Belt Driven Tables

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, and 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.

Parker High-Precision Systems and Services

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.

OSPE..BHD Series Belt-Driven Positioners

The OSPE..BHD offers a compact design ideal for high-speed, long travel, heavy duty applications requiring robustness, dynamic precision, and extraordinary performance.
Page 260.

OSPE..B Series Belt-Driven Positioners

Ideal for precise point-to-point applications, the OSPE..B offers high-speed operation, easy installation, and low maintenance.
Page 278.

OSPE..BV Series Belt-Driven Positioners

Robust and compact, the OPSE..BV is a vertical fixed belt-driven actuator with integrated ball bearing guide designed to lift loads in a vertical orientation.
Page 300.

HMR High Moment Rodless Series Industrial Belt Driven Positioners

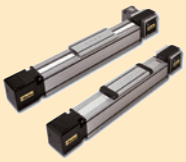
The user-friendly and versatile HMR has enormous moment and payload capacity bundled in a low-profile, yet sleek package. The HMRB is ideal for long travel lengths and high speed dynamic positioning.
Page 306.

Belt Driven Tables

LCR Series Light-Capacity Belt-Driven Positioners

The LCR Series is a completely pre-engineered, pre-tested, ready-to-use positioner solution for unmatched, easy-to- use flexibility.
Page 341.

HPLA



Strong and rugged, the HPLA is a “next generation” linear module. The series offers high speed, high acceleration, and long travel, combined with stiff, rigid construction characteristics.
Page 357.

HLE-RB

The HLE line is a proven performer offering long life and trouble-free operation, ideal as single axis products or as components for high speed multi-axis gantries. Roller Bearing system.
Page 372.

HLE-SR

The HLE line is a proven performer offering long life and trouble-free operation, ideal as single axis products or as components for high speed multi-axis gantries. Square Rail bearing system.
Page 385.

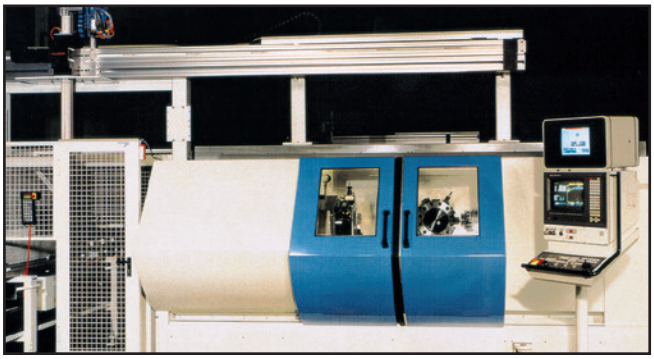
HZR Vertical-Axis Belt Driven Positioners

The HZR is a rugged vertical axis unit unique to the high speed automation industry designed for mechanical demands placed on the vertical axis of a multi-axis gantry robot.
Page 396.

Additional Capabilities: Gantry Systems

Page 402

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.



HPLA Series Belt Driven Linear Modules

- **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**

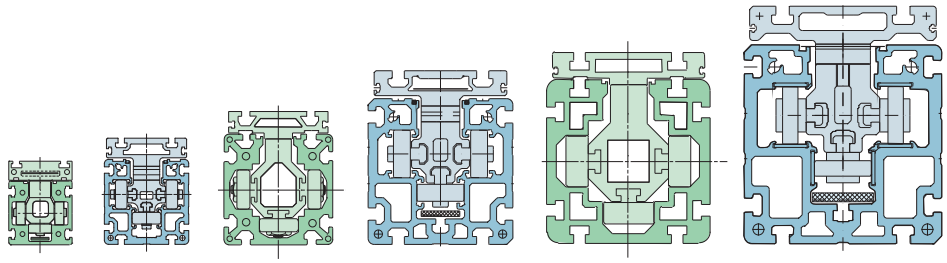
Proven Technology

- 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



HLE60 HPLA080 HLE100 HPLA120 HLE150 HPLA180

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.

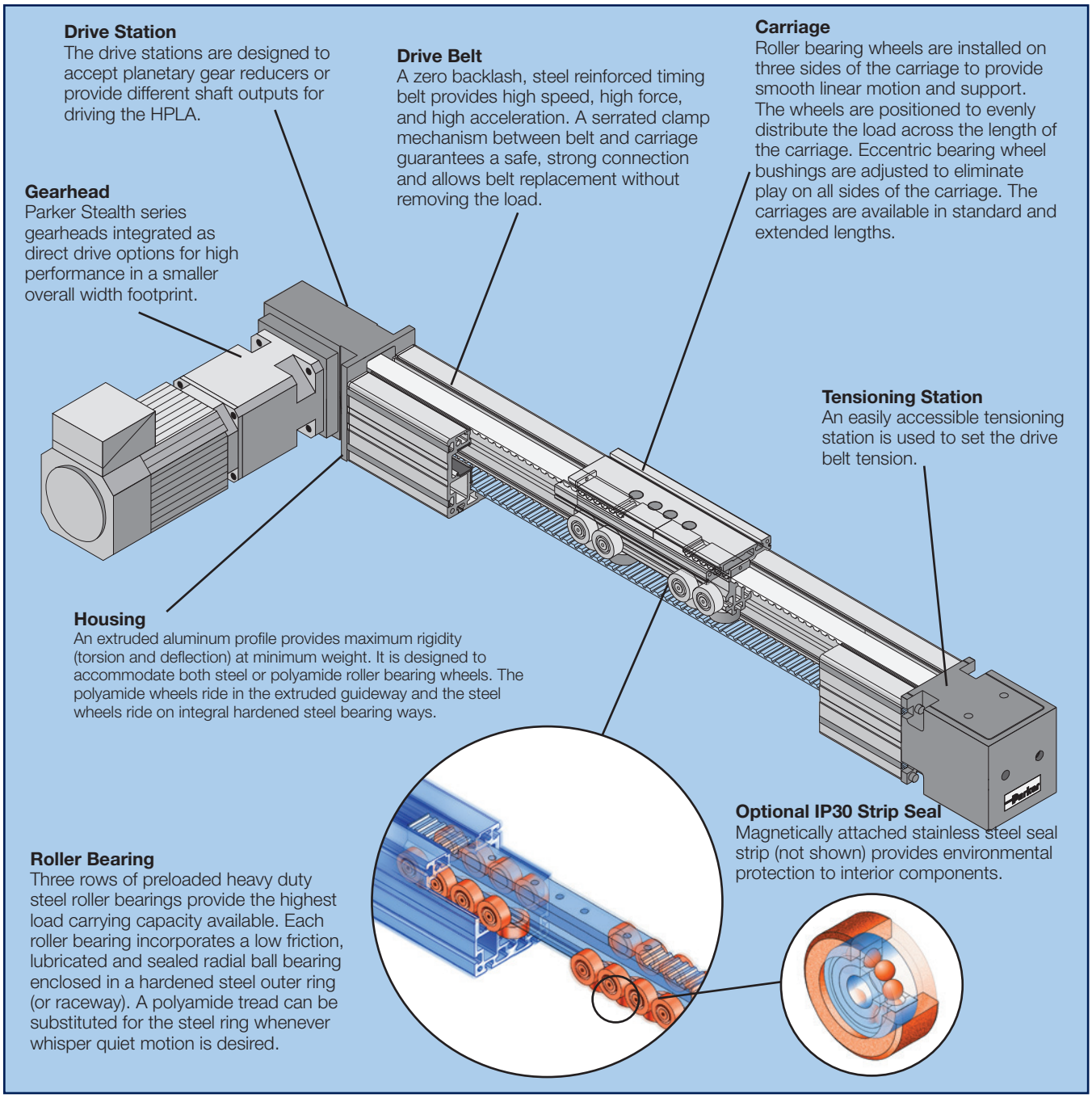
The Modular Concept

Provides the ideal solution for the following 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



SPECIFICATIONS

HPLA Series

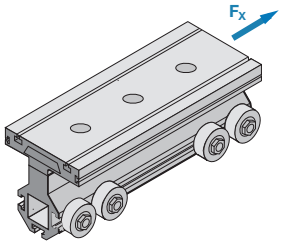
Characteristic	Units	HPLA80 Polyamide Wheel	HPLA80 Steel Wheel	HPLA120 Polyamide Wheel	HPLA120 Steel Wheel	HPLA180 Polyamide Wheel	HPLA180 Steel Wheel	HPLA180 (Rack Drive) Polyamide Wheel
Unit Weight (basic unit without stroke)								
Standard Carriage, NL	kg (lb)	6.8 (15.0)	7.5 (16.5)	20.2 (44.4)	21.6 (47.5)	57.2 (125.8)	61.6 (135.3)	78.4 (172.5)
Extended Carriage, VL	kg (lb)	8.6 (18.9)	9.5 (20.9)	25.2 (55.4)	27.1 (59.6)	74.8 (164.6)	80.9 (178.0)	95.2 (209.4)
Carriage Weight								
Standard Carriage, NL	kg (lb)	1.7 (3.7)	1.8 (4.0)	5.8 (12.8)	6.0 (13.2)	12.3 (27.1)	12.6 (27.7)	32.5 (71.5) (1)
Extended Carriage, VL	kg (lb)	2.6 (5.7)	2.8 (6.2)	8.8 (19.4)	9.2 (20.2)	21.1 (46.4)	21.8 (48.0)	39.8 (87.6) (1)
Weight/Meter of Additional Travel	kg/m (lb/ft)	6.1 (4.1)	7.3 (4.9)	13.7 (9.2)	15.5 (10.4)	29.4 (19.8)	33.6 (22.6)	31.5 (21.2)
Moment of Inertia (related to the drive shaft)								
Standard Carriage, NL	kg-cm^2 (lb-in^2)	17.8 (6.1)	18.4 (6.3)	142 (48)	146 (50)	725 (247)	743 (253)	698 (238)
Extended Carriage, VL	kg-cm^2 (lb-in^2)	25.4 (8.7)	26.5 (9.0)	197 (67)	204 (70)	1121 (382)	1154 (393)	845 (288)
Travel and Speed								
Maximum Speed(2)	m/s (in/s)	5 (200)		5 (200)		5 (200)		5 (200)
Maximum Acceleration(2)	m/s^2 (in/s^2)	10 (393)		10 (393)		10 (393)		10 (393)
Max. Travel, Standard Carriage NL(3)	mm (in)	5540 (218)	5520 (217)	9470 (372)	9440 (371)	9240 (363)	9200 (362)	8680 (341)
Max. Travel, Extended Carriage VL(3)	mm (in)	5390 (212)	5370 (211)	9270 (365)	9240 (363)	8940 (352)	8900 (350)	8380 (330)
Geometric Data								
Cross Section, Square	mm (in)	80 (3.15)		120 (4.72)		180 (7.09)		180 (7.09)
Moment of Inertia Ix	cm^4 (in^4)	139 (3.34)		724 (17.39)		3610 (86.73)		3610 (86.73)
Moment of Inertia Iy	cm^4 (in^4)	165 (3.96)		830 (19.94)		4077 (97.95)		4077 (97.95)
Moment of Elasticity	N/mm^2 (lb/in^2)	0.72 x 10^5 (0.1044 x 10^8)		0.72 x 10^5 (0.1044 x 10^8)		0.72 x 10^5 (0.1044 x 10^8)		0.72 x 10^5 (0.1044 x 10^8)
Pulley Data, Torques, Forces								
Travel Distance per Revolution	mm/rev (in/rev)	180 (709)		270 (10.63)		420 (16.54)		280 (11.02)
Response Radius of Drive Pulley	mm (in)	28.7 (1.13)		43.0 (1.69)		66.8 (2.63)		44.6 (1.75)
Maximum Drive Torque	Nm (lb-in)	47.4 (420)		131.4 (1165)		368 (3264)		58 (514)
Maximum Belt Traction (effective load)		Refer to charts on following pages						
Repeatability(3)(4)	mm (in)	± 0.2 (± 0.008)		± 0.2 (± 0.008)		± 0.2 (± 0.008)		± 0.05 (± 0.002)

(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.

HPLA080 Series – Load-Bearing Capacity of Carriage and Timing Belt

Load-Bearing Capacity of HPLA080 Timing Belt (Fx)

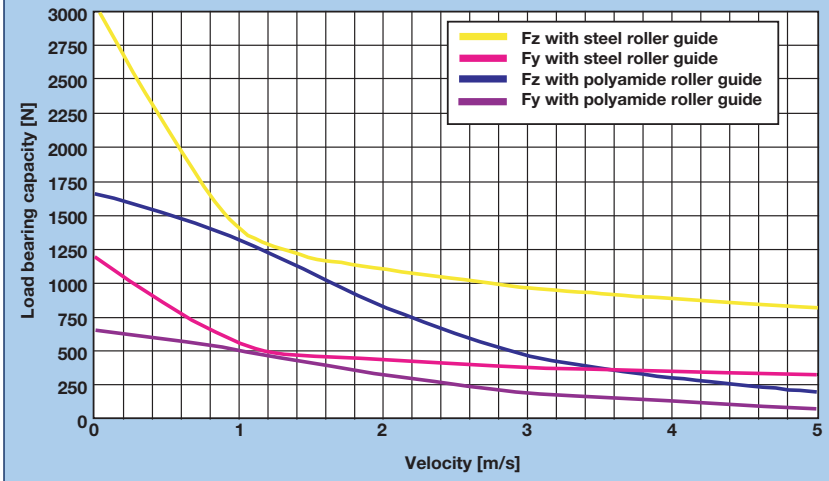
			Transferable Thrust Force (n)	
			Nominal Belt Tension	Maximum Belt Tension
Description	Gearhead	Drive Option	(81,000 km life)	(46,000 km life)
Supported Pulley	PX90/PX115 PV90/PV115 PS90	S03/S04/ S08/S09	925	1115



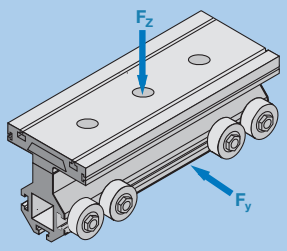
The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard carriage (S). With the extended carriage (E), all the values apart from Fx (load-bearing capacity of timing belt) can be doubled if the load is applied equally to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

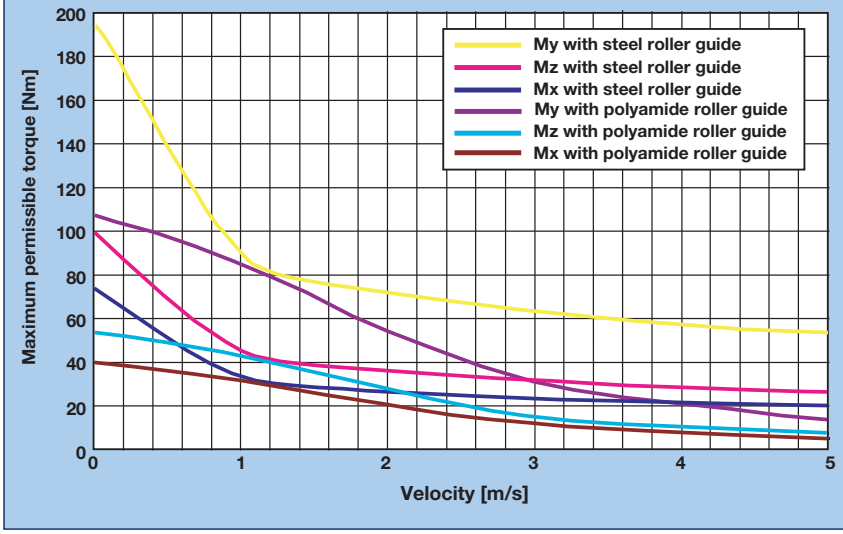


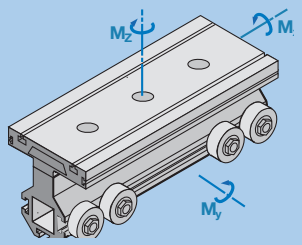
"DimAxes" software is available for determination of precise carriage loading.

Visit www.parkermotion.com to request a Gantry Robot CD.

HPLA080 Maximum Permissable Moment Load (Mx, My and Mz)

(Values double for extended carriage)

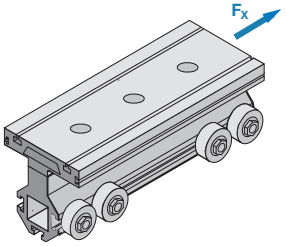




HPLA120 Series – Load-Bearing Capacity of Carriage and Timing Belt

Load-Bearing Capacity of HPLA120 Timing Belt (Fx)

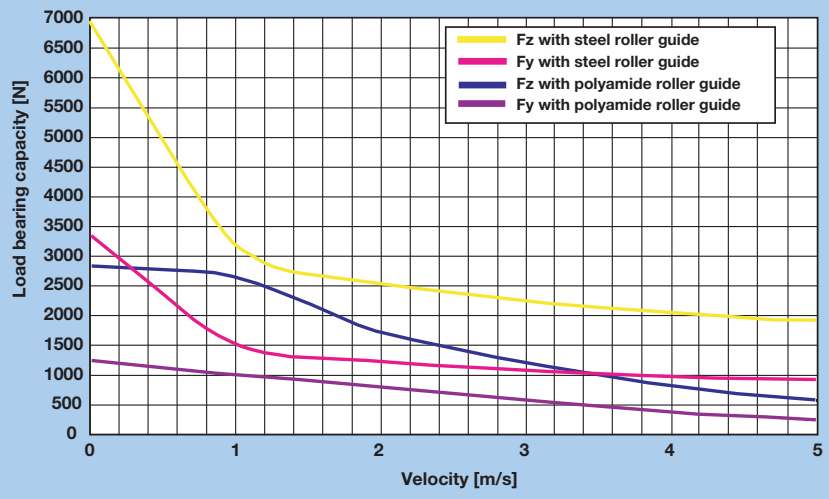
			Transferable Thrust Force (n)	
			Nominal Belt Tension	Maximum Belt Tension
Description	Gearhead	Drive Option	(81,000 km life)	(46,000 km life)
Supported Pulley	PV115 PX115 PS90/PS115	S03/S04/ S08/ S09	1700	2235



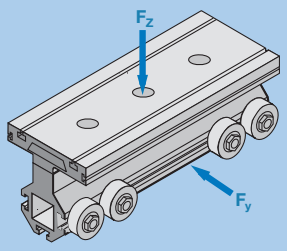
The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard carriage (S). With the extended carriage (E), all the values apart from Fx (load-bearing capacity of timing belt) can be doubled if the load is applied equally to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

HPLA120 Load-Bearing Capacity (Fy and Fz)

(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.

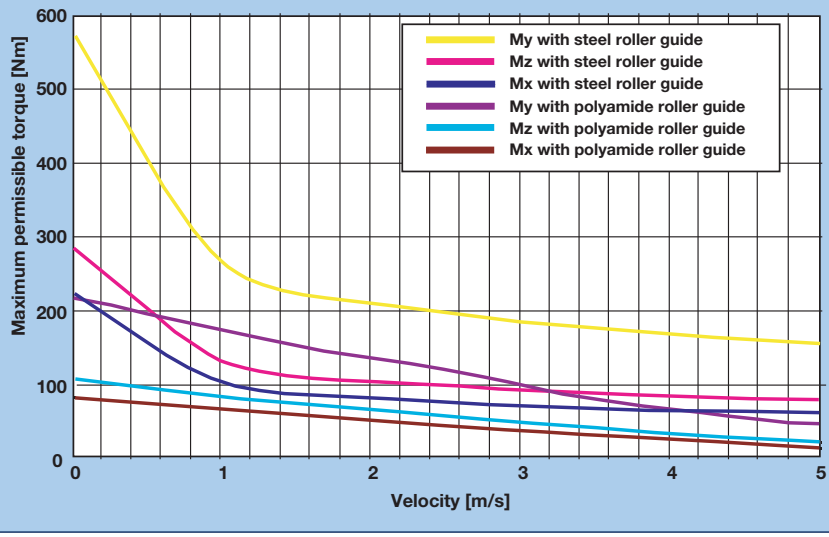


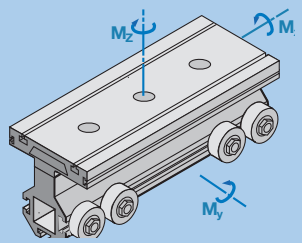
"DimAxes" software is available for determination of precise carriage loading.

Visit www.parkermotion.com to request a Gantry Robot CD.

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

(Values double for extended carriage)

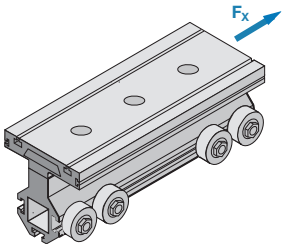




HPLA180 Series – Load-Bearing Capacity of Carriage and Timing Belt

Load-Bearing Capacity of HPLA180 Timing Belt (Fx)

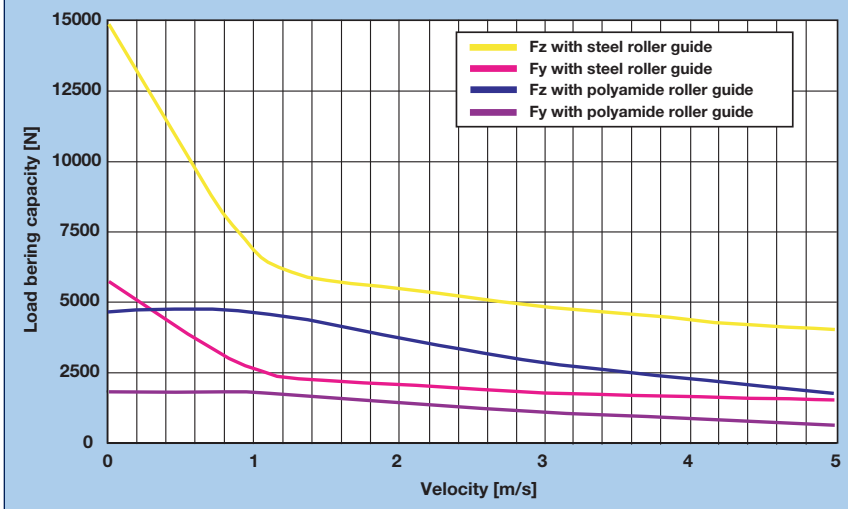
			Transferable Thrust Force (n)	
			Nominal Belt Tension	Maximum Belt Tension
Description	Gearhead	Drive Option	(81,000 km life)	(46,000 km life)
Supported Pulley	PS115 PS142	S03/S04/ S08/S09	4170	5455



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)

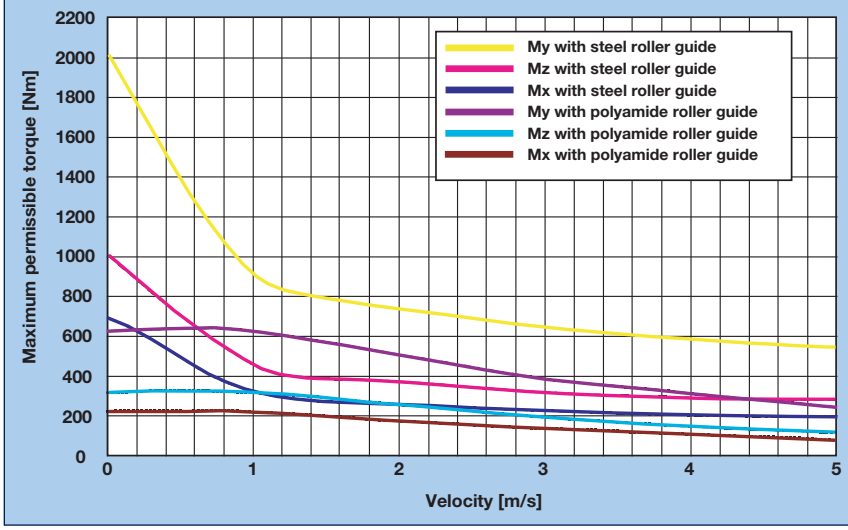
(Values double for extended carriage)



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 Permissable Moment Load (Mx, My and Mz)

(Values double for extended carriage)



"DimAxes" software is available for determination of precise carriage loading.

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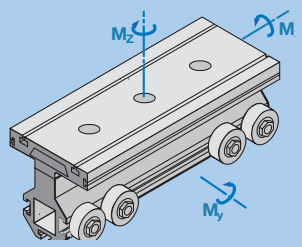
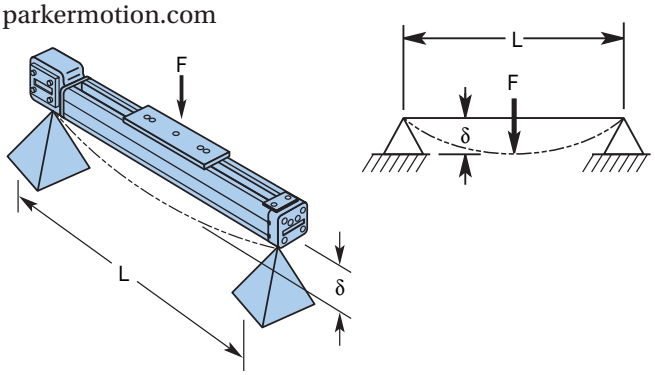


HPLA Characteristics

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.

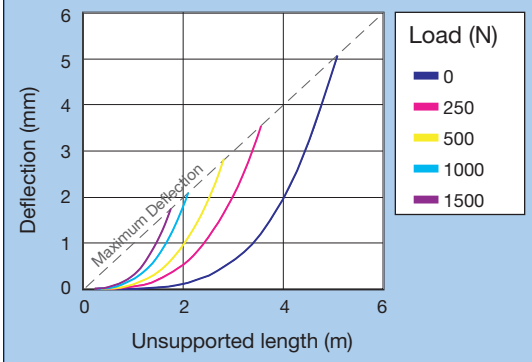
These deflection curves illustrate the deflection d, based on the HPLA profile being simply supported at both ends. The graphs take into consideration the self deflection due to the weight of the profile, along with the load to be transported. The maximum deflection cannot be exceeded. If the maximum 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



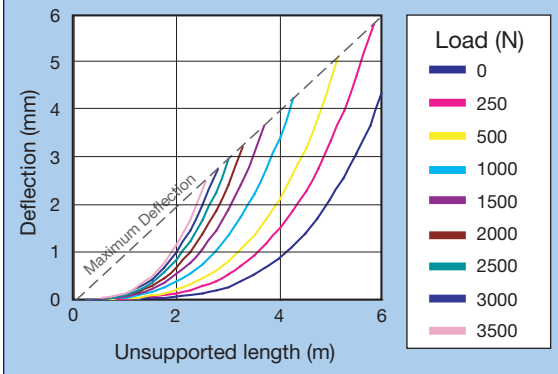
F = Force N
L = Unsupported length mm
δ = Deflection mm

Deflection Curves

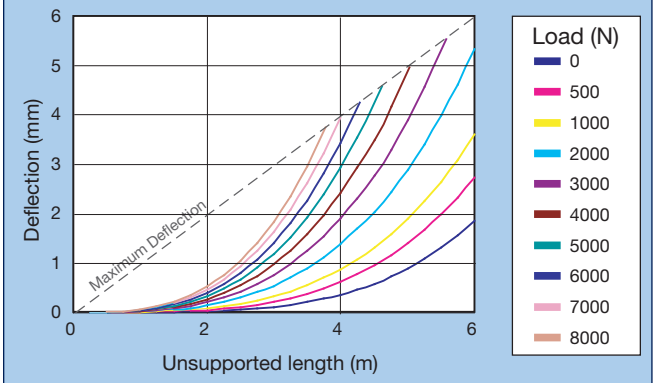
HPLA080



HPLA120



HPLA180

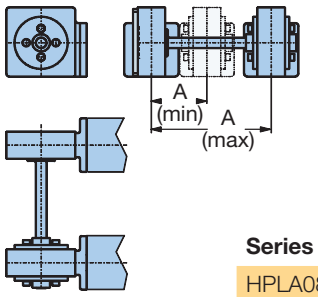


Dual Axis Considerations

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.

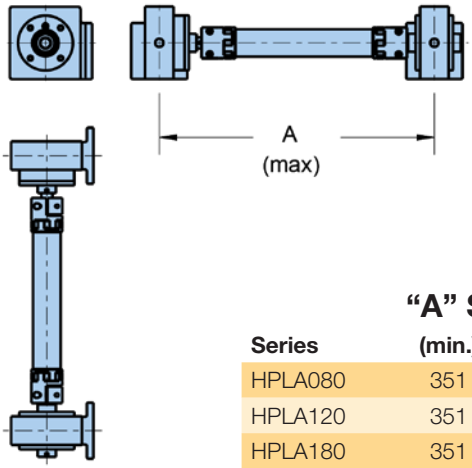
The link shaft bearing is used to support the linking shaft of an HPLA dual axis when there is a large center to center distance. This bearing must be used if the critical speed is exceeded with the dual-axis link shaft.

Figure A



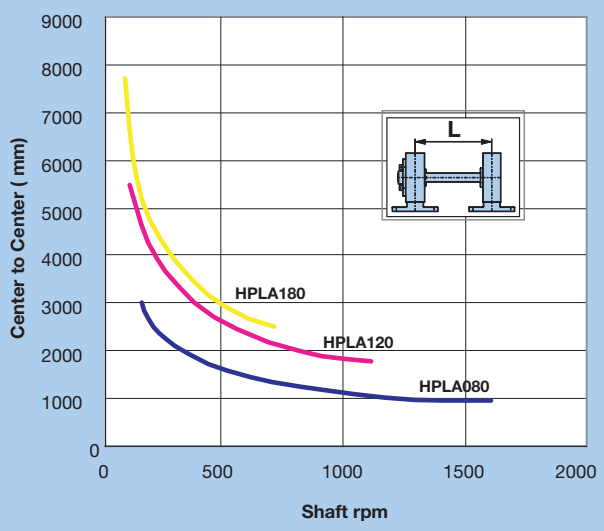
Series	"A" Span (mm) (min.)	(max.)
HPLA080	120	350
HPLA120	150	350
HPLA180	185	350

Figure B

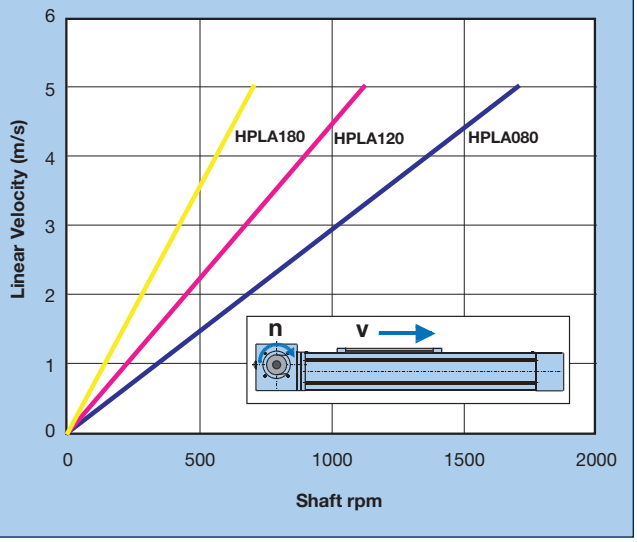


Series	"A" Span (mm) (min.)	(max.)
HPLA080	351	3000
HPLA120	351	3000
HPLA180	351	3000

Critical Speed



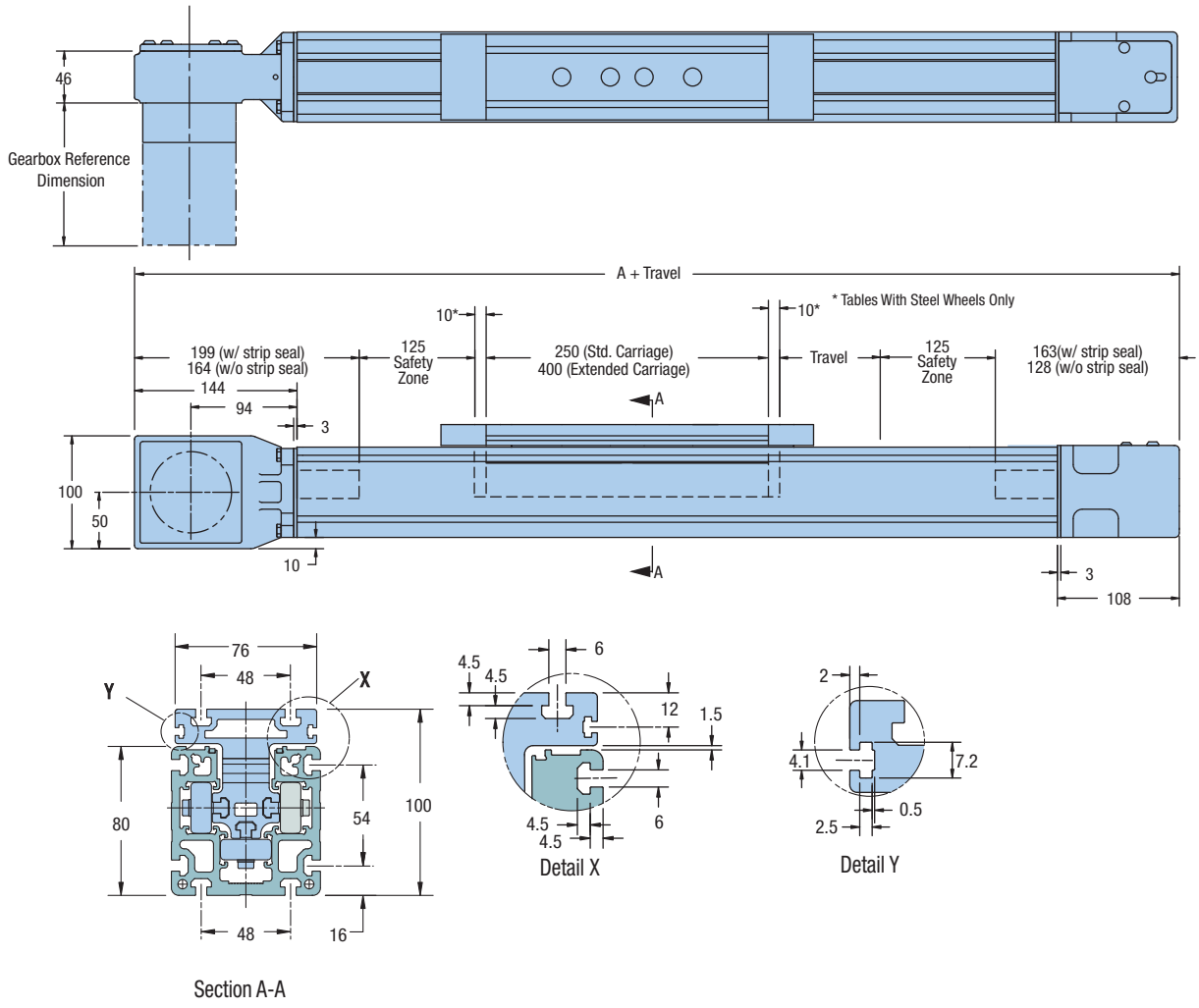
Linear Velocity



HPLA080 Drive Unit

Download 2D & 3D files from www.parker.com/emn/HPLA080

Dimensions (mm)

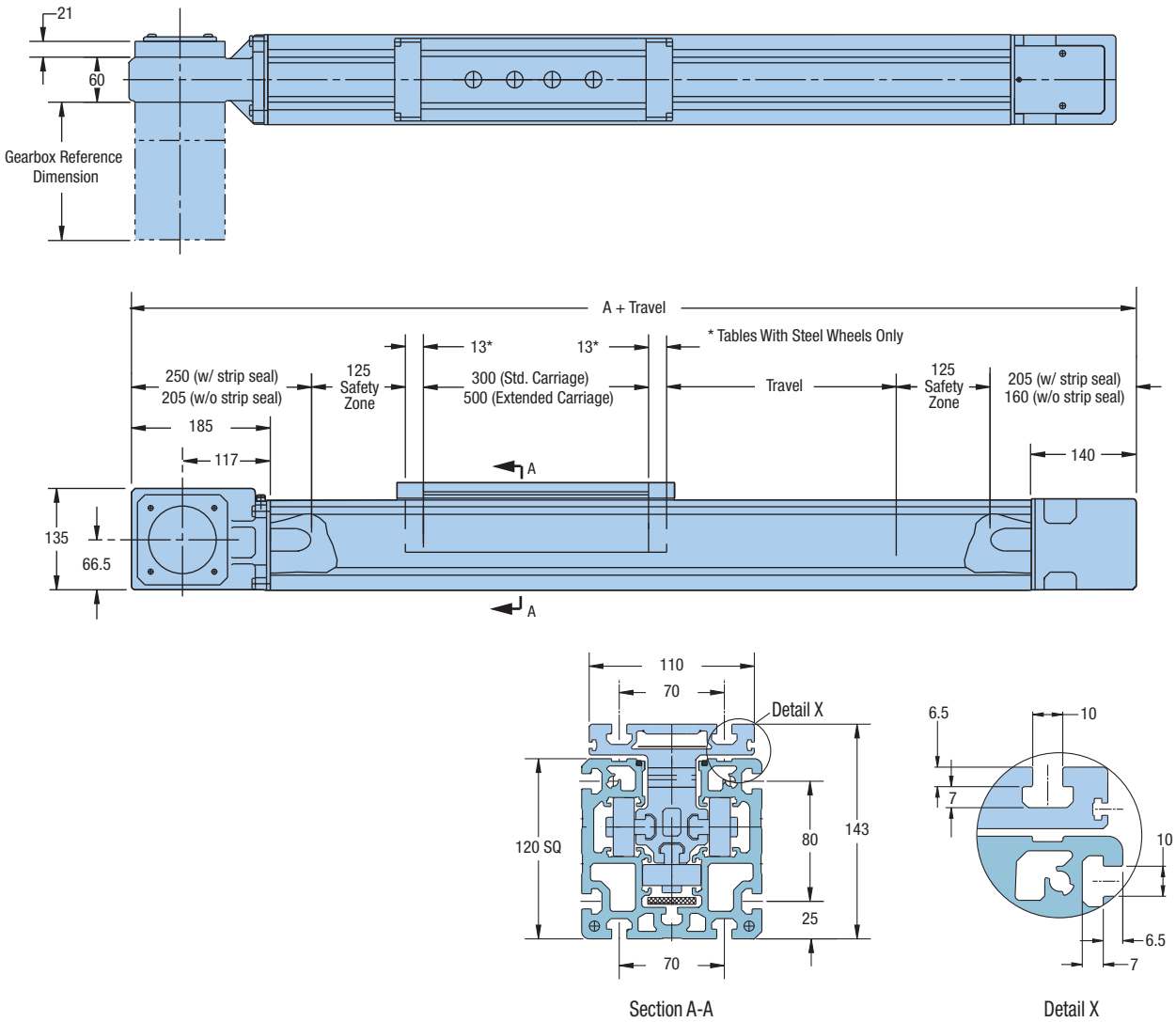


Dimension A (mm)

Description	With Strip Seal	Without Strip Seal
Standard Carriage - Polyamide Wheels	862	792
Standard Carriage - Steel Wheels	882	812
Extended Carriage - Polyamide Wheels	1012	942
Extended Carriage - Steel Wheels	1032	962

HPLA120 Drive Unit

Dimensions (mm)



Section A-A

Detail X

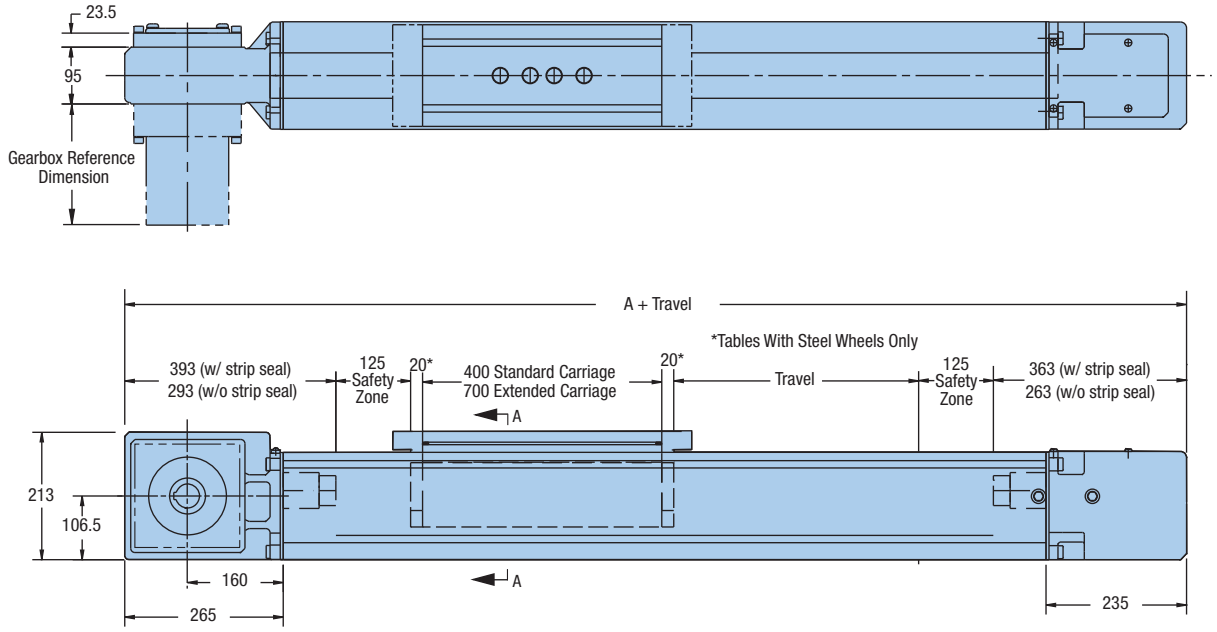
Dimension A (mm)

Description	With Strip Seal	Without Strip Seal
Standard Carriage - Polyamide Wheels	1005	915
Standard Carriage - Steel Wheels	1031	941
Extended Carriage - Polyamide Wheels	1205	1115
Extended Carriage - Steel Wheels	1231	1141

Download 2D & 3D files from www.parker.com/emn/HPLA180

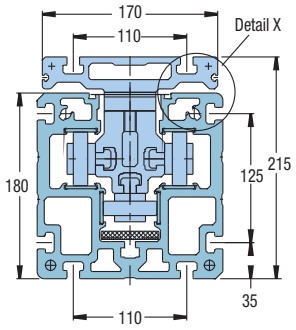
HPLA180 Drive Unit

Dimensions (mm)

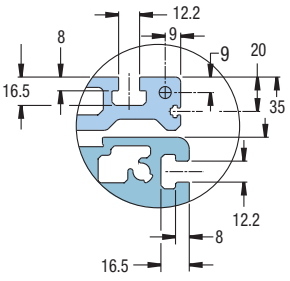


Dimension A (mm)

Description	With Strip Seal	Without Strip Seal
Standard Carriage - Polyamide Wheels	1408	1206
Standard Carriage - Steel Wheels	1446	1246
Extended Carriage - Polyamide Wheels	1706	1506
Extended Carriage - Steel Wheels	1746	1546



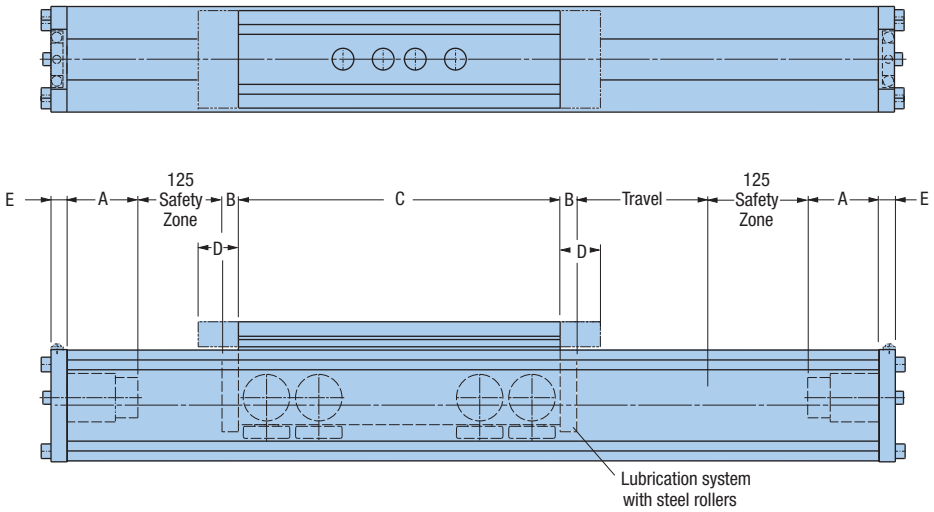
Section A-A



Detail X

Idler Unit Dimensions

Dimensions (mm)



Dimensions (mm)

Series	Carriage Length	Wheel Type	With Strip Seal					Without Strip Seal				
			A	B	C	D	E	A	B	C	D	E
HPLA080	Standard	Polyamide	55	-	250	40	10	20	-	250	-	10
HPLA080	Extended	Polyamide	55	-	400	40	10	20	-	400	-	10
HPLA080	Standard	Steel	55	10	250	40	10	20	10	250	-	10
HPLA080	Extended	Steel	55	10	400	40	10	20	10	400	-	10
HPLA120	Standard	Polyamide	65	-	300	50	15	20	-	300	-	15
HPLA120	Extended	Polyamide	65	-	500	50	15	20	-	500	-	15
HPLA120	Standard	Steel	65	13	300	50	15	20	13	300	-	15
HPLA120	Extended	Steel	65	13	500	50	15	20	13	500	-	15
HPLA180	Standard	Polyamide	128	-	400	100	20	28	-	400	-	20
HPLA180	Extended	Polyamide	128	-	700	100	20	28	-	700	-	20
HPLA180	Standard	Steel	128	20	400	100	20	28	20	400	-	20
HPLA180	Extended	Steel	128	20	700	100	20	28	20	700	-	20

OPTIONS & ACCESSORIES

Limit and home sensors, switches, cable carriers, splice plates, and more.

See page 419.

ORDERING INFORMATION

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

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
Order Example:	HPLA080	D1	B1	T2000	C1	DA1000	S08	F02	G2-05	K24	R1	H1	LH1	E1

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

③ Bearing Option

B1 Polyamide Rollers
***B2** Steel Rollers

* For steel roller option in vertical and inverted orientations, please consult factory for special instructions.

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

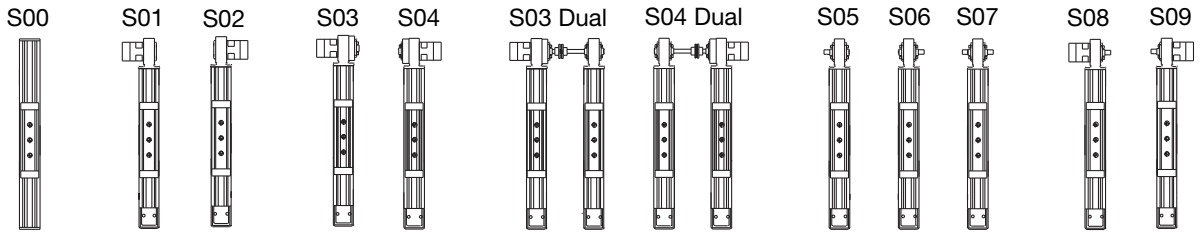
DA0000 No Link Shaft - Single Axis or Idler Unit
DAnnnn Double Unit, Specify Center to Center Distance (mm)

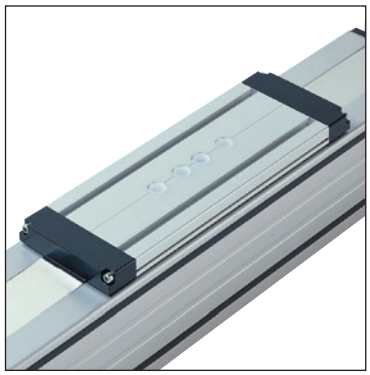
⑦ Drive Shaft Configuration

S00 No Shaft, Idler Unit
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

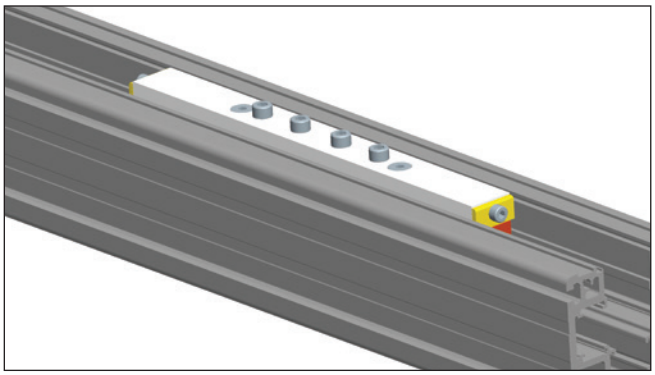
⑧ Drive Housing Flange

F00 No Flange
F08 PV90/PX90 Flange (HPLA80 ONLY)





Load Plate carriage option



Clamping Bar carriage option

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

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
Order Example:	HPLA080	D1	B1	T2000	C1	DA1000	S08	F02	G2-05	K24	R1	H1	LH1	E1

F09 PX115/PV115 Flange (HPLA080 and HPLA120 only)
F10 PS90 Flange (HPLA080 and HPLA120 only)
F11 PS115 Flange (HPLA120 & HPLA180 only)
F12 PS142 Flange (HPLA180 only)

⑨ 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

nn = ratio
Single stage ratios 3:1, 5:1, 10:1 Dual stage ratios 15:1, 25:1

⑩ 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)

⑪ Environmental Option

R1 Standard preparation with strip seal [1]
R2 Standard preparation with no strip seal
R3 Corrosion resistant preparation with strip seal [1, 2]
R4 Corrosion resistant preparation with no strip seal [2]

[1] C1, C2 Carriage Load Plate Only
[2] B1 Bearing Option Polyamide Rollers Only)

⑫ Mounting Orientation

H1 Carriage Up
H2 Carriage Down
H3 Carriage on Side, Drive Station Up
H4 Carriage on Side, Drive Station Down

⑬ Limit/Home Switch Option*

LH0 No Limit Switch Assembly
LH3 Three NPN Prox Switches,10-30 VDC
LH4 Three PNP Prox Switches, 10-30 VDC

*C1, C2 Carriage Load Plate Only

⑭ Linear Encoder

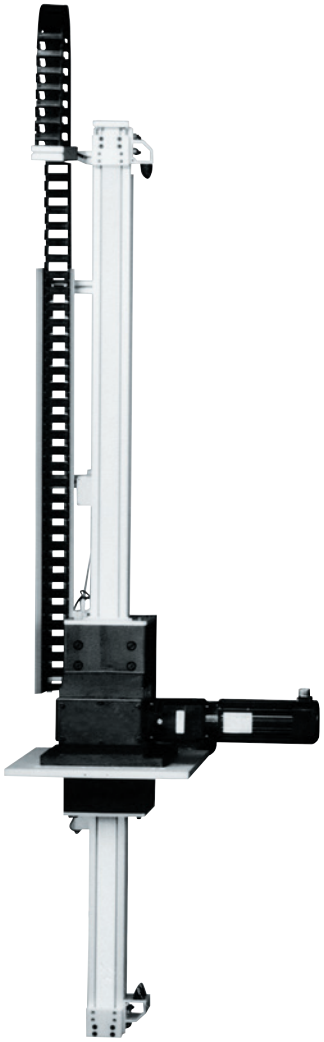
E1 Without Linear Encoder
E5* 5.0 Micron Resolution, Magnetic Type
E7* Sine Cosine Output, Magnetic Type

*C1, C2 Carriage Load Plate Only
*Consult factory for linear encoder options and quotation.

HZR Series

Features

- **Designed as a vertical axis unit**
- **Load lifting capacities up to 150 kg**
- **Velocity up to 5 meters/sec.**
- **Positional repeatability of ±0.2 mm**
- **Torsion-resistant housing**
- **Roller wheel bearings for smooth vertical motion**
- **High vertical acceleration**



The HZR is a rugged vertical axis unit unique to the high speed automation industry. It is specifically designed to satisfy the mechanical demands placed on the vertical axis of a multi-axis gantry robot – utilized for high throughput lifting and transporting of heavy or bulky loads.

The payload is supported by a high strength extruded aluminum profile which is lifted and guided through a torsion-resistant cast aluminum housing. Maintenance-free, heavy duty polyamide bearing wheels evenly distribute and support the high forces induced by rapid horizontal acceleration of the load. A wear-free, steel cord reinforced timing belt transmits large traction forces to provide high accelerations and lifting capability in the vertical direction.

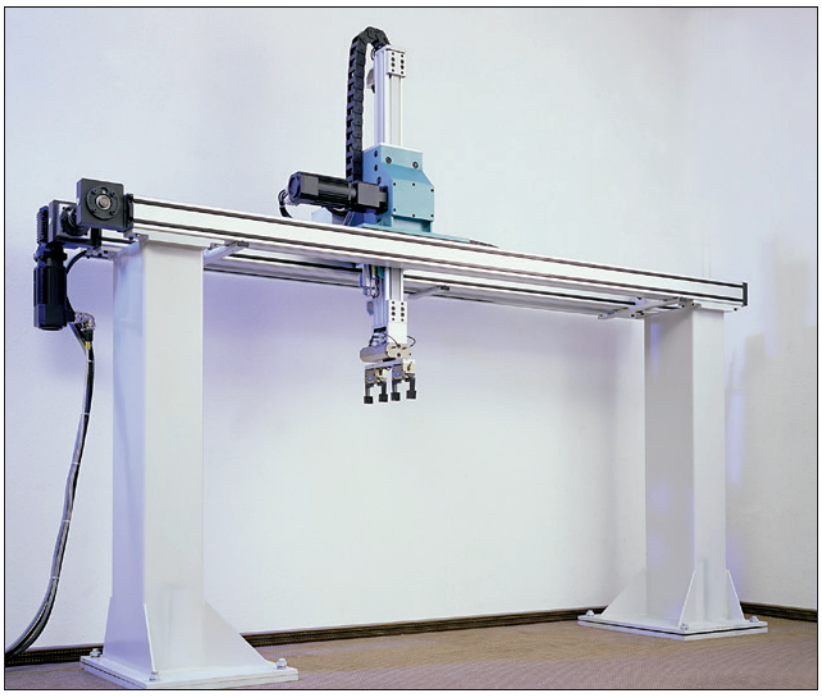
Typical Fields of Application

- Materials handling: palletization, feeding, removal
- Textile machinery building: crosscutting, slitting and stacking, quilting, seam stitching
- Process engineering: painting, coating, bonding
- Storage technology: commissioning, inventory
- Machine tool building: workpiece loading, tool changing
- Testing technology: guiding ultrasonic sensors

SPECIFICATIONS

Characteristics	Units	HZR50P (Standard)		HZR50E (Extended)		HZR80		HZR100	
Unit Weight									
Basic Unit (based on 1 meter travel)	kg (lb)	15.3	(33.73)	17.2	(37.92)	37	(81.8)	60	(132.3)
Weight of additional length	kg/m (lb/ft)	2.9	(1.95)	2.9	(1.95)	7.4	(4.9)	10.2	(6.85)
Moment of Inertia (based on 1 meter travel)									
Inertia reflected to drive pulley	kg-cm^2 (lb-in^2)	66.11	(22.58)	66.51	(22.72)	250	(85.4)	357	(122.0)
Travel and Speed1									
Maximum Speed	m/s (in/s)	5	(200)	5	(200)	5	(200)	5	(200)
Maximum Acceleration	m/s^2 (in/s^2)	5	(197)	5	(197)	10	(393)	10	(393)
Maximum Travel	m (in)	1.5	(59.1)	1.5	(59.1)	1.5	(59.1)	2.0	(78.7)
Geometric Data									
Cross Section (square profile)	mm (in)	50	(1.97)	50	(1.97)	80	(3.2)	100	(3.9)
Moment of Inertia Ix	cm^4 (in^4)	29.9	(0.72)	29.9	(0.72)	187.1	(4.5)	383.3	(9.2)
Section Modulus, W	cm^3 (in^3)	29.9	(1.82)	29.9	(1.82)	46.7	(2.85)	76.6	(4.67)
Pulley Data, Torques, Forces									
Travel Distance per Revolution	mm/rev (in/rev)	180	(7.09)	180	(7.09)	240	(9.45)	240	(9.45)
Pulley Diameter	mm (in)	57.3	(2.26)	57.3	(2.26)	76.4	(3.01)	76.4	(3.01)
Maximum Drive Torque	Nm (lb-in)	47	(416.3)	47	(416.3)	108	(956.7)	168	(1488.1)
Static Load	kg (lb)	45	(99.2)	45	(99.2)	75	(165)	150	(331)
Maximum Belt Traction (effective load)	N (lb)	1654	(371.8)	1654	(371.8)	2822	(635)	4410	(992)
Repeatability	mm (in)	±0.2	(±0.008)	±0.2	(±0.008)	±0.2	(±0.008)	±0.2	(±0.008)

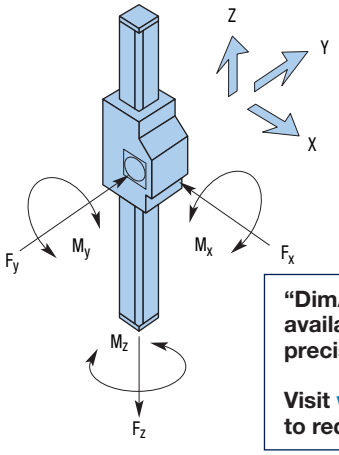
1 For higher speeds, accelerations or longer travel consult Parker Application Engineering for assistance.



Force and Moment Loads

The forces and moments that the carriage is capable of transferring are speed-dependent. The curves shown in the graphs apply to a standard guiding (P). With the extended guiding (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.

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.

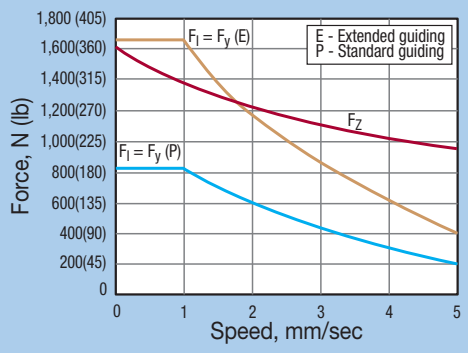


"DimAxes" software is available for determination of precise carriage loading.

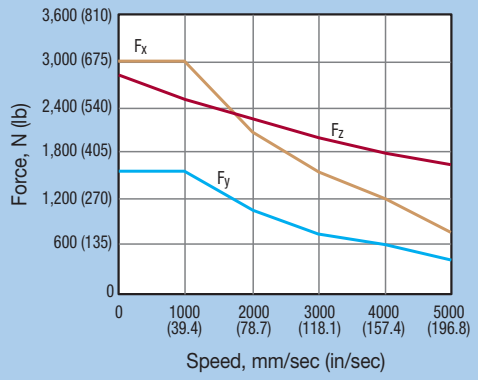
Visit www.parkermotion.com to request a Gantry Robot CD.

Force vs. Speed

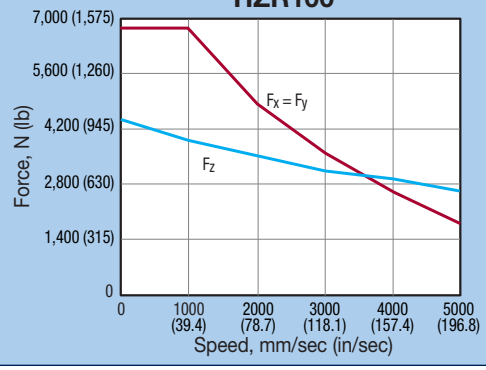
HZR50



HZR80

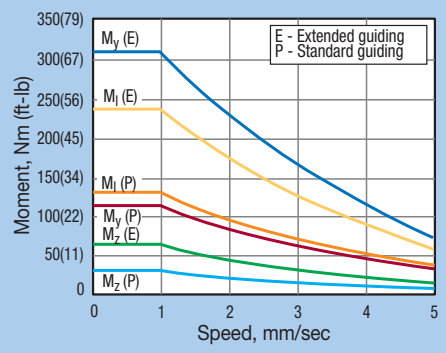


HZR100

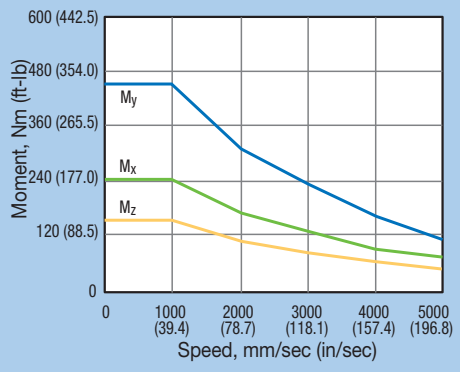


Moment Load vs. Speed

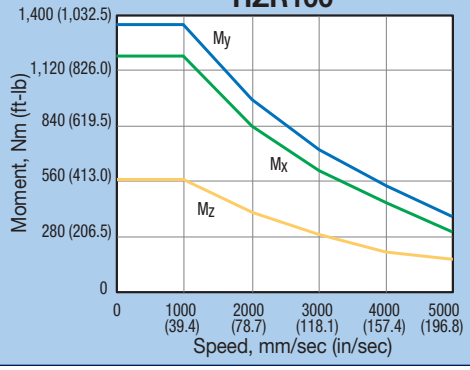
HZR50



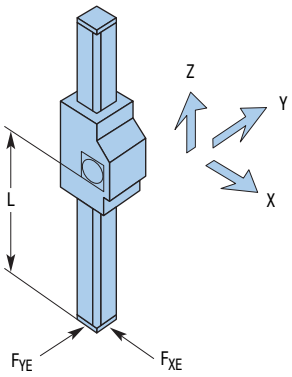
HZR80



HZR100

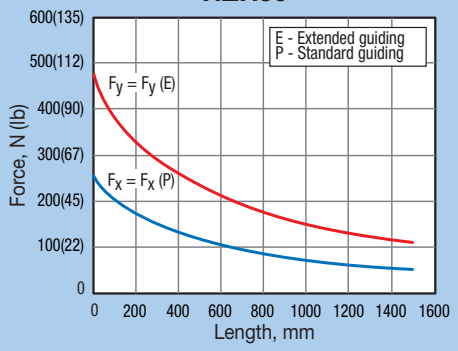


Extension Loads

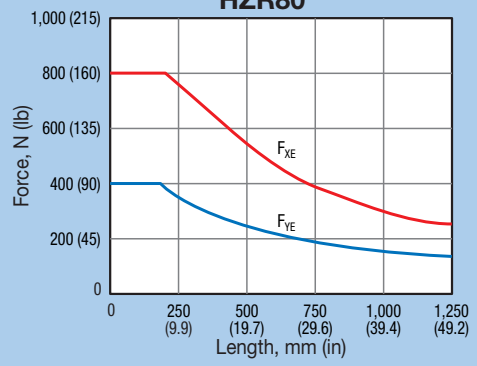


Force vs. Extended Length

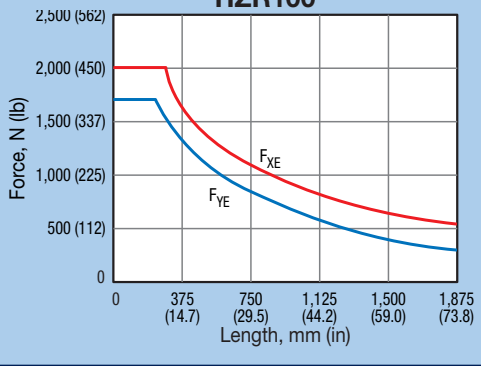
HZR50



HZR80



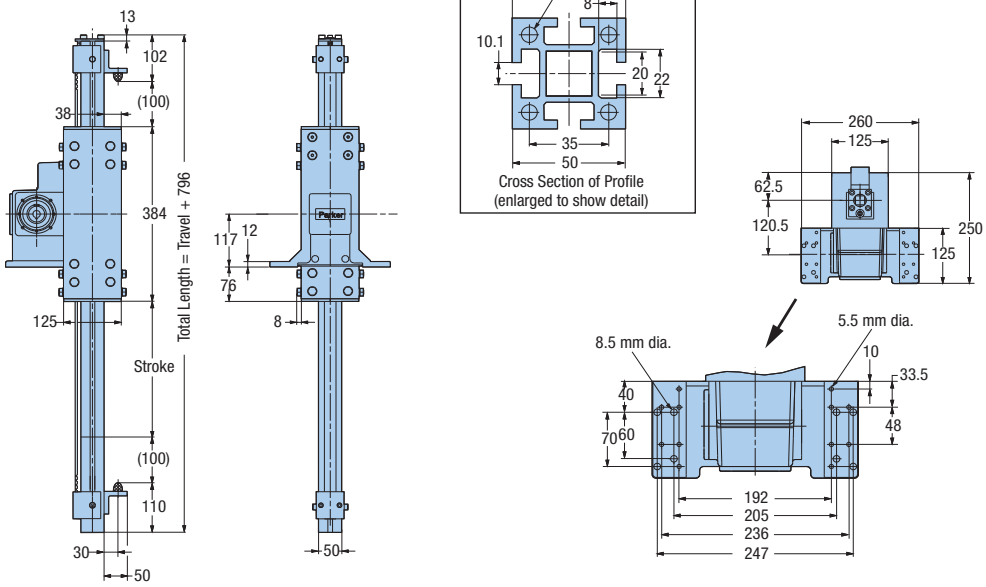
HZR100



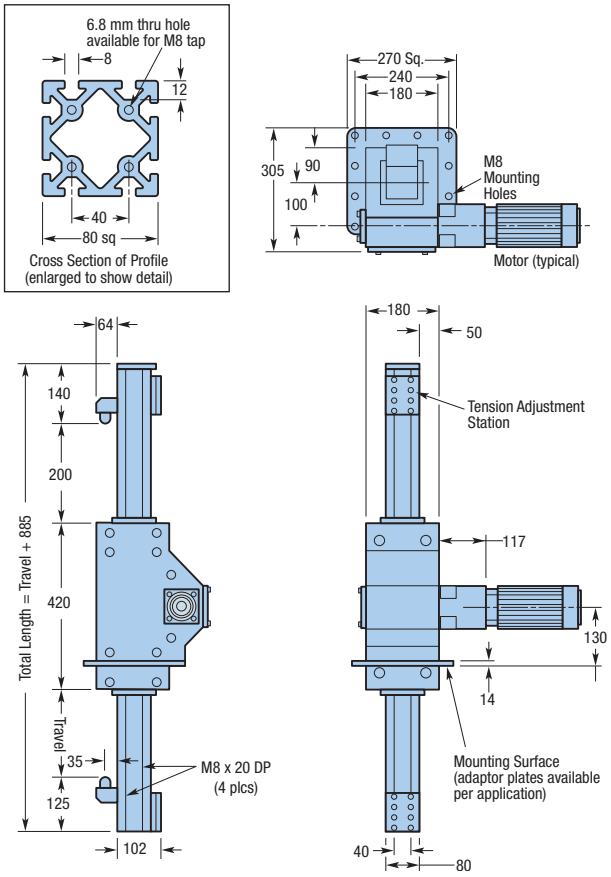
Download 2D & 3D files from www.parker.com/emn/HZR50

Dimensions (mm)

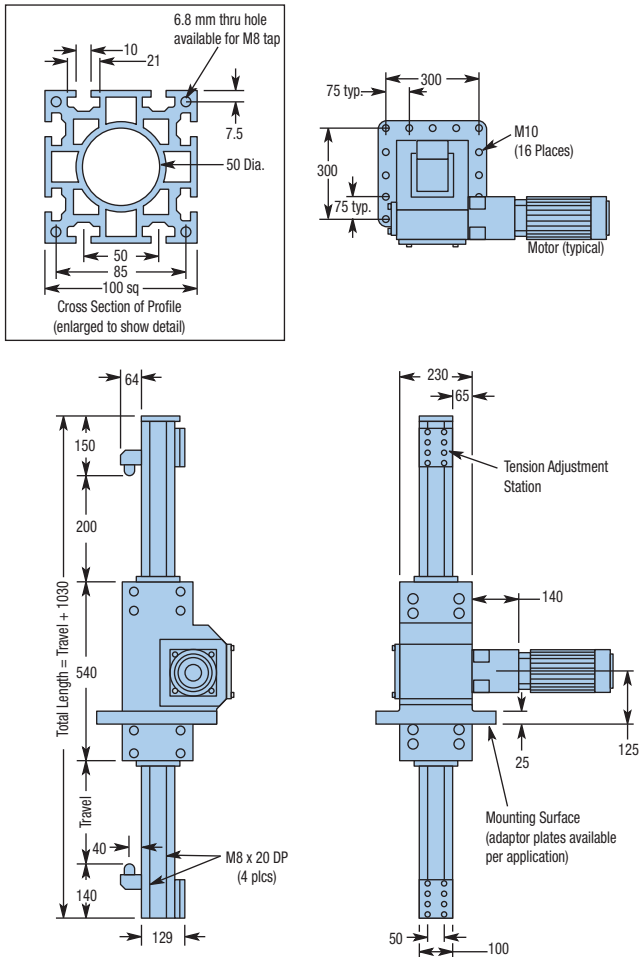
HZR50



HZR80



HZR100



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

	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Order Example:	HZR80	1000	A	SP2	ARO	G2-03	K02	LH1	E

① Series
HZR50
HZR80
HZR100

② Table Travel
nnnn Specified travel in mm (nnnn = mm)

③ Mounting Flange Options
A No Mounting Flange
B HZR Mounting to HPLA80
C HZR Mounting to HLE100
D HZR Mounting to HPLA120
E HZR Mounting to HLE150

④ Drive Station Interface
SP10 Drive Housing for PX90/PV90
SP11 Drive Housing for PS90
SP12 Drive Housing for PX115/PV115
SP13 Drive Housing for PS115

⑤ Orientation Options
ARO Gearbox Right
ALO Gearbox Left

⑥ Gearbox Option
G0-00 No Gearbox
G1-nn Customer Supplied
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

nn = ratio
Single stage ratios 3:1, 5:1, 10:1 Dual stage ratios 15:1, 25:1

⑦ Motor Kit Option
K00 No Motor Kit
K20 Parker ES23X
K21 Parker BE23X
K23 Parker N070, ALlen Bradley MPL15XX
K24 Parker N092
K26 Parker LV/HV34
K34 Parker MPP092/MPJ092
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)

⑧ Limit Switch Assembly
LH0 No Switch Assembly
LH1 Three mechanical switches, with 1 NO and 1 NC contact per switch (HZR80 and HZR100)
LH2 Two mechanical switches and 1 NPN proximity switch (HZR80 and HZR100)
LH3 Three NPN proximity switches NO/NC, 10-30 VDC (HZR80 and HZR100)
LH4 Three PNP proximity switches NO/NC, 10-30 VDC (HZR80 and HZR100)
LH5 Three NPN proximity switches NO “Home”; NC Travel Limits 10-30 VDC (HZR50 only)
LH6 Three NPN proximity switches NO “Home”; NC Travel Limits 10-30 VDC (HZR50 only)

⑨ Extended Option
E 16 Additional Rollers (HZR50 only)

Virtual Engineer

Free sizing and selection support from Virtual Engineer at solutions.parker.com/VirtualEngineer

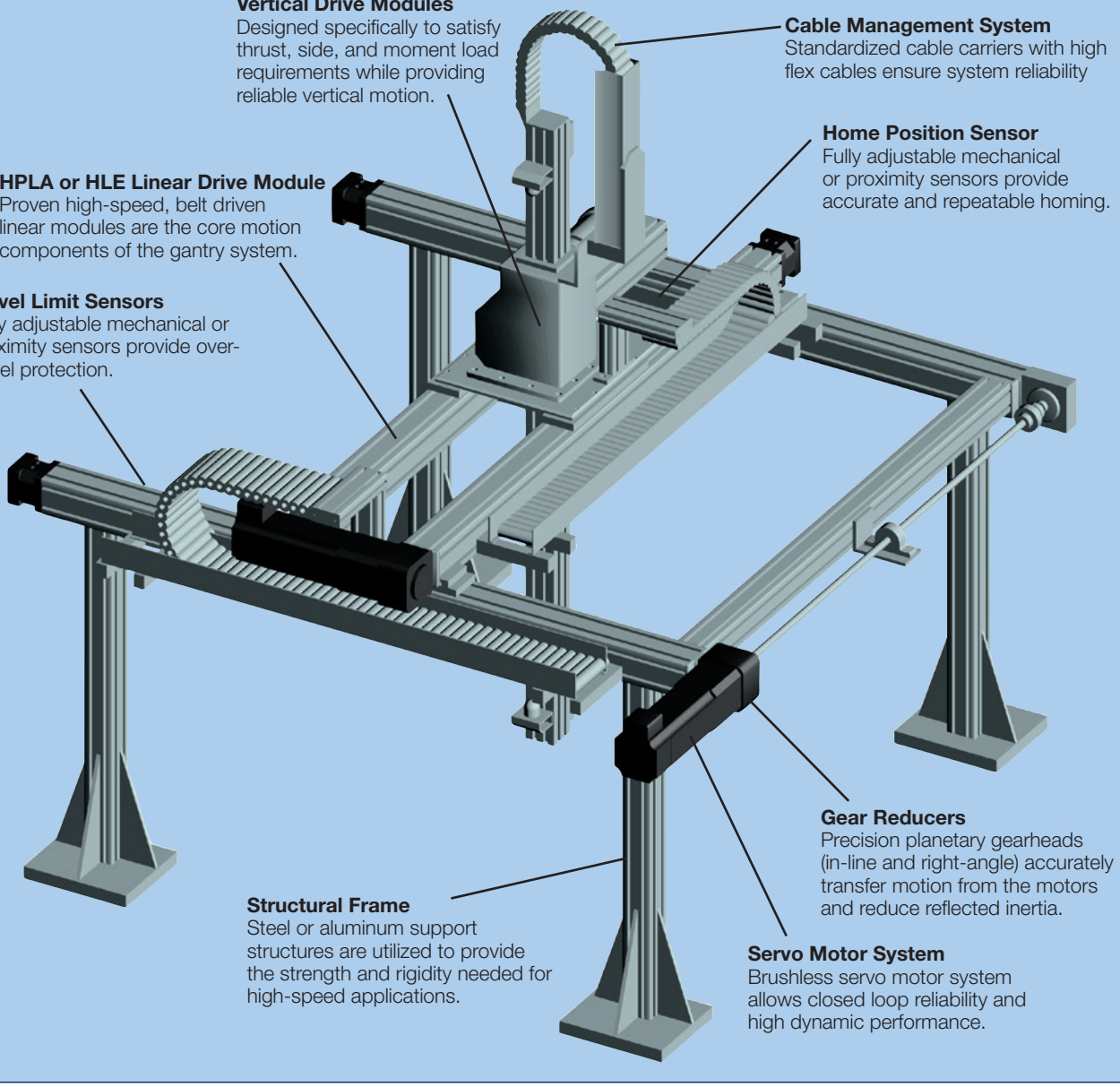
Parker Gantry Robot Systems: Minimize Your Engineering Effort

Parker's gantry systems provide cost-effective, easy to integrate solutions that satisfy the vast majority of automation requirements. In addition to our 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.

Additional Capabilities

- **Motors, Drives and Controls**
- **Extended Travels**
- **Rotary Motion Modules**
- **Cleanroom Preparations**
- **External Position Feedback**
- **Vertical Axis Brakes**
- **End Effectors**
- **Protective Guarding**
- **Custom Support Structures**

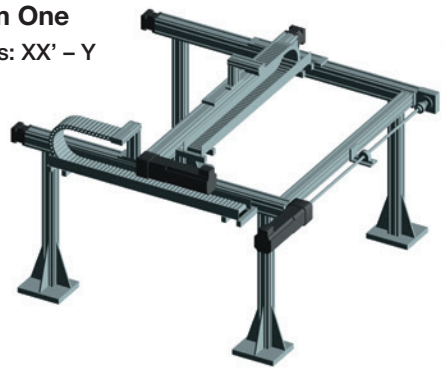
Gantry Robot Elements



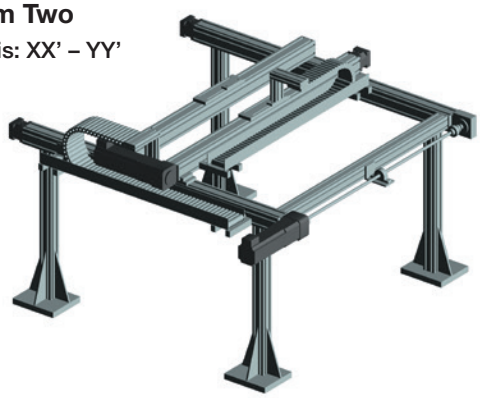
Seven Standard Configurations

Parker's seven standard system configurations are designed to satisfy the vast majority of gantry robot applications. By standardizing on these configurations, Parker has simplified sizing and selection, shortened lead times, and reduced costs for users of these systems. The travels and loads indicated are nominal, and should not be considered limiting factors. Longer travels and increased loads are attainable depending upon the combination of parameters.

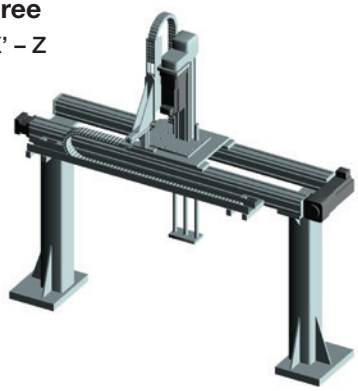
System One
Two Axis: XX' – Y



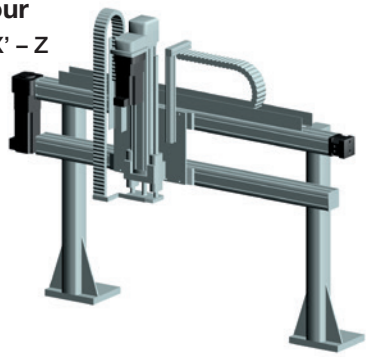
System Two
Two Axis: XX' – YY'



System Three
Two Axis: XX' – Z

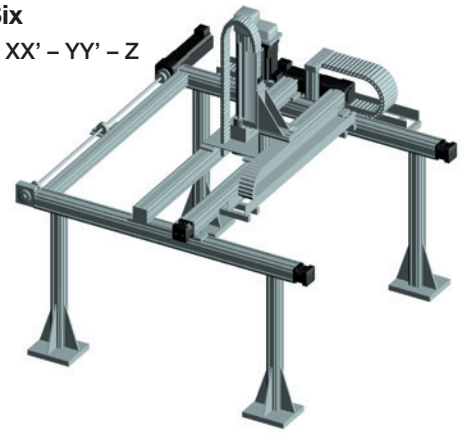


System Four
Two Axis: XX' – Z

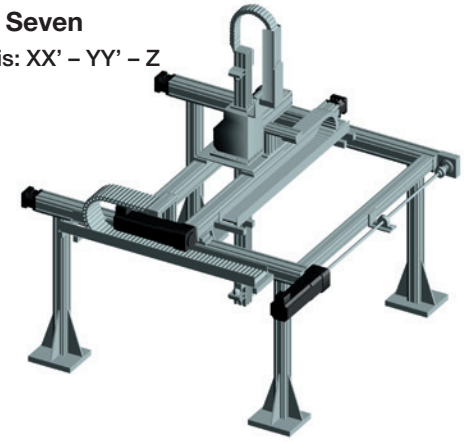


System Five
Two Axis: XX' – Z

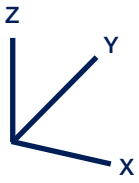
System Six
Three Axis: XX' – YY' – Z



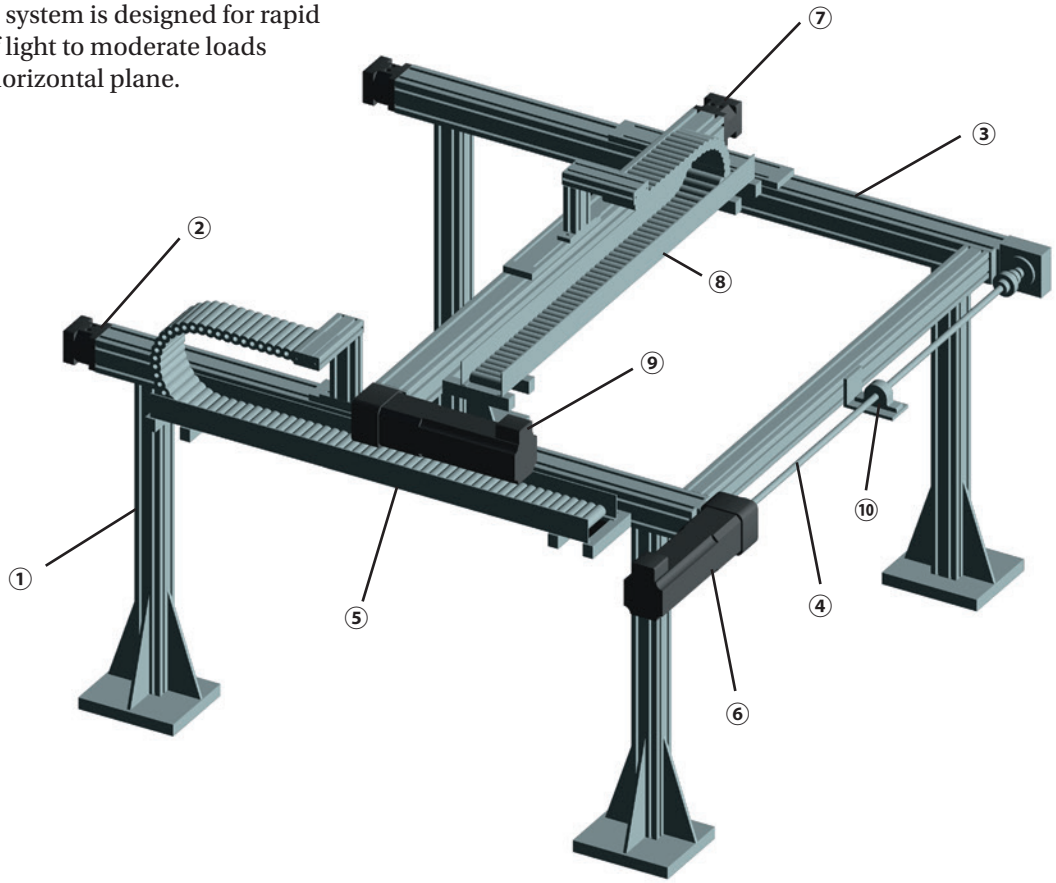
System Seven
Three Axis: XX' – YY' – Z



System One



System One provides two axes of horizontal motion. The primary axis (X) is comprised of two HPLA or HLE Linear Modules linked by a common drive shaft, and the secondary axis (Y) is comprised of one HPLA or HLE Linear Module. These linear modules are capable of high speeds and accelerations over long travels. This system is designed for rapid transport of light to moderate loads in a single horizontal plane.

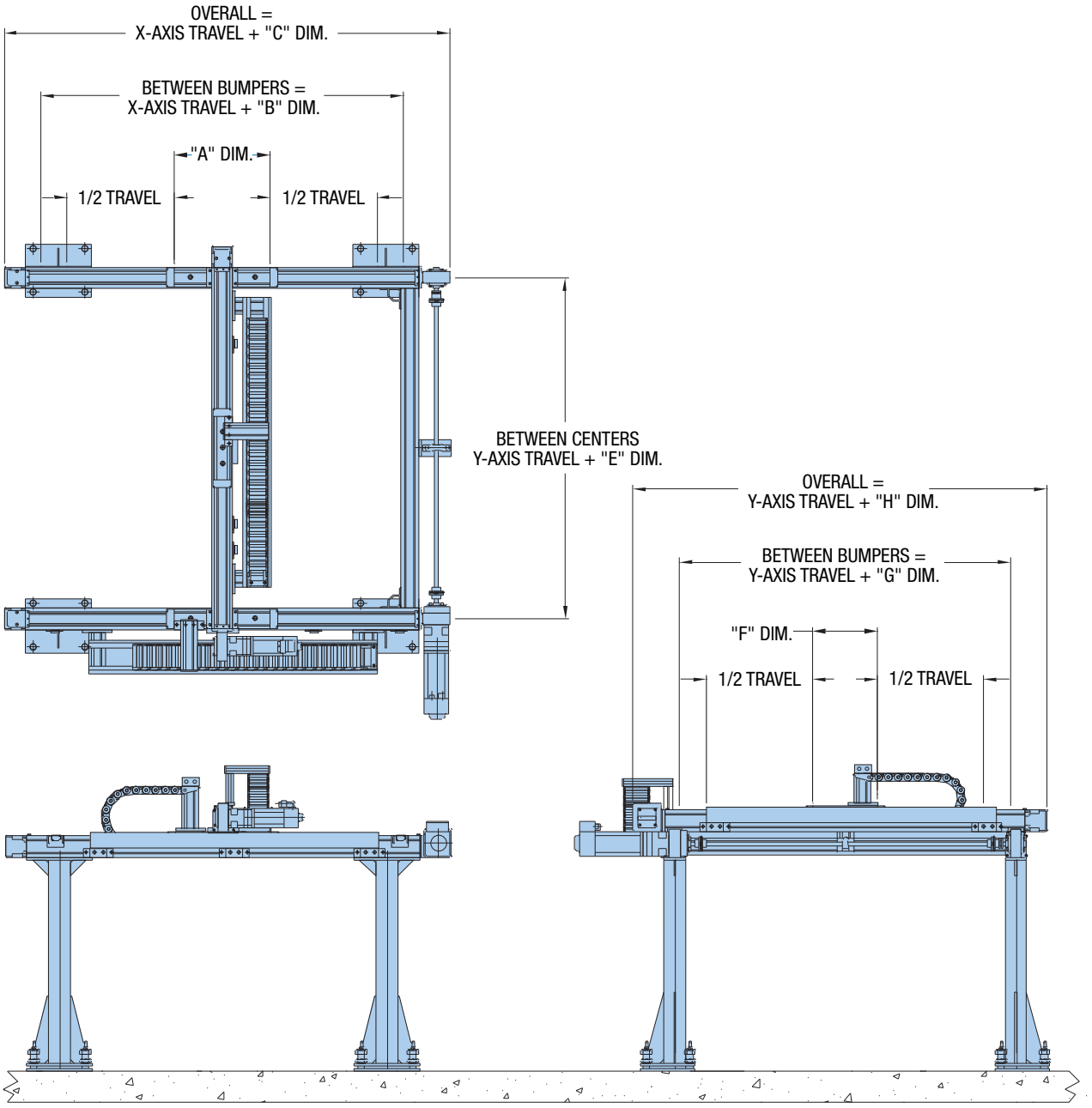


① Support Structure Available (steel or aluminum framing)
② X-Axis Drive Rail Assembly
③ X-Axis Driven Rail Assembly
④ X-Axis Link Shaft Assembly
⑤ X-Axis Cable Carrier
⑥ X-Axis Drive Motor
⑦ Y-Axis Drive Rail Assembly
⑧ Y-Axis Cable Carrier
⑨ Y-Axis Drive Motor
⑩ Pillow Block Bearing & Support (Based on Application)

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE60RB	HLE60RB	—	15	2.9	1.3	—	2.0	2.0	—
2	HLE60SR	HLE60SR	—	25	2.8	1.3	—	2.0	2.0	—
3	HPLA080	HPLA080	—	30	5.4	2.0	—	2.0	3.0	—
4	HLE100RB	HLE100RB	—	35	6.0	2.0	—	2.0	3.0	—
5	HLE100SR	HLE100SR	—	75	6.0	2.0	—	2.0	3.0	—
6	HPLA120	HPLA120	—	85	9.3	3.0	—	2.0	3.0	—
7	HLE150RB	HLE150RB	—	100	7.9	3.0	—	2.0	3.0	—

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions

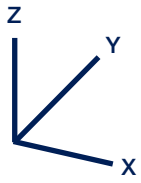


System One (XX' – Y)

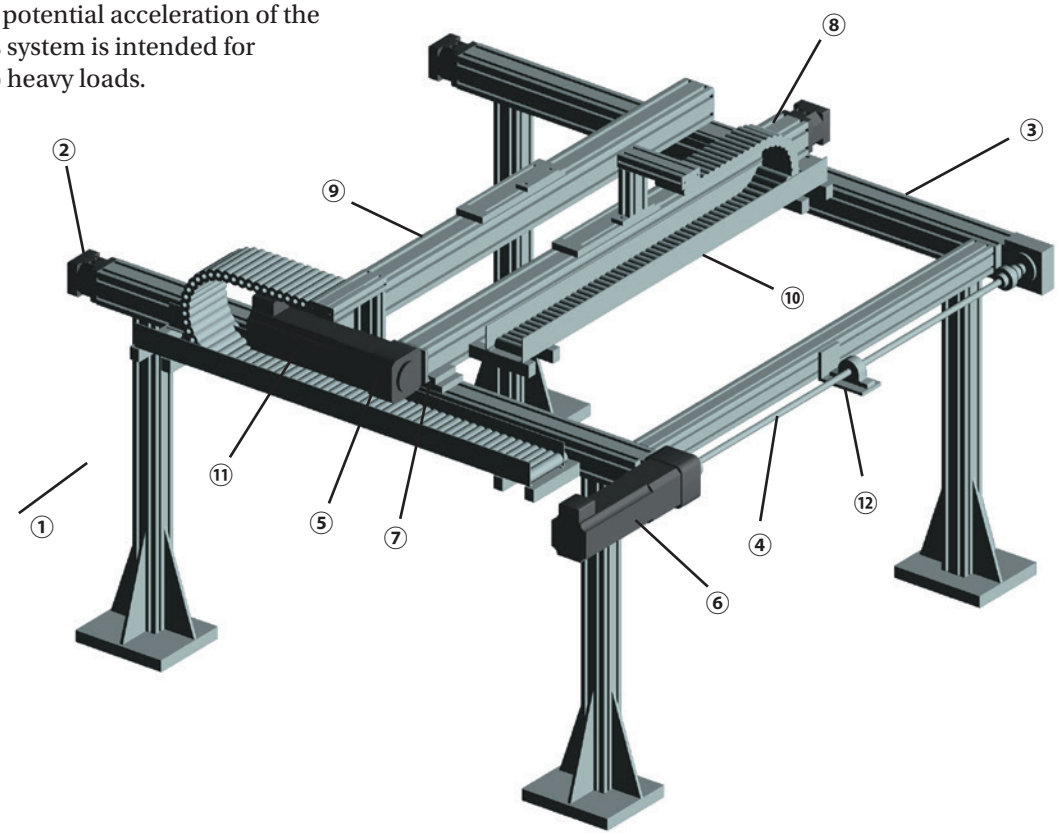
Series No.	"A" Dim mm (in.)	"B" Dim mm (in.)	"C" Dim mm (in.)	"E" Dim mm (in.)	"F" Dim mm (in.)	"G" Dim mm (in.)	"H" Dim mm (in.)
1	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	406.2 (15.99)	152.4 (6.00)	402.4 (15.84)	628.4 (24.74)
2	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	380.2 (14.97)	152.4 (6.00)	402.4 (15.84)	618.0 (24.33)
3	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	530.0 (20.87)	250.0 (9.84)	500.0 (19.69)	862.0 (33.94)
4	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	588.0 (23.15)	300.0 (11.81)	550.0 (21.65)	940.0 (37.01)
5	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	605.0 (23.82)	300.0 (11.81)	550.0 (21.65)	991.0 (39.02)
6	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	560.0 (22.05)	300.0 (11.81)	550.0 (21.65)	1005.0 (39.57)
7	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	612.0 (24.09)	350.0 (13.78)	600.0 (23.62)	1070.0 (42.13)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Two



System Two utilizes two linear modules in both axes (X & Y). The second linear module of the Y-axis is an idler unit which increases load capacity (normal and moment) and permits longer travel. The addition of this unit doubles the load capacity over System One. Traction force can be improved by linking the second axis (Y) module to the first with a common drive shaft. The link shaft doubles the potential acceleration of the system. This system is intended for moderate to heavy loads.

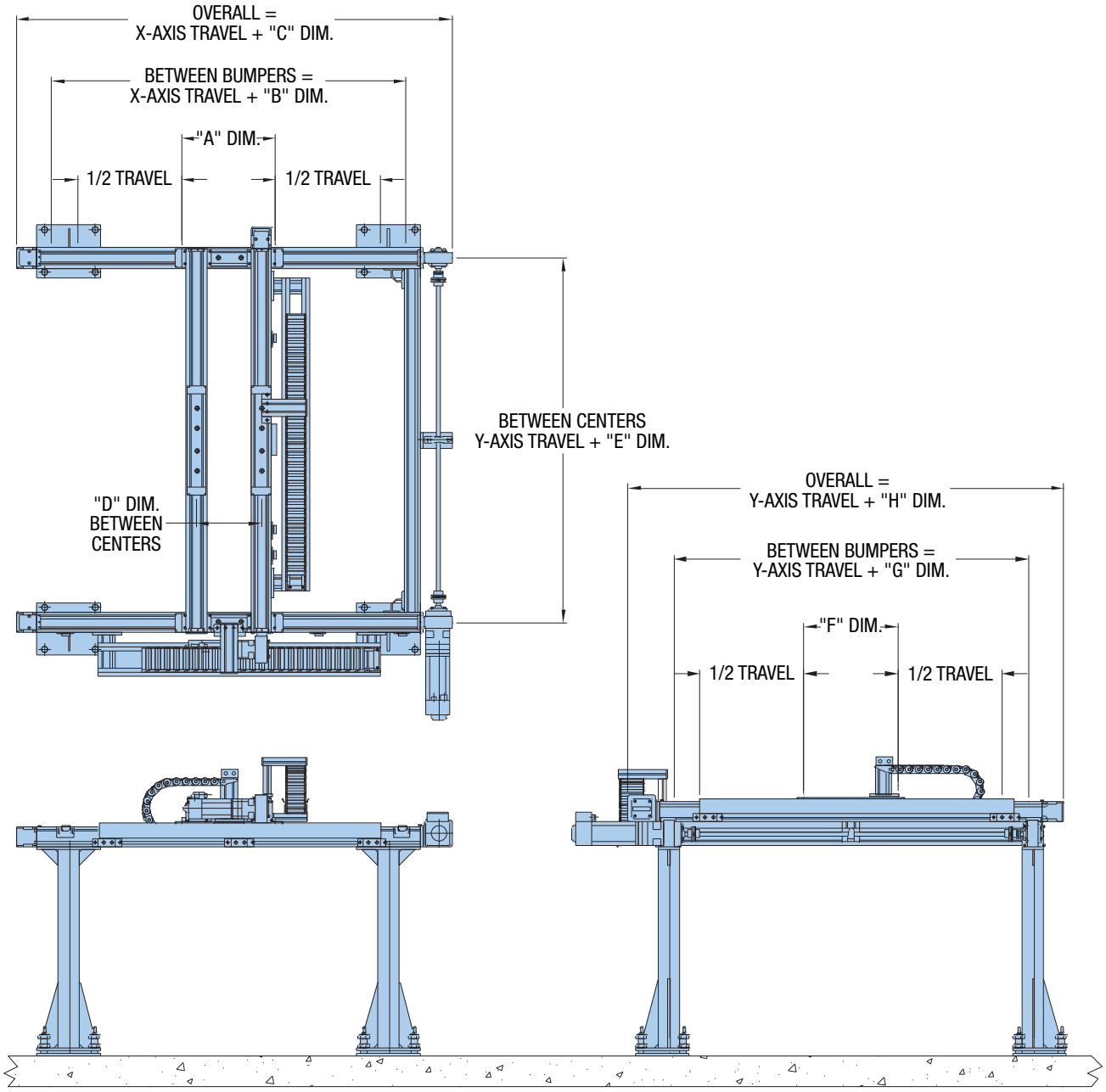


① Support Structure Available (steel or aluminum framing)
② X-Axis Drive Rail Assembly
③ X-Axis Driven Rail Assembly
④ X-Axis Link Shaft Assembly
⑤ X-Axis Cable Carrier
⑥ X-Axis Drive Motor
⑦ Clamping Profile
⑧ Y-Axis Drive Rail Assembly
⑨ Y-Axis Idler Rail Assembly
⑩ Y-Axis Cable Carrier
⑪ Y-Axis Drive Motor
⑫ Pillow Block Bearing & Support (Based on Application)

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE60RB	HLE60RB	—	30	2.9	1.3	—	1.0	2.0	—
2	HLE60SR	HLE60SR	—	50	2.8	1.3	—	1.0	2.0	—
3	HPLA080	HPLA080	—	60	5.4	2.0	—	2.0	3.0	—
4	HLE100RB	HLE100RB	—	70	6.0	2.0	—	1.5	4.0	—
5	HLE100SR	HLE100SR	—	150	6.0	2.0	—	1.5	4.0	—
6	HPLA120	HPLA120	—	170	9.3	3.0	—	2.0	4.0	—
7	HLE150RB	HLE150RB	—	200	7.9	3.0	—	2.0	4.0	—

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions



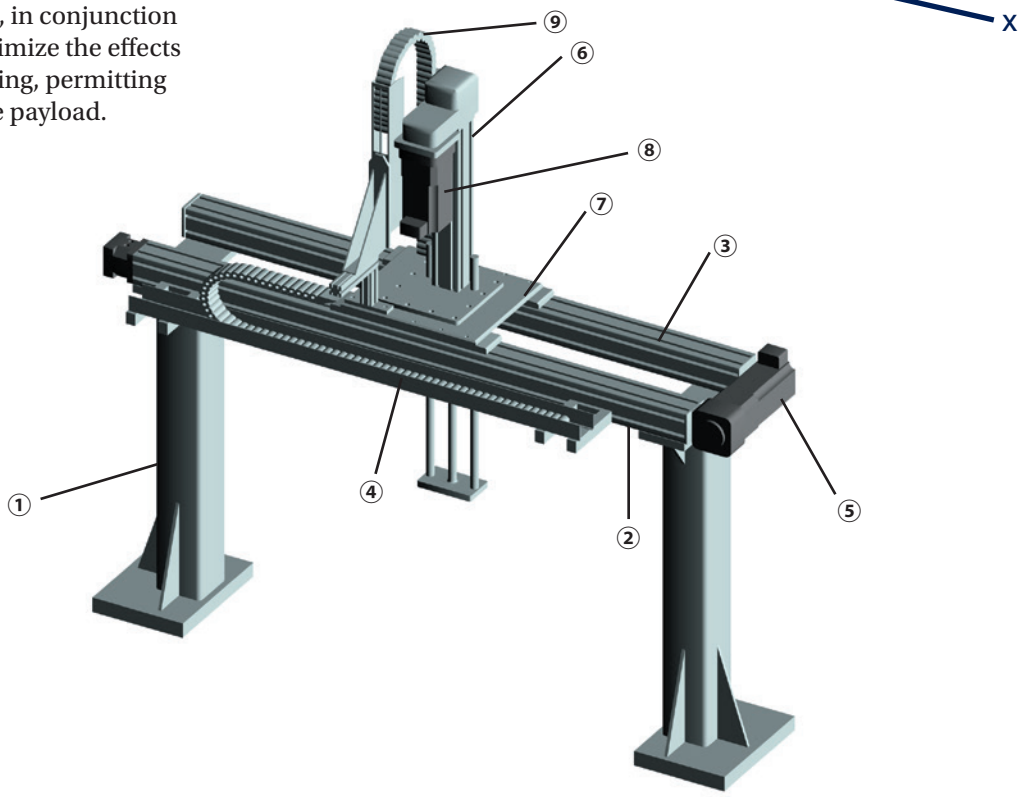
System Two (XX' – YY')

Series No.	"A" Dim mm (in)	"B" Dim mm (in)	"C" Dim mm (in)	"D" Dim mm (in)	"E" Dim mm (in)	"F" Dim mm (in)	"G" Dim mm (in)	"H" Dim mm (in)
1	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	169.8 (6.69)	508.2 (20.01)	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)
2	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	169.8 (6.69)	482.2 (18.98)	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)
3	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	280.0 (11.02)	680.0 (26.77)	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)
4	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	310.0 (12.21)	738.0 (29.06)	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)
5	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	310.0 (12.21)	755.0 (29.72)	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)
6	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	330.0 (12.99)	760.0 (29.92)	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)
7	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	300.0 (11.81)	762.0 (30.00)	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Three

System Three provides two axes of motion in a vertical plane. A ballscrew driven ET Cylinder is utilized to provide high thrust in the vertical direction. ET Rod Guides, in conjunction with the dual X-axis, minimize the effects of moment and side loading, permitting higher acceleration of the payload.

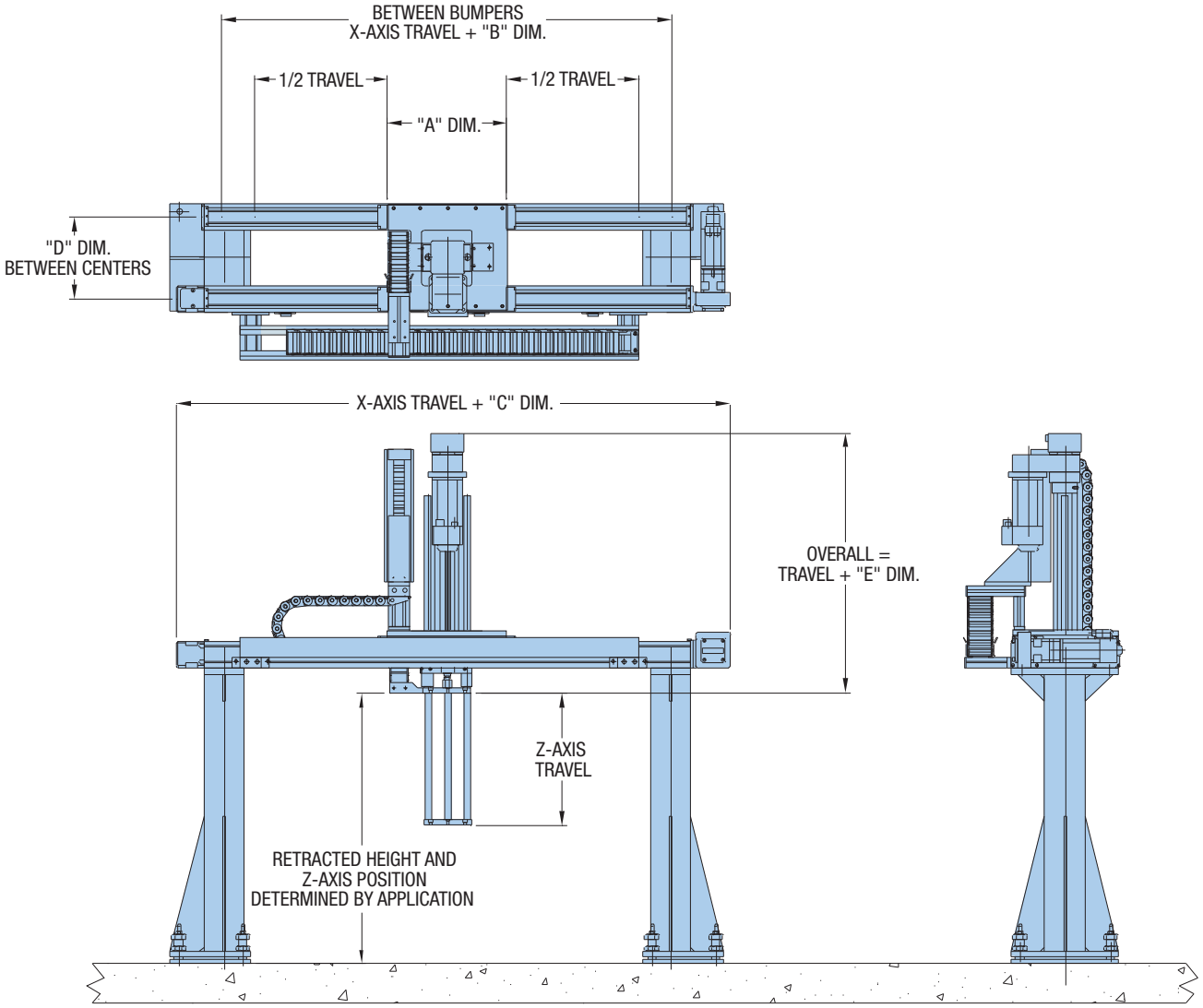


① Support Structure Available (steel or aluminum framing)
② X-Axis Drive Rail Assembly
③ X-Axis Idler Rail Assembly
④ X-Axis Cable Carrier
⑤ X-Axis Drive Motor
⑥ ET Cylinder Z-Axis with Flange Plate
⑦ Z-Axis Mounting Plate
⑧ Z-Axis Drive Motor
⑨ Z-Axis Cable Carrier

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE60RB	—	ETB32	10	2.9	—	0.3	1.5	—	0.5
2	HLE60RB	—	ETB50	20	2.9	—	0.5	1.5	—	0.8
3	HLE60SR	—	ETB32	10	2.8	—	0.3	1.5	—	0.5
4	HLE60SR	—	ETB50	20	2.8	—	0.5	1.5	—	0.8
5	HPLA080	—	ETB50	35	5.4	—	0.5	2.0	—	0.8
6	HLE100RB	—	ETB50	40	6.0	—	0.5	2.0	—	0.8
7	HLE100RB	—	ETB80	50	6.0	—	1.0	2.0	—	0.5
8	HLE100SR	—	ETB50	40	6.0	—	0.5	2.0	—	0.5
9	HLE100SR	—	ETB80	50	6.0	—	1.0	2.0	—	0.5
10	HPLA120	—	ETB80	75	9.3	—	1.0	2.5	—	0.5
11	HPLA120	—	ETB100	100	9.3	—	1.0	2.5	—	1.0
12	HLE150RB	—	ETB80	75	7.9	—	1.0	2.5	—	0.5
13	HLE150RB	—	ETB100	100	7.9	—	1.0	2.5	—	1.0

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions



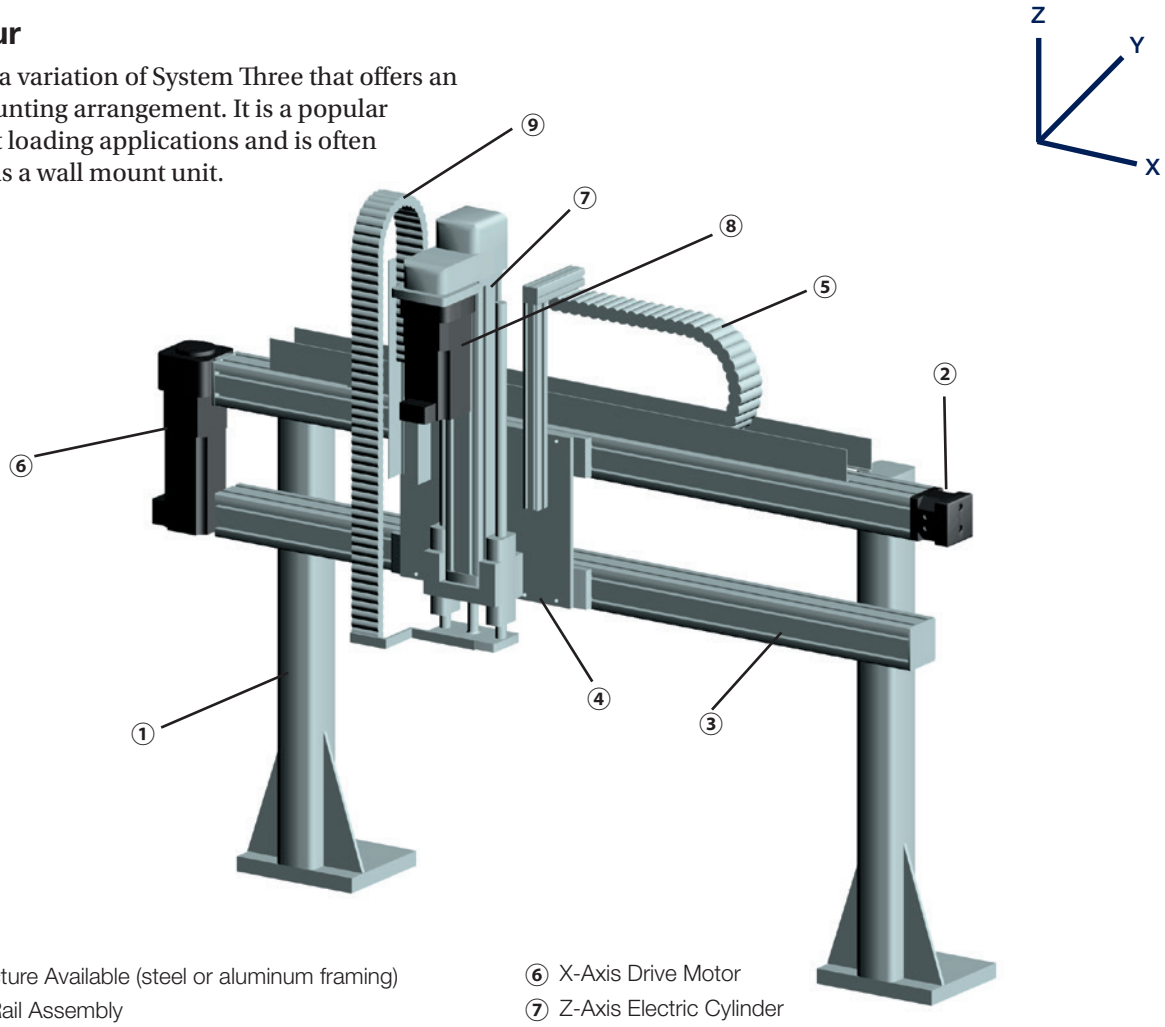
System Three XX' – Z (Electric Cylinder)

Series No.	"A" Dim mm (in.)	"B" Dim mm (in.)	"C" Dim mm (in.)	"D" Dim mm (in.)	"E" Dim mm (in.)
1	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	200.0 (7.87)	238.0 (9.37)
2	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	200.0 (7.87)	304.1 (11.97)
3	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	200.0 (7.87)	238.0 (9.37)
4	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	200.0 (7.87)	304.1 (11.97)
5	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	250.0 (9.84)	304.1 (11.97)
6	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	300.0 (11.81)	304.1 (11.97)
7	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	300.0 (11.81)	321.9 (12.67)
8	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	300.0 (11.81)	304.1 (11.97)
9	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	300.0 (11.81)	321.9 (12.67)
10	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	350.0 (13.78)	321.9 (12.67)
11	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	350.0 (13.78)	494.0 (19.45)
12	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	350.0 (13.78)	321.9 (12.67)
13	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	350.0 (13.78)	494.0 (19.45)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Four

System Four is a variation of System Three that offers an alternative mounting arrangement. It is a popular choice for front loading applications and is often implemented as a wall mount unit.

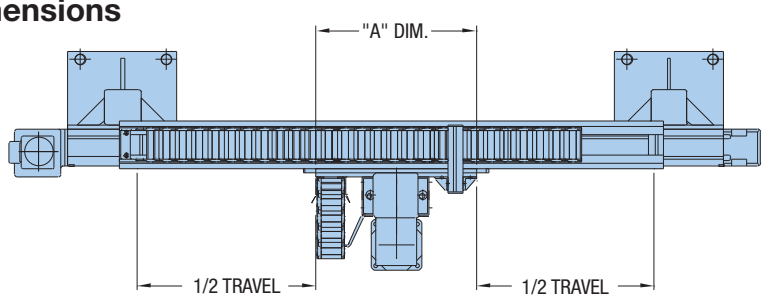


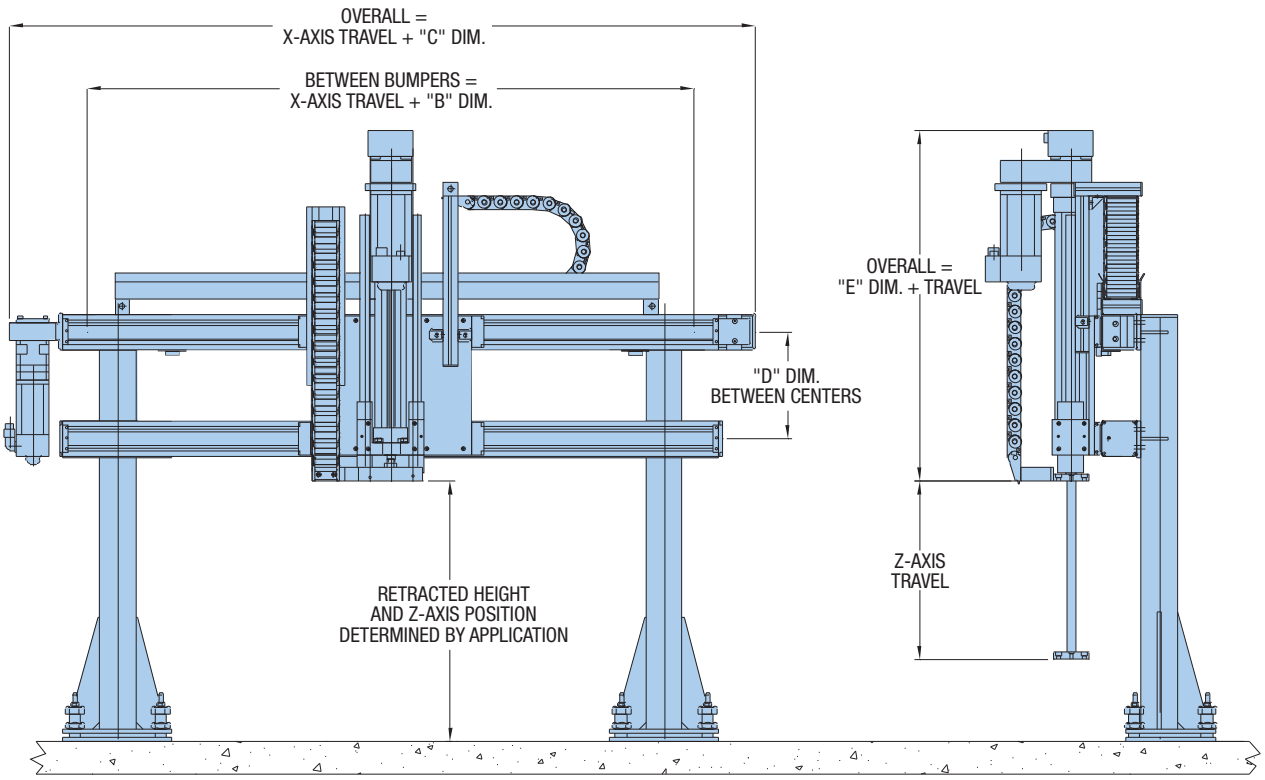
① Support Structure Available (steel or aluminum framing)
② X-Axis Drive Rail Assembly
③ X-Axis Idler Rail Assembly
④ Z-Axis Mounting Plate
⑤ X-Axis Cable Carrier
⑥ X-Axis Drive Motor
⑦ Z-Axis Electric Cylinder
⑧ Z-Axis Drive Motor
⑨ Z-Axis Cable Carrier

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE60RB	—	ETB32	10	2.9	—	0.3	1.5	—	0.5
2	HLE60RB	—	ETB50	20	2.9	—	0.5	1.5	—	0.8
3	HLE60SR	—	ETB32	10	2.8	—	0.3	1.5	—	0.5
4	HLE60SR	—	ETB50	20	2.8	—	0.5	1.5	—	0.8
5	HPLA080	—	ETB50	35	5.4	—	0.5	2.0	—	0.8
6	HLE100RB	—	ETB50	40	6.0	—	0.5	2.0	—	0.8
7	HLE100RB	—	ETB80	50	6.0	—	1.0	2.0	—	0.5
8	HLE100SR	—	ETB50	40	6.0	—	0.5	2.0	—	0.5
9	HLE100SR	—	ETB80	50	6.0	—	1.0	2.0	—	0.5
10	HPLA120	—	ETB80	75	9.3	—	1.0	2.5	—	0.5
11	HPLA120	—	ETB100	100	9.3	—	1.0	2.5	—	1.0
12	HLE150RB	—	ETB80	75	7.9	—	1.0	2.5	—	0.5
13	HLE150RB	—	ETB100	100	7.9	—	1.0	2.5	—	1.0

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions





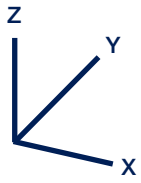
System Four XX' – Z (Electric Cylinder)

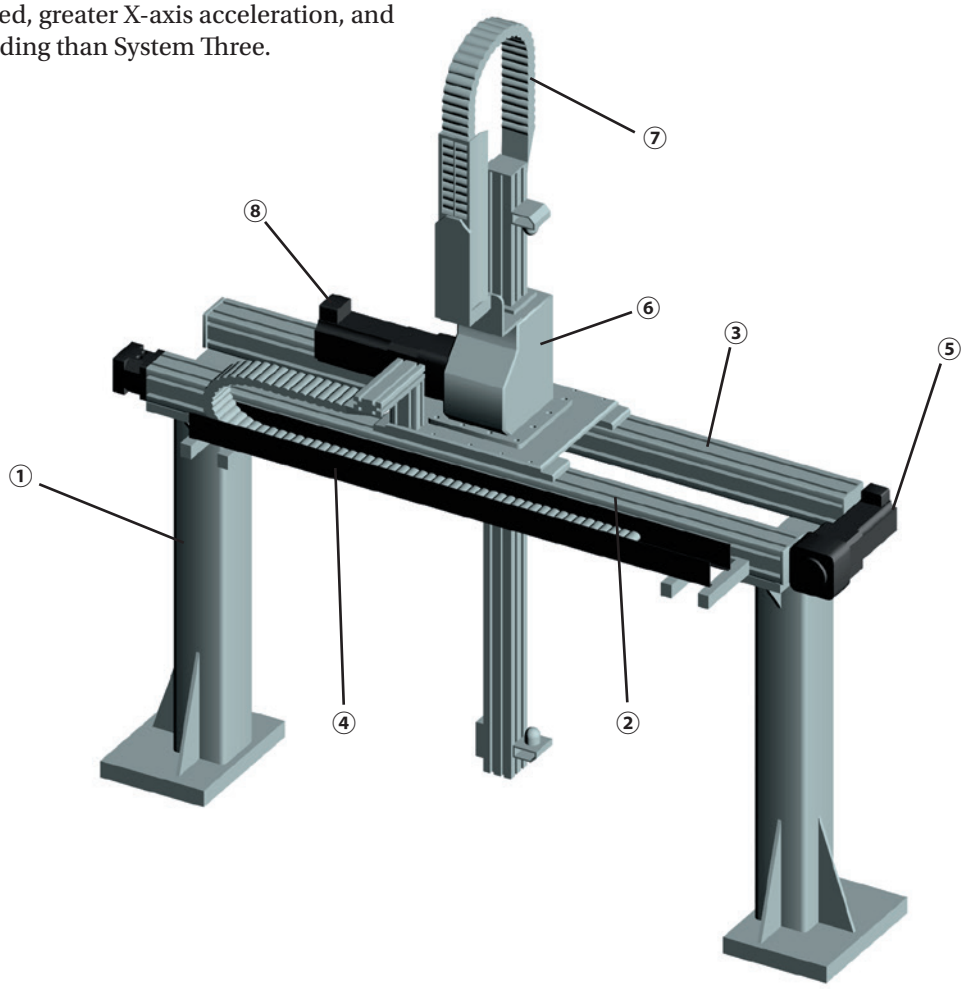
Series No.	"A" Dim. mm (in.)	"B" Dim. mm (in.)	"C" Dim. mm (in.)	"D" Dim. mm (in.)	"E" Dim. mm (in.)
1	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	200.0 (7.87)	238.0 (9.37)
2	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	200.0 (7.87)	304.1 (11.97)
3	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	200.0 (7.87)	238.0 (9.37)
4	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	200.0 (7.87)	304.1 (11.97)
5	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	250.0 (9.84)	304.1 (11.97)
6	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	300.0 (11.81)	304.1 (11.97)
6	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	300.0 (11.81)	321.9 (12.67)
7	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	300.0 (11.81)	304.1 (11.97)
8	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	300.0 (11.81)	321.9 (12.67)
10	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	350.0 (13.78)	321.9 (12.67)
11	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	350.0 (13.78)	494.0 (19.45)
12	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	350.0 (13.78)	321.9 (12.67)
13	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	350.0 (13.78)	494.0 (19.45)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Five

System Five is an X-Z system utilizing the HZR belt driven unit for the vertical axis. The rigidity of the HZR permits higher vertical speed, greater X-axis acceleration, and larger moment loading than System Three.



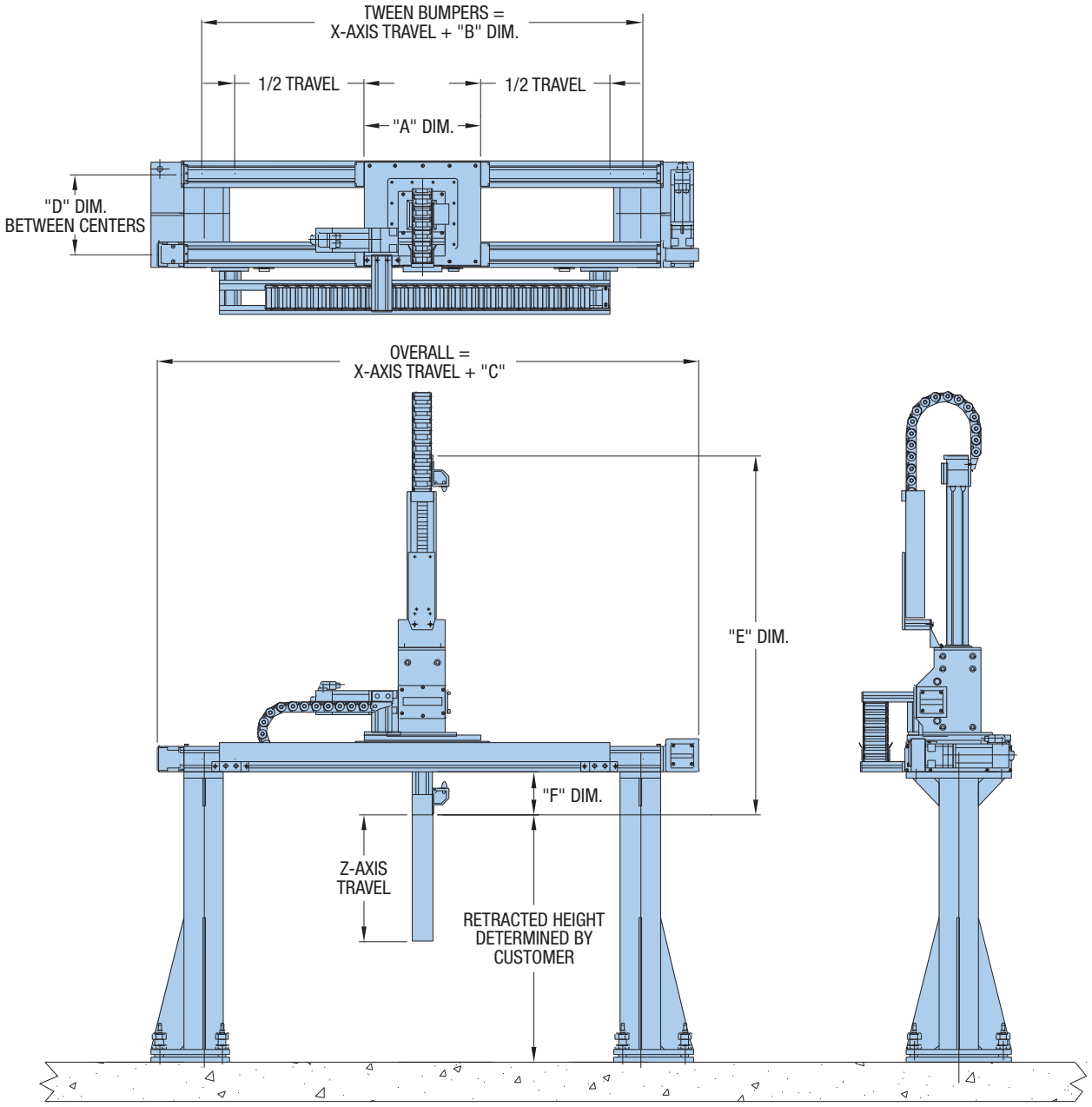


1. Support Structure Available (steel or aluminum framing)
2. X-Axis Drive Rail Assembly
3. X-Axis Idler Rail Assembly
4. X-Axis Cable Carrier
5. X-Axis Drive Motor
6. HZR Z-Axis with Flange Plate
7. Z-Axis Cable Carrier
8. Z-Axis Drive Motor

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE100RB	—	HZR80	50	6.0	—	1.0	2.0	—	1.5
2	HLE100RB	—	HZR100	100	6.0	—	1.5	2.0	—	1.5
3	HLE100SR	—	HZR80	50	6.0	—	1.0	2.0	—	1.5
4	HLE100SR	—	HZR100	100	6.0	—	1.5	2.0	—	1.5
5	HPLA120	—	HZR80	50	9.3	—	1.0	2.5	—	1.5
6	HPLA120	—	HZR100	100	9.3	—	1.5	2.5	—	1.5
7	HLE150RB	—	HZR80	50	7.9	—	1.0	2.5	—	1.5
8	HLE150RB	—	HZR100	100	7.9	—	1.5	2.5	—	1.5

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions



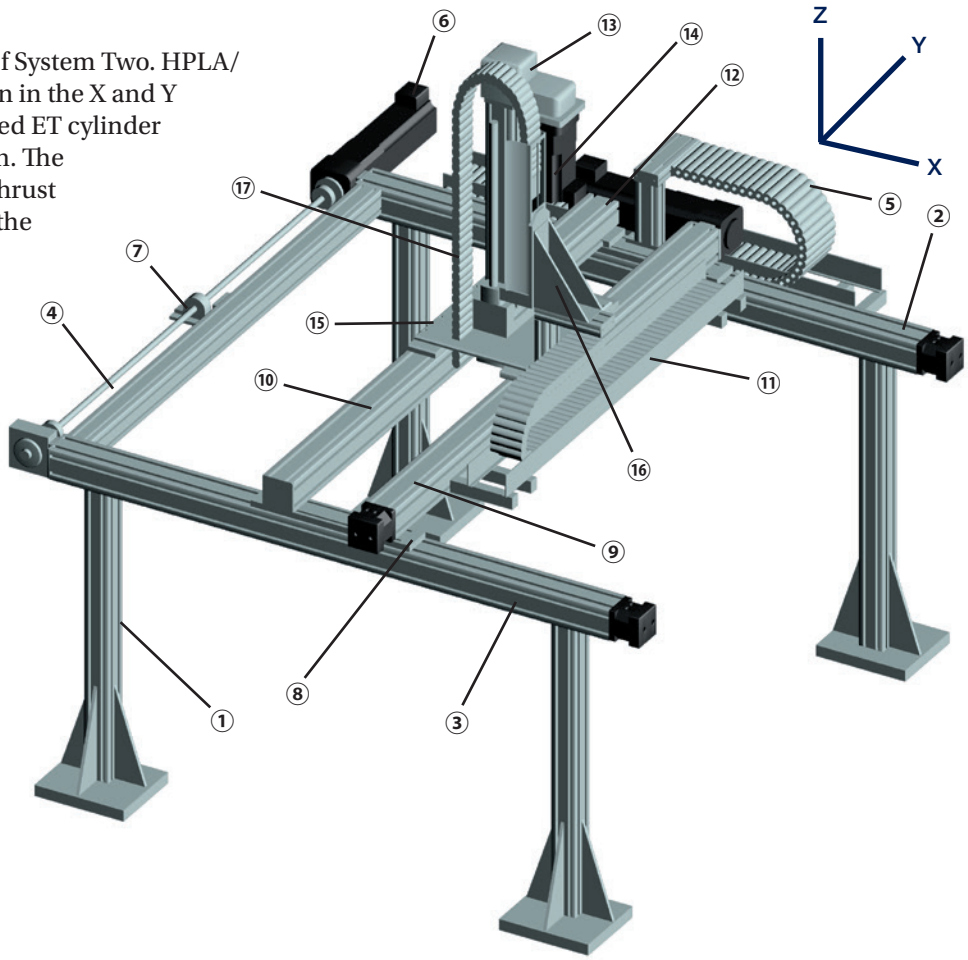
System Five XX' – Z (HZR)

Series No.	"A" Dim mm (in.)	"B" Dim mm (in.)	"C" Dim mm (in.)	"D" Dim mm (in.)	"E" Dim mm (in.)	"F" Dim mm (in.)
1	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	310.0 (12.21)	885.0 (34.84)	170.0 (6.69)
2	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	360.0 (14.17)	1030.0 (40.55)	245.0 (9.65)
3	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	310.0 (12.21)	885.0 (34.84)	170.0 (6.69)
4	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	360.0 (14.17)	1030.0 (40.55)	245.0 (9.65)
5	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	400.0 (15.75)	885.0 (34.84)	115.0 (4.53)
6	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	400.0 (15.75)	1030.0 (40.55)	190.0 (7.48)
7	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	400.0 (15.75)	885.0 (34.84)	115.0 (4.53)
8	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	400.0 (15.75)	1030.0 (40.55)	190.0 (7.48)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Six

System Six is a three-axes version of System Two. HPLA/HLE linear modules provide motion in the X and Y directions while a vertically mounted ET cylinder provides the third axis (Z) of motion. The ET cylinder provides high vertical thrust capacity at moderate speeds. With the Z-axis retracted, this system can transport moderate to heavy loads at high rates of speed over long travel distances.

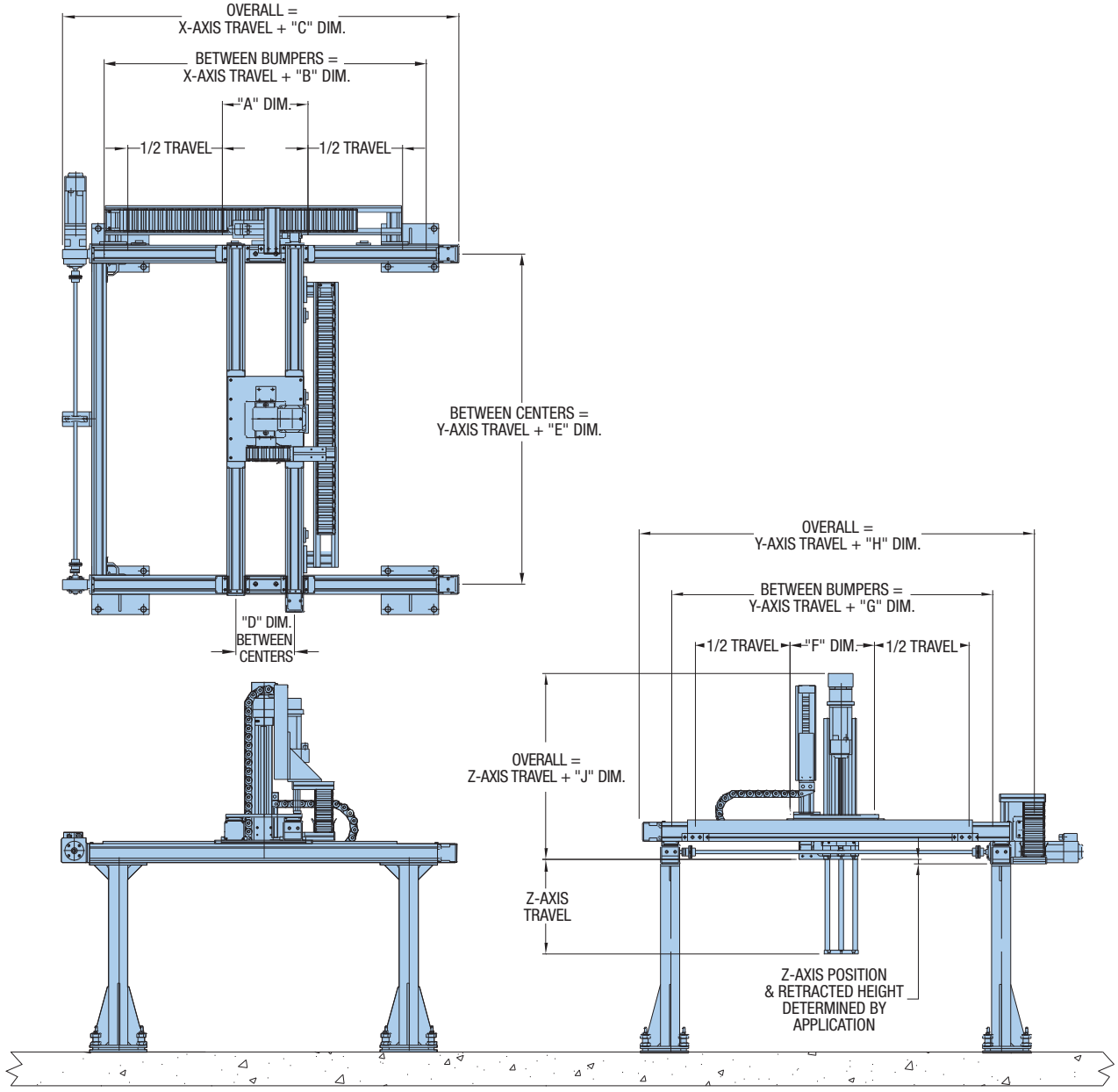


1. Support Structure Available (steel or aluminum framing)
2. X-Axis Drive Rail Assembly
3. X-Axis Driven Rail Assembly
4. X-Axis Link Shaft Assembly
5. X-Axis Cable Carrier
6. X-Axis Drive Motor
7. Pillow Block Bearing Support (Based on Application)
8. Clamping Profile
9. Y-Axis Drive Rail Assembly
10. Y-Axis Idler Rail Assembly
11. Y-Axis Cable Carrier
12. Y-Axis Drive Motor
13. Z-Axis ET Electric Cylinder
14. Z-Axis Drive Motor
15. Electric Cylinder Mounting Plate
16. Electric Cylinder Mounting Bracket
17. Z-Axis Cable Carrier

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE60RB	HLE60RB	ETB32	10	2.9	1.0	0.3	1.0	1.5	0.5
2	HLE60RB	HLE60RB	ETB50	20	2.9	0.5	0.5	1.0	1.5	0.8
3	HLE60SR	HLE60SR	ETB32	10	2.8	1.0	0.3	1.0	1.5	0.5
4	HLE60SR	HLE60SR	ETB50	20	2.8	0.5	0.5	1.0	1.5	0.8
5	HPLA080	HPLA080	ETB50	45	5.4	1.5	0.5	2.0	2.0	0.8
6	HLE100RB	HLE100RB	ETB80	50	6.0	1.5	1.0	2.0	2.0	0.5
7	HLE100SR	HLE100SR	ETB80	50	6.0	1.4	1.0	2.0	2.0	0.5
8	HPLA120	HPLA120	ETB100	100	9.3	3.0	1.0	2.5	2.5	1.0
9	HLE150RB	HLE150RB	ETB100	100	7.9	3.0	1.0	2.5	2.5	1.0

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions



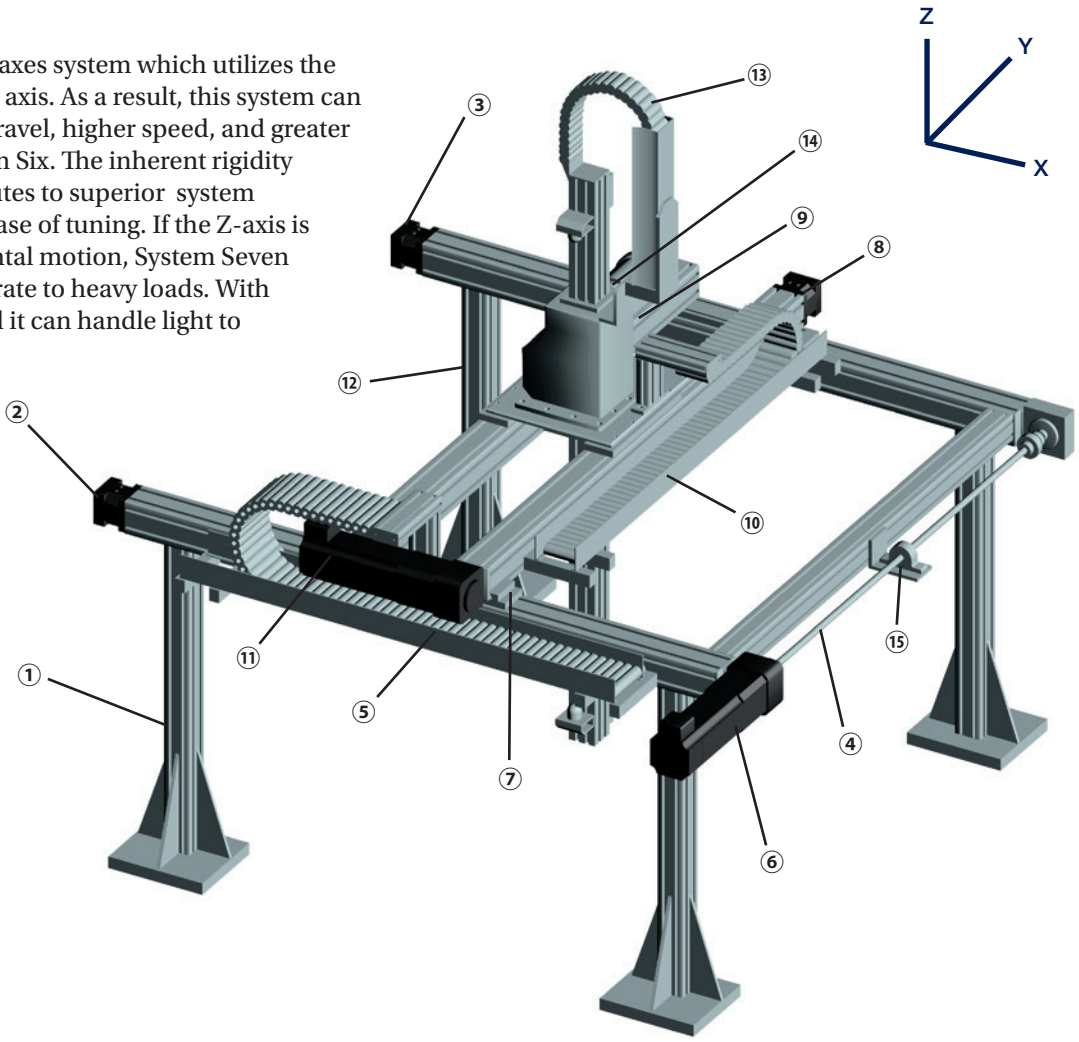
System Six XX' – YY' – Z (Electric Cylinder)

Series No.	"A" Dim. mm (in.)	"B" Dim. mm (in.)	"C" Dim. mm (in.)	"D" Dim. mm (in.)	"E" Dim. mm (in.)	"F" Dim. mm (in.)	"G" Dim. mm (in.)	"H" Dim. mm (in.)	"J" Dim. mm (in.)
1	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	169.8 (6.69)	508.2 (20.01)	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	238.0 (9.37)
2	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	169.8 (6.69)	508.2 (20.01)	254.0 (10.00)	504.0 (19.84)	730.0 (28.74)	304.1 (11.97)
3	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	169.8 (6.69)	482.2 (19.98)	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	238.0 (9.37)
4	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	169.8 (6.69)	482.2 (19.98)	254.0 (10.00)	504.0 (19.84)	720.0 (28.35)	304.1 (11.97)
5	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	280.0 (0.02)	680.0 (26.77)	400.0 (15.75)	650.0 (25.59)	1012.0 (39.84)	304.1 (11.97)
6	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	310.0 (12.21)	738.0 (29.06)	450.0 (17.72)	700.0 (27.56)	1090.0 (42.91)	321.9 (12.67)
7	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	310.0 (12.21)	755.0 (29.72)	450.0 (17.72)	700.0 (27.56)	1141.0 (44.92)	321.9 (12.67)
8	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	330.0 (12.99)	760.0 (29.92)	500.0 (19.69)	750.0 (29.53)	1205.0 (47.44)	494.0 (19.45)
9	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	300.0 (11.81)	762.0 (30.00)	500.0 (19.69)	750.0 (29.53)	1220.0 (48.03)	494.0 (19.45)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

System Seven

System Seven is a three-axes system which utilizes the HZR unit for the vertical axis. As a result, this system can provide longer vertical travel, higher speed, and greater acceleration than System Six. The inherent rigidity of the HZR also contributes to superior system stiffness, stability, and ease of tuning. If the Z-axis is retracted during horizontal motion, System Seven can easily handle moderate to heavy loads. With the Z-axis fully extended it can handle light to moderate loads.

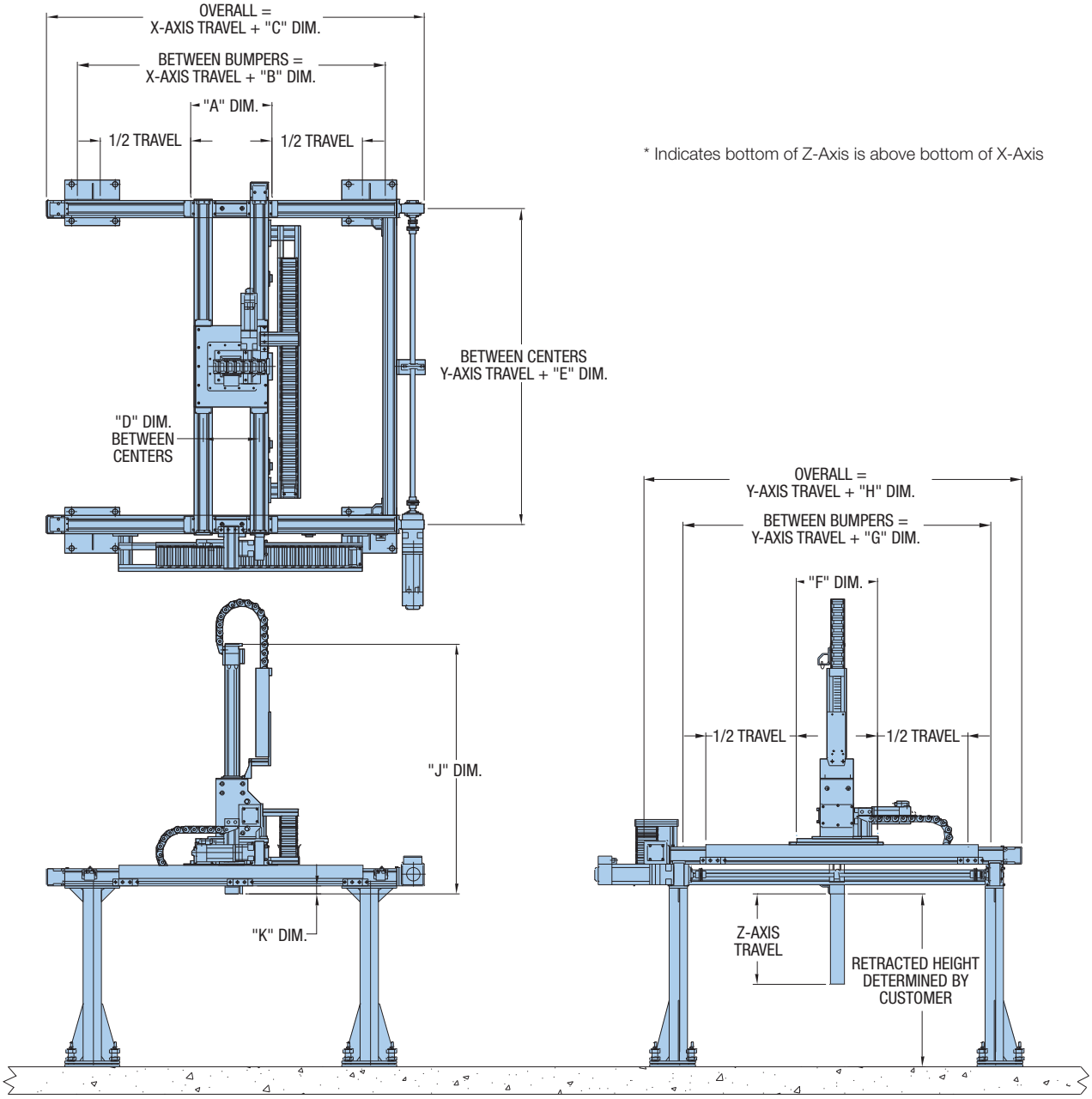


1. Support Structure Available (steel or aluminum framing)
2. X-Axis Drive Rail Assembly
3. X-Axis Driven Rail Assembly
4. X-Axis Link Shaft Assembly
5. X-Axis Cable Carrier
6. X-Axis Drive Motor
7. Clamping Profile
8. Y-Axis Drive Rail Assembly
9. Y-Axis Idler Rail Assembly
10. Y-Axis Cable Carrier
11. Y-Axis Drive Motor
12. HZR Z-Axis with Flange Plate
13. Z-Axis Cable Carrier
14. Z-Axis Drive Motor
15. Pillow Block Bearing & Support (Based on Application)

	Axis Model Number			Load	Travel			Velocity		
Series No.	X-Axis	Y-Axis	Z-Axis	(kg)	X-Axis (meters)	Y-Axis (meters)	Z-Axis (meters)	X-Axis (m/sec.)	Y-Axis (m/sec.)	Z-Axis (m/sec.)
1	HLE100RB	HLE100RB	HZR80	50	6.0	2.0	1.0	2.0	2.0	1.5
2	HLE100RB	HLE100RB	HZR100	100	6.0	1.3	1.5	2.0	2.0	1.5
3	HLE100SR	HLE100SR	HZR80	50	6.0	2.0	1.0	2.0	2.0	1.5
4	HLE100SR	HLE100SR	HZR100	100	6.0	1.3	1.5	2.0	2.0	1.5
5	HPLA120	HPLA120	HZR80	50	9.3	4.0	1.0	2.5	2.5	1.5
6	HPLA120	HPLA120	HZR100	100	9.3	3.3	1.5	2.5	2.5	1.5
7	HLE150RB	HLE150RB	HZR80	50	7.9	4.0	1.0	2.5	2.5	1.5
8	HLE150RB	HLE150RB	HZR100	100	7.9	3.3	1.5	2.5	2.5	1.5

Note: Loads, travels, and velocities shown are interdependent. Increased values are attainable. Actual configuration will depend on application requirements. Please consult factory for more details.

Dimensions



* Indicates bottom of Z-Axis is above bottom of X-Axis

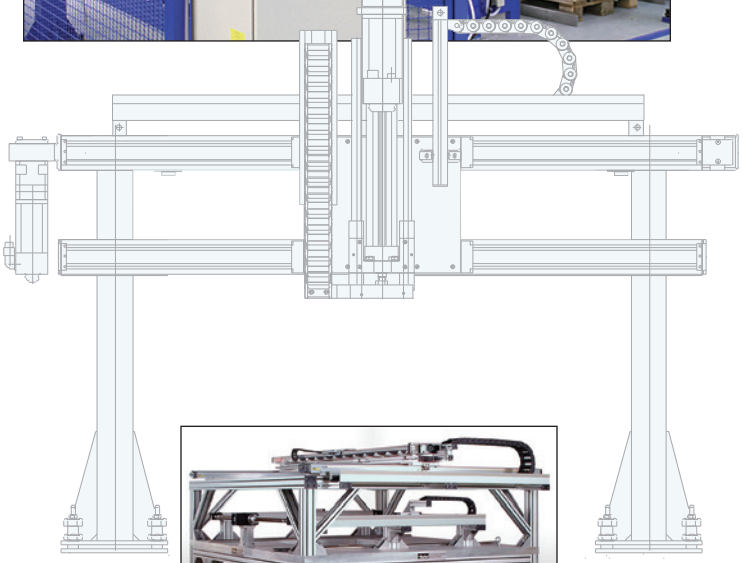
System Seven XX' – YY' – HZR

Series No.	"A" Dim. mm (in.)	"B" Dim. mm (in.)	"C" Dim. mm (in.)	"D" Dim. mm (in.)	"E" Dim. mm (in.)	"F" Dim. mm (in.)	"G" Dim. mm (in.)	"H" Dim. mm (in.)	"J" Dim. mm (in.)	"K" Dim. mm (in.)
1	450 (17.72)	700 (27.56)	1090 (42.91)	310 (12.21)	738 (29.06)	450 (17.72)	700 (27.56)	1090 (42.91)	885 (34.84)	50 (1.97)
2	450 (17.72)	700 (27.56)	1090 (42.91)	310 (12.21)	738 (29.06)	450 (17.72)	700 (27.56)	1090 (42.91)	1030 (40.55)	125 (4.92)
3	450 (17.72)	700 (27.56)	1141 (44.92)	310 (12.21)	755 (29.72)	450 (17.72)	700 (27.56)	1141 (44.92)	885 (34.84)	50 (1.97)
4	450 (17.72)	700 (27.56)	1141 (44.92)	310 (12.21)	755 (29.72)	450 (17.72)	700 (27.56)	1141 (44.92)	1030 (40.55)	125 (4.92)
5	500 (19.69)	750 (29.53)	1205 (47.44)	330 (12.99)	760 (29.92)	500 (19.69)	750 (29.53)	1205 (47.44)	885 (34.84)	60 (2.36)
6	500 (19.69)	750 (29.53)	1205 (47.44)	370 (14.57)	760 (29.92)	500 (19.69)	750 (29.53)	1205 (47.44)	1030 (40.55)	15 (0.59)
7	550 (21.65)	800 (31.50)	1270 (50.00)	350 (13.78)	762 (30.00)	500 (19.69)	750 (29.53)	1220 (48.03)	885 (34.84)	60 (2.36)
8	600 (23.62)	850 (33.47)	1320 (51.97)	400 (15.75)	762 (30.00)	500 (19.69)	750 (29.53)	1220 (48.03)	1030 (40.55)	15 (0.59)

Note: **Dimensional information is shown for reference purposes only. Please consult factory prior to ordering to confirm dimensions.**

Gantry Systems Capabilities & Accessories

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

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.

Aluminum Structures

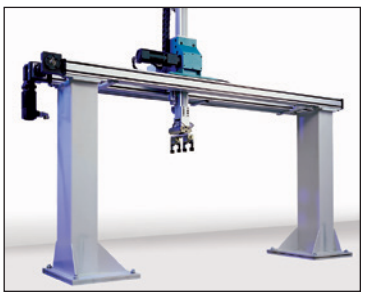
- **Lightweight aluminum extrusions**
- **Economical modular construction**
- **Standard metric sizes – compatible with linear drive units**

Steel Support Structures

- **Heavy duty support**
- **High system stiffness**
- **Ideal for higher overhead gantries**
- **Engineered and fabricated to customer specifications**

Gantry Robot CD available at www.parker.com/emn

- **Sizing**
- **Software**
- **CAD Files (Parametric Tools)**
- **Product Manuals**
- **Photos/Applications Library**
- **Movie Gallery**

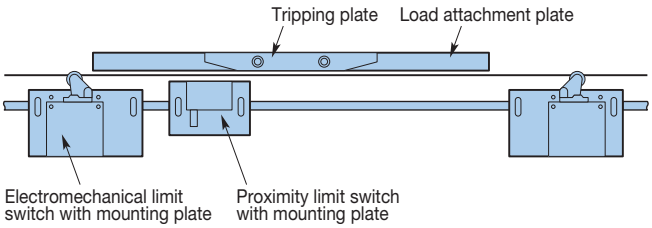


HPLA/HLE/HZR
OPTIONS & ACCESSORIES

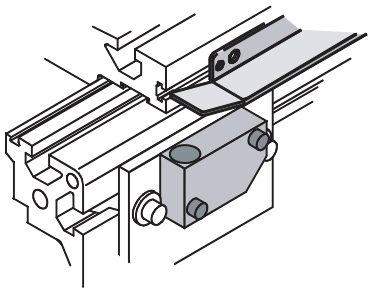
Limit and Home Sensors

"End of Travel" Limit Sensors are offered to assure safe operation of the unit by restricting travel to within allowable parameters. This range is dependent upon the load, velocity and acceleration factors determined by the application.

A "Home" Sensor can be positioned to establish a "Machine Start-up" location within the range of travel. Either mechanical or electrical proximity switches can be selected. Limit sensors can be easily positioned along the length of travel to further reduce the allowable operating envelope.



Electrical Proximity Switches



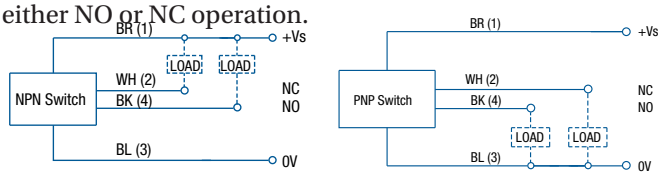
4-wire NPN switch with mounting hardware

Product	Part Number
HPLA (all models):	002-2440-03
HLE60-RB, HLE60-SR	002-1892-01
HLE100-RB, HLE100-SR	510-900010
HLE150-RB, HLE150-Z	510-900030

4-wire PNP switch with mounting hardware

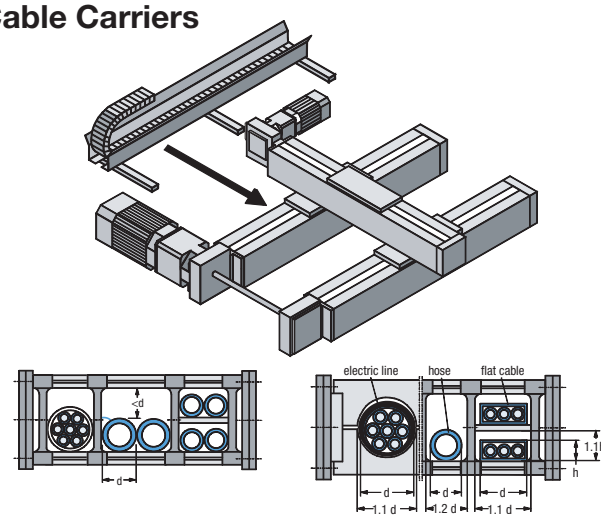
Product	Part Number
HPLA (all models):	002-2440-01
HLE60-RB, HLE60-SR	002-1892-02
HLE100-RB, HLE100-SR	510-900020
HLE150-RB, HLE150-Z	510-900040

Inductive proximity switches are triggered by a standard tripping plate mounted to the side of the carriage. Available in both NPN and PNP 4-wire DC complementary outputs, the switches can be wired either NO or NC operation.



Sensing Distance	4 mm ± 10%
Voltage Supply	10-30 VDC
Switching Capacity	200 mA
Switching Response	2000 Hz
Current Consumption	<200 mA
Voltage Drop	<3 V
Protection Class	IP67
Operating Temperature	-25° C to 70° C (-13° F to 158° F)
Lead Termination	5 meter (200 in)
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes

Cable Carriers



Typical Cross Sections

A cable carrier assembly is normally needed to transport cables to the carriage or custom payload. A complete cable carrier assembly includes the carrier, trough, end brackets, and mounting hardware. The cable carrier should be specifically matched to the linear actuator and other application requirements. Because of the extreme amount of cable flexing associated with high speed cable management, Parker uses only long life high-flex cables with its gantry systems. We recommend that all electric cables be approved for high speed cable carrier usage and that manufacturer's guidelines for bend radii are followed.

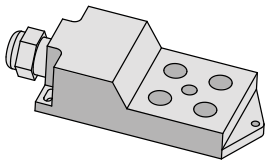
Cable Carrier Guidelines

Hose lines should be highly flexible and should only extend slightly under pressure. Weight should be distributed across the cable track as evenly as possible. Cables must not be twisted when routed in the cable carrier and should be routed next to one another with approximately 10% additional space.

Avoid laying several lines on top of each other and laying lines of different diameters directly next to one another. If multiple layers must be used, divides should be inserted between each layer – should such circumstances arise, please contact a Parker application engineer. If there is no alternative to routing several lines beside each other without subdivisions, the clearance height within the carrier must be less than line diameter. This is the only way of preventing the cables from twisting. The supply cables must be able to move freely in the cable carrier – they must never be fastened or bundled together. Separating strips must always be inserted between flat cables routed in multiple layers.

Due to diversity of the requirements associated with high speed cable management systems, it is recommended that you contact your Parker applications engineer.

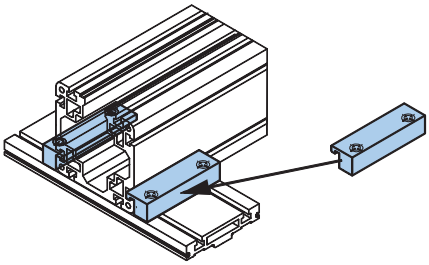
Cable Carrier Junction Box

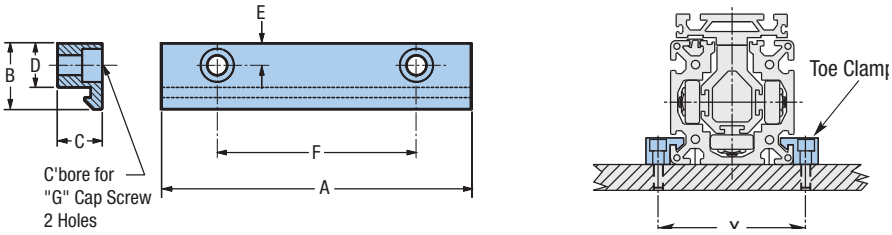


For systems utilizing cable carriers, Parker recommends and is able to provide junction boxes and high-flex cables for limit switch assemblies. The junction box and cable consolidate the wiring through the cable carriers and provide a "clean" solution for routing limit switch wires to the motion controller.

Toe Clamps

The toe clamps are used to rapidly install and fasten various combinations of linear actuators to each other; to a ParFrame™ structure; or to a mounting surface. Two clamps are required to fasten an HLE, HPLA, or HLEZ to a load attachment plate. The table at right shows the profiles for the various axis combinations.



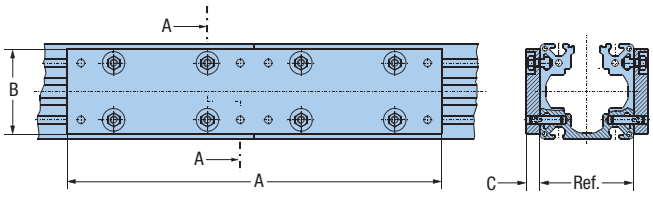


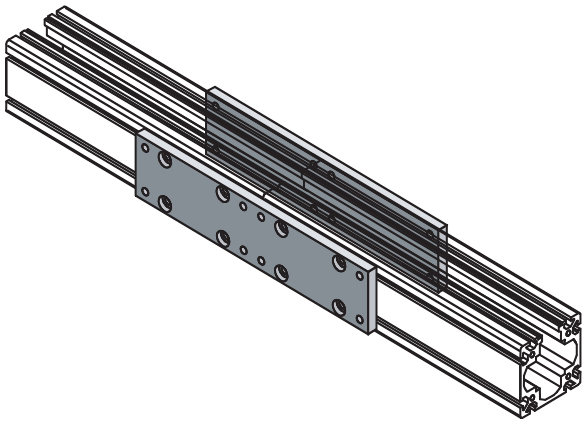
Dimensions

Used With	Part Number	A	B	C	D	E	F	G	X
HLE60-RB, HLE60-SR	000-7752-01	54	18	10	12	6	43	M5	70
HPLA080	500-000931	76	27	17	20	10	48	M5	100
HPLA080	500-000932	90	27	17	20	10	60	M8	100
HPLA080	500-000930	110	27	17	20	10	70	M8	100
HLE100-RB, HLE100-SR	500-000901	90	30	20	20	10	60	M6	120
HPLA120	500-000925	110	37.5	26	25	12.5	70	M8	145
HPLA180	500-000920	170	45	36	30	15	110	M10	210
HLE150-RB, HLE150-Z	500-000902	140	40	30	25	12	90	M8	176

Splice Plates

Splice Plates enable travels to be extended significantly beyond the standard range which is limited by extrusion length. Design concepts and factory installation expertise combine to produce perfectly splicevd units which are easily recreated on site. The splice plate connection is only recommended for units with the carriage in the top or the bottom position.



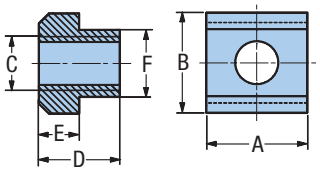


Dimensions

Model/Size	A	B	C	Ref.
HPLA080	300	70	15	80
HLE100-RB, HLE100-SR	400	90	15	100
HPLA120	400	110	15	120
HLE150-RB, HLE150-Z	500	130	15	150
HPLA180	500	165	20	180

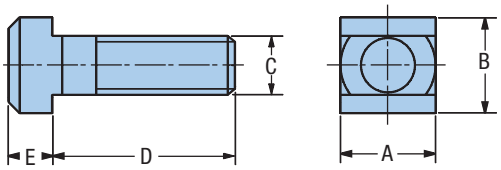
T-Nuts and T-Bolts

The T-nuts and bolts are used to fasten any element into the T-slots of the profile and to the upper side of the flange plate.



T-Nuts

Standard Part Number	Corrosion Resistant Part Number	Used With	Dimensions (mm)					
			A	B	C	D	E	F
100-2353-01	—	HLE60-RB, HLE60-SR	11	9	M5	3	–	–
131-700102	135-725390	HPLA080	10	10	M5	8	4	5.6
131-700147	—	HPLA080	20	10	M5	8	4	5.6
131-700103	135-725400	HLE100-RB, HLE100-SR	13	13	M6	10	6	–
131-700135	—	HPLA120, HLE150-RB, HLE150-Z	15	15	M6	12	6	10
131-700104	135-725402	HPLA120, HLE150-RB, HLE150-Z	15	15	M8	12	6	10
131-700141	—	HPLA120, HLE150-RB, HLE150-Z	30	15	M8	12	6	10
131-700112	135-725401	HPLA180	18	18	M6	14	7	12
131-700111	135-725420	HPLA180	35	18	M10	14	7	12

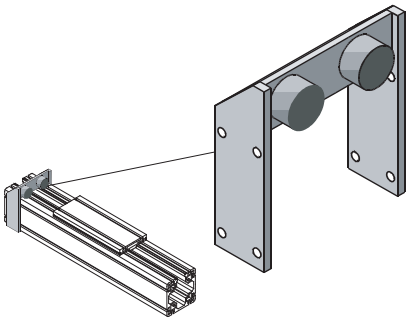


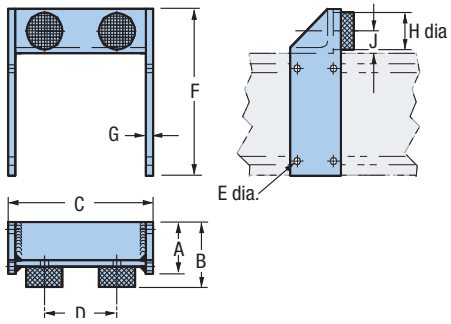
T-Bolts

Standard Part Number	Corrosion Resistant Part Number	Used With	Dimensions (mm)				
			A	B	C	D	E
131-700030	135-725430	HPLA080	10	10	M6	15	4
131-700031	—	HPLA080	10	10	M6	25	4
131-700032	—	HPLA080	10	10	M6	30	4
131-700001	—	HLE100-RB, HLE100-SR	13	13	M8	25	6
131-700002	135-725450	HLE100-RB, HLE100-SR	13	13	M8	32	6
131-700007	135-725459	HPLA120	15	15	M10	25	6
131-700008	135-725460	HPLA120, HLE150-RB, HLE150-Z	15	15	M10	32	6
131-700009	135-725465	HLE150-RB, HLE150-Z	15	15	M10	40	6
131-700016	135-725482	HPLA180	18	18	M12	25	7
131-700015	135-725480	HPLA180	18	18	M12	50	7

External Bumpers

External bumpers serve as adjustable hard stops. They are fitted to the grooves in the housing profile and are often utilized for restricting total travel.

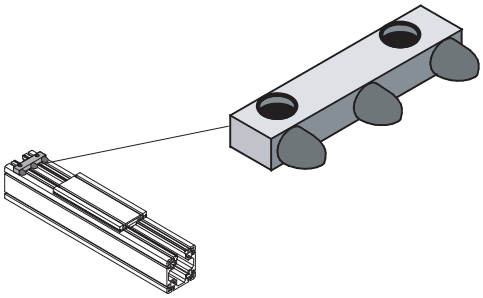


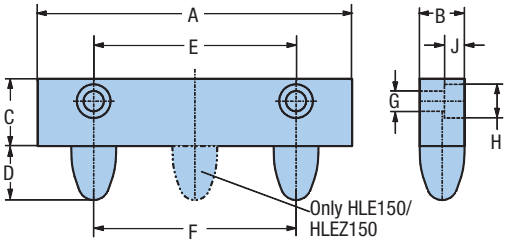


HPLA Series

Dimensions (mm)

Part Number	Used With	A	B	C	D	E	F	G	H	J
510-006497	HPLA080	30	45	90	56	5.5	91	5	15	11
510-007497	HPLA120	50	60	140	74	9	150	10	30	17
510-008497	HPLA150	70	88	200	100	11	225	10	50	30





HLE Series

Dimensions (mm)

Part Number	Used With	A	B	C	D	E	F	G	H	J
510-300004	HLE100-RB, HLE100-SR	90	20	30	24	60	40	6.6	11	6.8
510-300005	HLE150-RB, HLE150-Z	140	20	30	24	90	90	6.6	11	9.0