For high speed automation, both gantry and articulated arm robots are widely used throughout industry. Because of the many inherent advantages of the gantry robot, it is a solid choice for: palletizing, storage and retrieval, machine loading, parts transfer, material handling, automated assembly. Parker offers numerous standard gantry configurations as well thousands of configured product options to develop a customer specific system solution to solve these and other automation applications. Utilization of these pre-engineered systems enables the user to redirect scarce engineering resources from motion system design to machine or process functionality.

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228-239 HLE-SR Series
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Belt Driven Tables

High Speed Automation Systems Overview

Parker’s family of linear modules provides the most comprehensive line of high throughput linear positioning devices in the industry. These electromechanical positioners are designed to shuttle a payload at high speeds to multiple locations along a linear travel path. They serve as the primary building blocks for Parker pre-engineered gantry systems or customer designed automation systems. Parker linear modules are offered in several unique product families which can address a broad range of travel, speed, load, accuracy, and environmental requirements. There are three bearing systems (polyamide roller, steel roller, or square rail), three drive types (belt-and-pulley or rack-and-pinion, or linear servo motor), and up to six different cross sectional sizes (60, 80, 100, 120, 150 and 180 mm) from which to choose. Systems designed around these elements have effectively, efficiently, and economically satisfied the widest range of application requirements for high speed automation.

HLE-RB Series
Page 214-227

These are the most popular electromechanical modules in the Parker line. They utilize a unique composite roller wheel bearing design coupled with a timing belt and pulley drive mechanism to provide long travel with high speed and high acceleration.

- Travel Range: 7.9 meters
- Load Capacity: 600 kg
- Maximum Speed: 5 meters/sec.
- Duty Cycle: 100%
- Repeatability: ±0.2 mm

HLE-SR Series
Page 228-239

The “SR” series, having a square rail ball bearing system, complement the RB series by providing increased moment load capacities without an increase in profile size. The SR utilizes the same reliable timing belt and pulley drive system found in the RB.

- Travel Range: 6.0 meters
- Load Capacity: 600 kg
- Maximum Speed: 3 meters/sec.
- Duty Cycle: 100%
- Repeatability: ±0.2 mm

HPLA Series
Page 200-213

The next generation of belt driven modules, the HPLA expands on the roller wheel bearing design with the addition of high-load capacity steel wheels. The steel wheels significantly increase normal and moment load capacities of this belt driven actuator.

- Travel Range: 9.0 meters
- Load Capacity: 1530 kg
- Maximum Speed: 5 meters/sec.
- Duty Cycle: 100%
- Repeatability: ±0.2 mm
The “endless” linear unit is designed for positioning payloads over long travel distances with high rigidity and repeatability. This is accomplished by incorporating Parker’s uniquely designed rack-and-pinion based drive system with the RB series roller wheel bearing system.

- **Travel Range:** 50 meters
- **Load Capacity:** 600 kg
- **Maximum Speed:** 5 meters/sec.
- **Duty Cycle:** 100%
- **Repeatability:** ±0.05 mm

### HZR Series

Page 246-251

The HZR is a vertical unit specifically designed to meet the high speed and force requirements of the automation industry. The fixed housing and movable aluminum extrusion permit the unit to retract out of the work area, thereby keeping the work area free of obstructions.

- **Travel Range:** 2.0 meters
- **Load Capacity:** 150 kg
- **Maximum Speed:** 5 meters/sec.
- **Duty Cycle:** 100%
- **Repeatability:** ±0.2 mm

### BLMA Series

Page 252-253

The BLMA is a plug and play linear motor actuator which houses a powerful linear servo motor (386 pounds of peak thrust) in a high strength rigid aluminum body to enable high end performance with highly repeatable positioning over long unsupported spans.

- **Travel Range:** 6.0 meters
- **Load Capacity:** 700 kg
- **Maximum Speed:** 7 meters/sec.
- **Duty Cycle:** 100%
- **Repeatability:** ±0.01 mm
Gantry Systems
Page 254-269
Parker's gantry systems provide cost-effective, easy to integrate solutions that satisfy the vast majority of automation requirements. In addition to these standard gantry systems, Parker offers products with additional capabilities to fulfill the needs of special applications. Our engineering skill and manufacturing expertise have integrated these products into custom-tailored gantry solutions which have successfully addressed the most unique and exacting requirements of machine builders and integrators around the world.

Support Structures
Page 270
Parker can include the support structure and machine guarding as part of your complete system solution. Parker’s ParFrame™ extruded aluminum structures are suited for light to medium duty requirements. High strength steel supports are offered for applications involving greater loads and forces.

Motors, Drives, and Controls
(Electrical Subsystems)
Page 271
A high speed multi-axis Gantry Robot requires a complete electromechanical solution where the machine Interface, Control and Motor/Drive functions are seamlessly integrated with the mechanical elements. Parker’s wide range of electrical products and subsystems enable Gantry Robots to be supplied to the customer at the level of integration most suitable for his need. Whether you need a basic mechanical unit, a unit including drives and motors, or a full-blown electromechanical system ready to run or link to a PLC, Parker has the best solution.
Additional Capabilities
Page 277-280

HDM Series Rotary Motion Modules

ET Series Rod Style Electric Cylinders

HTR Telescopic Vertical Units

ER and ERV Series Rodless Actuators

LCB Series Compact Rodless Actuators
HPLA Series Belt Driven Linear Modules

Features
- Strong – steel roller bearing option for highest load capacity – 1530 kg
- Rugged construction for heavy duty applications
- Thrust force capacity to 5455 N
- Standard travel up to 9 meters
- Velocity up to 5 meters/sec.
- Positional repeatability of ±0.2 mm
- Timing belt and pulley drive mechanism for fast, accurate positioning

The Modular Concept
Provides the ideal solution for applications:

Modular drive system:
- Increased system stiffness due to larger belt width
- Low maintenance
- High performance due to hollow shaft input

Modular guide system:
- Provides an alternative to composite wheel material
- Quiet operation
- Low maintenance
- Steel wheel option on an integrated steel rolling surface for increased load capacity
- High load-bearing capacity
- High levels of rigidity

Various options for adaptation to wide ranging applications:
- Steel cover strip
- Corrosion-resistant stainless steel version for application in clean rooms or in the food industry
- Integrated position feedback system for maximum precision
- Optional IP30 rated strip seal

Proven Technology
- Direct mounting for planetary gear reducers – eliminating complexity of additional machined parts or couplings
- Adjustable “end of travel” limit switches and “Home” position sensor
- Cable carrier systems
- Performance matched Parker servo systems
- Structural components for vertical and multi-axis mounting
- Toe clamps and hardware for fast/easy mounting
- External bumper option
- Link shafts and support bearing for dual unit axes
- Splice plates for extending travels beyond length available in a single profile

Typical Fields of Application
As part of advanced, cost-effective construction of machines and handling systems:

- Materials handling: palletizing, depalletizing, feeding, part removal
- Cleanroom technology: wafer transport, wafer coating
- Warehouse technology: parts picking, storage and retrieval
- Machine tool automation: workpiece loading and unloading, tool changing
- Construction: formwork, placing reinforcing steel bars in concrete
- Process engineering: painting, coating, bonding
- Testing technology: guiding ultrasonic sensors, laboratory equipment
- Textile machinery building: cross-cutting, slitting and stacking, quilting, seam stitching

See pages 272-276 for available options and accessories.
The HPLA is a rugged “next generation” linear module that offers high speed, high acceleration, and long travel, combined with stiff, rigid construction characteristics. It is ideally suited as a single axis product or as a component for high speed multi-axis gantries. The HPLA carriage is rigidly supported on three sides by heavy duty roller bearings, housed in a rugged aluminum housing. The bearing wheels are pre-loaded via eccentric bushings to eliminate play in the system, and are strategically located to evenly distribute the load across the length of the carriage.

A high strength steel reinforced drive belt and pulley system provides fast and highly repeatable positioning of the carriage. This high thrust drive belt is securely connected to the carriage by a unique clamping system. This system provides a secure connection and enables easy belt replacement without the need to remove the payload. Having a low coefficient of friction, the carriage design provides a high mechanical efficiency and long service life. Special carriage lengths and linear units with multiple carriages are available for custom applications.

Drive Station
The drive stations are designed to accept planetary gear reducers or provide different shaft outputs for driving the HPLA.

Drive Belt
A zero backlash, steel reinforced timing belt provides high speed, high force, and high acceleration. A serrated clamp mechanism between belt and carriage guarantees a safe, strong connection and allows belt replacement without removing the load.

Carriage
Roller bearing wheels are installed on three sides of the carriage to provide smooth linear motion and support. The wheels are positioned to evenly distribute the load across the length of the carriage. Eccentric bearing wheel bushings are adjusted to eliminate play on all sides of the carriage. The carriages are available in standard and extended lengths.

Housing
An extruded aluminum profile provides maximum rigidity (torsion and deflection) at minimum weight. It is designed to accommodate both steel or polyamide roller bearing wheels. The polyamide wheels ride in the extruded guideway and the steel wheels ride on integral hardened steel bearing ways.

Optional IP30 Strip Seal
Magnetically attached stainless steel seal strip (not shown) provides environmental protection to interior components.

Gearhead
Parker Stealth series gearheads integrated as direct drive options for high performance in a smaller overall width footprint.

Roller Bearing
Three rows of preloaded heavy duty steel roller bearings provide the highest load carrying capacity available. Each roller bearing incorporates a low friction, lubricated and sealed radial ball bearing enclosed in a hardened steel outer ring (or raceway). A polyamide tread can be substituted for the steel ring whenever whisper quiet motion is desired.

Tensioning Station
An easily accessible tensioning station is used to set the drive belt tension.
## HPLA Series Specifications

### Belt Driven Tables

### HPLA Series Specifications

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Units</th>
<th>HPLA80 Polyamide Wheel</th>
<th>HPLA120 Polyamide Wheel</th>
<th>HPLA180 Polyamide Wheel</th>
<th>HPLA180 Rack Drive Polyamide Wheel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Weight (basic unit without stroke)</td>
<td>kg</td>
<td>6.8</td>
<td>20.2</td>
<td>57.2</td>
<td>78.4</td>
</tr>
<tr>
<td></td>
<td>(lb)</td>
<td>(15.0)</td>
<td>(44.4)</td>
<td>(125.8)</td>
<td>(172.5)</td>
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<tr>
<td></td>
<td></td>
<td>7.5</td>
<td>21.6</td>
<td>61.6</td>
<td></td>
</tr>
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<td></td>
<td>(16.5)</td>
<td>(47.5)</td>
<td>(135.3)</td>
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<td></td>
<td></td>
<td>20.2</td>
<td>21.6</td>
<td>(172.5)</td>
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<td></td>
<td></td>
<td>(44.4)</td>
<td>(47.5)</td>
<td>(135.3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>21.6</td>
<td>(47.5)</td>
<td>(135.3)</td>
<td></td>
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<tr>
<td>Carriage Weight</td>
<td>kg</td>
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<td>5.8</td>
<td>12.3</td>
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<td></td>
<td>(lb)</td>
<td>(3.7)</td>
<td>(12.8)</td>
<td>(27.1)</td>
<td>(71.5) (1)</td>
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<td></td>
<td></td>
<td>1.8</td>
<td>(13.2)</td>
<td>(27.7)</td>
<td></td>
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<td></td>
<td></td>
<td>2.8</td>
<td>(20.2)</td>
<td>(48.0)</td>
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<td>Weight/Meter of Additional Travel</td>
<td>kg/m (lb/ft)</td>
<td>(4.1)</td>
<td>(9.2)</td>
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<td>(22.6)</td>
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<td></td>
<td>(4.9)</td>
<td>(10.4)</td>
<td>(22.6)</td>
<td>(21.2)</td>
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<td>Moment of Inertia (related to the drive shaft)</td>
<td>kg-cm² (lb-in²)</td>
<td>17.8</td>
<td>142</td>
<td>725</td>
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<td></td>
<td>(lb-in²)</td>
<td>(6.1)</td>
<td>(48)</td>
<td>(247)</td>
<td>(238)</td>
</tr>
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<td></td>
<td></td>
<td>18.4</td>
<td>146</td>
<td>743</td>
<td>(238)</td>
</tr>
<tr>
<td></td>
<td>(lb-in²)</td>
<td>(6.3)</td>
<td>(50)</td>
<td>(253)</td>
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<td></td>
<td></td>
<td>25.4</td>
<td>197</td>
<td>1121</td>
<td>(288)</td>
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<tr>
<td>Travel and Speed</td>
<td>m/s (in/s)</td>
<td>5 (200)</td>
<td>5 (200)</td>
<td>5 (200)</td>
<td>5 (200)</td>
</tr>
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<td>Maximum Acceleration(2)</td>
<td>m/s² (in/s²)</td>
<td>10 (393)</td>
<td>10 (393)</td>
<td>10 (393)</td>
<td>10 (393)</td>
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<td>Max. Travel, Standard Carriage NL(3)</td>
<td>mm (in)</td>
<td>5540</td>
<td>9470</td>
<td>9240</td>
<td>8680</td>
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<td></td>
<td></td>
<td>5520</td>
<td>9440</td>
<td>9200</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>9470</td>
<td>9440</td>
<td>9200</td>
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</tr>
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<td></td>
<td></td>
<td>9240</td>
<td>9200</td>
<td>8680</td>
<td></td>
</tr>
<tr>
<td>Geometric Data</td>
<td>mm (in)</td>
<td>80 (3.15)</td>
<td>120 (4.72)</td>
<td>180 (7.09)</td>
<td>180 (7.09)</td>
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<tr>
<td>Cross Section, Square</td>
<td></td>
<td>120 (4.72)</td>
<td>180 (7.09)</td>
<td>180 (7.09)</td>
<td></td>
</tr>
<tr>
<td>Moment of Inertia Ix</td>
<td>cm² (in²)</td>
<td>139 (5.34)</td>
<td>724 (17.39)</td>
<td>3610 (86.73)</td>
<td>3610 (86.73)</td>
</tr>
<tr>
<td></td>
<td>(in²)</td>
<td>(5.34)</td>
<td>(17.39)</td>
<td>(86.73)</td>
<td>(86.73)</td>
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<tr>
<td>Moment of Inertia Iy</td>
<td>cm² (in²)</td>
<td>165 (6.50)</td>
<td>830 (19.94)</td>
<td>4077 (97.95)</td>
<td>4077 (97.95)</td>
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<tr>
<td></td>
<td>(in²)</td>
<td>(6.50)</td>
<td>(19.94)</td>
<td>(97.95)</td>
<td>(97.95)</td>
</tr>
<tr>
<td>Moment of Elasticity</td>
<td>N/mm² (lb/in²)</td>
<td>0.72 x 10⁴</td>
<td>0.72 x 10⁵</td>
<td>0.72 x 10⁵</td>
<td>0.72 x 10⁵</td>
</tr>
<tr>
<td></td>
<td>(lb/in²)</td>
<td>(0.1044 x 10⁸)</td>
<td>(0.1044 x 10⁸)</td>
<td>(0.1044 x 10⁸)</td>
<td>(0.1044 x 10⁸)</td>
</tr>
<tr>
<td>Pulley Data, Torques, Forces</td>
<td>mm/rev (in/rev)</td>
<td>180 (7.09)</td>
<td>270 (10.63)</td>
<td>420 (16.54)</td>
<td>280 (11.02)</td>
</tr>
<tr>
<td>Travel Distance per Revolution</td>
<td>mm (in)</td>
<td>28.7 (1.13)</td>
<td>43.0 (1.69)</td>
<td>66.8 (2.63)</td>
<td>44.6 (1.75)</td>
</tr>
<tr>
<td>Response Radius of Drive Pulley</td>
<td>Nm (lb-in)</td>
<td>47.4 (2.00)</td>
<td>131.4 (11.65)</td>
<td>368 (32.64)</td>
<td>58 (514)</td>
</tr>
<tr>
<td>Maximum Drive Torque</td>
<td></td>
<td>± 0.2 (± 0.008)</td>
<td>± 0.2 (± 0.008)</td>
<td>± 0.2 (± 0.008)</td>
<td>± 0.05 (± 0.002)</td>
</tr>
<tr>
<td>Maximum Belt Traction (effective load)</td>
<td>mm (in)</td>
<td>Refer to charts on following pages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability(3)(4)</td>
<td>mm (in)</td>
<td>± 0.05 (± 0.002)</td>
<td>± 0.05 (± 0.002)</td>
<td>± 0.05 (± 0.002)</td>
<td></td>
</tr>
</tbody>
</table>

(1) Includes weight of drive module.
(2) Greater speeds and accelerations may be achieved.
(3) Bumper to bumper maximum stroke - splicing possible for longer travel distances including safety zone.
(4) Nominal value - component dependent. For improved repeatability consult factory.

### Linear Actuator Size Comparison

![HLE60](image1.png) ![HPLA080](image2.png) ![HLE100](image3.png) ![HPLA120](image4.png) ![HLE150](image5.png) ![HPLA180](image6.png)

www.parkermotion.com
HPLA080 Series – Load-Bearing Capacity of Carriage and Timing Belt

Load-Bearing Capacity of HPLA080 Timing Belt (Fx)

<table>
<thead>
<tr>
<th>Description</th>
<th>Gearhead</th>
<th>Drive Option</th>
<th>Nominal Belt Tension (81,000 km life)</th>
<th>Maximum Belt Tension (46,000 km life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsupported Pulley</td>
<td>PX90/PV90</td>
<td>S01/S02</td>
<td>500</td>
<td>625</td>
</tr>
<tr>
<td>PS90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supported Pulley</td>
<td>PX90/PX115/PV90/PV115/PS90</td>
<td>S03/S04/S08/S09</td>
<td>925</td>
<td>1115</td>
</tr>
</tbody>
</table>

The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard carriage (S). With the extended carriage (E), all the values apart from Fx (load-bearing capacity of timing belt) can be doubled if the load is applied equally to both halves of the carriage or distributed uniformly along its entire length.

HPLA080 Load-Bearing Capacity (Fy and Fz) (Values double for extended carriage)

The curves show the maximum load-bearing capacity of a carriage in one direction of force or torque. If several loads are applied in different directions, the values given by the curves must be derated, i.e. the load or speed should be reduced if necessary.

“DimAxes” software is available for determination of precise carriage loading.

Visit www.parkermotion.com to request a Gantry Robot CD.
HPLA120 Series – Load-Bearing Capacity of Carriage and Timing Belt

Load-Bearing Capacity of HPLA120 Timing Belt (Fx)

<table>
<thead>
<tr>
<th>Description</th>
<th>Gearhead</th>
<th>Drive Option</th>
<th>Nominal Belt Tension (81,000 km life)</th>
<th>Maximum Belt Tension (46,000 km life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsupported Pulley</td>
<td>PV115/PX115</td>
<td>S01/S02</td>
<td>675</td>
<td>900</td>
</tr>
<tr>
<td></td>
<td>PS115</td>
<td>S01/S02</td>
<td>1515</td>
<td>2015</td>
</tr>
<tr>
<td>Supported Pulley</td>
<td>PV115</td>
<td>S03/S04/ S08/ S09</td>
<td>1700</td>
<td>2235</td>
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</table>

The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard carriage (S). With the extended carriage (E), all the values apart from Fx (load-bearing capacity of timing belt) can be doubled if the load is applied equally to both halves of the carriage or distributed uniformly along its entire length.

HPLA120 Load-Bearing Capacity (Fy and Fz)

(The values double for extended carriage)

HPLA120 Maximum Permissible Moment Load (Mx, My and Mz)

(The values double for extended carriage)

“DimAxes” software is available for determination of precise carriage loading.

Visit www.parkermotion.com to request a Gantry Robot CD.
**HPLA180 Series – Load-Bearing Capacity of Carriage and Timing Belt**

**Load-Bearing Capacity of HPLA180 Timing Belt (Fx)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Gearhead</th>
<th>Drive Option</th>
<th>Nominal Belt Tension (81,000 km life)</th>
<th>Maximum Belt Tension (46,000 km life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsupported Pulley</td>
<td>PS142</td>
<td>S01/S02</td>
<td>1405</td>
<td>1804</td>
</tr>
<tr>
<td>Supported Pulley</td>
<td>PS115</td>
<td>S03/S04/S08/S09</td>
<td>4170</td>
<td>5455</td>
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The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard carriage (S). With the extended carriage (E), all the values apart from Fx (load-bearing capacity of timing belt) can be doubled if the load is applied equally to both halves of the carriage or distributed uniformly along its entire length.

**HPLA180 Load-Bearing Capacity (Fy and Fz)**

(Values double for extended carriage)

The curves show the maximum load-bearing capacity of a carriage in one direction of force or torque. If several loads are applied in different directions, the values given by the curves must be derated, i.e. the load or speed should be reduced if necessary.

**HPLA180 Maximum Permissible Moment Load (Mx, My and Mz)**

(Values double for extended carriage)

“DimAxes” software is available for determination of precise carriage loading.

Visit [www.parkermotion.com](http://www.parkermotion.com) to request a Gantry Robot CD.
**HPLA Characteristics**

The HPLA deflection curves can be used for determining the deflection based on the profile length and the application load weight. Applications requiring high acceleration forces can place a severe strain on the system stability. In these cases, a solid substructure may be required with the HPLA product being supported at frequent intervals.

These deflection curves illustrate the deflection $\delta$, based on the HPLA profile being simply supported at both ends. The graphs take into consideration the self deflection due to the weight of the profile, along with the load to be transported. The maximum deflection cannot be exceeded. If the maximum deflection is exceeded based on your application parameters, then additional supports are required. Alternatively, the next larger profile size may be considered. For deflection formulas and calculations, please refer to the Technical Information Library found on our web site: www.parkermotion.com

![Deflection Curves Diagram](image)

- **F** = Force N
- **L** = Unsupported length mm
- **$\delta$** = Deflection mm
Dual Axis Considerations

When two parallel linear modules are required to form a single axis, the span or distance between each unit determines which type of shaft connection is required. In some cases, a link shaft support bearing might also be required.

The link shaft bearing is used to support the linking shaft of an HPLA dual axis when there is a large center to center distance. This bearing must be used if the critical speed is exceeded with the dual-axis link shaft.

<table>
<thead>
<tr>
<th>Series</th>
<th>“A” Span (mm) (min.)</th>
<th>“A” Span (mm) (max.)</th>
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</thead>
<tbody>
<tr>
<td>HPLA080</td>
<td>120</td>
<td>350</td>
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<tr>
<td>HPLA120</td>
<td>150</td>
<td>350</td>
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<tr>
<td>HPLA180</td>
<td>185</td>
<td>350</td>
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<table>
<thead>
<tr>
<th>Series</th>
<th>“A” Span (mm) (min.)</th>
<th>“A” Span (mm) (max.)</th>
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</thead>
<tbody>
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<td>HPLA080</td>
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<td>600</td>
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<td>HPLA120</td>
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<td>HPLA180</td>
<td>351</td>
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</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>“A” Span (mm) (min.)</th>
<th>“A” Span (mm) (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPLA080</td>
<td>601</td>
<td>3000</td>
</tr>
<tr>
<td>HPLA120</td>
<td>601</td>
<td>3000</td>
</tr>
<tr>
<td>HPLA180</td>
<td>601</td>
<td>3000</td>
</tr>
</tbody>
</table>
### HPLA080 Dimensions

#### HPLA080 Drive Unit

<table>
<thead>
<tr>
<th>Description</th>
<th>With Strip Seal</th>
<th>Without Strip Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Carriage - Polyamide Wheels</td>
<td>862</td>
<td>792</td>
</tr>
<tr>
<td>Standard Carriage - Steel Wheels</td>
<td>882</td>
<td>812</td>
</tr>
<tr>
<td>Extended Carriage - Polyamide Wheels</td>
<td>1012</td>
<td>942</td>
</tr>
<tr>
<td>Extended Carriage - Steel Wheels</td>
<td>1032</td>
<td>962</td>
</tr>
</tbody>
</table>

---

**Dimensions (mm)**

**Equipment Diagram:**

- Gearbox Reference Dimension
- Safety Zone: 125
- Travel: 10* (Std. Carriage), 250 (Std. Carriage), 400 (Extended Carriage), 163 (w/ strip seal)
- Safety Zone: 10* (Extended Carriage) 128 (w/o strip seal)
- Sections A-A
- Y: 76, 48, 80, 54, 100, 48, 16
- X: 48, 54, 100, 48, 16

**Table Note:**

* Tables with steel wheels only

---

**Download Links:**

- Belt Driven Tables
- Dimensions of Belt Driven Tables
- HPLA080 Dimensions
- HPLA080 Drive Unit

---

**Website:**

www.parkermotion.com
HPLA120 Drive Unit

Dimensions (mm)

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimension A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Strip Seal</td>
</tr>
<tr>
<td>Standard Carriage - Polyamide Wheels</td>
<td>1005</td>
</tr>
<tr>
<td>Standard Carriage - Steel Wheels</td>
<td>1031</td>
</tr>
<tr>
<td>Extended Carriage - Polyamide Wheels</td>
<td>1205</td>
</tr>
<tr>
<td>Extended Carriage - Steel Wheels</td>
<td>1231</td>
</tr>
</tbody>
</table>
HPLA180 Dimensions

HPLA180 Drive Unit

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimension A (mm)</th>
<th>With Strip Seal</th>
<th>Without Strip Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Carriage - Polyamide Wheels</td>
<td>1408</td>
<td>1206</td>
<td></td>
</tr>
<tr>
<td>Standard Carriage - Steel Wheels</td>
<td>1446</td>
<td>1246</td>
<td></td>
</tr>
<tr>
<td>Extended Carriage - Polyamide Wheels</td>
<td>1706</td>
<td>1506</td>
<td></td>
</tr>
<tr>
<td>Extended Carriage - Steel Wheels</td>
<td>1746</td>
<td>1546</td>
<td></td>
</tr>
</tbody>
</table>

HPLA180 Rack Drive Unit
**HPLA Series Dimensions**

### Idler Unit Dimensions

**Dimensions (mm)**

![Diagram of idler unit dimensions]

<table>
<thead>
<tr>
<th>Series</th>
<th>Carriage Length</th>
<th>Wheel Type</th>
<th>Dimensions (mm)</th>
<th>With Strip Seal</th>
<th>Without Strip Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>HPLA080</td>
<td>Standard</td>
<td>Polyamide</td>
<td>55</td>
<td>-</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Polyamide</td>
<td>55</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td>HPLA080</td>
<td>Standard</td>
<td>Steel</td>
<td>55</td>
<td>10</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Steel</td>
<td>55</td>
<td>10</td>
<td>400</td>
</tr>
<tr>
<td>HPLA120</td>
<td>Standard</td>
<td>Polyamide</td>
<td>65</td>
<td>-</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Polyamide</td>
<td>65</td>
<td>-</td>
<td>500</td>
</tr>
<tr>
<td>HPLA120</td>
<td>Standard</td>
<td>Steel</td>
<td>65</td>
<td>13</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Steel</td>
<td>65</td>
<td>13</td>
<td>500</td>
</tr>
<tr>
<td>HPLA180</td>
<td>Standard</td>
<td>Polyamide</td>
<td>128</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Polyamide</td>
<td>128</td>
<td>-</td>
<td>700</td>
</tr>
<tr>
<td>HPLA180</td>
<td>Standard</td>
<td>Steel</td>
<td>128</td>
<td>20</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>Steel</td>
<td>128</td>
<td>20</td>
<td>700</td>
</tr>
</tbody>
</table>
# HPLA Series Ordering Information

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

<table>
<thead>
<tr>
<th>Order Example:</th>
<th>HPLA080</th>
<th>D1</th>
<th>B1</th>
<th>T2000</th>
<th>C1</th>
<th>DA1000</th>
<th>S08</th>
<th>F02</th>
<th>G2-05</th>
<th>K24</th>
<th>M98</th>
<th>R1</th>
<th>H1</th>
<th>LH1</th>
<th>E1</th>
</tr>
</thead>
</table>

1. **Series**
   - HPLA080
   - HPLA120
   - HPLA180

2. **Drive System**
   - D0: Idler Unit
   - D1: Timing Belt Drive, Nominal Thrust, Maximum Life
   - D2: Timing Belt Drive, Maximum Thrust, Nominal Life
   - D9: Internal Rack and Pinion (HPLA180 only)

3. **Bearing Option**
   - B1: Polyamide Rollers
   - B2: Steel Rollers

4. **Travel**
   - Tnnnn: Specified travel in mm (nnnn = mm)

5. **Carriage**
   - C1: Standard Length Carriage with Load Plate*
   - C2: Extended Length Carriage with Load Plate*
   - C3: Standard Length Carriage with Clamping Bar*
   - C4: Extended Length Carriage with Clamping Bar*

   * See photos below.

6. **Link Shaft Option**
   - DA0000: No Link Shaft - Single Axis or Idler Unit
   - DAnnnn: Double Unit, Specify Center to Center Distance (mm)

7. **Drive Shaft Configuration**
   - S00: No Shaft, Idler Unit
   - S01: Unsupported Pulley, Flange Left
   - S02: Unsupported Pulley, Flange Right
   - S03: Supported Pulley, Flange Left
   - S04: Supported Pulley, Flange Right
   - S05: Supported Pulley, Shaft Option, Left
   - S06: Supported Pulley, Shaft Option, Right
   - S07: Supported Pulley, Shaft Option, Both
   - S08: Supported Pulley, Flange Left, Shaft Right
   - S09: Supported Pulley, Flange Right, Shaft Left

---

Load Plate carriage option

Clamping Bar carriage option
### Drive Housing Flange
- **F00**: No Flange
- **F08**: PV90/PX90 Flange (HPLA80 ONLY)
- **F09**: PX115/PV115 Flange (HPLA80 and HPLA120 only)
- **F10**: PS90 Flange (HPLA080 and HPLA120 only)
- **F11**: PS115 Flange (HPLA120 & HPLA180 only)
- **F12**: PS142 Flange (HPLA180 only)

### Gearbox Option
- **G0-00**: No Gearbox
- **G08-nn**: PX90 Gearbox included
- **G09-nn**: PX115 Gearbox included
- **G10-nn**: PS90 Gearbox included
- **G11-nn**: PS115 Gearbox included
- **G12-nn**: PS142 Gearbox included
- **G14-nn**: PV90 Gearbox included
- **G15-nn**: PV115 Gearbox included

\( \text{nn} = \text{ratio} \)
- Single stage ratios: 3:1, 5:1, 10:1
- Dual stage ratios: 15:1, 25:1

### Motor Kit Option
- **K00**: No Flange
- **K20**: NEMA23 stepper, 1/4" shaft
- **K21**: BE23
- **K23**: SMN60, MPM72 (metric), N070, J070
- **K24**: SMN82, MPM89 (metric), N092, J092
- **K26**: BE34
- **K34**: MPP092x motor kit
- **K36**: Parker MPP100/MPJ100
- **K39**: Parker MPP115/MPJ115
- **K41**: Parker MPP142/MPJ142
- **K50**: Parker HDY55; MPL15XX (Allen Bradley)
- **K51**: AKM3X-AN (Kollmorgen)
- **K52**: SGMAH-04 (Yaskawa)
- **K53**: SGMAH-08 (Yaskawa)
- **K54**: MKD041 (Indramat)
- **K55**: AKM4X-AN (Kollmorgen)
- **K56**: MKD070 (Indramat)
- **K57**: MKD090 (Indramat)

### Motor Mount Option
- **M00**: No Motor
- **M98**: Mount Parker Motor
- **M99**: Mount Customer Motor (Consult Factory)

### Environmental Option
- **R1**: Standard preparation with strip seal
- **R2**: Standard preparation with no strip seal
- **R3**: Corrosion resistant preparation with strip seal
- **R4**: Corrosion resistant preparation with no strip seal

\(^1\) C1, C2 Carriage Load Plate Only
\(^2\) B1 Bearing Option Polyamide Rollers Only

### Mounting Orientation
- **H1**: Carriage Up
- **H2**: Carriage Down
- **H3**: Carriage on Side, Drive Station Up
- **H4**: Carriage on Side, Drive Station Down

### Limit/Home Switch Option*
- **LH0**: No Limit Switch Assembly
- **LH1**: Three Mechanical Switches
- **LH2**: Two Mechanical Switches, One Proximity (NPN)
- **LH3**: Three NPN Prox Switches, 10-30 VDC
- **LH4**: Three PNP Prox Switches, 10-30 VDC

\(*\) C1, C2 Carriage Load Plate Only

### Linear Encoder
- **E1**: Without Linear Encoder
- **E5**: 5.0 Micron Resolution, Magnetic Type
- **E7**: Sine Cosine Output, Magnetic Type

\(*\) C1, C2 Carriage Load Plate Only