

Table de précision

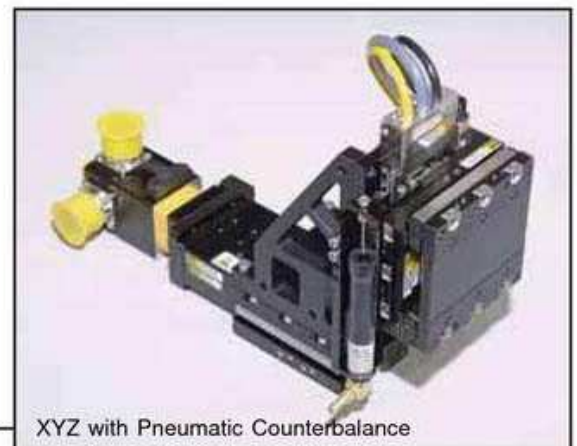
Miniature MX80S

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.



XYZ System with elevator table



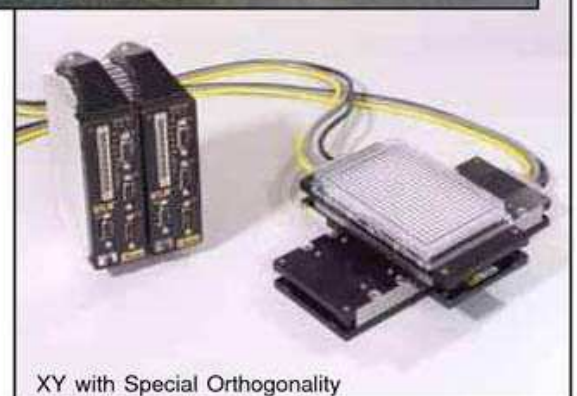
XYZ with Pneumatic Counterbalance



XYZ System



Open Frame XY



XY with Special Orthogonality

MX80 Miniature Linear Motor Stages

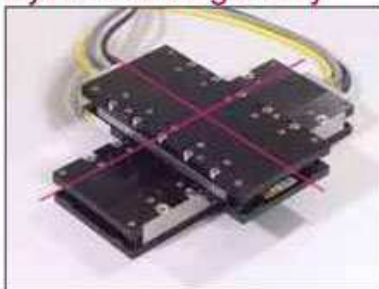
Multi- Axis Systems

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.

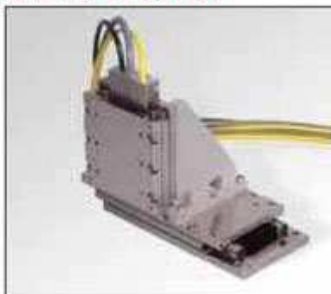


System Orthogonality



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

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.



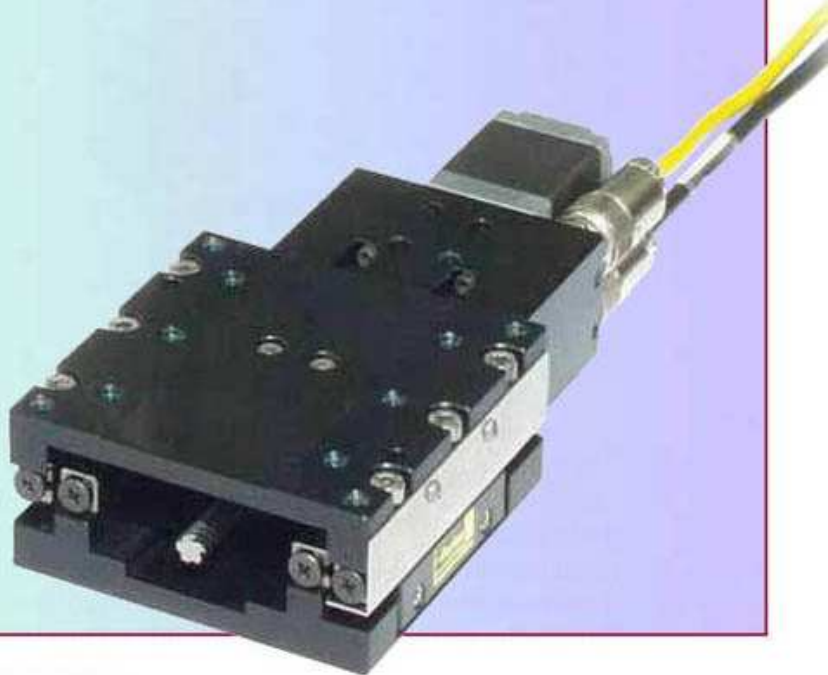
Vacuum Prepared XY

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:

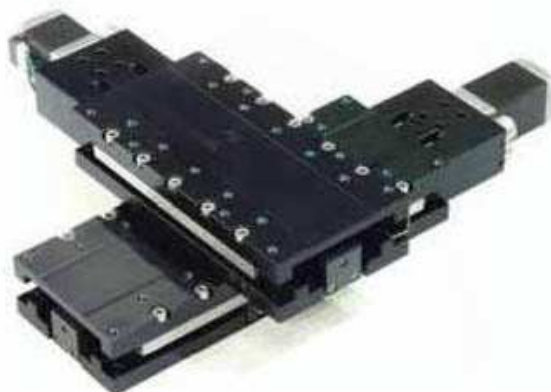
- 1.5µm bi-directional repeatability
- Up to 123 N axial thrust
- 2g acceleration
- Cross roller bearing
(zero cage creep option)
- Stepper or servo motor drive
- Digital limit/home system
- Optional linear encoder
- Cleanroom prep. option
- Low ESD option

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 |

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| 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) |
| Ball screw 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 | | |
| Ball screw 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* (10⁻⁷kg·m²) | | | | |
| 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 | |
| Ball screw | | | 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 | |
| Ball screw | | | 8.00 mm | |
| Brg. Coefficient of Friction | | | 0.003 | |
| Duty Cycle | | | | |
| Leadscrew | | | 50% | |
| Ball screw | | | 100% | |
| Carriage Mass | | | | |
| Leadscrew | 194g | 194g | 353g | 471g |
| Ball screw | 291g | 291g | 464g | 595g |
| Unit Mass (table only) | | | | |
| Leadscrew | 597g | 597g | 1003g | 1268g |
| Ball screw | 694g | 694g | 1114g | 1392g |
| Unit Mass (w/2stackstepper) | | | | |
| Leadscrew | 748g | 748g | 1154g | 1419g |
| Ball screw | 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 .

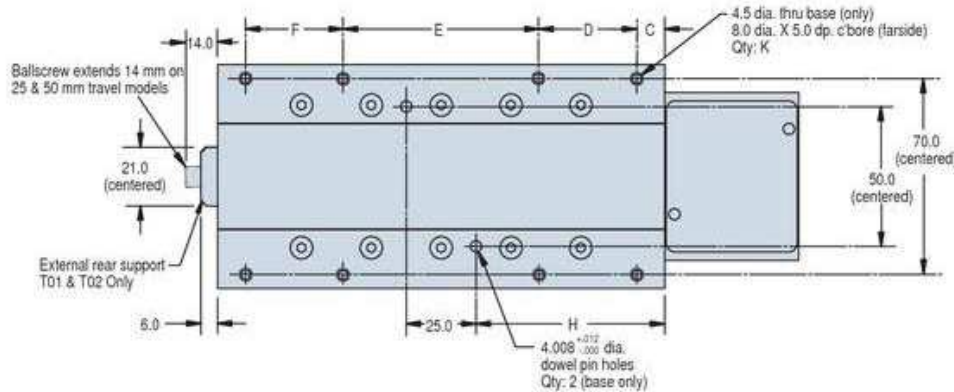
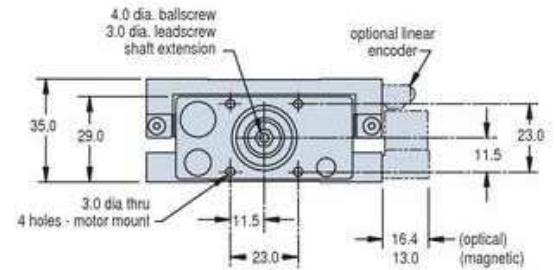
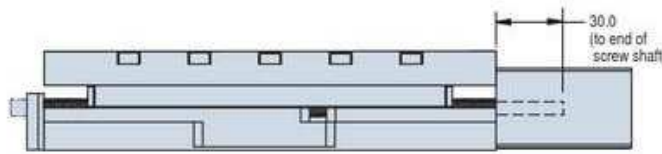
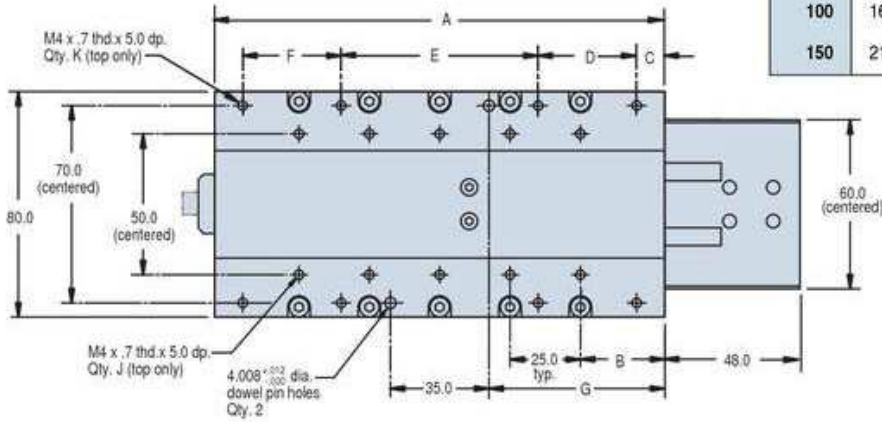
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MX80S Miniature Linear Motor Stage

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 |



Mounting - Servo Motor

| 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 - 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

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)

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

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