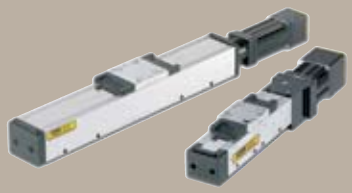
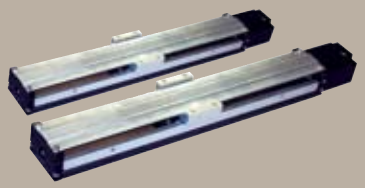
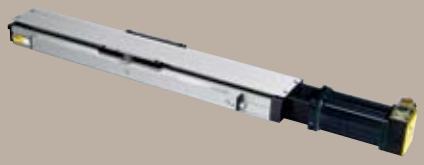
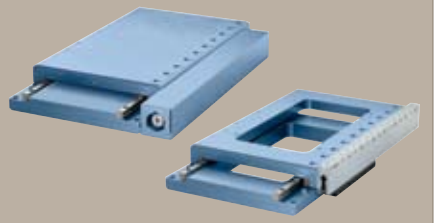
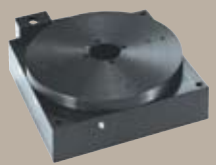








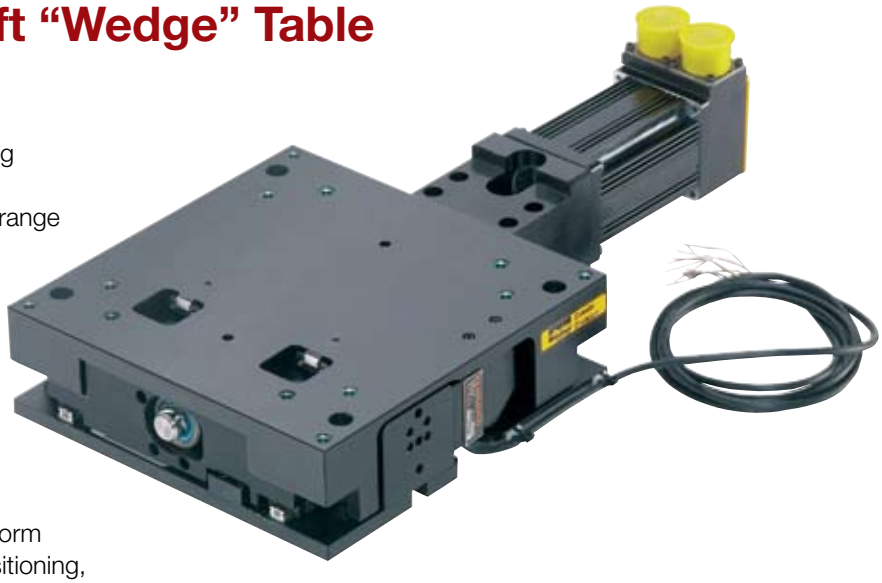


Screw Driven
automation tables

Precise multi-axis positioning systems play an integral part in today's semiconductor, computer peripheral, solar power, flat panel, life sciences, lab automation, biomedical and electronics industries. The demands for tighter specifications, improved throughput and consistent quality have become increasingly stringent. Because of the complexity associated with these systems, many manufacturers insist on a single source supplier to eliminate multiple vendor design incompatibilities and delivery conflicts. With over forty years' experience as a global leader in the development of products and technology, Parker provides the most advanced, easy to integrate high-precision electromechanical systems.

Contents

ZP200 Series Vertical Lift “Wedge” Table



Features

- Precision platform for vertical (Z-axis) positioning
- Continuous duty - High dynamic performance
- Precision straightness (±5 arc-sec) throughout range of motion
- Precision ground ballscrew drive - 5, 10, or 20 mm lead
- Multi-axis compatibility with XR and LXR tables
- Laser tested and certified with calibrated lead value

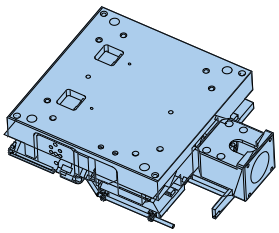
Quality Design and Construction

The ZP200 Z axis lift table is a stable support platform which provides precise vertical translation and positioning, while maintaining X-Y integrity. Recirculating square rail bearings are incorporated into a unique variation of “wedge” mechanics to enable reliable high dynamic performance without the potential loss of travel encountered with cross roller bearings. The ZP200 is compatible with XR and LXR tables for multi-axis systems, and it can be utilized as the system base axis or top axis to fit the motion requirements of the application. Standard mounting holes and dowel pin holes accommodate repeatable mounting.

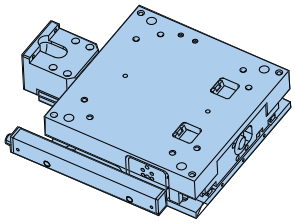
Options

- Linear Encoder option with selectable resolutions of 0.1, 0.5, 1.0 µm
- Fail-safe brake (field installable - mounts directly to the ballscrew drive)
- Class 10 cleanroom preparation
- Selectable motor mounting and couplings for SM16 or NEMA 23 servo or stepper motors
- Easily adjusted travel “limit” and “home” sensors are provided in an enclosed sensor pack

ZP200 utilized in a laser test set-up



Encoder



Sensor Pack

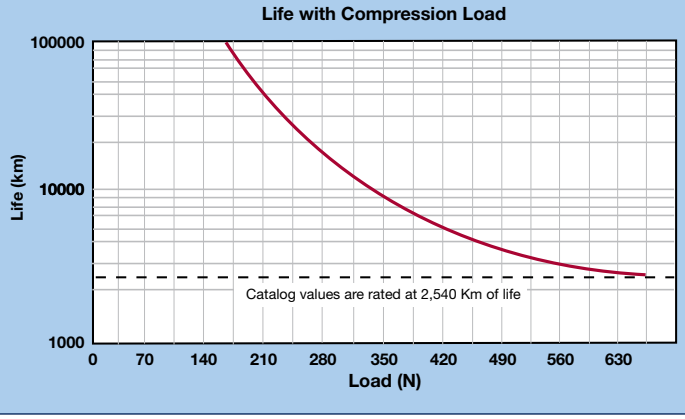
ZP200 Specifications

	Precision	Standard
Travel (Z-axis)	25 mm (limit to limit)	25 mm (limit to limit)
Positional Accuracy		
with no encoder [1,2,7]	8 µm	20 µm
with linear encoder [3,6,7]	8 µm	—
Positional Repeatability		
with no encoder [1,7]	± 3 µm	± 10 µm
with 1.0 µm linear encoder [6,7]	± 5 µm	—
with 0.5 µm linear encoder [6,7]	± 4 µm	—
with 0.1 µm linear encoder [6,7]	± 3 µm	—
Lift Lead Ratio [4]		
5 mm lead ballscrew drive	1.8199 mm/rev	
10 mm lead ballscrew drive	3.6397 mm/rev	
20 mm lead ballscrew drive	7.2794 mm/rev	
Lift Velocity		
5 mm lead ballscrew drive	110 mm/sec	
10 mm lead ballscrew drive	220 mm/sec	
20 mm lead ballscrew drive	440 mm/sec	
Load Capacity (normal)	15 kg (33 lb)	75 kg (165 lb)
Duty Cycle	100%	
Max Acceleration	7.2 m/sec^2	
Efficiency	90%	
Max Breakaway Torque [5]	0.15 Nm	
Max Running Torque [5]	0.13 Nm	
Linear Bearing – Coefficient Of Friction	0.01	
Ballscrew Diameter	16 mm	
Unit Weight	5.82 kg	
Top Plate Weight	2.25 kg	
Pitch [7]	± 15 Arc-sec	± 45 Arc-sec
Roll [7]	± 15 Arc-sec	± 25 Arc-sec
Input Inertia		
5 mm lead ballscrew drive	2.32 x 10^{-5} Kg-m^2	
10 mm lead ballscrew drive	2.51 x 10^{-5} Kg-m^2	
20 mm lead ballscrew drive	3.12 x 10^{-5} Kg-m^2	

1) Measured 38 mm directly above the true center of the top mounting surface.
2) Measured using calibrated lead value (provided).
3) Slope correction value provided
4) Lift per 1 motor shaft revolution. Lift lead listed is nominal. All units are provided with calibrated lead value.
5) Torque ratings are measured with unit unloaded, traveling upward.
6) Measured directly over encoder on outer edge.
7) Pitch and Roll Specifications are measured with <1kg load. Addition of load increases pitch and roll error by 10 arc-sec per 5 kg of load assuming the load center of gravity is located at the center of the stage platform. Cantilevered loading increases these errors more.

Table Life/Compression (Normal) Load

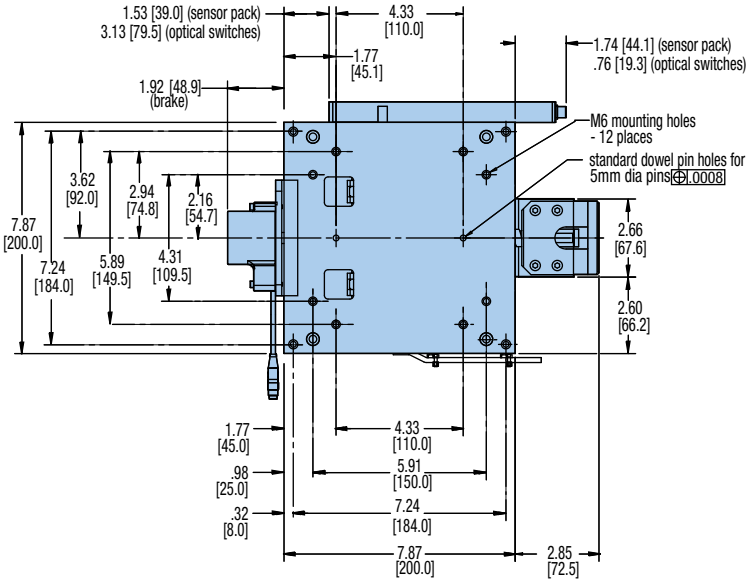
The graph provides a preliminary evaluation of the support bearing life/load characteristics. The curves show the life/load relationship when the applied load is centered on the carriage, normal (perpendicular) to the carriage mounting surface. For final evaluation of life vs load, including off center, tension, and side loads contact Parker Applications Engineering at 800-245-6903.

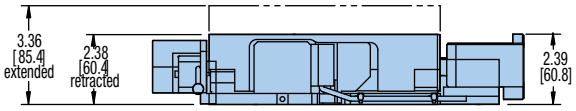


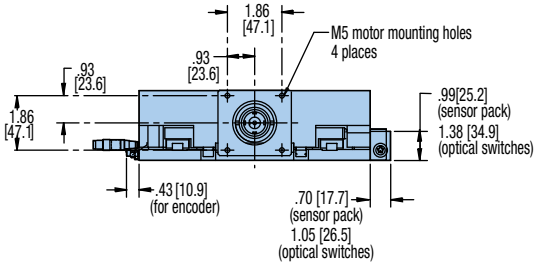
2D & 3D CAD files Download from parkermotion.com

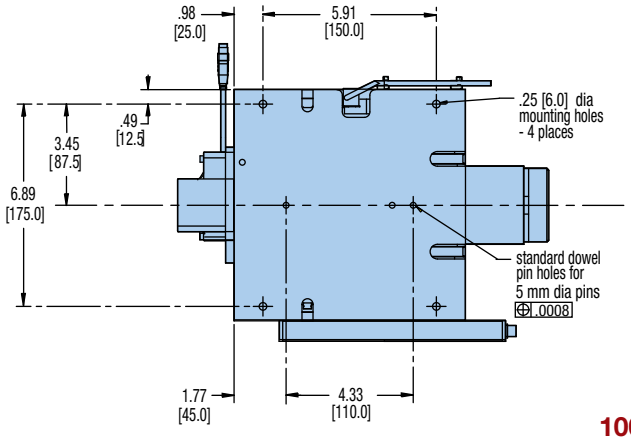
ZP200 Series Dimensions

Dimensions - inches (mm)









100-9274-01 XR Adapter Plate

A multi-axis adapter plate is available to mount the ZP200 to an XR/LXR table or, mount an XR/LXR table to the ZP200. This plate is 9.53 mm thick and includes standard dowel pin holes for repeatable alignment.

	ZP200 as Base	ZP200 as Top Axis
404XR	Yes	—*
404LXR	Yes	—*
406XR	Yes	Yes
406LXR	Yes	Yes
206 Rotary	Yes	—*

*Not recommended - consult factory.

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
Order Example:	ZP200	T01	M	S	D2	H12	L12	C3	M3	E3	B2	R1	P1

① Series
ZP200

② Travel
T01 25 mm

③ Mounting
M Metric

④ Grade
P Precision
S Standard

⑤ Drive Screw
D2 5 mm lead
D3 10 mm lead
D4 20 mm lead

⑥ Home Sensor
H1 No sensor
H11 N.C. current sinking, sensor pack
H12 N.O. current sinking, sensor pack
H13 N.C. current sourcing, sensor pack
H14 N.O. current sourcing, sensor pack

⑦ Travel Limit Sensors
L1 No sensor
L11 N.C. current sinking, sensor pack
L12 N.O. current sinking, sensor pack
L13 N.C. current sourcing, sensor pack
L14 N.O. current sourcing, sensor pack

⑧ Coupling
C1 No coupling
C3 0.25” bore bellows
C5 0.38” bore bellows
C23 9.0 mm (0.35”) bore bellows

⑨ Motor Mount
M1 No motor mounts
M2 SM16/BE16 motor
M3 NEMA 23 and SM23 motors
M61 BE23 motor mount

⑩ Linear Encoder Option
E1 No encoder
E2 1.0 micron
E3 0.5 micron
E4 0.1 micron
E5 5.0 micron
E7 Sine/cosine encoder

⑪ Brake Option
B1 No brake
B2 Shaft brake

⑫ Environmental
R1 Class 1000
R2 Class 10

⑬ P1
Place holder