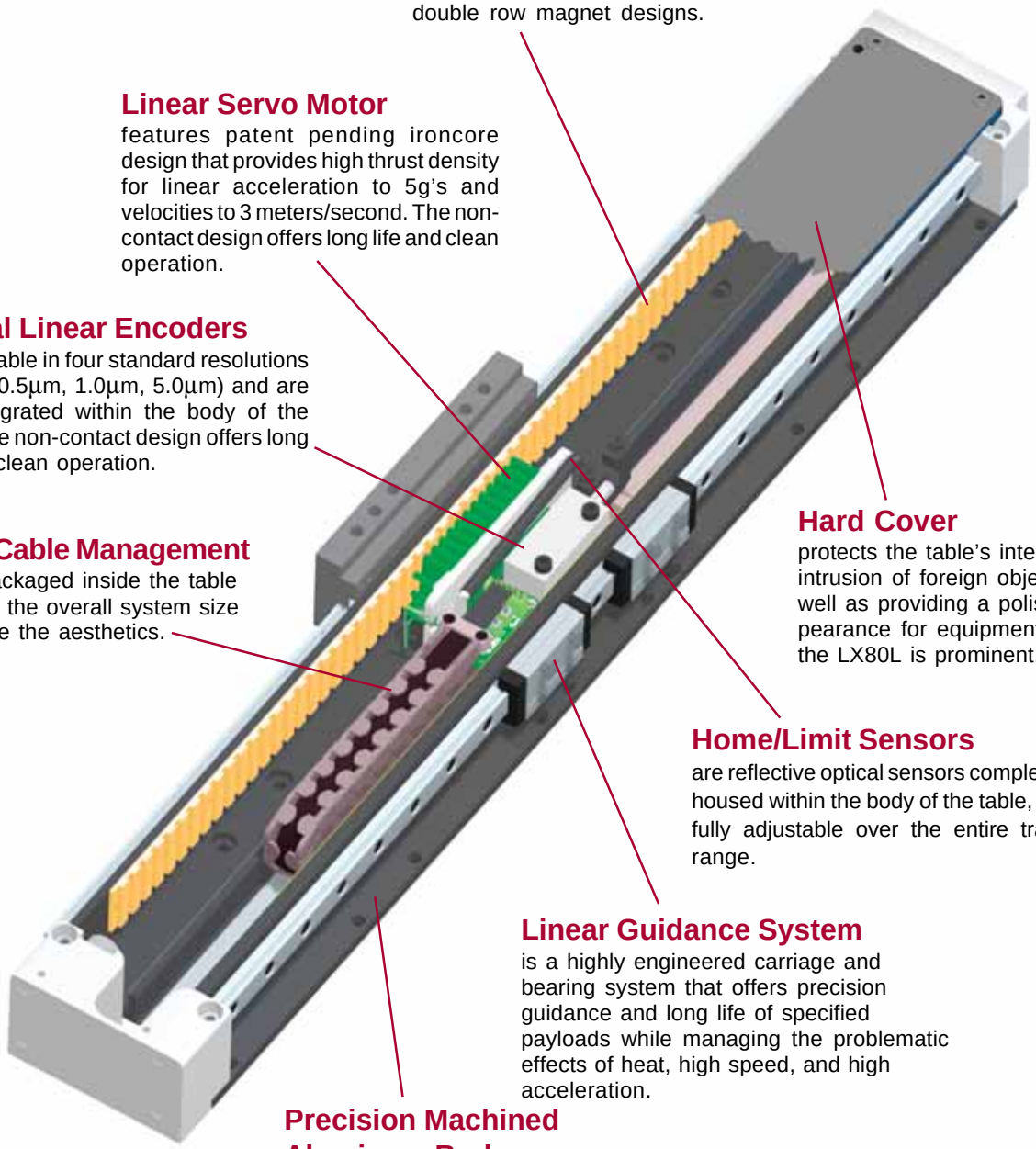
The 2.0mm lead ballscrew driven stage offers high performance 24/7 operation with a thrust load capacity of 123N (28lb.) and velocity to 100 mm/second at 100% duty cycle. Leadscrew driven stages are available with 1mm, 2mm, or 10mm leads. The PTFE coated leadscrew provides extremely smooth linear translation at velocities up to 200 mm/second.



MX80S

LX80L Linear Motor Tables

- ***Small Cross Section***
- ***Long Travels***
- ***High acceleration***
- ***High velocity***
- ***High repeatability***
- ***High accuracy***



Magnet Rail
is a single rail of high energy rare earth magnets that offers lower weight and cost than double row magnet designs.

Linear Servo Motor
features patent pending ironcore design that provides high thrust density for linear acceleration to 5g's and velocities to 3 meters/second. The non-contact design offers long life and clean operation.

Optical Linear Encoders
are available in four standard resolutions (0.1µm, 0.5µm, 1.0µm, 5.0µm) and are fully integrated within the body of the table. The non-contact design offers long life and clean operation.

Internal Cable Management
is neatly packaged inside the table to minimize the overall system size and improve the aesthetics.

Hard Cover
protects the table's interior from intrusion of foreign objects as well as providing a polished appearance for equipment where the LX80L is prominent.

Home/Limit Sensors
are reflective optical sensors completely housed within the body of the table, and fully adjustable over the entire travel range.

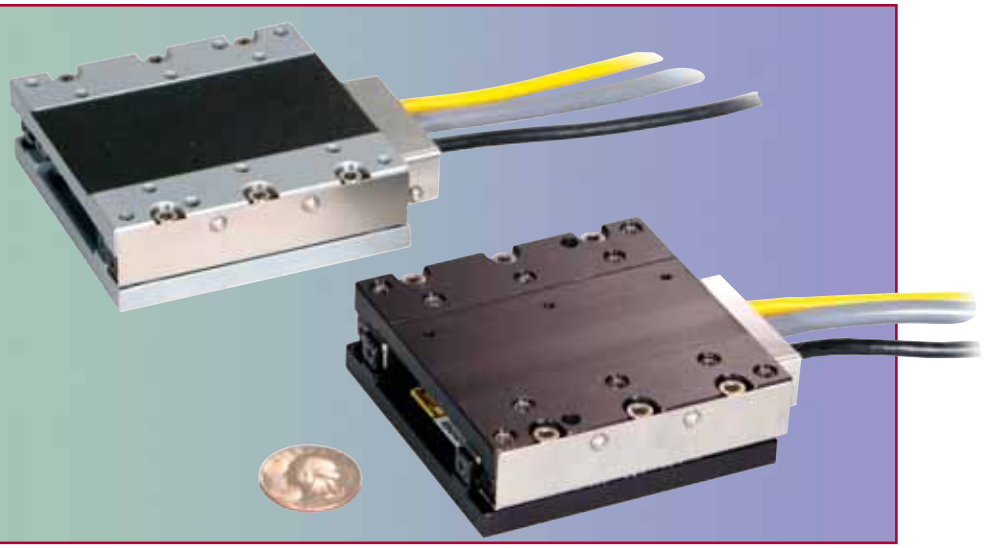
Linear Guidance System
is a highly engineered carriage and bearing system that offers precision guidance and long life of specified payloads while managing the problematic effects of heat, high speed, and high acceleration.

Precision Machined Aluminum Body
is designed to minimize weight and size, maximize strength, and provide outstanding straightness and flatness while .

MX80L-Miniature Linear Motor Stage

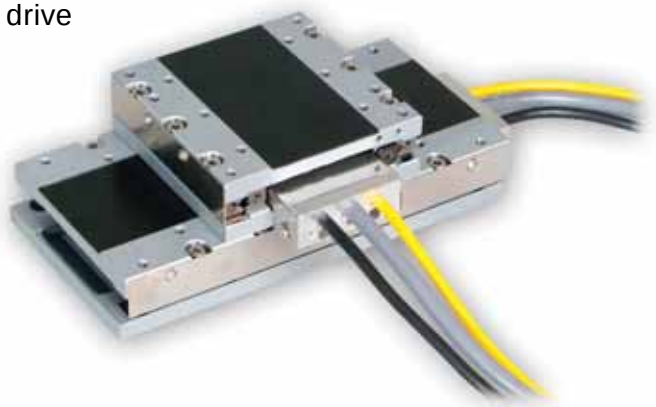
Features

- ❑ Miniature size
- ❑ 5g acceleration
- ❑ Fast settling
- ❑ Submicron precision
- ❑ High velocity (2 m/sec.)
- ❑ Multi-axis platform



Attributes:

- 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 mm travels
- Cross Roller bearing (zero cage creep design)
- Precision or standard grade
- Cleanroom and low ESD options
- Fully adjustable optical home and limit sensors
- Dowel holes for repeatable mounting of payload
- Master reference surface to travel path
- "Plug-in" intelligent drive
- Pneumatic z-axis counterbalance
- No moving cables



Introduction

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.

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 submicron resolution, repeatability and accuracy.

Selectable resolutions range from 10 nanometers to 5 microns. Precision ground cross roller bearing sets with a "zero cage creep" feature provide extremely smooth - precise linear translation. Optical 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 hi-flex cabling is included and wired directly into the units. This hi-flex cabling addresses cable flexing concerns associated with the second or third axis in multi-axis system.

MX80L-Miniature Linear Motor Stage

Precision Series

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.

- **4g acceleration**
- **Repeatability to ± 0.4 µm**
- **Straightness ± 0.4 µm**
- **Steel body construction**
- **Precision ground mounting and bearing surfaces**
- **Hard chrome protective finish**

Standard Series

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 5 g's.

- **5g acceleration**
- **Repeatability to ± 0.8 µm**
- **Straightness ± 0.8 µm**
- **Light weight aluminum body**
- **Low luster black anodize finish**

MX80L Miniature Linear Motor Stage

Specifications:

	Travel			
	25mm	50mm	100mm	150mm
Normal Load Capacity	8kg(18 lb)	8kg(18 lb)	8kg(18 lb)	8kg(18 lb)
Maximum Acceleration				
Precision Grade	4g	4g	4g	3g
Standard Grade	5g	5g	5g	4g
Maximum Velocity				
5.0µm resolution	1100 mm/sec	1500 mm/sec	2000 mm/sec	2000 mm/sec
1.0µm resolution	1100 mm/sec	1500 mm/sec	2000 mm/sec	2000 mm/sec
0.5µm resolution	1100 mm/sec	1500 mm/sec	1500 mm/sec	1500 mm/sec
0.1µm resolution	300 mm/sec	300 mm/sec	300 mm/sec	300 mm/sec
0.02µm resolution	60 mm/sec	60 mm/sec	60 mm/sec	60 mm/sec
0.01µm resolution	30 mm/sec	30 mm/sec	30 mm/sec	30 mm/sec
Peak Force	12N (2.7 lb)	12N (2.7lb)	24N (5.4 lb)	24N (5.4 lb)
Continuous Force	4N (.9 lb)	4N (.9 lb)	8N (1.8 lb)	8N (1.8 lb)
Duty Cycle	100%	100%	100%	100%
Straightness & Flatness				
Precision Grade	4 microns	4 microns	5 microns	6 microns
Standard Grade	6 microns	6 microns	10 microns	12 microns
Positional Accuracy				
Precision Grade (1)(2)(3)				
0.01 µm resolution	3 microns	4 microns	5 microns	5 microns
0.02 µm resolution	3 microns	4 microns	5 microns	5 microns
0.1 µm resolution	3 microns	4 microns	5 microns	5 microns
0.5 µm resolution	4 microns	5 microns	6 microns	6 microns
1.0 µm resolution	5 microns	6 microns	7 microns	7 microns
5.0 µm resolution	13 microns	14 microns	15 microns	15 microns
Standard Grade (2)				
0.01 µm resolution	12 microns	15 microns	20 microns	20 microns
0.02 µm resolution	12 microns	15 microns	20 microns	20 microns
0.1 µm resolution	12 microns	15 microns	20 microns	20 microns
0.5 µm resolution	12 microns	15 microns	20 microns	20 microns
1.0 µm resolution	15 microns	20 microns	25 microns	25 microns
5.0 µm resolution	25 microns	30 microns	35 microns	35 microns
Bi-directional Repeatability				
Precision Grade (1)(2)(3)				
0.01 µm resolution	±0.4 microns			
0.02 µm resolution	±0.4 microns			
0.1 µm resolution	±0.5 microns			
0.5 µm resolution	±1.0 microns			
1.0 µm resolution	±2.0 microns			
5.0 µm resolution	±10.0 microns			
Standard Grade (2)				
0.01 µm resolution	±0.8 microns			
0.02 µm resolution	±0.8 microns			
0.1 µm resolution	±0.8 microns			
0.5 µm resolution	±1.5 microns			
1.0 µm resolution	±2.0 microns			
5.0 µm resolution	±10.0 microns			
Unit Mass				
Precision Grade	590g	590g	1027g	1345g
Standard Grade	475g	475g	875g	1125g
Carriage Mass (unloaded)				
Precision Grade	282g	282g	509g	676g
Standard Grade	213g	213g	405g	537g

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

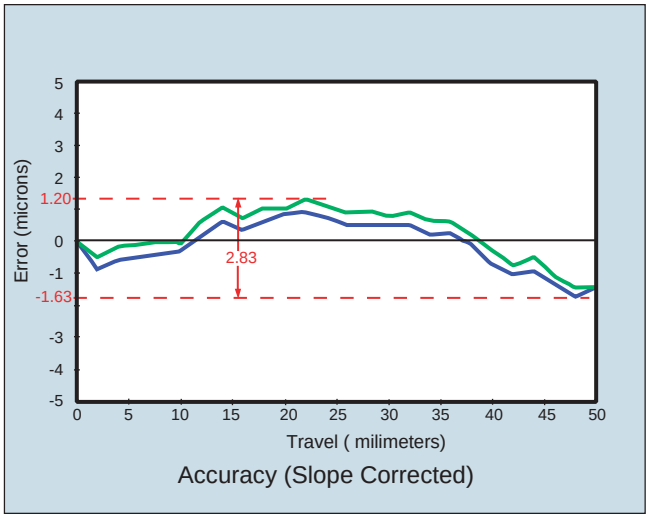
MX80L Miniature Linear Motor Stage

Specifications:

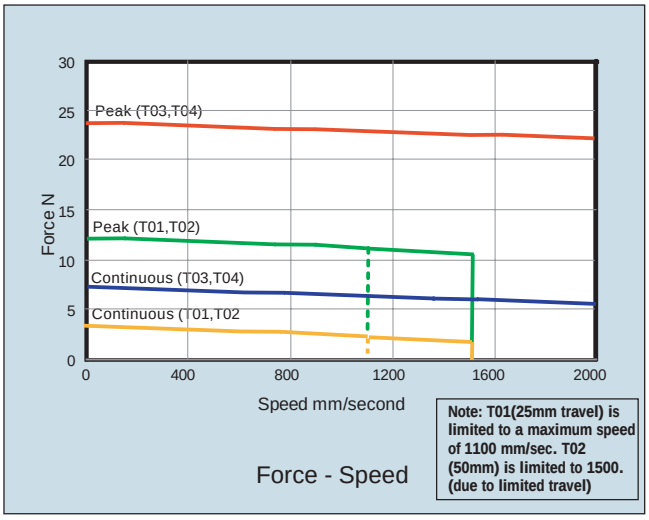
How we measure accuracy:

All published linear table accuracy and repeatability specifications vary according to testing and reporting methodology. Parker methodology includes data reporting over the entire table travel length, regardless of the *start* or *stop* position.

Testing is performed with the table unloaded and mounted to a stable granite surface, at 20° C. Accuracy and repeatability specifications are based on a peak to peak range of error, measured by a laser interferometer with the beam located 35mm above the center of the table top. The reported error totals six degrees of freedom (x,y,z, plus roll, pitch and yaw errors). Final table specifications are established from the maximum positive (+) error to the maximum negative (–) error.

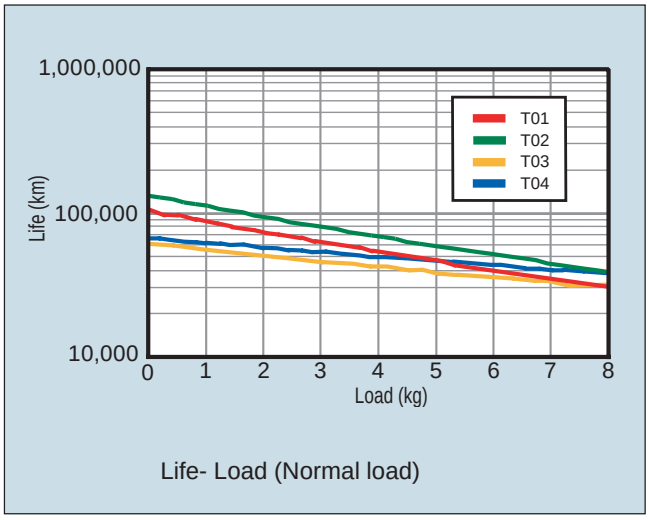


Accuracy (Slope Corrected)

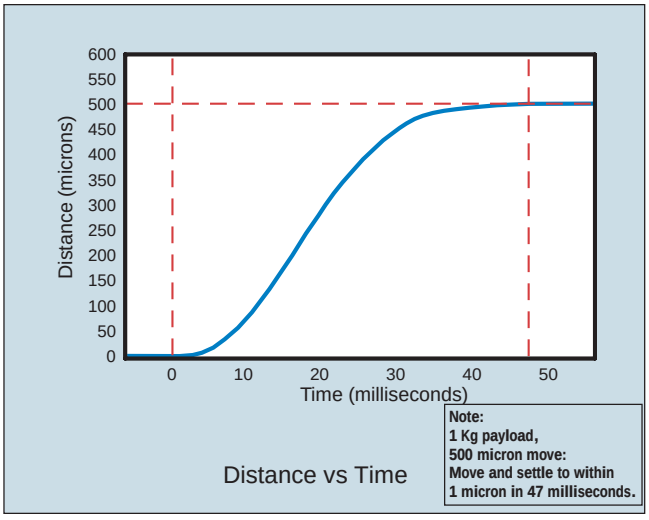


Force - Speed

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

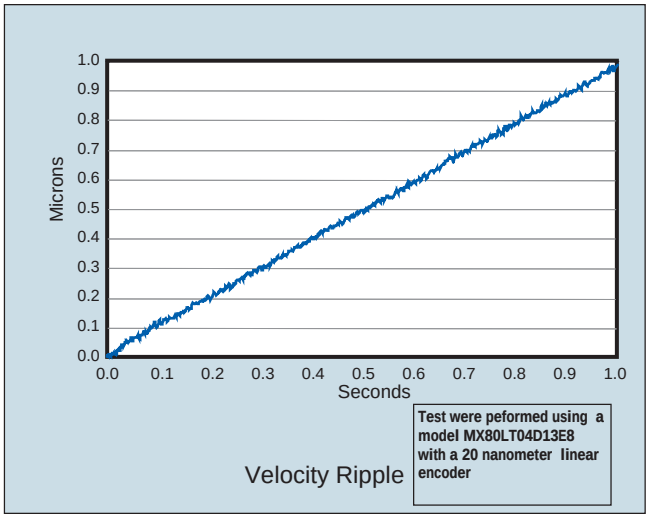


Life- Load (Normal load)



Distance vs Time

**Note:
1 Kg payload,
500 micron move:
Move and settle to within
1 micron in 47 milliseconds.**



Velocity Ripple

Test were peformed using a model MX80LT04D13E8 with a 20 nanometer linear encoder

MX80L Miniature Linear Motor Stages

Features and Options

CM04 to CM07

"Plug & Run" Cables Options

"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
- CE compliant ferrite beads
- Color coded jackets and labeling

E_

Encoder Options A non-contact linear optical encoder provides a quadrature output and offers resolution ranging from 10 nanometer to 5 micron . 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.

H_ L_

Home and Limit Sensors Reflective optical 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 50ma, and be set as N.O or N.C.

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

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.

MX80L Miniature Linear Motor Stages

Features and Options

R2 R20

Cleanroom Option

Both Precision and Standard grade products can be prepared for cleanroom compatibility. Preparation involves material changes, element modification and cleanroom compatible lubricants. The MX80L and MX80S with the R2 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. The R20 option includes both - low ESD and cleanroom preparation.

R10 R20

Low ESD Coating

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.

R1

Environmental Protection

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 lustre black anodized finish.

X2

Z-axis Counterbalance Option

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 60 psi is required for operation (see "Pneumatic Accessory Package").

Pneumatic Accessory Package (Part Number 002-2236-01)

This accessory is offered for use with the X2 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 microns.

MX80 Miniature Linear Motor Stages

ViX Intelligent Servo & Microstep Drives/ Controllers

- **Fully Digital Drive/Controller**
- **Compact size (4.9" x 1.65" x 3.35")**
- **Pre-configured for MX80L**
- **UL, cUL and CE compliant**
- **24-80 VDC power input**
- **Dual RJ45 connections for optional CANopen, RS485 / RS232**

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. The servo version is useful in multi-axis systems where a multi-axis controller is used. The intelligent versions have a built-in controller ideal for single axis systems. Additionally, these intelligent versions can be easily "daisy chained" for multi-axis control where tight coordination is not necessary. The powerful EASI-V software, supplied with the drives, permits straight forward rapid configuration and tuning.

A10 A11 A12 *ViX* Servo Drive (MX80S)
A20 A21 A22 *ViX* Servo Drive (MX80L)

The ViX servo drive is the ideal drive solution when a multi-axis controller is used to control an MX80 stage. Depending on the selected version, the ViX will be configured for force, torque, velocity, or step & direction input command signals. Through advanced field oriented digital control technology, the ViX is able to offer superior control of the MX80L or MX80S.

- Pre-configured MX80 stage motor files
- EASI-V software and configuration wizard
- Panel or DIN rail mounting
- High performance encoder input to enable high throughput operation with sub-micron precision

A15 A25 *ViX* Servo Drive/Controller (MX80L & MX80S)

These ViX servo drive options are ideal for providing both servo drive and control functions in single axis or multi-axis systems when "daisy chained". They can accept streamed commands from a host computer or be programmed to operate from internal memory.

- Up to 16 sequences retained in internal memory
- Accepts streaming commands from host
- 5 digital inputs / 3 digital outputs
- Optional RS485 or CANopen fieldbus interface

A35 *ViX* Microstep Drive/Controller (MX80S)

These ViX stepper drive options are ideal for single axis systems, providing both stepper drive and control functions. They can accept streamed commands from a host computer or be programmed to operate from an internal memory. With the ViX intelligent microstep drive, full PWM control for accurate microstepping performance allows for accurate microstepping from 400 to 51,200 motor steps per revolution.

- Fully programmable resolution from 400 to 51,200 steps/rev.
- 5 digital inputs / 3 digital outputs
- Automatic standby current reduction
- Up to 16 sequences retained in internal memory
- Accepts streaming commands from host

MX80 Miniature Linear Motor Stages

E-AC and E-DC Microstepping Drive

- **Selectable resolution up to 50,800 steps/rev.**
- **Anti-resonance circuitry suppresses mid-range instability.**
- **Auto standby reduces motor current (and heating).**
- **Current waveforms to optimize smoothness.**
- **Optically isolated step and direction inputs.**
- **Short circuit and over temperature protection.**

A30 E-AC Microstepping Drive (MX80S)

A31 E-DC Microstepping Drive (MX80S)

The E-AC and E-DC are low-cost, high-performance, high-reliability microstepping drives. These E Series drives incorporate an anti-resonance circuitry that aggressively and effectively suppresses step motor mid-range instability or oscillations, thus taking advantage of the full capabilities of the step motor. The E-AC accepts 120VAC direct-online power, while the E-DC drive is designed for 24VDC to 48VDC input power requirement

Other Characteristics:

- Auto-run feature to verify proper system operation
- Status/fault LED indicators to confirm proper operation
- ASIC and surface-mount technologies minimize product footprint, overall package size and increase product reliability
- Optically isolated fault output for embedded applications

XL-PSU Power Supply Module

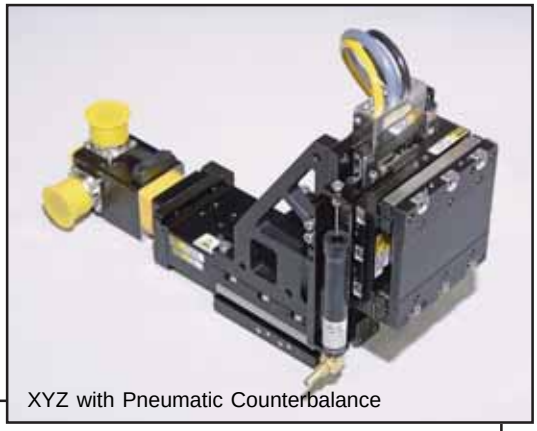
The Parker XL-PSU power supply offers a convenient way of powering a ViX series servo drive. The XL-PSU is a high capacitance power module providing continuous voltage potential for the fluctuating power demands of servo amplifiers through peak and continuous operation. The continuous rated output is 250W at 230VAC input, with a 1-second peak rating of 600W.

- Provides 80 VDC bus voltage for ViX drives & 24VDC output for powering logic, etc.
- Run up to three MX80 axes from single module
- No external EMC filters required
- AC input voltage: 95 to 264 VAC
- DC output: 80 VDC, 3.1A max continous
- Logic output: 24 VDC, 1.8A max
- Dimensions: 7.7 x 2.0 x 5.1 inches
- Weight: 1 kg

MX80 Miniature Linear Motor Stages

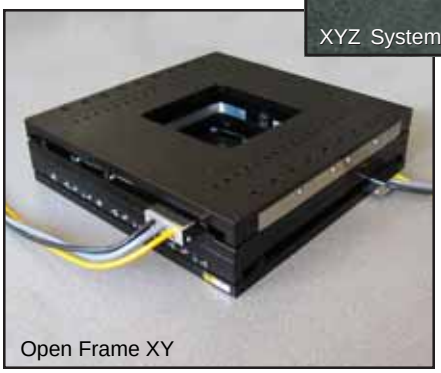
Multi- Axis Systems

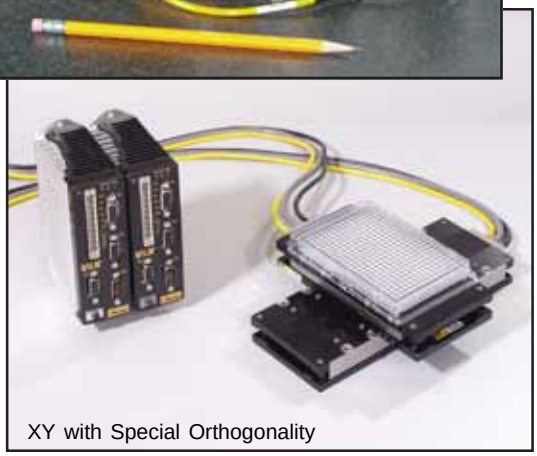
The direct mounting compatibility of MX80 stages enables a large variety of two and three axis combinations to be configured with ease. When optioned with Parker's *"ViX* Intelligent Servo Drives", 2 or 3 axis stages are transformed into complete *plug & run* systems offering easy hookup and direct operation from a PC via the RS232 interface. All necessary motor-drive setup, and testing are completed at the factory prior to shipping. For standard multi-axis configurations, please go to www.parkermotion.com


XYZ with Pneumatic Counterbalance


XYZ System with elevator table


XYZ System


Open Frame XY


XY with Special Orthogonality

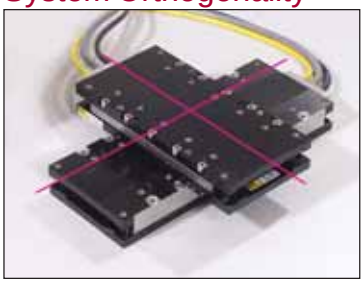
MX80 Miniature Linear Motor Stages

Multi- Axis Systems

Preconfigured Drive Electronics to complete the System

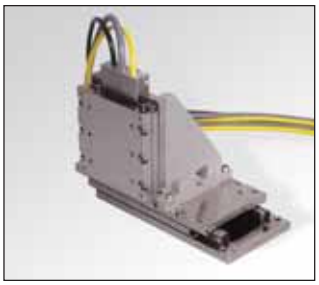
Servo motor drives and stepper motor drives (with or without integrated controller) are sized and configured for optimum MX80 performance. They offer easy hookup and direct operation from a PC. Seamless integration of drives and controls insures performance matched functionality of the completed motion system.

System Orthogonality



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 MX80s offer two choices for orthogonality. As standard,(S3 or S4 designators) perpendicularity is held to within 60 arc seconds. For more exacting applications the MX80 can be optioned for 15 arc seconds orthogonality (S5 or S6 designators).

Z-axis Bracket



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

Standard models:
25 & 50 mm: p/n 002-2238-01
100 & 150mm: p/n 002-2240-01

Low ESD models:
5 & 50 mm: p/n 002-2239-01
100 & 150mm: p/n 002-2241-01

Vacuum Prepared XY

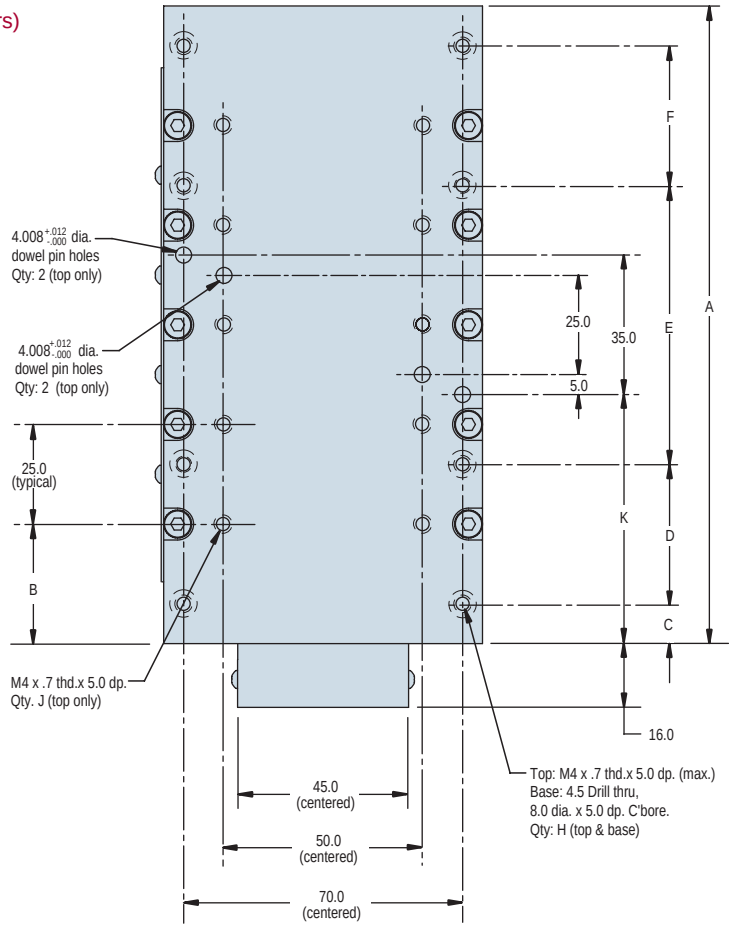
Custom Solutions

The direct mounting capability and standard bracket offering of the MX80 family allow a large variety of two and three axis systems to be created. Beyond these typical configurations, Parker’s years of experience of building both standard and custom positioning systems uniquely enables us to customize these systems to your exact requirements. We are able to add custom brackets, counterbalances, surface finishes, fixtures, etc. to solve your specific application.

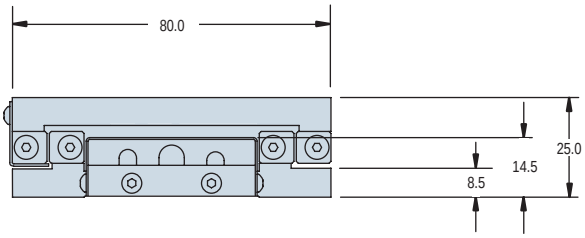
MX80L Miniature Linear Motor Stage

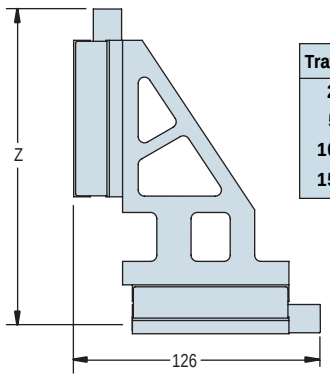
Dimensions

(millimeters)



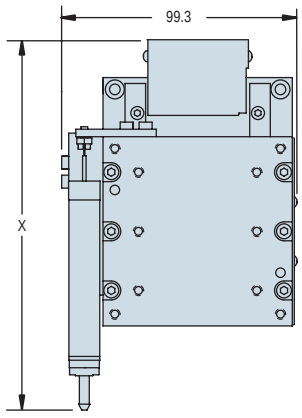
Travel	Dimensions (mm)								
	A	B	C	D	E	F	H	J	K
25	80	15	5	70	n/a	n/a	4	6	22.5
50	80	15	5	70	n/a	n/a	4	6	22.5
100	160	30	10	35	70	35	8	10	62.5
150	210	30	5	65	70	65	8	14	87.5





Travel	Z
25	166
50	166
100	251
150	326

Z-axis



Travel	X
25	156.6
50	156.6
100	230.6
150	310.6

Pneumatic Vertical Axis Counter balance

MX80L Miniature Linear Motor Stage

Order Example:

MX80L T02 M P - D11 H3 L2 CM05 Z3 E8 R1 A25 X1 S1

Model MX80L

Travel
- 25 mm T01
- 50 mm T02
- 100 mm T03
- 150 mm T04

Mounting (metric) ..... M

Grade
- Precision ..... P
- Standard ..... S

Drive Type
- None - Free Travel D1
- 4 Pole(25 & 50 mm travel only) ... D11
- 8 Pole(100 & 150 mm travel only) D13

Home Sensor
- None H1
- N.C. Current Sinking H2
- N.O. Current Sinking H3

Limit Sensor
- None L1
- N.C. Current Sinking L2
- N.O. Current Sinking L3

Cable Options
- No Cables (free travel only) CM03
- 1.0 meter high-flex cables w/ ViX connector CM04
- 3.0 meter high-flex cables w/ ViX connector CM05
- 1.0 meter high-flex cables w/ ViX connector (no limit/home cable) CM06
- 3.0 meter high-flex cables w/ ViX connector (no limit/home cable) CM07

X-Y Orthogonality
- S1 None (no X-Y configuration)
- S2 X axis unit (cables @12 o'clock)
- S3 60 arc sec. - Y-axis (3 o'clock)
- S4 60 arc sec. - Y-axis (9 o'clock)
- S5 15 arc sec. - Y-axis (3 o'clock)
- S6 15 arc sec. - Y-axis (9 o'clock)

Other Options
- X1 None
- X2 Z-axis Pneumatic c'balance

Digital Drive Options
- A1 No drive
- A20 ViX250-AH force mode
- A21 ViX250-AH velocity mode
- A22 ViX250-AH step/direction mode
- A25 ViX 250-IH drive/controller

Environmental Options
- R1 Standard finish
- R2 Clean room prep.
- R10 Low ESD finish
- R20 Low ESD finish and clean room prep.

Digital Linear Encoder
- E1 No encoder (free travel only)
- E9 .01 micron resolution (10 nanometer)
- E8 .02 micron resolution (20 nanometer)
- E4 0.1 micron resolution
- E3 0.5 micron resolution
- E2 1.0 micron resolution
- E5 5.0 micron resolution

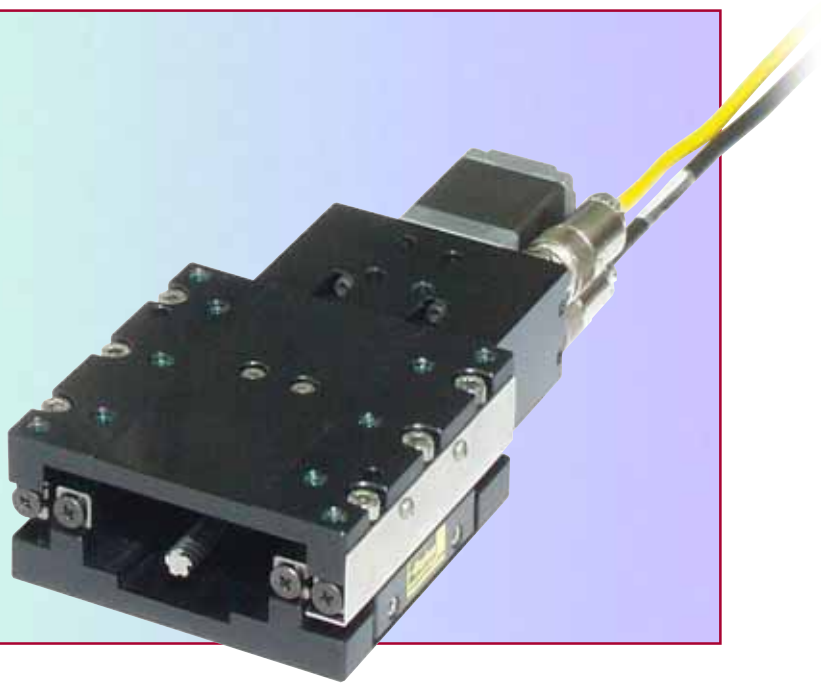
Z-Channel Location
- Z1 No Z-Channel (free travel only)
- Z3 Center Position

MX80S Miniature Stage Series

Ballscrew and Leadscrew Driven

Features:

- ❑ 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



Attributes:

- 1.5µm bi-directional repeatability
- Up to 123 N axial thrust
- 2g acceleration
- Cross roller bearing (zero cage creep option)
- Stepper or servo motor drive
- Digital limit/home system
- Optional linear encoder
- Cleanroom prep. option
- Low ESD option

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 OEM applications requiring reliable linear positioning in space restricted applications. It is the complimentary 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 200mm per second velocity, or a precision ground ballscrew drive offering axial thrust to 123N.

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 2.0mm lead ballscrew stage offers high performance 24/7 operation with a thrust load capacity of 123N (28lb.) and velocity to 100 mm/second at 100% duty cycle.

	Ballscrew Drive	Leadscrew Drive
Axial Thrust	123 N	44 N
Repeatability	+/-1.5 µm	+/- 5.0 µm
Duty Cycle	100%	50%
Available Leads	2.0 mm	1.0, 2.0, 10.0 mm

Specifications	Travel (Model) 25mm	50mm	100mm	150mm
Normal Load Capacity	8kg (18 lb)	8kg (18 lb)	8kg (18 lb)	8kg (18 lb)
Thrust Load Capacity				
Leadscrew Drive	44N (10 lb)	44N (10 lb)	44N (10 lb)	44N (10 lb)
Ballscrew Drive	123N (28 lb)	123N (28 lb)	123N (28 lb)	123N (28 lb)
Straightness & Flatness(1)(2)	8 microns	12 microns	16 microns	20 microns
Bi-directional Repeatability(1)(2)				
1.0 mm lead Leadscrew	±5.0 microns			
2.0 mm lead Leadscrew	±5.0 microns			
10.0 mm lead Leadscrew	±10.0 microns			
2.0 mm lead Ballscrew(3)	±1.5 microns			
Positional Accuracy (1)(2)				
1.0 mm lead Leadscrew	30 microns	45 microns	75 microns	100 microns
2.0 mm lead Leadscrew	30 microns	45 microns	75 microns	100 microns
10.0 mm lead Leadscrew	35 microns	50 microns	80 microns	105 microns
2.0 mm lead Ballscrew	10 microns	15 microns	18 microns	20 microns
Breakaway Torque				
Leadscrew Drive	0.021Nm			
Ballscrew Drive	0.050Nm			
Running Torque (max.)				
1.0 mm lead Leadscrew	0.028Nm	0.028Nm	0.035Nm	0.035Nm
2.0 mm lead Leadscrew	0.028Nm	0.028Nm	0.035Nm	0.035Nm
10.0 mm lead Leadscrew	0.021Nm	0.021Nm	0.021Nm	0.028Nm
2.0 mm lead Ballscrew	0.085Nm	0.085Nm	0.085Nm	0.085Nm
Inertia* (10^{-7}kg-m^2)				
1.0 mm lead Leadscrew	1.47	1.47	2.42	3.06
2.0 mm lead Leadscrew	1.62	1.62	2.68	3.42
10.0 mm lead Leadscrew	6.34	6.34	11.30	14.90
2.0 mm lead Ballscrew	4.19	4.19	6.08	7.68
* without motor & coupling				
Screw Speed (max.)				
Leadscrew	20 rps			
Ballscrew	50 rps			
Maximum Velocity				
1.0 mm lead Leadscrew	20 mm/sec			
2.0 mm lead Leadscrew	40 mm/sec			
10.0 mm lead Leadscrew	200 mm/sec			
2.0 mm lead Ballscrew	100 mm/sec			
Leadscrew Efficiency				
1.0 mm lead Leadscrew	40%			
2.0 mm lead Leadscrew	59%			
10.0 mm lead Leadscrew	78%			
2.0 mm lead Ballscrew	90%			
Screw Dia. Leadscrew	6.35 mm			
Ballscrew	8.00 mm			
Brg. Coefficient of Friction	0.003			
Duty Cycle Leadscrew	50%			
Ballscrew	100%			
Carriage Mass Leadscrew	194g	194g	353g	471g
Ballscrew	291g	291g	464g	595g
Unit Mass (table only) Leadscrew	597g	597g	1003g	1268g
Ballscrew	694g	694g	1114g	1392g
Unit Mass (w/2stackstepper) Leadscrew	748g	748g	1154g	1419g
Ballscrew	845g	845g	1265g	1513g

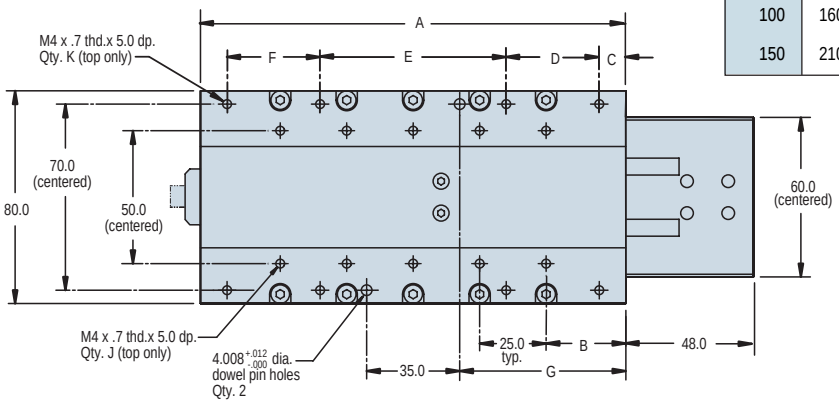
(1) Measured at the carriage center, 35mm off mounting surface @ 20 C with no load. Unit bolted to granite surface, flat to within 1micron/300mm.
(2) Total accuracy and bi-directional repeatability over full travel (peak to peak).
(3) Repeatability valid with M21 servo motor .

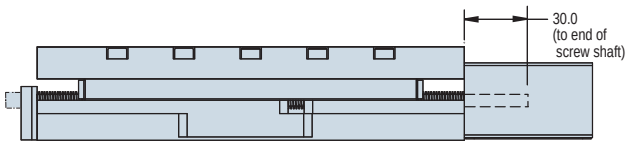
MX80S Miniature Linear Motor Stage

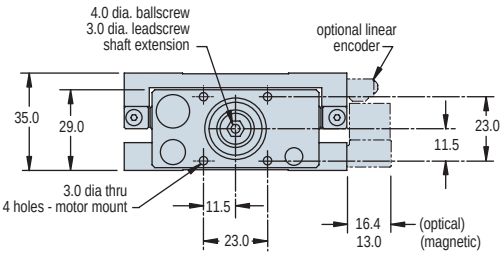
Dimensions

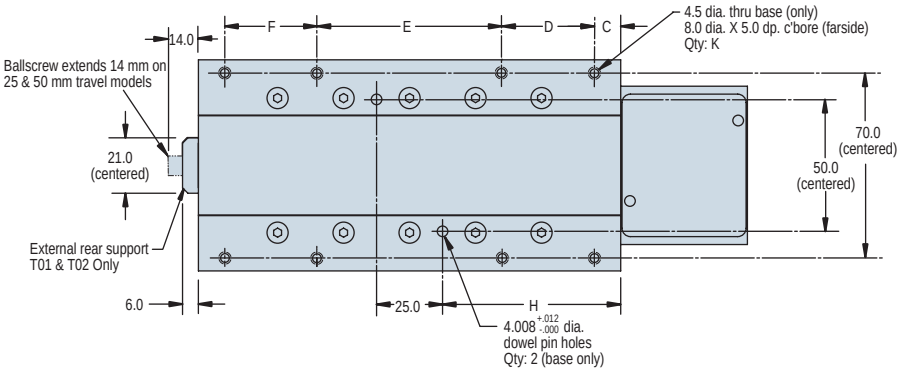
(millimeters)

Travel	Dimensions (mm) A	B	C	D	E	F	G	H	J	K
25	80	15	5	70	n/a	n/a	22.5	27.5	6	4
50	80	15	5	70	n/a	n/a	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

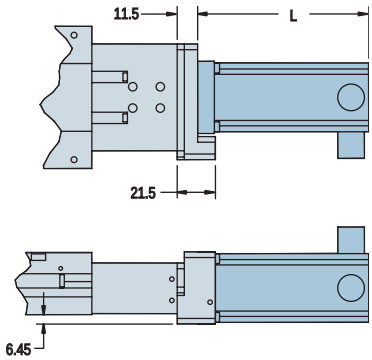




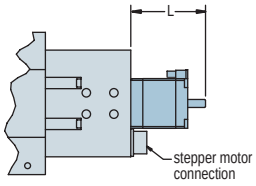




Motor			L
Stepper	1 Stack	NEMA 11	42.0
Stepper	2 Stack	NEMA 11	50.0
Stepper	3 Stack	NEMA 11	61.5
Servo	1 Stack	NEMA 16	83.6



Mounting - Servo Motor



Mounting - Stepper Motor

MX80S Miniature Linear Motor Stage

Order Example:

MX80S T02 M S K - D1 M1 H3L3 CM12 E1 Z1 R1 A11 X1 S1

Model MX80S

Travel
- 25 mm T01
- 50 mm T02
- 100 mm T03
- 150 mm* T04

(* Stepper Only)

Mounting (metric) ..... M

Grade
- Standard ..... S
- Precision ..... P

Bearing Type
- Standard Cross Roller ..... J
- ACS Cross Roller ..... K

Drive Type
- 1 mm Lead Screw ....(std. grade only)..... D1
- 2 mm Lead screw .... (std. grade only)..... D2
- 10 mm Lead screw ...(std. grade only)..... D3
- 2 mm Ballscrew .....(prec.grade only)..... D6

Motor
- No Motor, Flange or Coupling M0
- NEMA 16 Flange - No Motor or Coupling M1
- 1 Stack NEMA 11 Stepper M14
- 2 Stack NEMA 11 Stepper M15
- 3 Stack NEMA 11 Stepper M16
- 1 Stack NEMA 16 Servo M21

Home/Limit Switch*
- None H1L1

	H2L2	H2L3	H3L2	H3L3
Home	NC	NC	NO	NO
Limits	NC	NO	NC	NO

* NC= Normally Closed; NO= Normally Open

Cable Options (Hi Flex)
- None CM01
- Limits (only) - w/ flying leads - 1 meter CM02
- Limits (only) - w/ flying leads - 3 meter CM03
- Limits (only) - w/ ViX connector - 1 meter CM04
- Limits (only) - w/ ViX connector - 3 meter CM05
- Stepper Motor & Limits w/ViX connector - 1meter CM06
- Stepper Motor & Limits w/ViX connector - 3 meter CM07
- Stepper Motor - no Limits w/ViX connector - 1meter CM08
- Stepper Motor - no Limits w/ViX connector - 3 meter CM09
- CM10 Stepper Motor (E drive) & Limits - 1 meter
- CM11 Stepper Motor (E drive) & Limits - 3 meter
- CM12 Stepper Motor (E drive) no Limits - 1 meter
- CM13 Stepper Motor (E drive) no Limits - 3 meter
- CM15 Servo Motor, Encoder & Limits w/ ViX connector - 3 meter
- CM17 Servo Motor, Encoder, no Limits w/ ViX connector - 3 meter

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

X1 **Required Designator**

Digital Drive Options
- A1 No drive
- A10 ViX250-AE servo (torque mode)
- A11 ViX250-AE servo (velocity mode)
- A12 ViX250-AE servo step/direction mode
- A15 ViX250-IE servo drive/controller
- A30 E-AC Stepper Drive
- A31 E-DC Stepper Drive
- A35 ViX250-IM stepper drive/controller

Environmental Options
- R1 Standard finish - black anodized
- R2 Clean room prep.
- R10 Low ESD finish
- R20 Low ESD finish and clean room prep.

Z-Channel Location
- Z1 No Z-Channel
- Z3 Center Position

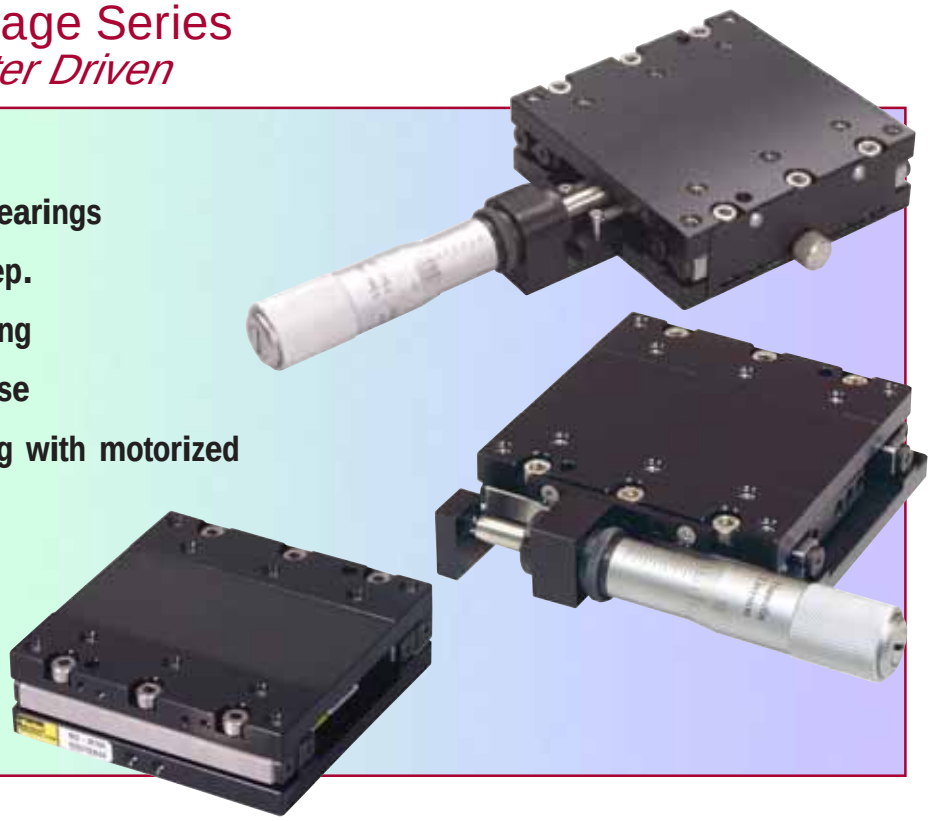
Encoder Option
- E1 No encoder
- E2 1.0 µm resolution (optical)
- E3 0.5 µm resolution (optical)
- E4 0.1 µm resolution (optical)
- E5 5.0 µm resolution (optical)
- E12 1.0 µm resolution(magnetic)
- E15 5.0 µm resolution(magnetic)

MX80M Miniature Stage Series

Free Travel & Micrometer Driven

Features:

- ❑ Precision cross roller bearings
- ❑ Optional clean room prep.
- ❑ 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 25mm or 50mm 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.

Order Example:

MX80M | T02 | M | - | S | C2 | D22 | R1 | X4 | S1

Travel
- 25 mm T01
- 50 mm T02

Mounting (metric) ..... M

Grade (standard) ..... S

Style
- Free Travel C1
- Center Drive C2
- Side Drive C3

Drive Type
- None D1
- Metric Micrometer D20
- English Micrometer..... D21
- Digital Micrometer D22

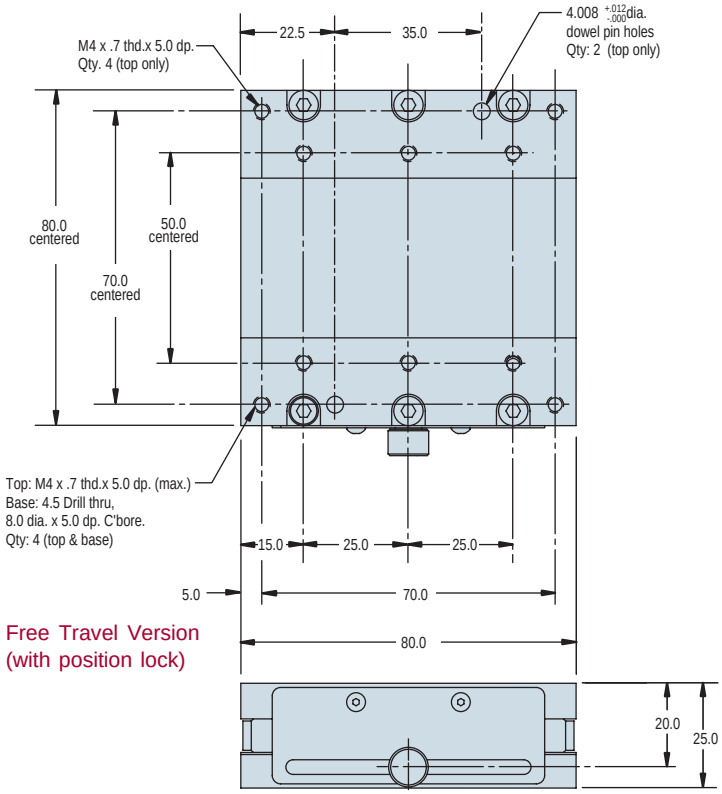
X-Y Orthogonality
- S1 None (No X-Y configuration)
- S2 X-axis base unit (mic. @ 12:00 position)
- S3 Y-axis 60 arc second (mic. @ 3:00 position)
- S4 Y-axis 60 arc second (mic. @ 9:00 position)
- S5 Y-axis 15 arc second (mic. @ 3:00 position)
- S6 Y-axis 15 arc second (mic. @ 9:00 position)

Lock Options
- X1 No Lock
- X4 With Lock

Environmental
- R1 Black Anodize (Standard)
- R2 Cleanroom Prep.
- R10 Low ESD Finish
- R20 Low ESD Finish w/Clean Room Prep.

MX80M Miniature Stage Series

Dimensions (mm)

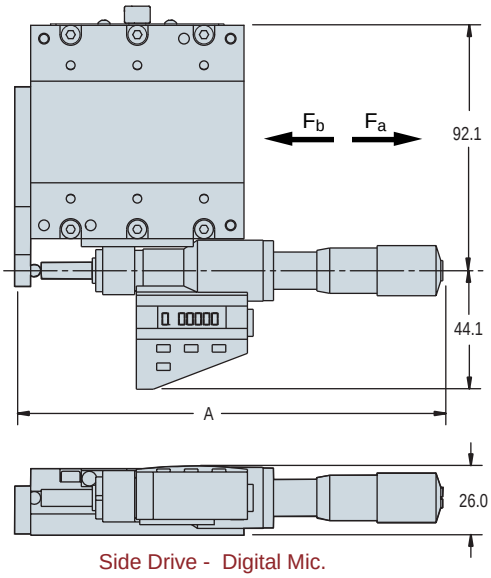


Free Travel Version
(with position lock)

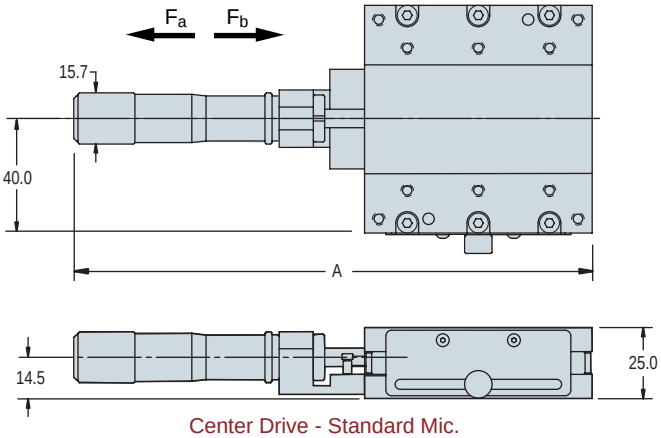
Specifications:

Travels: 25mm, 50mm
Straight Line Accuracy: 2 µm /25mm travel
Micrometer resolution: 0.001inch or 0.01 mm
Digital Micrometer: 0.00005 in. and 0.001mm
Load Capacity:
Normal : 20 kg (44 lb.)
Axial (F_a): 4.5 kg
Axial (F_b): 0.6 kg (25mm travel)
Axial (F_b): 1.0 kg (50mm travel)
Note: F_a = force acting against micrometer, F_b = force acting against spring

2D & 3D CAD files Download from parkermotion.com



Side Drive - Digital Mic.



Center Drive - Standard Mic.

Drive	Micrometer	Travel	A
Center Drive	Standard	25mm	182.2
"	"	50mm	231.4
"	Digital	25mm	225.6
"	"	50mm	273.5
Side Drive	Standard	25mm	117.2
"	"	50mm	167.4
"	Digital	25mm	160.6
"	"	50mm	209.5

LX80L Linear Motor Tables

Features

- ❑ Velocity to 3 m/sec
- ❑ Acceleration to 5 g's
- ❑ Encoder resolution to 0.1 micron
- ❑ Cleanroom compatible
- ❑ Easy multi-axis mounting
- ❑ Internal cable management

Introduction

Miniaturization of life sciences, electronics, photonics, and fiber optic processes has driven the need for smaller and more efficient positioners. Parker's MX80, the smallest linear servomotor driven positioner in the industry, has redefined 'high-throughput automation' in the world of miniature positioners. It is loaded with high performance features for both rapid linear translation and precise positioning of smaller loads within very small work envelopes. The LX80L picks up where the MX80 leaves off, offering longer travels than the MX80 while maintaining a very small profile. Like the MX80, it is designed to meet the rigors of today's 24/7 production demands.

High Performance in a small package

Although it has a small profile, the LX80L is large on performance and reliability. All key components are "built-in", residing within the body of the table to provide a clean looking, reliable, unobstructed package. At the heart of the LX80L 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 submicron resolution, repeatability and accuracy with selectable resolutions ranging from 0.1 microns to 5 microns. Optical travel limit and home sensors are conveniently designed into the unit for easy adjustment over the entire travel of the table.

Precision square rail bearings provide load support and precise linear translation, while effectively countering the problematic effects of heat, high speeds, and high acceleration. Cable management is neatly packaged inside the unit so no moving cables are visible. From the end of the unit, "hi-flex" cabling is provided for direct connection to the servo drive. This "hi-flex" cabling alleviates cable flexing concerns associated with the second or third axis in multi-axis system.

Flexibility and Multi-Axis Compatibility

The LX80L's selection flexibility and mounting compatibility with the MX80 minature tables enables single axis or complex multi-axis units to be configured in a straightforward manner. Parker's matching servo drives and motion controllers can be included to complete the motion system.

Customs and Systems

For specialized applications requiring customization, Parker design engineers can easily modify LX80L tables to suit all application specific requirements. Parker has taken the mystery, difficulty and cost out of integrating linear motor tables into high throughput precision positioning applications.

Specifications

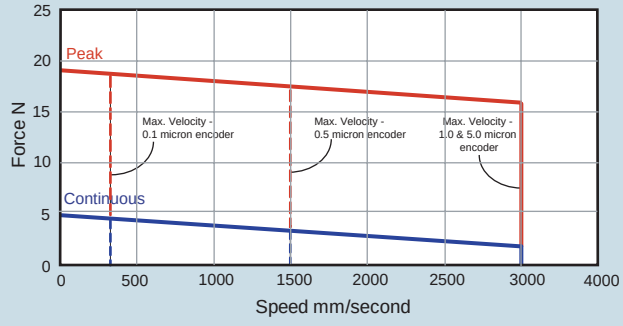
	8 Pole Single Rail	8 Pole Double Rail	16 Pole Single Rail	16 Pole Double Rail
Rated Load (kg)	3(6.5 lb.)	3(6.5 lb.)	6(13 lb.)	6(13 lb.)
Maximum Acceleration	5 g's			
Maximum Velocity (m/sec.)				
Encoder Resolution: 0.1 µm	0.3			
0.5 µm	1.5			
1.0 µm	3.0			
5.0 µm	3.0			
Positional Repeatability(µm)				
Encoder Resolution: 0.1 µm	± 2.5	± 1.5	± 2.5	± 1.5
0.5 µm	± 2.5	± 1.5	± 2.5	± 1.5
1.0 µm	± 3.5	± 2.5	± 3.5	± 2.5
5.0 µm	± 10.0	± 10.0	± 10.0	± 10.0
Maximum Peak Force N (lb)	19 (4.3)	19 (4.3)	36 (8.1)	36 (8.1)
Maximum Continuous Force N (lb)	4.7 (1.0)	4.7 (1.0)	10 (2.2)	10 (2.2)
Maximum Moment (Nm)	.75	1.5	.75	3.0
Carriage Weight (g)	287	388	476	648

Travel Dependent Specifications

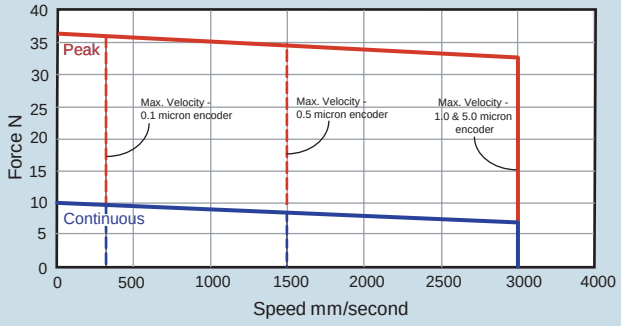
Code	Travel 8 pole (mm)	Travel 16 pole (mm)	Accuracy* (µm) Positional 0.1,0.5,1.0 resolution (µm)	Positional 5.0 resolution (µm)	Straightness & Flatness* (µm)	Length "L" (mm)	Unit Weight 8 pole (kg)	Unit Weight 16 pole (kg)
	Double Rail Models							
T02	150	80	8	18	9	325	1.590	1.854
T04	250	180	12	22	14	425	1.944	2.207
T06	350	280	16	26	19	525	2.300	2.563
T08	450	380	20	30	24	625	2.652	2.915
T10	550	480	23	33	29	725	3.006	3.269
T14	750	680	29	39	37	922	3.713	3.976
	Single Rail Models							
T02	150	80	12	22	13	325	1.396	1.586
T04	250	180	16	26	18	425	1.714	1.905
T06	350	280	20	30	23	525	2.035	2.225
T08	450	380	24	34	28	625	2.352	2.543
T10	550	480	27	37	33	725	2.671	2.861
T14	750	680	33	43	41	922	3.308	3.498

* Accuracy stated is at 20 degrees C, utilizing slope correction factor provided.

Force - Speed
8 pole motor
(80 VDC)



Force - Speed
16 pole motor
(80 VDC)



LX80L Miniature Linear Motor Tables

Cable Management

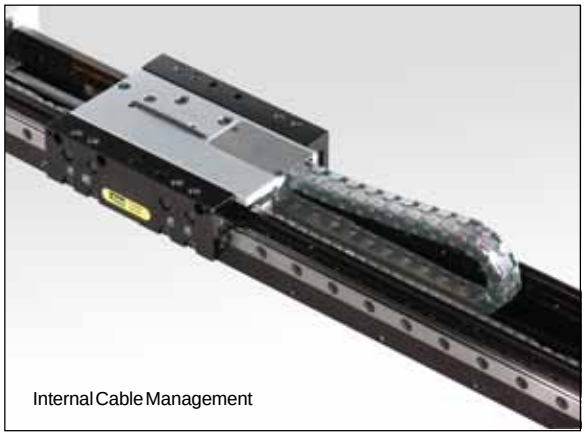
"Plug & Run" Cables "User Friendly" and "robust" were the goals of the cabling design. All cables are 'hi-flex' for durability and are fully shielded. The cables are labeled for quick identification and have connectors at critical locations to simplify use. The drive end terminations are ViX series servo drive compatible and have CE compliant connectors including a ferrite bead to improve EMI immunity.

Internal Cable Management
The LX80's pre-engineered internal cable management offers several benefits. It preserves the LX80's narrow footprint by not requiring additional space for cable management. It allows the table to be mounted in any orientation without a need to re-engineer the cable management. The innovative design is field serviceable and can be maintained without a trip back to the factory. It is designed for and fully tested to last over 20 million cycles. And best of all, it is already done for you!

Cable Options From the end of the LX80L, high flex extension cables are included for connection to the servo drive and control. They are offered in 1m and 3m lengths and are connectorized at both ends for easy installation or removal. The servo drive end is connectorized for Parker's ViX series servo drives.

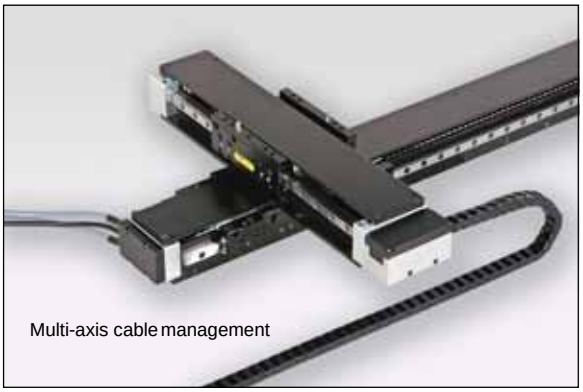
The extension cables egress from the table at a right angle to minimize the overall length of the system. In the standard configuration the cable egress to the left, however, the design is flexible and allows them to egress to the right if desired.

Multi-Axis Cable Management When building multi-axis systems, flexible cable management for the moving axes should be considered. Parker offers pre-engineered cable management for MX80s and LX80s used as the Y-axis. Contact Parker when putting multi-axis systems together to take advantage of these pre-engineered solutions.

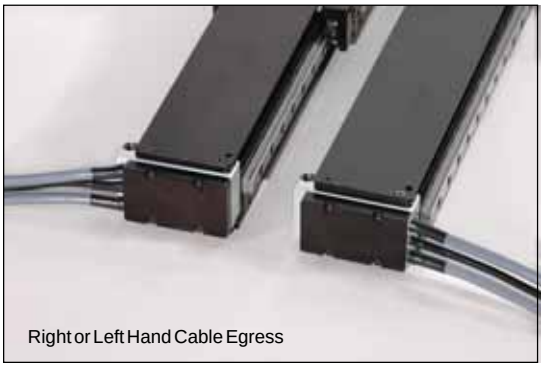


Internal Cable Management

Convenient connectors for VIX drives



Multi-axis cable management



Right or Left Hand Cable Egress

LX80L Miniature Linear Motor Tables

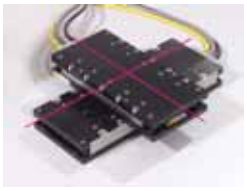
Features

SIngle or double row bearings - Precision linear bearings support the carriage, motor, and payload. Sized to provide virtually unlimited life, the bearings provide stable and accurate linear motion while maintaining high rigidity even under combined or fluctuating loads. Unique in the LX80L's design are single and double linear bearing rail options. The double rail design consists of two linear rails spaced apart with a total of four bearing trucks. This version offers the best load capacity, straightness/flatness, and stability. For applications requiring minimal load capacity and precision, a single rail version is offered with a single linear rail and two bearing trucks. This version reduces cost and further reduces the width to 63mm. The single rail version is also useful when building gantry systems where stability is achieved through use of a second axis or idler rail.

Tooling Features - Standard dowel pin locating holes facilitate repeatable mounting of a table and payloads. Two dowel holes in the LX80L base enable simple, repeatable mounting of the table into a machine. Similarly, two dowel holes in the carriage enable simple, repeatable mounting of a fixture or payload onto the LX80L.

Mounting Variations - All versions of the LX80 can be mounted flat to a surface using 4mm cap screws. The single rail version offers an additional mounting option where the table can be edge mounted. This allows further reduction of axis width to 45mm for applications where space is very limited.

Orthogonality - 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 LX80L is offered with two choices for orthogonality. As standard, (S3 or S4 designators) perpendicularity is held to within 60 arc seconds. For more exacting applications the LX80L can be optioned for 15 arc seconds orthogonality (S5 or S6 designators).



Cleanroom Option - LX80 tables can be prepared for cleanroom compatibility. Preparation involves material changes, element modification and cleanroom compatible lubricants. The LX80L with the R2 option is class 100 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.

Home and Limit Sensors - Reflective optical home and limit sensors are completely housed within the body of the motor driven table. 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 50ma.

E_ Encoder Options - A non-contact linear optical encoder provides a quadrature output and offers resolution ranging from 0.1 micron to 5 micron . On the LX80L, the encoder is internal to the table body. There is no increase to the footprint of the unit and no additional external cabling is required.

Z-axis Bracket- Lightweight aluminum Z-brackets are available for easy construction of vertical axis combinations. These include brackets for mounting both the MX80L and MX80S tables as verticals.

Idler Rail- For gantry or cartesian configurations, an idler rail is available to provide greater system stability. Contact a Parker application engineer for detail on adding this to your system.

ViX Intelligent Servo & Microstep Drives/ Controllers

- **Fully Digital Drive/Controller**
- **Compact size (4.9" x 1.65" x 3.35")**
- **Pre-configured for LX80L**
- **UL, cUL and CE compliant**
- **24-80 VDC power input**
- **Dual RJ45 connections for optional CANopen, RS485 / RS232**

The ViX servo and microstepping drives are the perfect drive solution to be paired with the LX80L and MX80 product families. These drives use advanced field oriented digital control technology to enhance dynamic performance and improve efficiency. The ViX family is offered with different levels of control. The servo drive version is useful in multi-axis systems where a multi-axis controller is used. The intelligent version has a built-in controller ideal for single axis systems. Additionally, intelligent versions can be easily "daisy chained" for multi-axis control where tight coordination is not necessary. The powerful EASI-V software, supplied with the drives, permits straight forward rapid configuration and tuning.

A20 A21 A22 *ViX* Servo Drive

The ViX servo drive is the ideal drive solution when a multi-axis controller is used to control an LX80L table. Depending on the selected version, the ViX will be configured for force, torque, velocity, or step & direction input command signals. Through advanced field oriented digital control technology, the ViX is able to offer superior control.

- Pre-configured LX80L table motor files
- EASI-V software and configuration wizard
- Panel or DIN rail mounting
- High performance encoder input to enable high throughput operation with sub-micron precision

A25 *ViX* Servo Drive/Controller

This ViX servo drive option is ideal for providing both servo drive and control functions in single axis or multi-axis systems (when "daisy chained"). They can accept streamed commands from a host computer or be programmed to operate from internal memory.

- Up to 16 sequences retained in internal memory
- Accepts streaming commands from host
- 5 digital inputs / 3 digital outputs
- Optional RS485 or CANopen fieldbus interface

XL-PSU Power Supply Module

The Parker XL-PSU power supply offers a convenient way of powering a ViX series servo drive. The XL-PSU is a high capacitance power module providing continuous voltage potential for the fluctuating power demands of servo amplifiers through peak and continuous operation. The continuous rated output is 250W at 230VAC input, with a 1-second peak rating of 600W.

- Provides 80 VDC bus voltage for ViX drives & 24VDC output for powering logic, etc.
- Run up to three LX80 axes from single module
- No external EMC filters required
- AC input voltage: 95 to 264 VAC
- DC output: 80 VDC, 3.1A max continous
- Logic output: 24 VDC, 1.8A max
- Dimensions: 7.7 x 2.0 x 5.1 inches
- Weight: 1 kg

LX80L Miniature Linear Motor Tables

Multi- Axis Systems

The direct mount compatibility of the LX80 and compatibility with the MX80 family enables a large variety of two and three axis systems. Possible configurations include XY systems where LX80s serve as the base axis and either an LX80 or MX80 serve as the Y axis. XZ and XYZ arrangements are possible when using MX80s as Z axes. MX80 Z-axis brackets are mount compatible with the LX80 carriage.

When optioned with Parker's ViX series drives, 2 and 3 axis systems are transformed into complete plug & run systems offering easy hookup and configuration. Intelligent ViX drives offer direct control from a PC via the RS232 interface. This solution offers a simple low cost control solution when tight coordination is not needed. For applications requiring a higher level of axis coordination, one of Parker's ACR family of controllers is an effective solution. The ACR1505 is a powerful PCI bus based motion controller capable of controlling up to 4 axes. The ACR9000 is similar but packaged as a standalone unit with RS232, USB, and Ethernet capability.

ACR1505 “Acroloop” Motion Controller PCI/PC Bus Operation

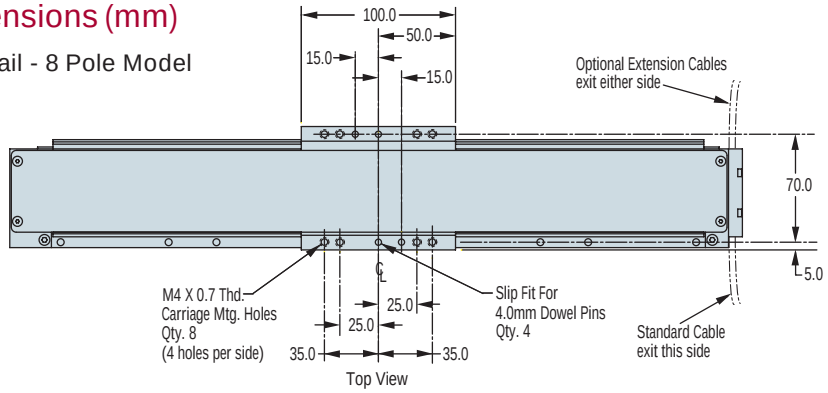
The ACR1505 is Parker’s PCI Bus performance leader. The ACR1505 is a half-slot PCI card capable of operating four axes of servo or stepper motion control with four encoder inputs at up to 30 MHz (post-quadrature). The ACR1505, with its 120 Mega Floating Point Operations per Second (MFLOPS), brings new levels of performance to the OEM marketplace.

The ACR1505 can be equipped with eight analog inputs using 12- or 16-bit analog-to-digital converters for general purpose inputs or for closing a servo loop. Other ACR variants are available providing additional axes of control, or expanded I/O. All of the ACR products use the same system software and programming language; this assures users complete flexibility when upgrading hardware while maintaining investments in program development.

LX80L Miniature Linear Motor Table

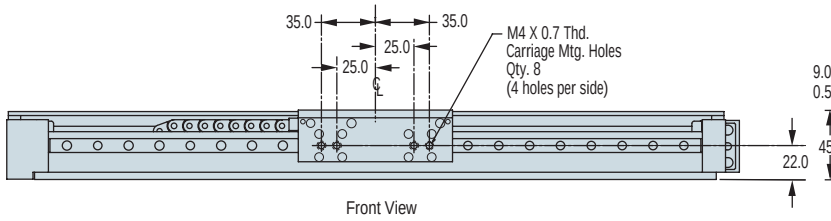
Dimensions (mm)

Two Rail - 8 Pole Model

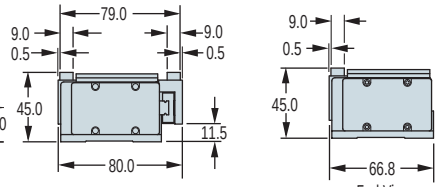


Top View

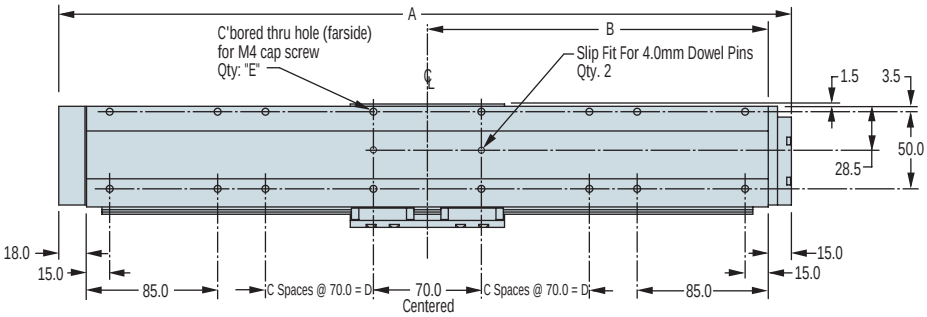
Code	Travel		Dimensions (mm)				
	8 pole	16pole	A	B	C	D	E
T02	150	80	325	146	-	-	6
T04	250	180	425	196	1	70	8
T06	350	280	525	246	1	70	8
T08	450	380	625	296	2	140	10
T10	550	480	725	346	3	210	12
T14	750	680	925	396	4	280	14



Front View



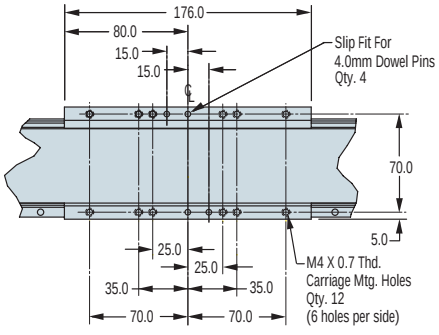
End View
Single Rail Models

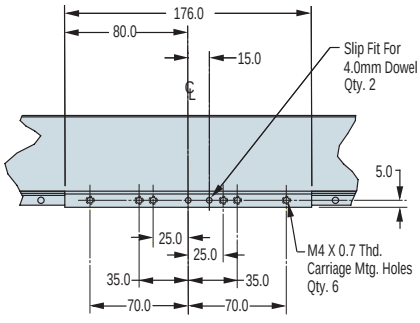


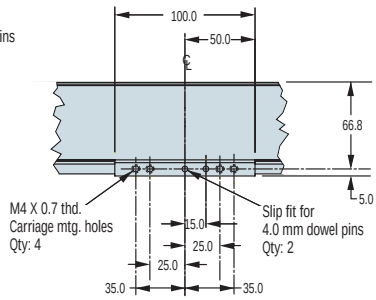
Bottom View

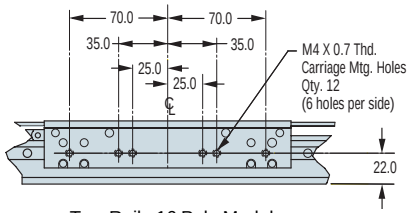
Note:

For edge mounting dimensions go to parkermotion.com - CAD Drawing files

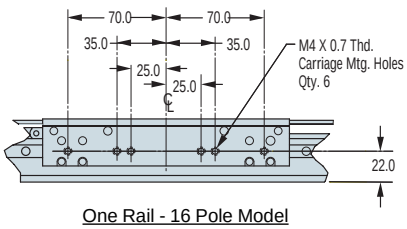




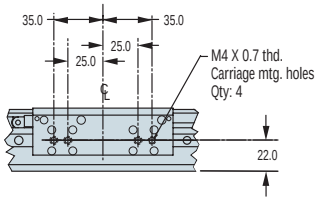




Two Rail - 16 Pole Model
Carriage mounting



One Rail - 16 Pole Model
Carriage mounting



One Rail - 8 Pole Model
Carriage mounting

LX80L Miniature Linear Motor Table

Order Example:

LX80L | T04 | M | P | D | D13 | CM05 | Z3 | E3 | R1 | A25 | X1 | S1

Model LX80L

Travel

8 pole	16 pole (motor)	
150mm.....	80mm.....	T02
250mm.....	180mm.....	T04
350mm.....	280mm.....	T06
450 mm.....	380mm.....	T08
550 mm.....	480mm	T10
750 mm.....	680mm	T14

Mounting...(metric)..... M

Grade.....(precision).... P

Bearings

Double Rail ..... D
Single Rail ..... S

Drive Type

None - 8 pole carriage D3
None - 16 pole carriage D7
8 pole linear motor*..... D13
16 pole linear motor*..... D17

* includes home or limit sensors

Cable Options

No Cables (free travel) CM03
1.0 meter high-flex cables w/ ViX connector .. CM04
3.0 meter high-flex cables w/ ViX connector .. CM05

X-Y Orthogonality

S1 None (no X-Y configuration)
S2 X axis unit (cables @12 o'clock)
S3 60 arc sec. - Y-axis (3 o'clock)
S4 60 arc sec. - Y-axis (9 o'clock)
S5 15 arc sec. - Y-axis (3 o'clock)
S6 5 arc sec. - Y-axis (9 o'clock)

Other Options

X1 None

Digital Drive Options

A1 No drive
A20 ViX250-AH force mode
A21 ViX250-AH velocity mode
A22 ViX250-AH step/direction mode
A25 ViX 250-IH drive/controller

Environmental Options

R1 Standard finish
R2 Cleanroom prep.

Digital Linear Encoder

E1 No encoder (free travel only)
E2 1.0 micron resolution
E4 0.1 micron resolution
E5 5.0 micron resolution
E3 0.5 micron resolution

Z-Channel Location

Z1 No Z-Channel (free travel only)
Z2 Positive end position