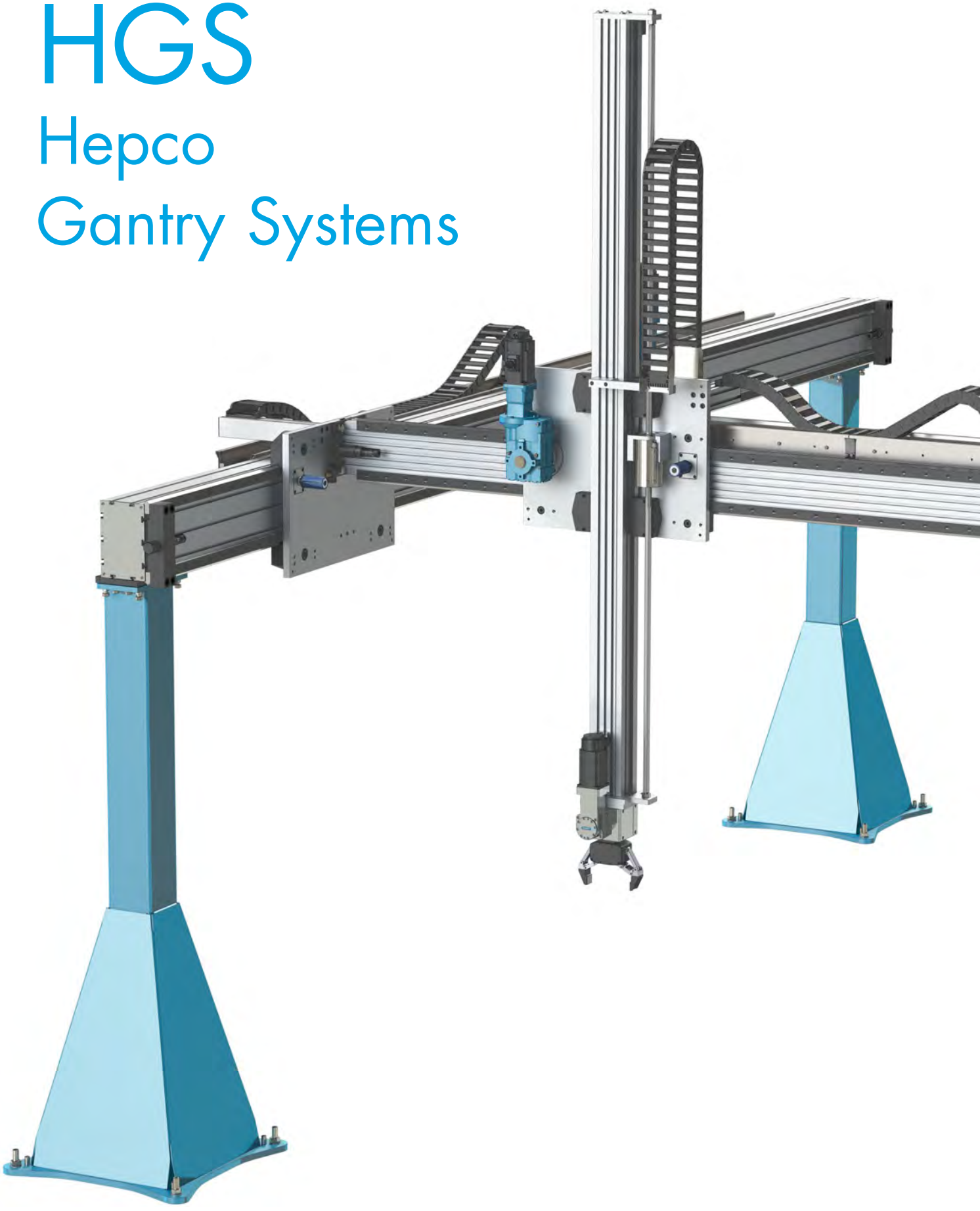
HepcoMotion®
ADVANCED LINEAR SOLUTIONS

HGS

Hepco Gantry Systems



TRIED & TESTED SOLUTIONS

HepcoMotion's Heavy Duty Gantry Systems incorporate the highly acclaimed HDS2 Heavy Duty linear motion elements which have been used throughout industry for many years. The separate HDS2 catalogue supplements this catalogue and contains further technical information. It can be consulted for information on standard parts such as Slides, Bearings and Beams.

COMPREHENSIVE RANGE

The scope of HepcoMotion's supply has been extended to provide complete stand-alone gantries in most configurations. Motors, controllers, pre-programming and turnkey solutions are all available according to customers' requirements (see HepcoAutomation section)

SAFE AND EASY ASSEMBLY

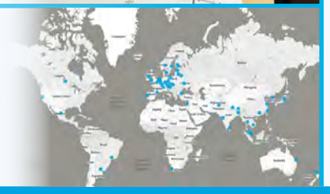
With large stand-alone gantry systems, there are many potential difficulties associated with setting up, alignment, and crash damage prevention. Hepco have paid particular attention to these aspects and have incorporated facilities to make installation safe and easy (see Design and Features section).

CLOSE COLLABORATION

Recognising the often difficult work required for customers to configure their systems unaided, Hepco have devised a simple specification and configuration tool for customers to use in collaboration with one of the technical support team. We guide you through the specification process then follow up with layout drawings, quotation and confirmation of performance.

ADDITIONAL INFORMATION

Where other HepcoMotion product ranges are referred to, catalogue and datasheets will be shown in blue and can be found at HepcoMotion.com or by contacting Hepco directly.

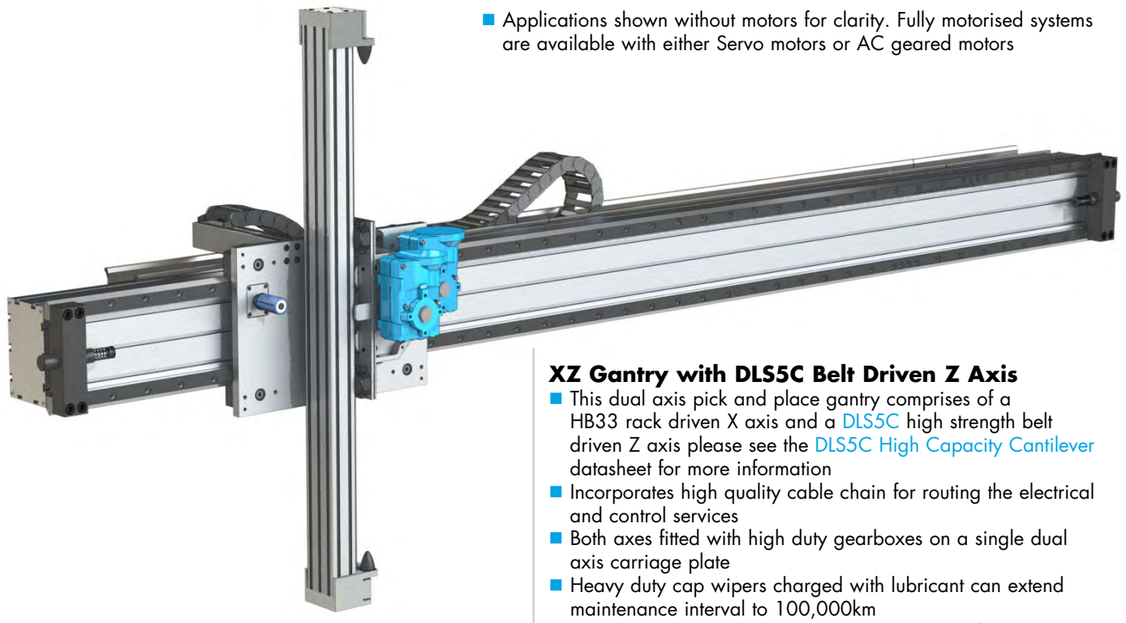


HGS Heavy Duty Gantry Systems

Heavy duty linear motion systems, designed to serve a diverse range of gantry and automation applications

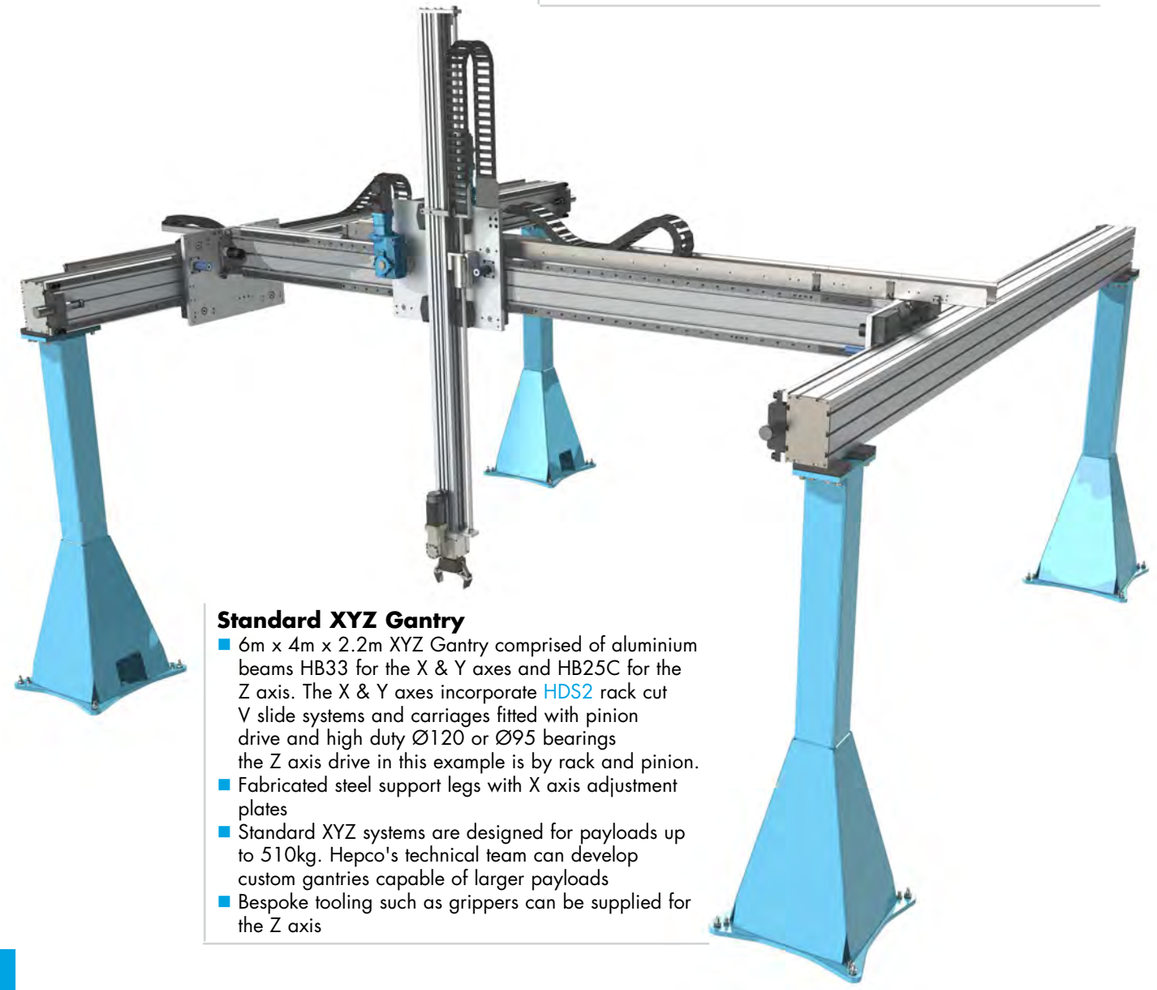
Contents

- Applications shown without motors for clarity. Fully motorised systems are available with either Servo motors or AC geared motors



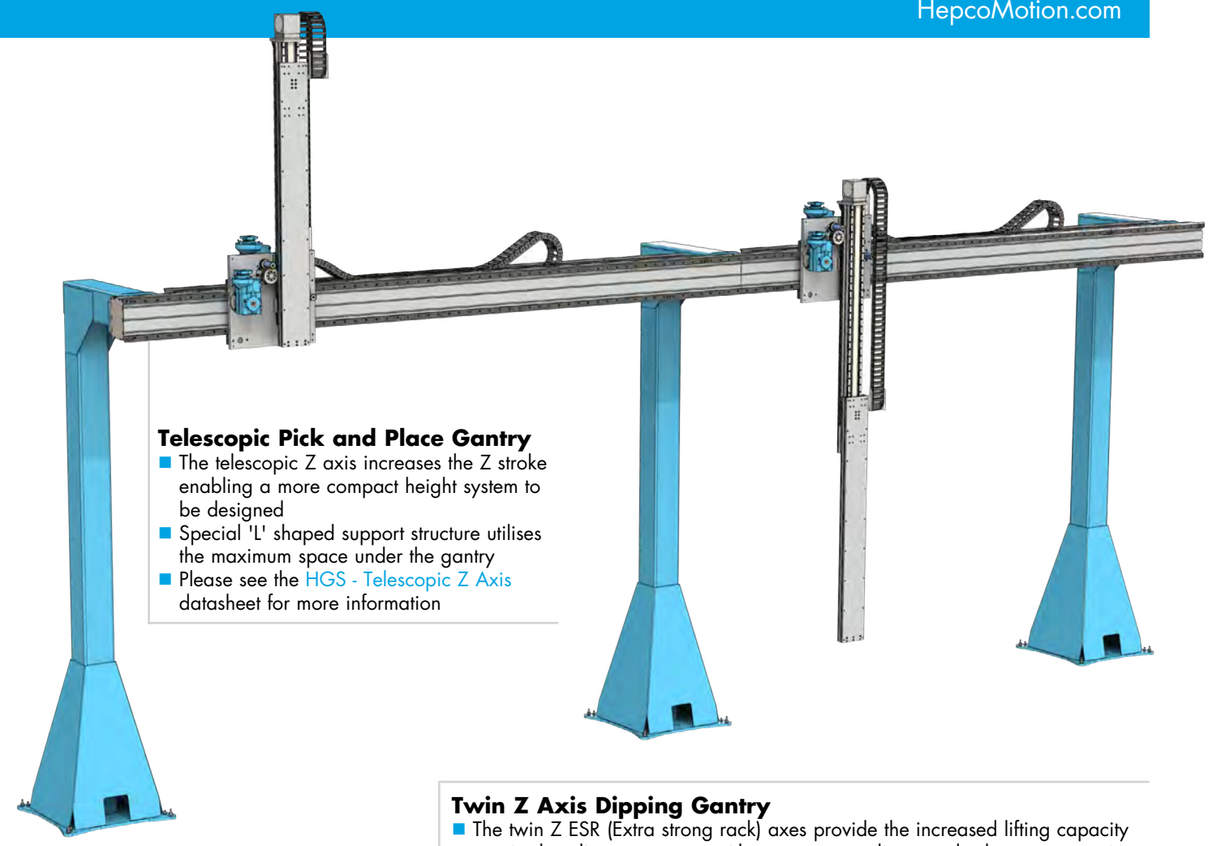
XZ Gantry with DLS5C Belt Driven Z Axis

- This dual axis pick and place gantry comprises of a HB33 rack driven X axis and a DLS5C high strength belt driven Z axis please see the DLS5C High Capacity Cantilever datasheet for more information
- Incorporates high quality cable chain for routing the electrical and control services
- Both axes fitted with high duty gearboxes on a single dual axis carriage plate
- Heavy duty cap wipers charged with lubricant can extend maintenance interval to 100,000km
- Bespoke tooling such as grippers are available for the Z axis



Standard XYZ Gantry

- 6m x 4m x 2.2m XYZ Gantry comprised of aluminium beams HB33 for the X & Y axes and HB25C for the Z axis. The X & Y axes incorporate HDS2 rack cut V slide systems and carriages fitted with pinion drive and high duty Ø120 or Ø95 bearings the Z axis drive in this example is by rack and pinion.
- Fabricated steel support legs with X axis adjustment plates
- Standard XYZ systems are designed for payloads up to 510kg. Hepco's technical team can develop custom gantries capable of larger payloads
- Bespoke tooling such as grippers can be supplied for the Z axis

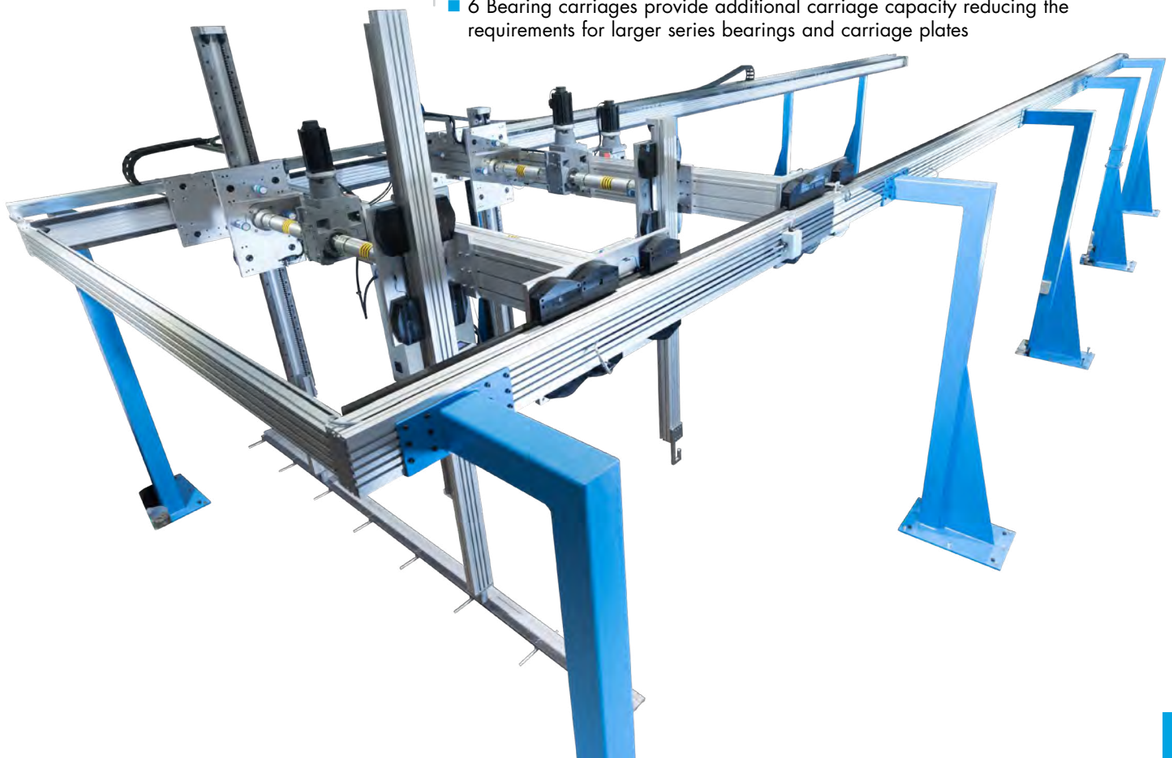


Telescopic Pick and Place Gantry

- The telescopic Z axis increases the Z stroke enabling a more compact height system to be designed
- Special 'L' shaped support structure utilises the maximum space under the gantry
- Please see the HGS - Telescopic Z Axis datasheet for more information

Twin Z Axis Dipping Gantry

- The twin Z ESR (Extra strong rack) axes provide the increased lifting capacity required to dip components with masses exceeding standard gantry capacities
- Two Y-Z axis systems driven independently on common X axes, enable greater output
- The custom cantilever support legs allow for larger tanks.
- 6 Bearing carriages provide additional carriage capacity reducing the requirements for larger series bearings and carriage plates

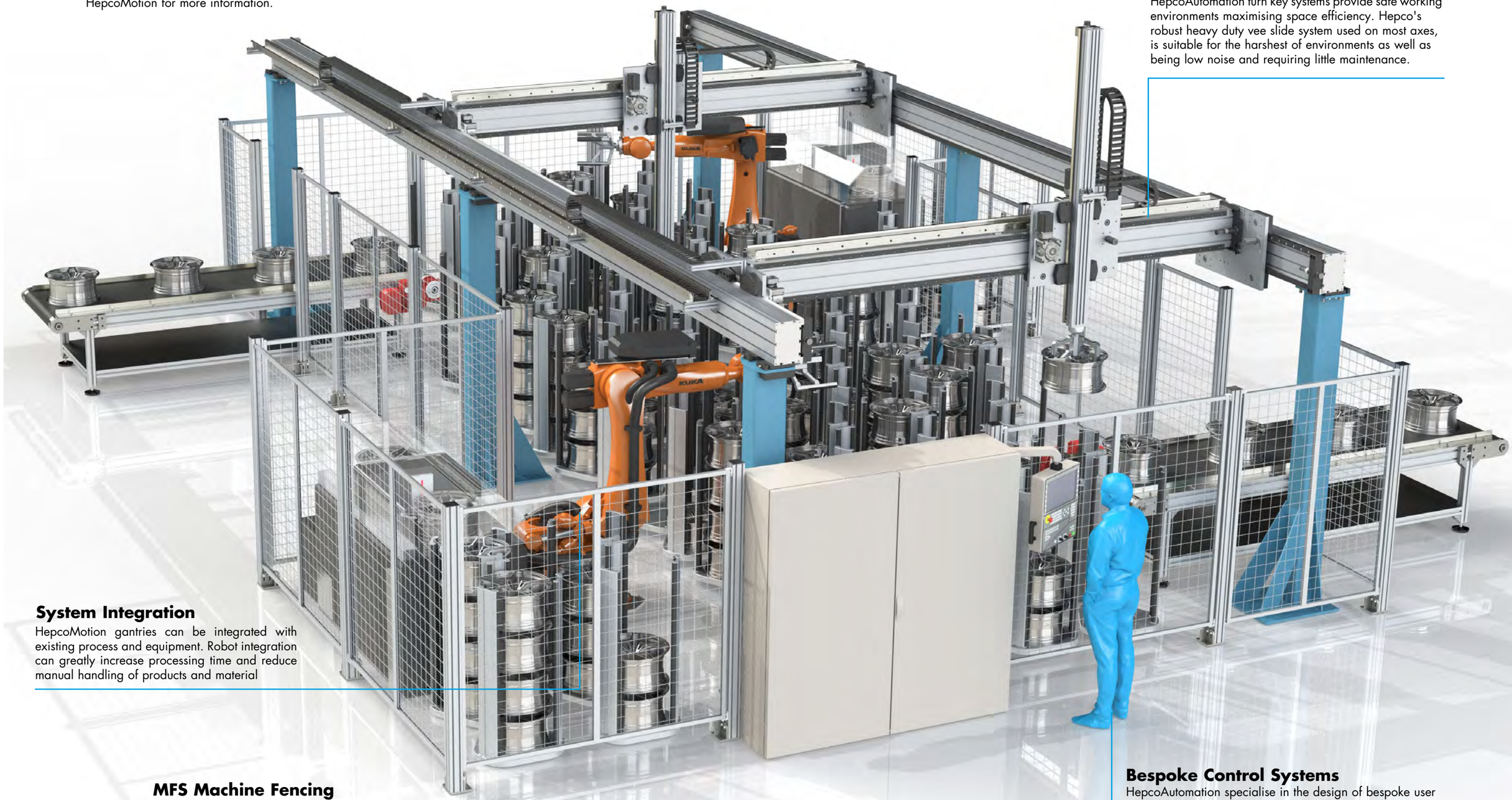


Bespoke Turn-Key Gantry Solutions

HepcoAutomation (📖15) specialise in the design of bespoke, user friendly control systems for turnkey gantry applications. In the first instance please contact HepcoMotion for more information.

Controlled Environment

HepcoAutomation turn key systems provide safe working environments maximising space efficiency. Hepco's robust heavy duty vee slide system used on most axes, is suitable for the harshest of environments as well as being low noise and requiring little maintenance.



System Integration

HepcoMotion gantries can be integrated with existing process and equipment. Robot integration can greatly increase processing time and reduce manual handling of products and material

MFS Machine Fencing

Compatible with Hepco's MCS aluminium profile range. Hepco's Machine Fencing System provides cost effective protective barriers for use around machine installations, gantries, robot systems or stocking areas. This maintenance free system is simple to construct and provides a low cost alternative to steel fence frameworks

Bespoke Control Systems

HepcoAutomation specialise in the design of bespoke user friendly control systems for any turnkey gantry applications. Please contact Hepco for more information.
📖15 for more information.

HDS2 V Slide

- Two sizes: HSS25 and HSS33
- Available in commercial (unground), precision (ground) and stainless steel grades. Please see the HDS2 Catalogue for more information

T-Slotted Aluminium Beams

- Allow for flexible attachment of customer accessories

Beam End Covers

- Cover beam ends and maintain slot access

Tailored End Stop

- Shock absorber or buffer specially selected to minimise impact forces

X Axis Adjustment

- Adjustment plates mounted to the support legs allow adjustment of the X axes

Support Structure

- 13 for more information

Drive Connection

- Gearbox, AC geared motor or servo support
- Advanced automation and turnkey solutions available from HepcoAutomation.
  15 for more information

V Bearings

- Heavy duty Hepco V bearings maintain high positional accuracy
- 5 sizes: Ø64, Ø95, Ø120, Ø128 and Ø150
- Please see the HDS2 Catalogue for more information

Y Axis Adjustment

- Tilt adjustment feature for ease of assembly

Customer Gearbox Support

- Adapter plates are available to support customer Gearboxes

Rotary Z-Axis Connection

- Adds an additional axis of movement.
- More information can be found in the HGS - Rotary Z Axis datasheet

Z Axis Brake

- More information can be found in the HGS - Z Axis Brake datasheet

Y Axis Assembly Guide

- 11 for more info

Cable Chain Connection

- Standard cable chain configurations are available
- Special machining to suit customer fixing holes is also available

Transitional Slide

- Ease of assembly/adjustment

Cap Wipers

- Charged with lubricant providing up to 100,000km maintenance free travel

Removable Lubrication Pinion

- Up to 12 months maintenance free rack lubrication

Adjustable Drive Pinion

- Simple backlash adjustment

Flat Track Roller

- Allows for slight misalignment and relieves stress in system
- 4 sizes: Ø58, Ø89, Ø122 and Ø144
- Please see the HDS2 Catalogue for more information

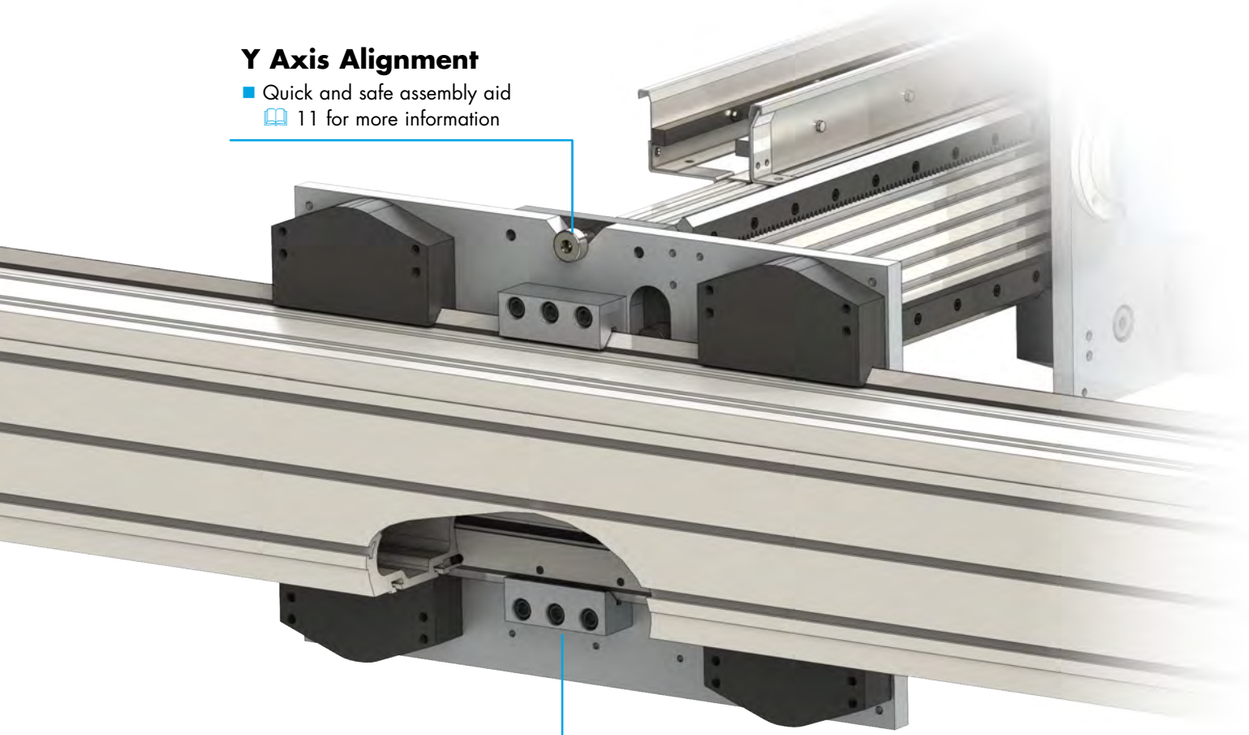
Safety Catches

- Designed to eliminate the risk of excess damage in emergency scenarios

Y Axis Alignment

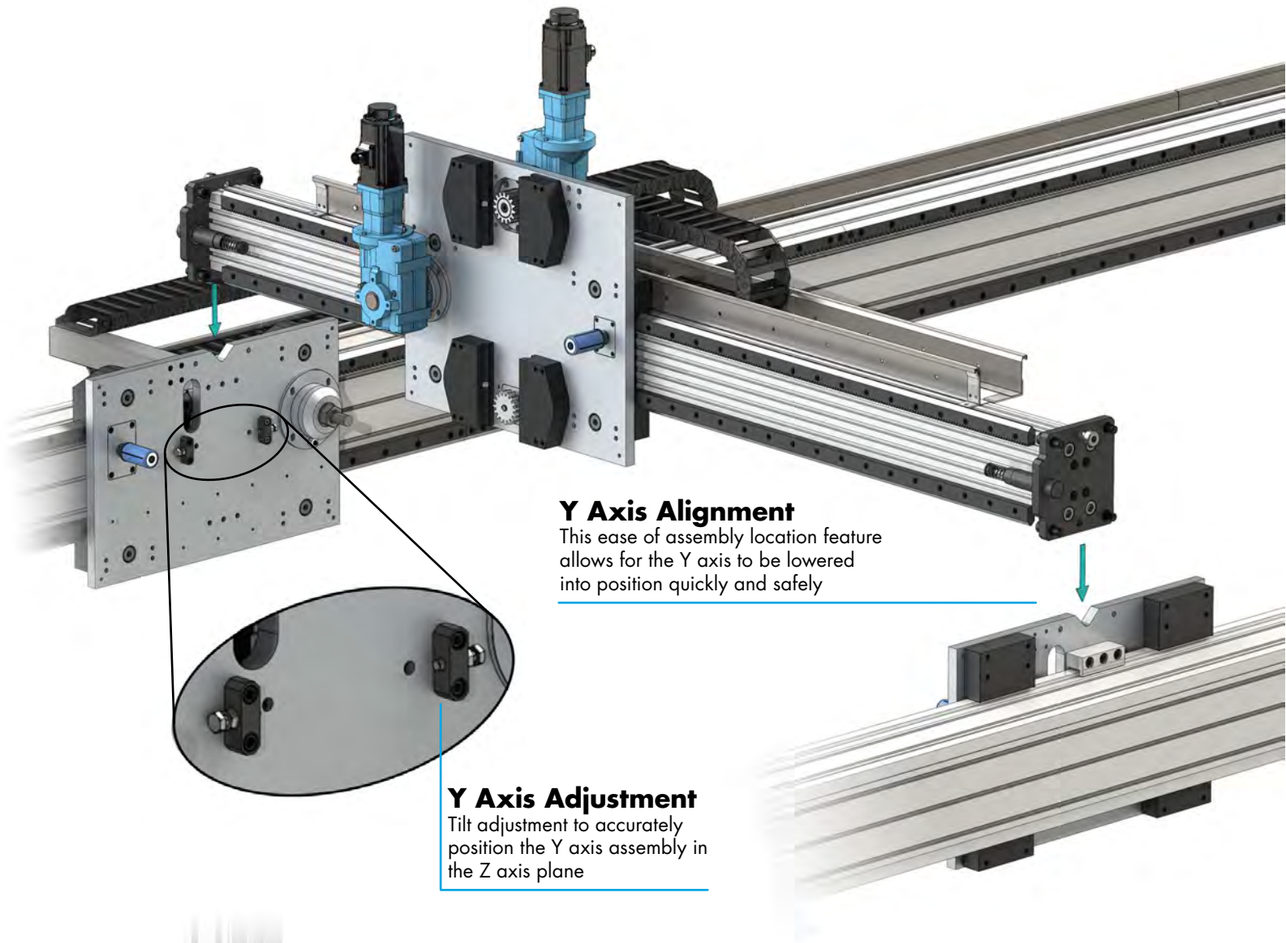
- Quick and safe assembly aid

11 for more information



Safety Catches

- Designed to eliminate the risk of excess damage in emergency scenarios



Y Axis Alignment

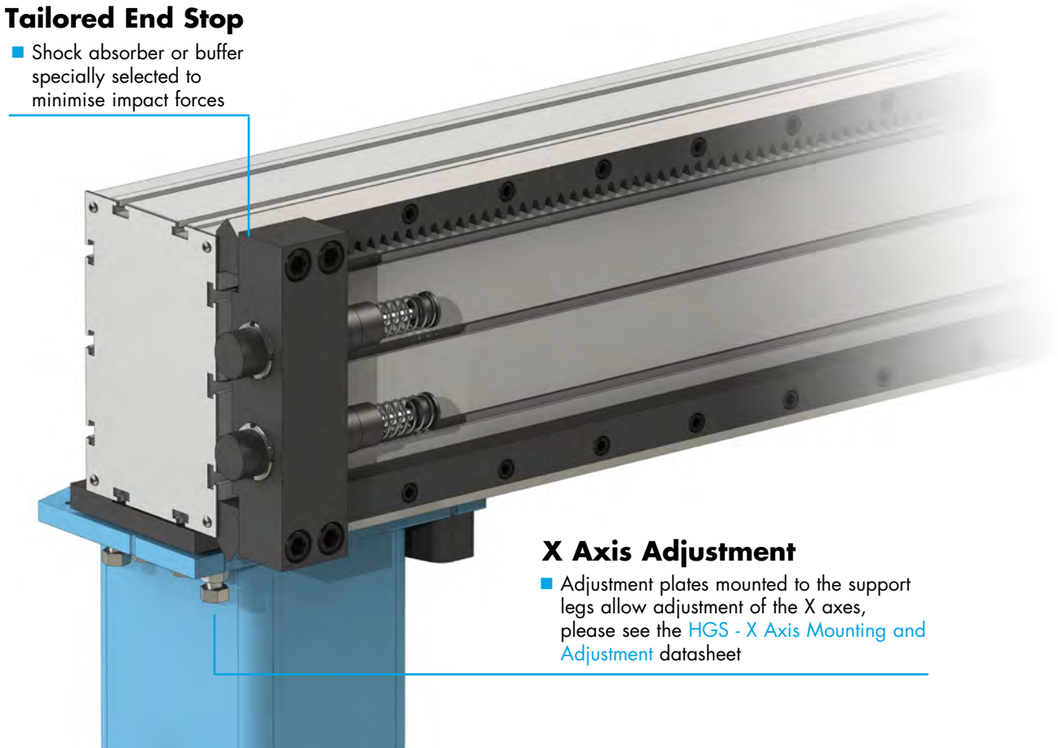
This ease of assembly location feature allows for the Y axis to be lowered into position quickly and safely

Y Axis Adjustment

Tilt adjustment to accurately position the Y axis assembly in the Z axis plane

Tailored End Stop

- Shock absorber or buffer specially selected to minimise impact forces



X Axis Adjustment

- Adjustment plates mounted to the support legs allow adjustment of the X axes, please see the HGS - X Axis Mounting and Adjustment datasheet

Cantilever DLS5

The belt driven DLS5C Z axis option is designed for high dynamic applications with low payloads demanding high speeds and accelerations. Speeds of up to 4 m/s with payloads of up to 100kg

Standard Configurations

XZ

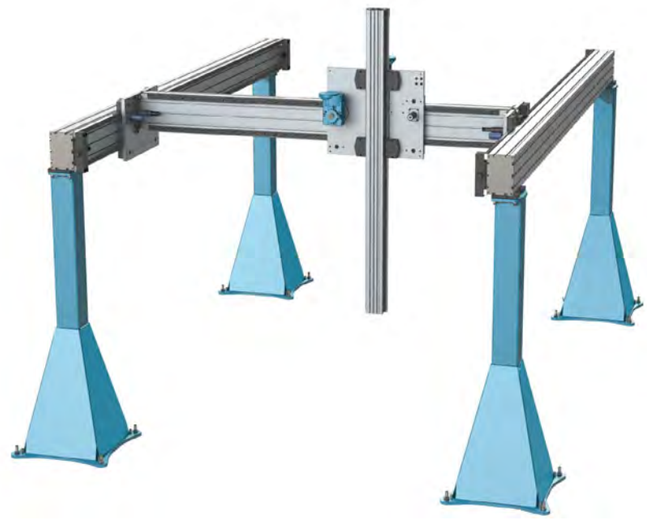
Standard Hepco gantry systems are based on the HDS2 heavy duty range. Double axes pick and place gantries are the most common configuration for product handling applications.

Both axis driven by a high capacity precision rack and pinion mounted on a single dual axis carriage assembly.

Automatic lubrication applies grease to the rack via a separate removable lubrication pinion. Cap wipers can be filled with lubricant to achieve re-lubrication intervals of up to 100,000km.

More information on system design and features can be found on 📖 8-11.

XYZ



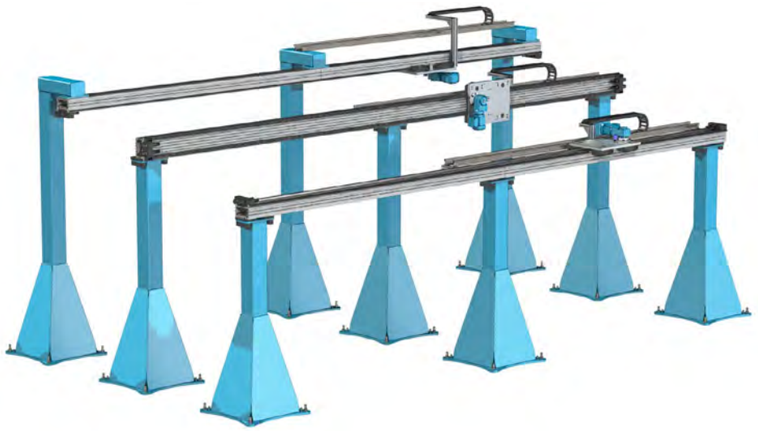
The standard XYZ gantry configuration introduces a secondary X axes beam assembly.

Flat track and track roller bearings allow a degree of float in the second X axis.

Safety catches eliminate the risk of disengagement of the flat track carriage.

A centrally mounted geared motor connected to the X carriage plates via connection shafts drive the X axis.

X



Single axis gantries are based substantially on existing HDS2 components. Perfect for actuating robotics in various orientations, upright, offset or hanging.

As with other configurations bespoke support structure is available.

Bespoke Configurations

In additional to the standard X, XZ and XYZ configurations Hepco offers a bespoke gantry design service. Hepco's technical department can design bespoke gantry configurations, optimised for specific applications.

System Sizing

HGS X, Y and Z axes normally comprise of standard aluminium beam sections as featured in the HDS2 catalogue. Aluminium beams provide a light weight yet strong method of construction reducing mass and improving system dynamics. Steel beams for very high load applications, are available to special order.

The table below enables customers to specify their X,Y and Z axis lengths.

Aluminium beams are available in lengths up to 6 metres*2 which may be joined together to achieve maximum lengths of axes as shown in the table. Any length of axis can be supplied within the maximum and minimum parameters, but for best price and availability, customers should choose axis lengths in increments as given in the table. Hepco's technical team is on hand to assist with both initial and final system specification.

Axes	Standard Axes Lengths			Beam Size / Axis Type	Minimum Bearing Size
	Minimum		Maximum		
X	2220	... in 360mm increments up to...	14100	HB25, HB33	Ø95
Y	1750	... in 90 (or 120mm*1) inc. up to...	7870	HB25, HB33	Ø64
Z	1140	... in 90mm increments up to...	4020	HB25C, DLS5C, Telescopic	Ø64 (DLS5C - Ø54, Telescopic - HLG)*3

Beam Joining

The alignment and support of Beam joints and ease of assembly is very important. Hepco have paid great attention to this requirement not only in the installation method and instructions supplied but also by providing strength across the joint by means of separately installed transition slides which brace across, and overlap the beam on either side. Support legs are positioned at the beam joints, further supporting the joint and providing adjustment.

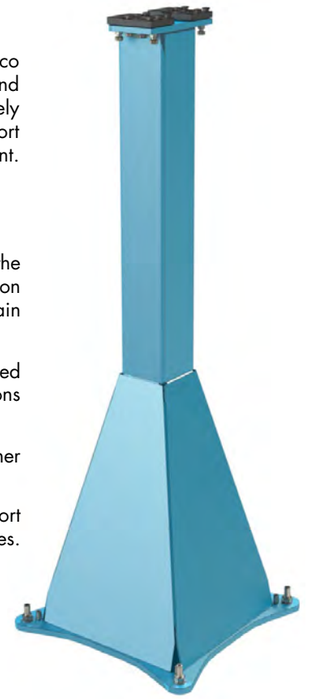
Support Structure

A range of standard steel support legs are available, specially designed to withstand the forces associated with dynamic gantry system operation. Hepco's Gantry Specification Calculator can select the required support leg size and calculate deflection under certain scenarios. 📖 14 for more information.

A range of four generic support legs are available as standard which can be selected automatically to suit standard gantry systems. However, alternative bespoke support solutions are available such as cantilever legs (See application example on 📖 5).

Support legs are finished to a high standard in durable epoxy paint colour RAL5012. Other colours are available.

Support structures are supplied with adjustment features allowing for fine tuning of the support axis. Adjustment assemblies can also be supplied for mounting onto customer own structures. More information can be found in the HGS - X Axis Mounting and Adjustment datasheet.



Notes:
1. Length increment determined by hole pitch of slide. HSS25 slide (for use with bearings up to size 120) has a 90mm hole pitch and HSS33 slide (for use with 128 and 150 bearings) has a hole pitch of 120mm
2. Certain aluminium profiles are available in 8m lengths on request, please contact Hepco's technical department for more information
3. Please see the HGS - Telescopic Z Axis datasheet or DLS5C High Capacity Cantilever Datasheet for more information

Design Services and CAD

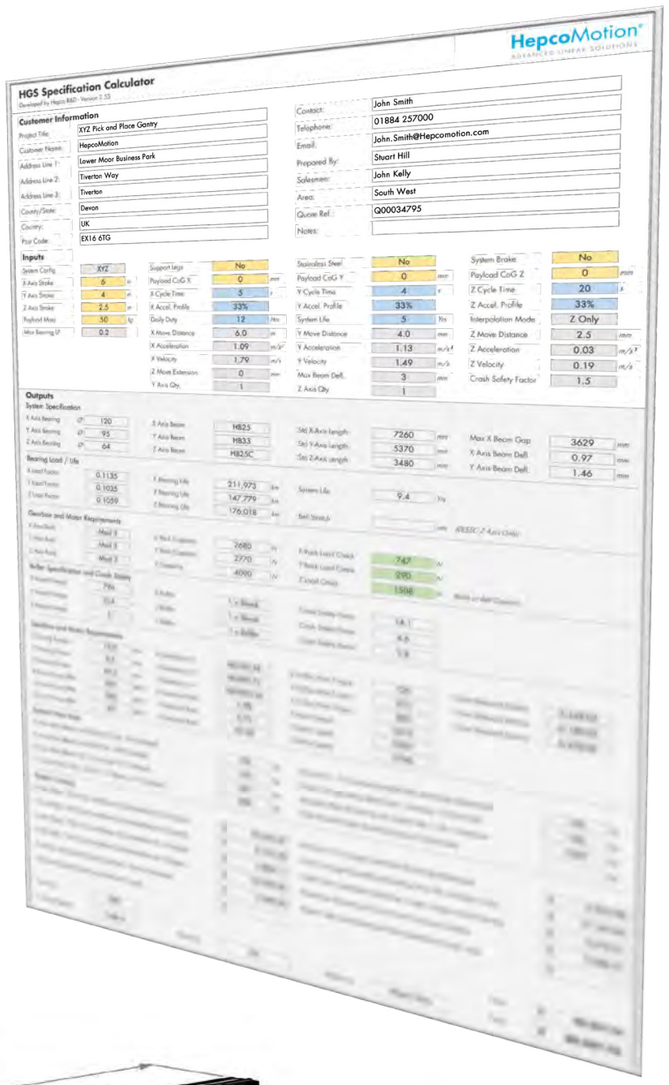
Specification Calculator

There are many variables that must be taken into account when specifying a gantry system. Hepco's technical department have a custom sizing tool capable of specifying a gantry to suit specific payload, motion profile and duty cycles. Along with Hepco's technical department years of expertise they can provide the optimum gantry configuration.

The following application information will be required when specifying a gantry system:

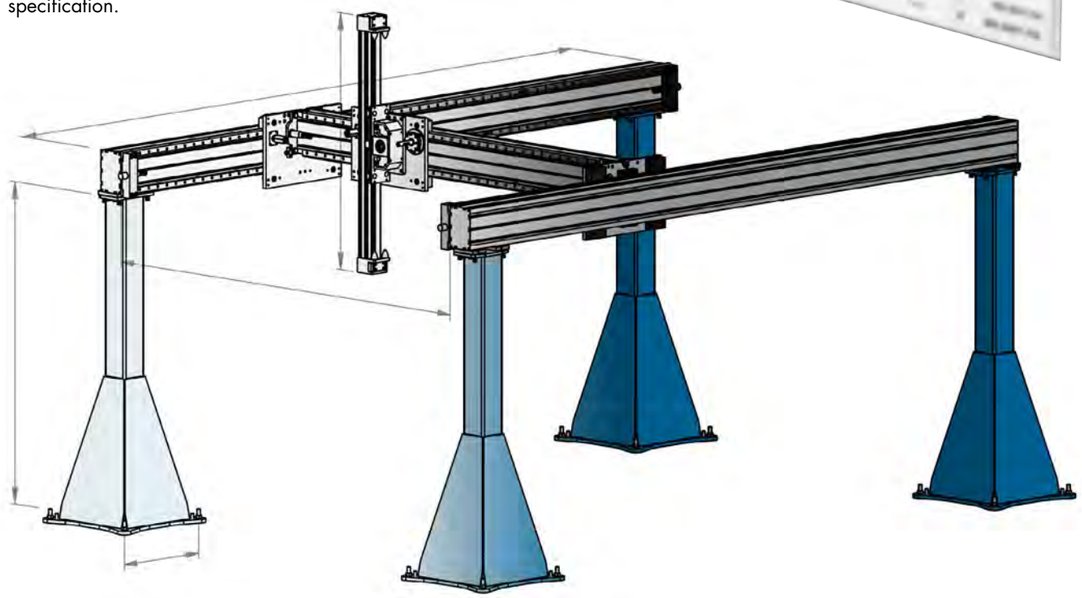
- Axis stroke requirements
- Payload mass
- Payload offsets
- Cycle times and distances (or accelerations and velocities)
- Daily duty
- Required system life
- Acceptable beam defection
- Required repeatability
- Support leg / System brake requirement

Please contact HepcoMotion's technical department for more information or to make an enquiry. They are able to assist with calculating or determining any of the above inputs based on your application description.



CAD Data

Once specified Hepco's technical department are then able to auto generate CAD data and supply it to the customer at the time of specification.



HepcoAutomation®

ADVANCED AUTOMATION SOLUTIONS

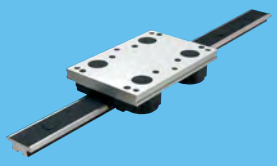
HepcoAutomation can provide turnkey HGS gantry systems complete with drives and controls, right up to a fully functioning turnkey production cell.

We can specify a multitude of peripheral automation devices according to your application, including, robotics, vision systems and safety devices.

All aspects of a Gantry design, Z-axis grippers, cable chains, guarding and the support structure are managed by the HepcoAutomation team, including an installation and commissioning service.

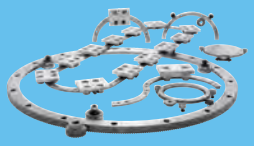
HepcoMotion®

ADVANCED LINEAR SOLUTIONS



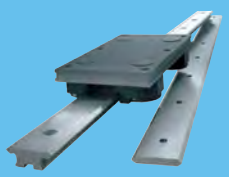
GV3 - Simple Select®
Linear Guidance and Transmission System

HDS2
Heavy Duty Slide System

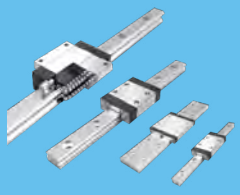


PRT2
Ring Slides and Track System

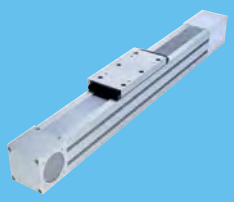
HDRT
Heavy Duty Ring Slides and Track System



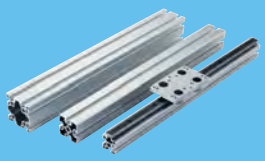
SL2
Stainless Steel Based Slide System



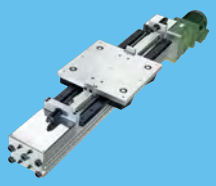
HLG
Hepco Ball Guides



SBD
Sealed Belt Drive

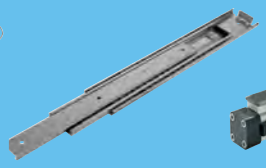


MCS
Aluminium Frame and Machine Construction System



HDLS
Heavy Duty Driven Linear System

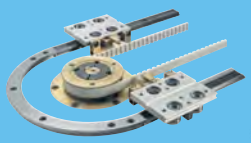
DLS
Linear Transmission and Positioning System



HTS
Telescopic Ball Bearing Slides

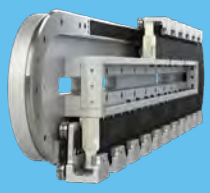
HPS
Powerslide-2 Guided Rodless Cylinder

MHD
Heavy Duty Track Roller Guidance System

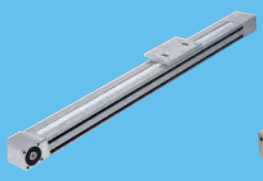


DTS
Driven Track System

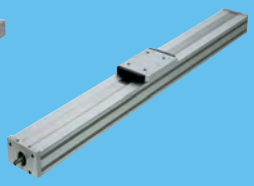
Hepco Ball Screws



GFX
Guidance for Beckhoff XTS

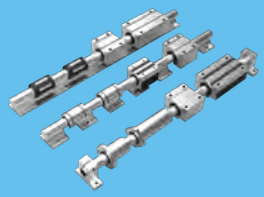


PDU2
Profile Driven Unit

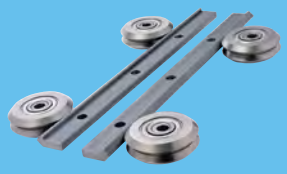


PSD120
Profile Screw Driven Unit

Shaft
Precision Steel and Aluminium Shaft

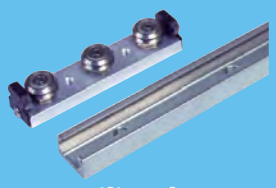


Ball Bushings
Linear Bearing System



DUALVEE®
Single Edge Slide System

LoPro®
Aluminium Based Slide System



UtiliTrak®
Lightweight U Channel Guideway

For further information on HepcoMotion® products and details of worldwide representation, please visit:

HepcoMotion.com

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UKAS MANAGEMENT SYSTEMS 0026
Certification Number 14479
ISO 9001