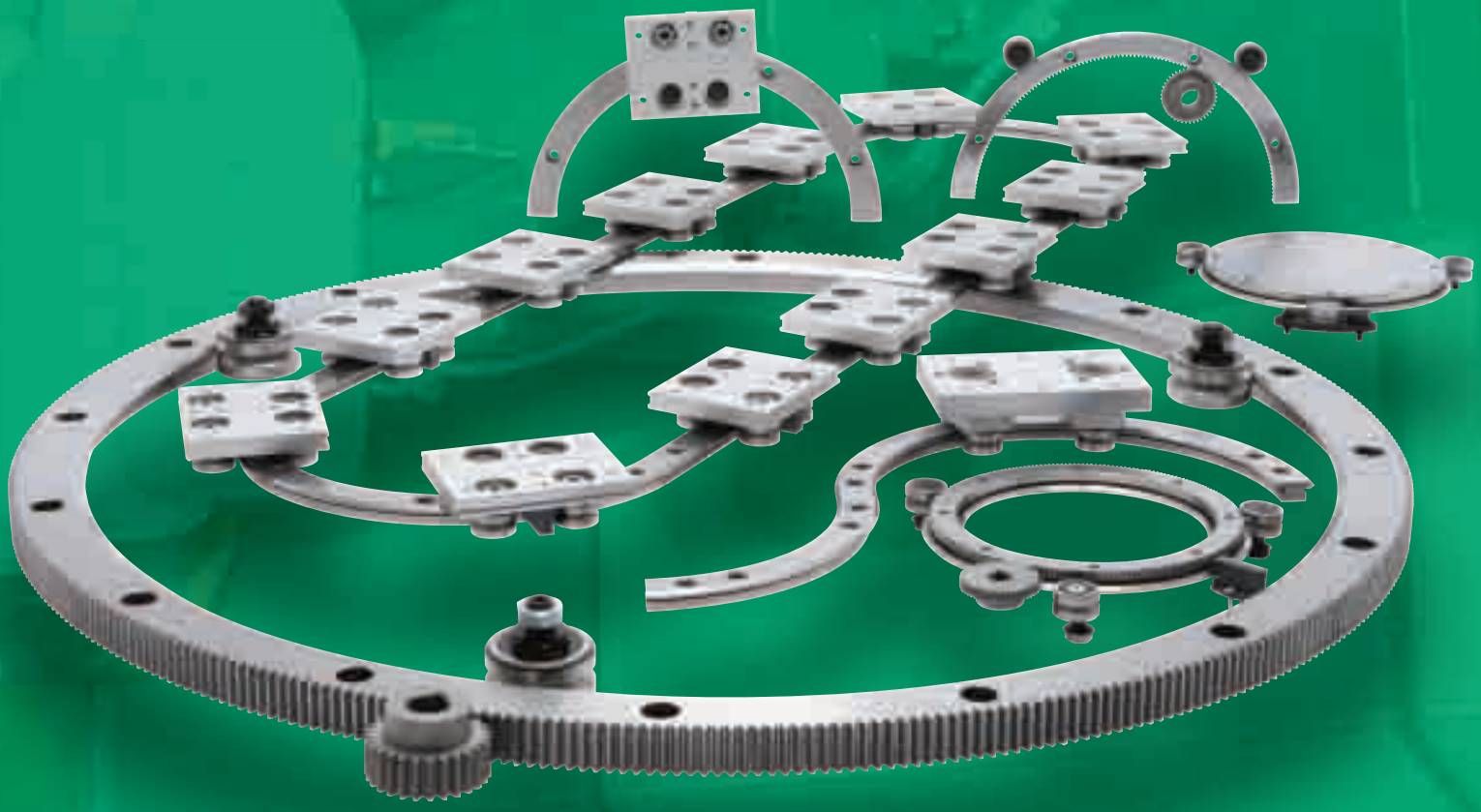
NEW - Extended Range with Stainless Steel Options

HepcoMotion®

PRT2®

Precision Ring and Track System

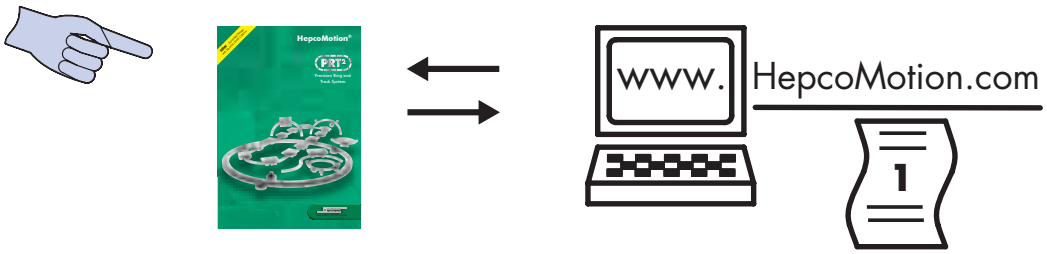


STATEWIDE LINEAR BEARINGS

HEPCO®

www.HepcoMotion.com

This catalogue interacts with the HepcoMotion website



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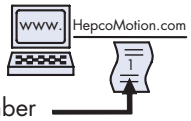


From HepcoMotion home page **Literature** **PRT2**

On this web page are the datasheets referred to in this catalogue, plus information on new additions to the PRT2 range and downloads for the catalogue and catalogue amendments.

Introducing the HepcoMotion®

PRT2 Precision Ring and Track System

HepcoMotion has been solving Customers' circular motion problems for many years, building an indispensable knowledge of applications and clever technical solutions. This knowledge coupled with extensive research and development has resulted in the introduction of a comprehensive range of precision ring slides and track systems to suit virtually every need. Based on the highly successful PRT product the new PRT2 system offers a greatly expanded range of sizes and options including stainless steel availability as standard. The Precision Ring Slide and Track System products compliment Hepco's highly successful and extensive range of linear motion products, enabling customers to choose a single source for all their motion guidance requirements.

Features & Benefits

Common

- Friction-free motion.
- Stainless steel options.
- Fully adjustable.
- Tolerant of debris.
- Simple and effective means of lubrication.
- Zero play.
- Works in any plane.
- Tolerant of misalignment.
- Easy to install.
- 2D & 3D CAD files available.

Ring Slides and Segments

- Circular motion control at the periphery where it is needed.
- Large hollow centre to accommodate other components (ring slides).
- Precision flat surface for mounting ancillary components (ring discs).
- Will track the curvature of cylindrical shapes.
- Gearcut options for ease of driving.
- Double edge and single edge versions available.
- Carriage brake available.

Track Systems

- Limitless variety of circuits available.
- Precision positioning system available.
- High load support option at work stations.
- Simple alignment facility provided.
- Various carriage plate options.
- Components available for driving.
- Support frame available.

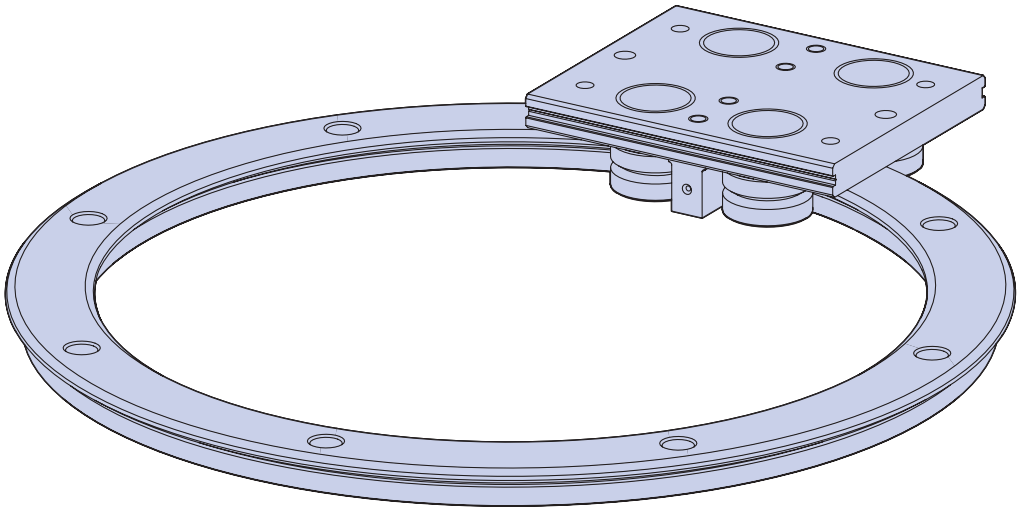
Contents

System Composition

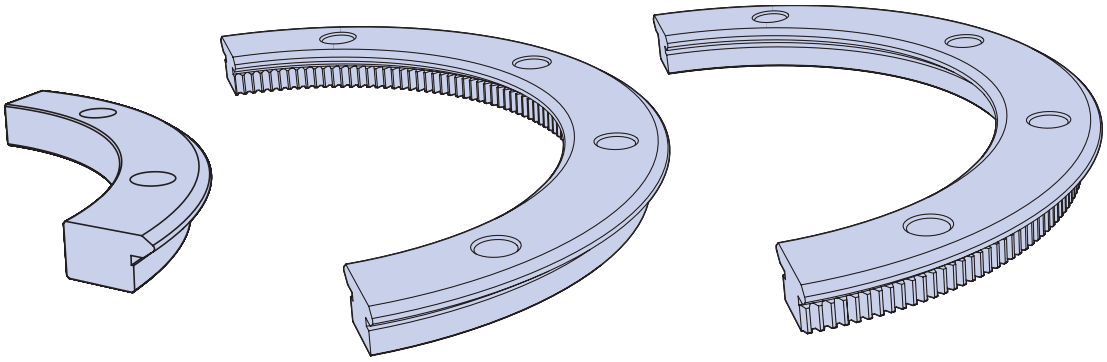
The HepcoMotion PRT2 system comprises of a comprehensive range of ring slides, ring segments, bearings and ancillary components which provide a versatile solution for most rotary and track system applications. A large range of ring slide types in various diameters are available in both steel and stainless steel with hardened V edges. Stock 90° and 180° segments are also available. Gear cut versions are available with pinions to provide a simple and effective means of driving. An overview of the comprehensive product range is shown 📖 2 - 7.

Double Edge V Ring Slide 📖 26-27

- Bearings can be mounted internally and externally.
- Carriages can be run on double edge rings.
- Precision ground all over for high accuracy and conformity.
- Large hollow centre to accommodate other components.
- Datum register faces provided internally and externally for ease of location.
- Internal/External gear cut options available for ease of driving.
- V edges hardened for maximum wear resistance.
- Soft centre section allows customising.
- Stainless steel option available as standard.
- Through hole fixing or tapped hole fixing.
- Comprehensive range of drive pinions available 📖 53.

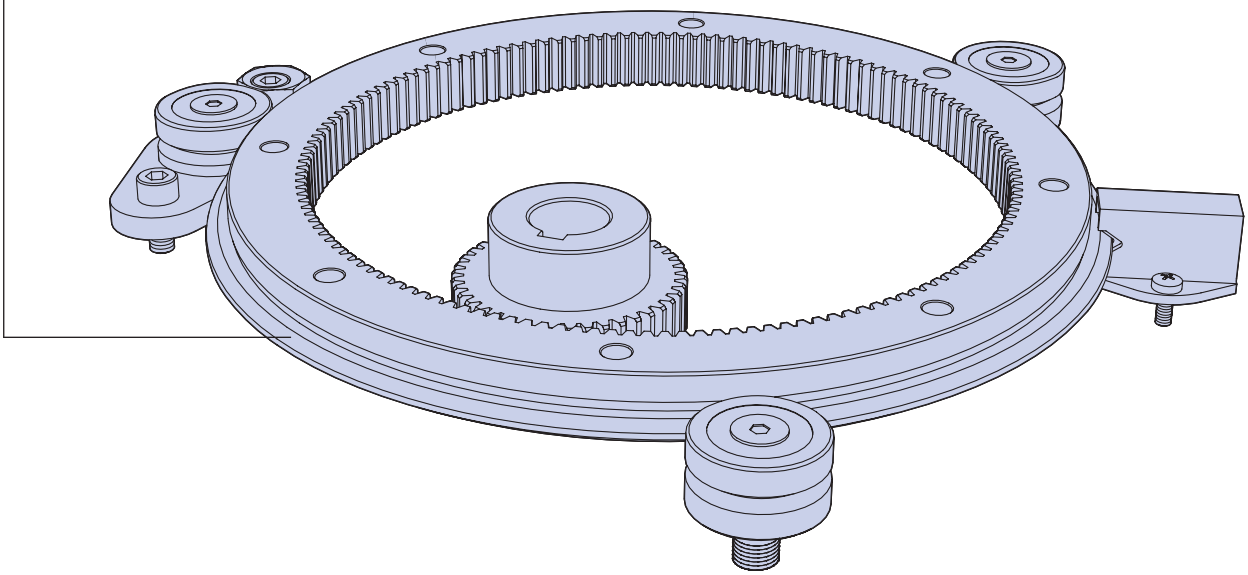


V Ring Segments 📖 26-31



- 90° and 180° segments available as standard.
- Double edge V and single edge V ring segments available as standard.
- Special length segments available to order.

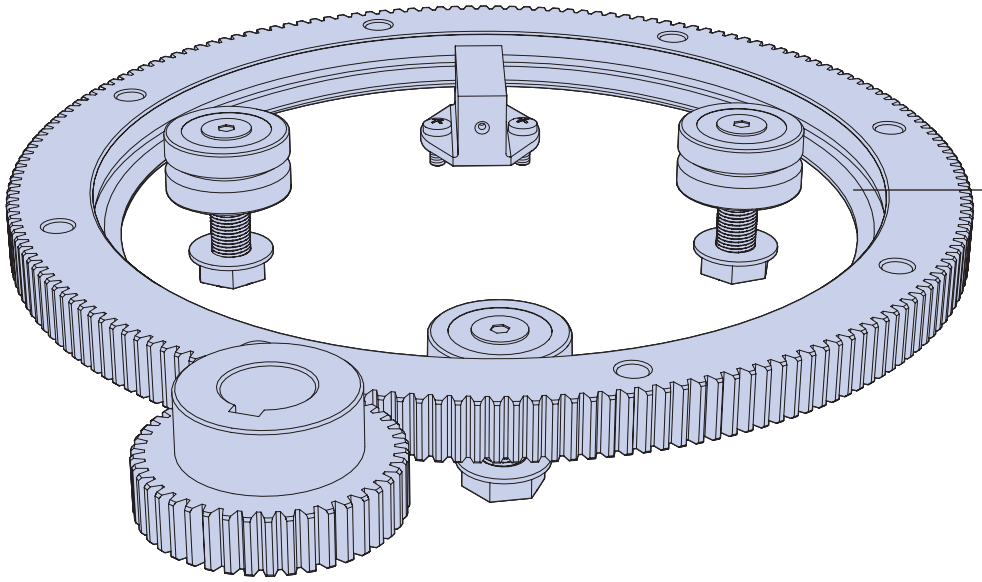
Single Edge External V Ring Slide 📖 28-29



Common features

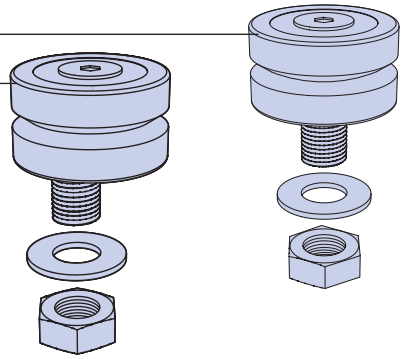
- Narrow section width.
- Datum register face for ease of location.
- Large gear size and face width.
- Stainless steel option available as standard.
- V face hardened for maximum wear resistance.
- Soft centre section allows customising.
- Manufactured from high quality steel.
- Choice of external or internal V.
- Precision ground all over for high accuracy and conformity.
- Through hole fixing or tapped hole fixing.
- Can be used in any orientation.
- Comprehensive range of sizes.
- Comprehensive range of drive pinions available 📖 53.

Single Edge Internal V Ring Slide 📖 30-31

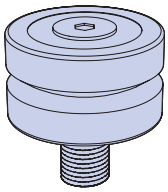


HepcoMotion bearings are available in a range of 5 useful sizes and various formats to suit most design requirements. The special raceway conformity and low radial clearance make these bearings particularly suited to ring slide applications. All bearings are lubricated for life internally and are available with metal shields for exclusion of particulates and low friction running or, with nitrile seals to inhibit ingress of liquids. Bearings are also available in stainless steel fitted with nitrile seals.

- **Through hole fixing bearing (concentric)** 🕮 **34-35**
- * **Through Hole fixing bearing (eccentric)** 🕮 **34-35**



- Provides datum reference for the system.
- * Short fixing stud for thin carriage plate.
- * Long fixing stud for thick carriage plate.
- * Controlled height option for enhanced system height accuracy.
- * Provides simple means of adjusting via centre hexagon or socket in stud.
- * Eccentric adjustment sufficient to allow removal of the ring or carriage without disassembly.

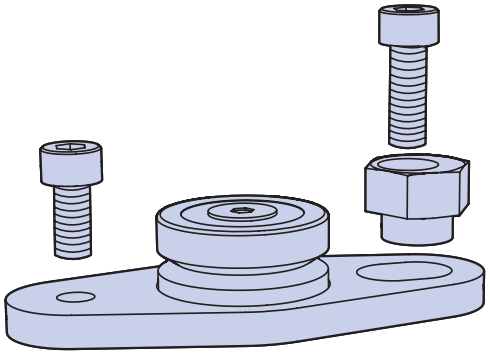


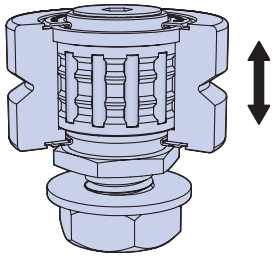
Blind hole fixing bearing (concentric) 🕮 **34-35**

- For mounting into thick plates or where access to opposite side is restricted.
- Provides datum reference for the system.
- Controlled height option for enhanced system height accuracy.

Blind hole fixing bearing (eccentric) 🕮 **34-35**

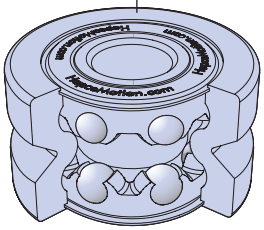
- For mounting into thick plates or where access to opposite side is restricted.
- Adjustable from operating side for ease of access.
- Controlled height option for enhanced system height accuracy.
- Easily removed to allow removal of ring.



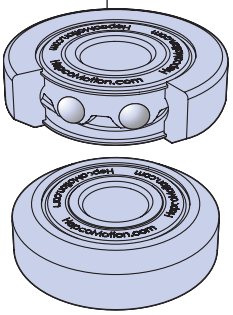


Floating bearing (concentric & eccentric) 🕮 **36**

- Axial float of outer race accommodates variation in system height.
- Provides simple means of adjusting via centre hexagon or socket in stud.
- Short fixing stud for thin carriage plate.
- Long fixing stud for thick carriage plate.
- Double eccentric version has sufficient adjustment to allow removal of the ring or carriage without disassembly.



- * **Double Row Bearing / Twin Bearing** 🕮 **34-35** •
- Twin bearing for tolerance of misalignment and smooth running.
- * Double row bearing for tolerance of debris and higher load capacity.
- • * Special raceway conformity and low radial clearance, for slide ring applications.
- • * General quality to ISO Class 4. Aspects to Class 2.

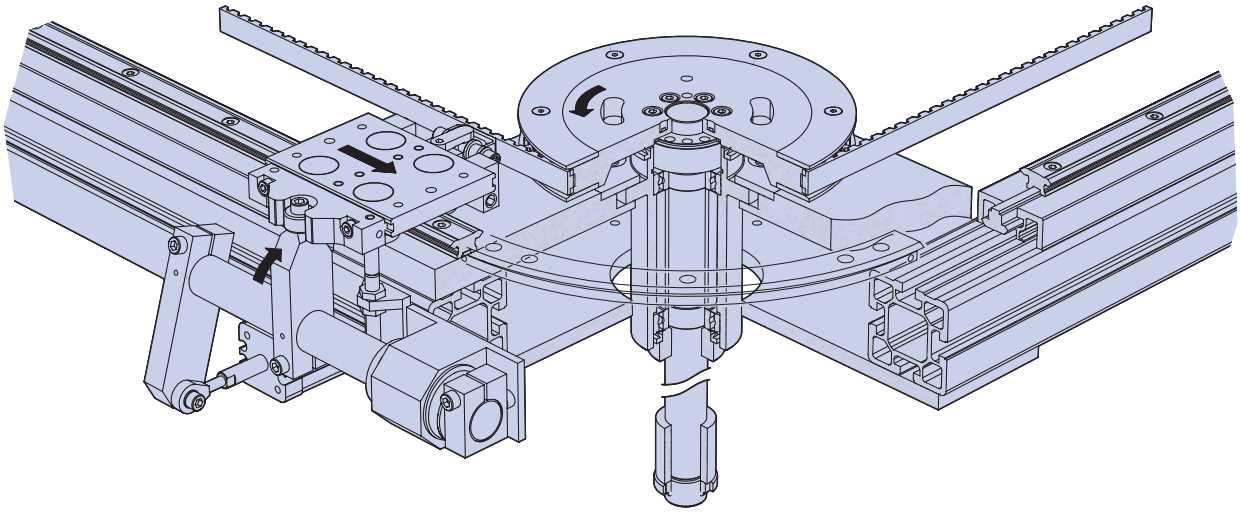


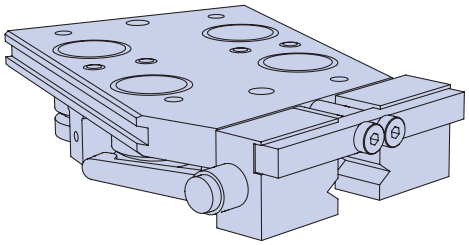
System Composition

HepcoMotion track systems combine ring segments with straight slides to achieve an almost limitless variation of open paths or closed circuits. Both left and right hand bends can be negotiated depending on the carriage selected. 90° and 180° segments in all standard double edge ring sizes are available in addition to straight slides up to 4 metres long. Straight slides can be butted together to achieve track systems of unlimited length.

Driven track system components 🕮 **50-51**

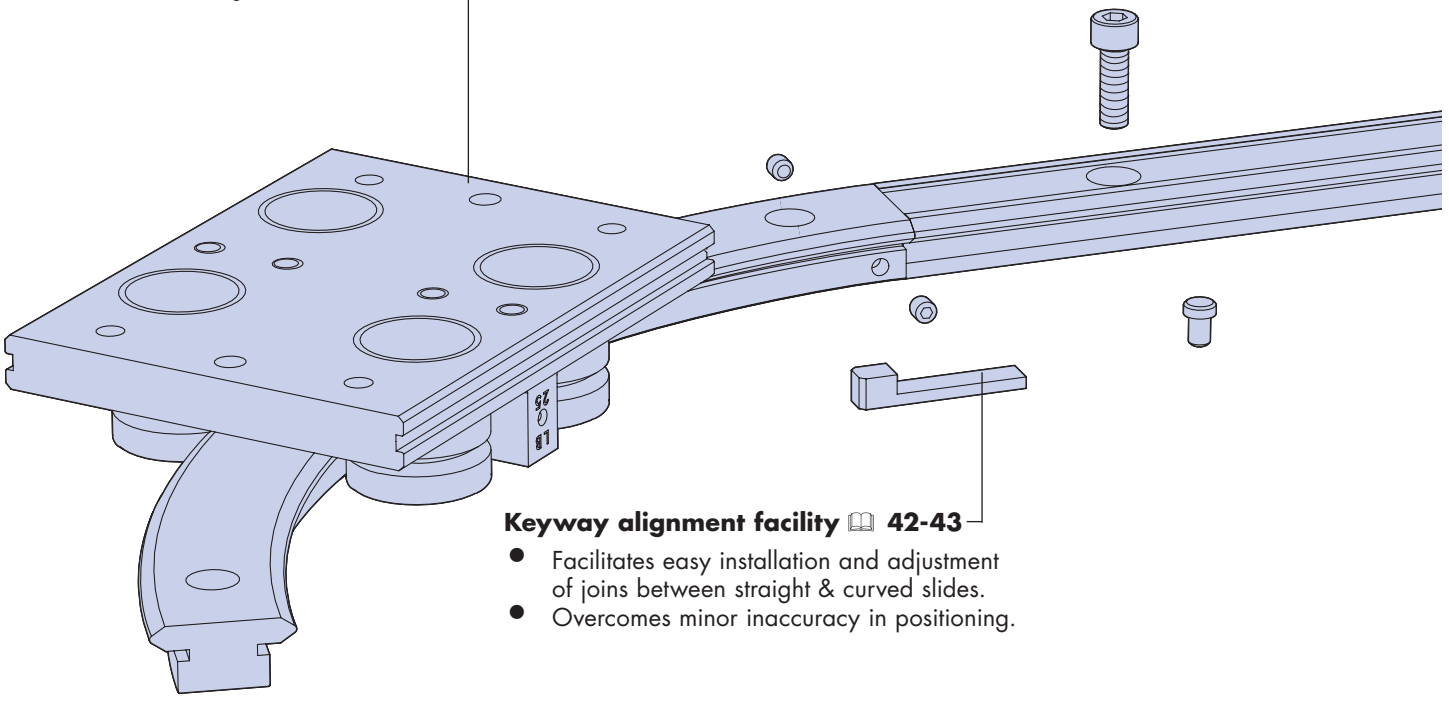
- Comprehensive range of drive components available from complete proven system.
- Trip latch overload protection.
- Carriage positioning and locking system.
- Toothed belt with carriage connection facility.
- Corner support plates.
- Drive and idler pulleys with Hi-load bearing cartridges.
- Support frame with slide attachment facility.





Fixed centre carriage 🕮 **38-39**

- The economic choice for rings and uni-directional track systems.
- Optional lubricators for increased load & life.
- Keyway facility in side faces for location of ancillary components.
- Supplied with tapped holes for ease of component mounting.
- Accurate overall height.
- Corrosion resistant version available.
- Clamping brake version for ring systems. See illustration left.
- Compatible with track system drive components and carriage locking system.

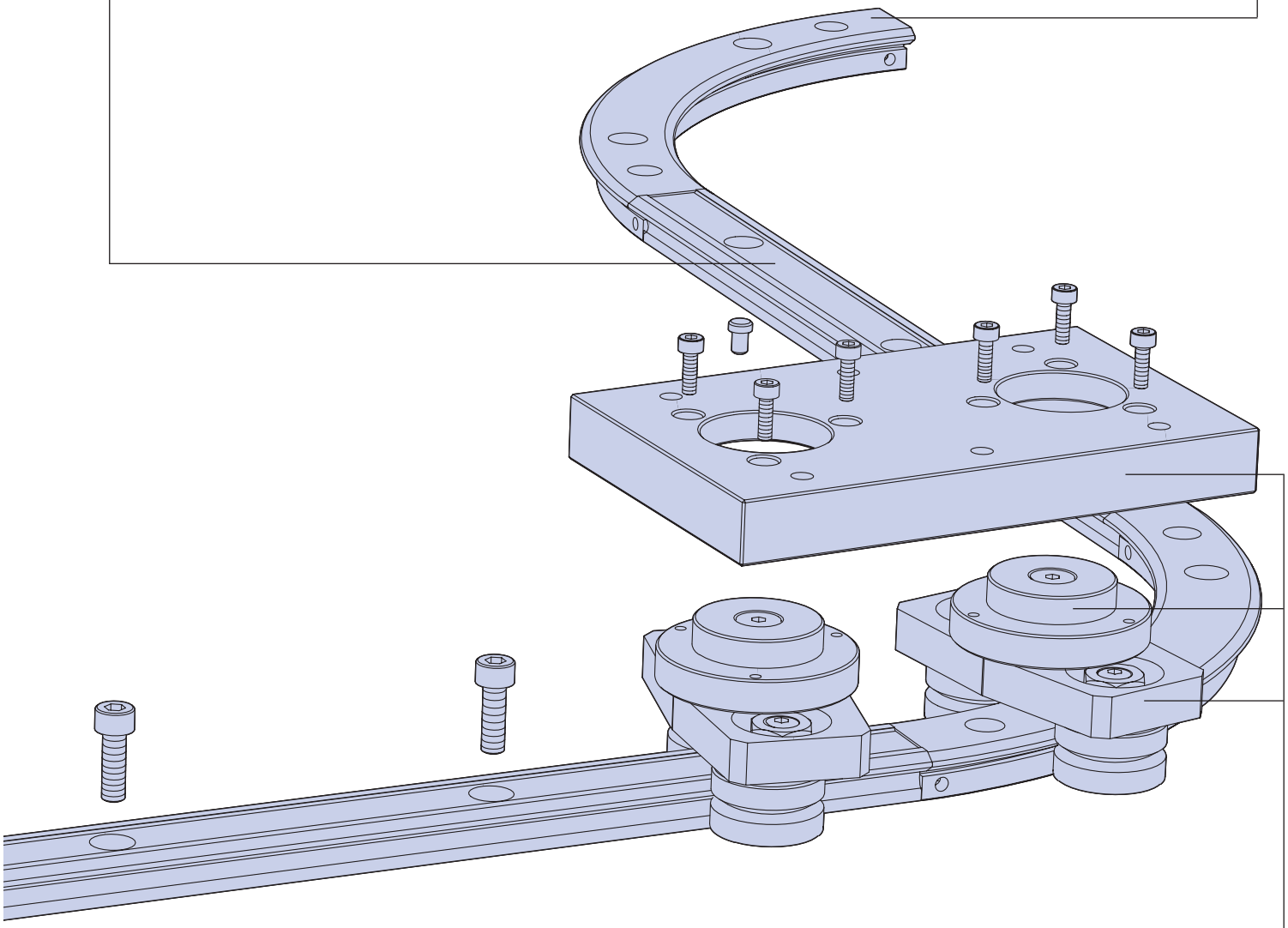


Keyway alignment facility 🕮 **42-43**

- Facilitates easy installation and adjustment of joins between straight & curved slides.
- Overcomes minor inaccuracy in positioning.

● Track system straight slides 🕮 42-43 / Track system curved segments 🕮 44 *

- ● * Hardened V faces for maximum wear resistance.
- ● * Soft centre allows customising.
- ● * Precision ground on ends and all important faces.
- ● * Stainless steel option.
- ● * All segments and slides precision matched.
- ● * Ground datum faces for location purposes.
- ● * Option available to suit pre-drilled mounting holes.
- * 90° and 180° segments available from stock.
- * Any length segment available to order.
- ● Central keyway for location and alignment.
- ● Up to 4m in one piece, unlimited length achieved by butting.

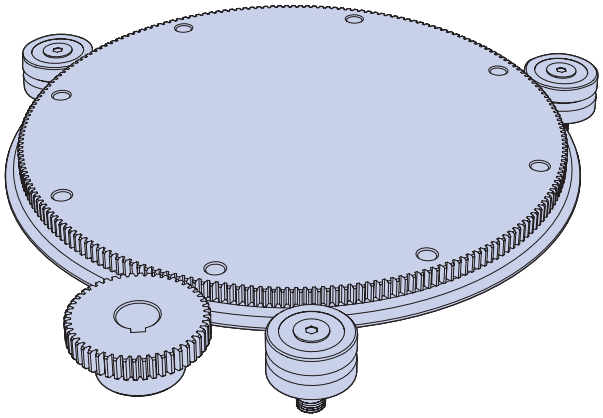


Bogie carriage 🕮 47

- ● Negotiates 'S' bends and differing bend radii.
- ● High performance swivel bearing for precision movement and extreme rigidity.
- ● Swivel bearings are lubricated for life internally.
- ● Available in three sizes to suit 25, 44 & 76 track systems.
- ● Supplied with tapped holes for ease of component mounting.
- ● Accurate overall height.
- ● Large platform for mounting purposes.

Dowel pins 🕮 42-43

- ● Locates in central keyway of straight slide for ease of location and alignment.

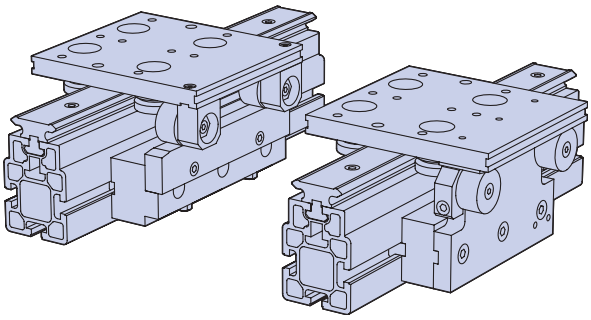


Ring Disc 🕮 **32-33**

- Ideally suited to turntable applications.
- Large precision mounting surface easily customised to suit customer's components.
- Precision ground all over for high accuracy and conformity.
- Gear cut option for ease of driving.
- Useful range of sizes available.
- Choice of fixing, counterbored holes or tapped hole option.
- V edge hardened for maximum wear resistance.
- Stainless steel option available.

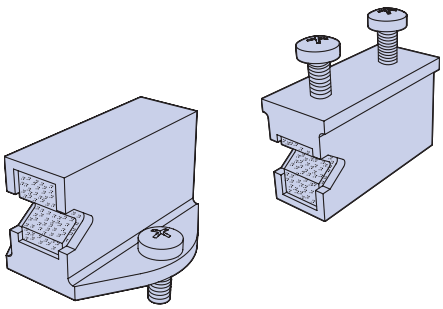
Moment load carriage 🕮 **48-49**

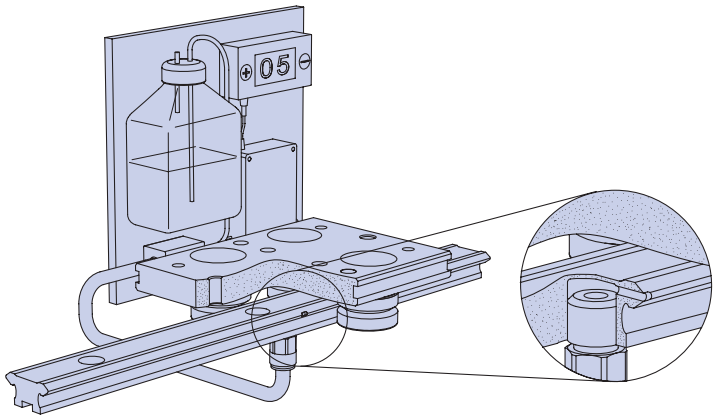
- Supports overhanging loads and increases direct load capacity at workstations.
- Compatible with HepcoMotion carriage locking system and support frame.
- Compatible with HepcoMotion belt drive connection facility.
- Many support options possible using standard components.
- Static and dynamic support possibilities.



Lubricators 🕮 **37**

- Provides lubrication to the contact faces thereby increasing load capacity and life.
- Long lubrication interval.
- Lightly sprung felt wiper for low friction.
- Compact type suitable for through hole fixing, flanged type for through and blind hole fixing.



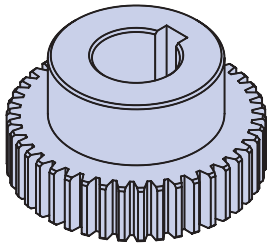


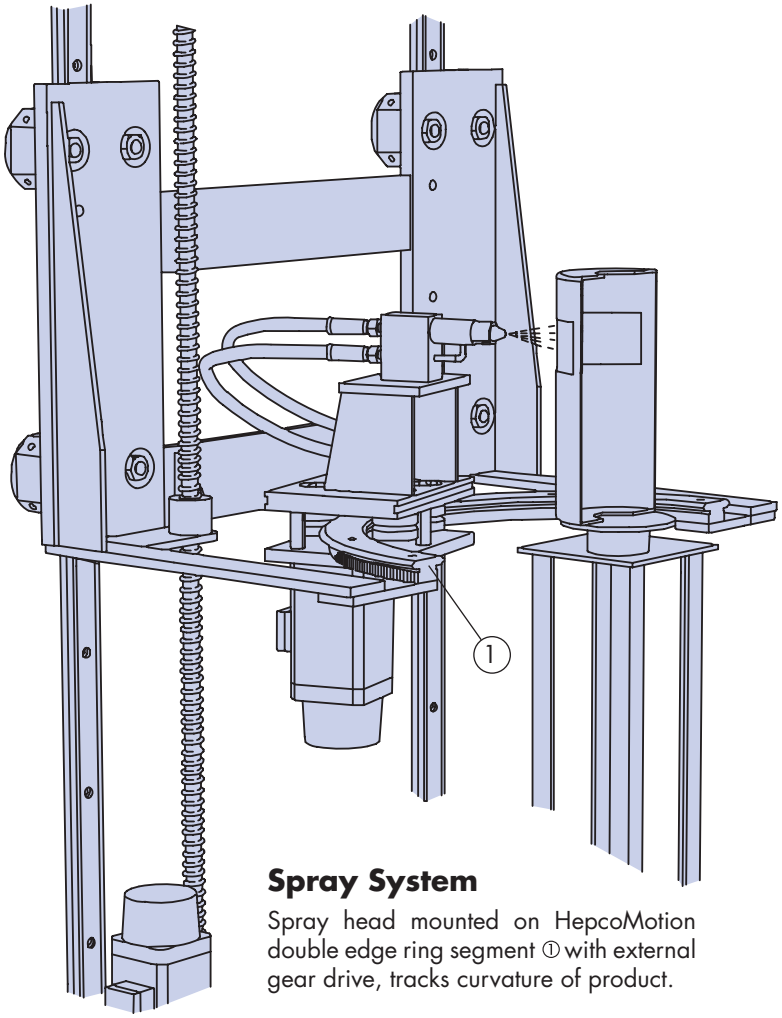
Bleed lubrication 🕮 **52**

- Suitable for use with track systems.
- Lubrication piped through holes, direct into the V contact faces.
- Controlled metering of lubrication.
- Overcomes necessity for lubrication service intervals

Pinions 🕮 **53**

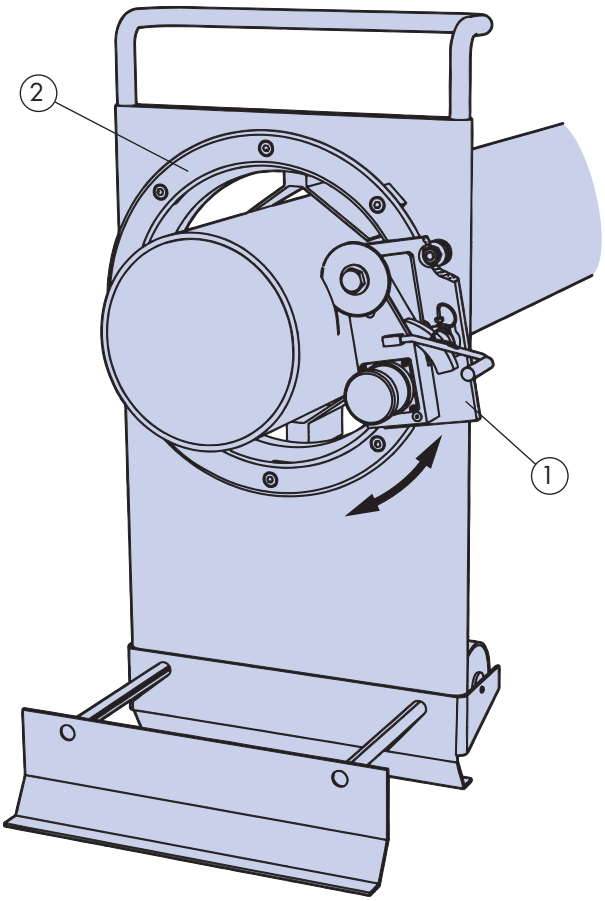
- Sizes to suit all gear cut ring slides, segments and ring discs.
- Ground teeth for long life and smooth operation on sizes 1 module and above.
- Hardened teeth on larger sizes for increased durability.
- All pinions available in stainless steel as option.
- Precision machined bore, and optional keyway on sizes 1 module and above.





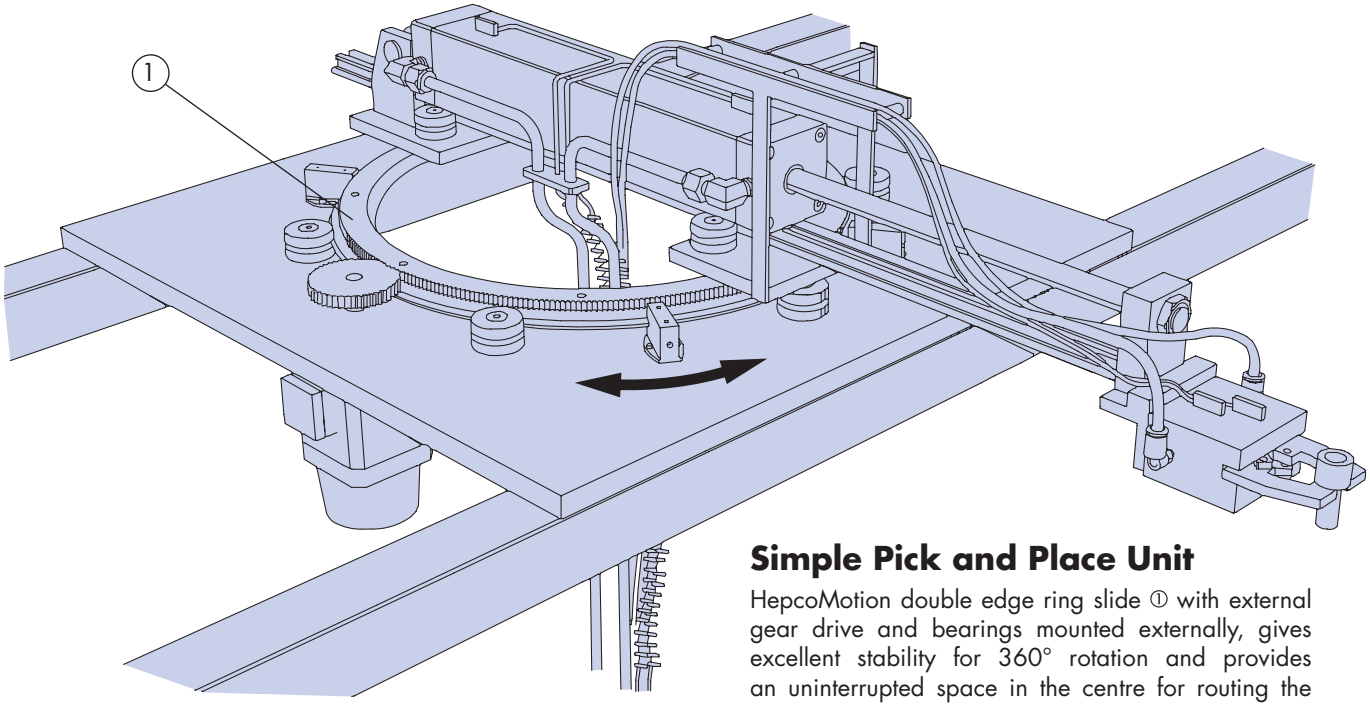
Spray System

Spray head mounted on HepcoMotion double edge ring segment ① with external gear drive, tracks curvature of product.



Mobile Saw for Long Tubes

Motor and saw assembly mounted on carriage ① is hand operated around 360° HepcoMotion double edge ring slide ② in order to cut tube.

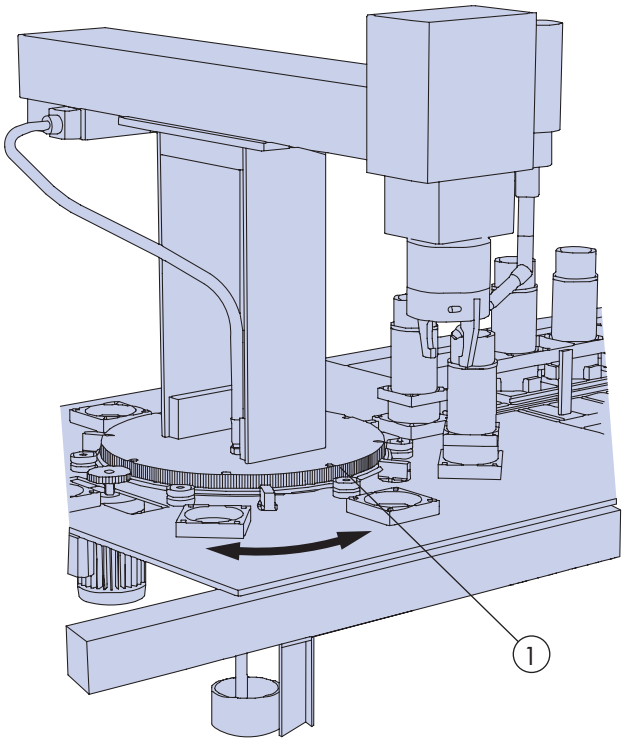


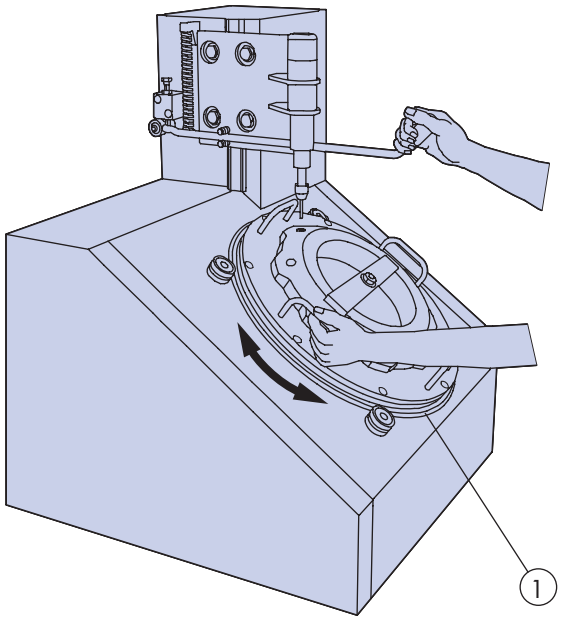
Simple Pick and Place Unit

HepcoMotion double edge ring slide ① with external gear drive and bearings mounted externally, gives excellent stability for 360° rotation and provides an uninterrupted space in the centre for routing the services.

Three Axis Assembly Robot

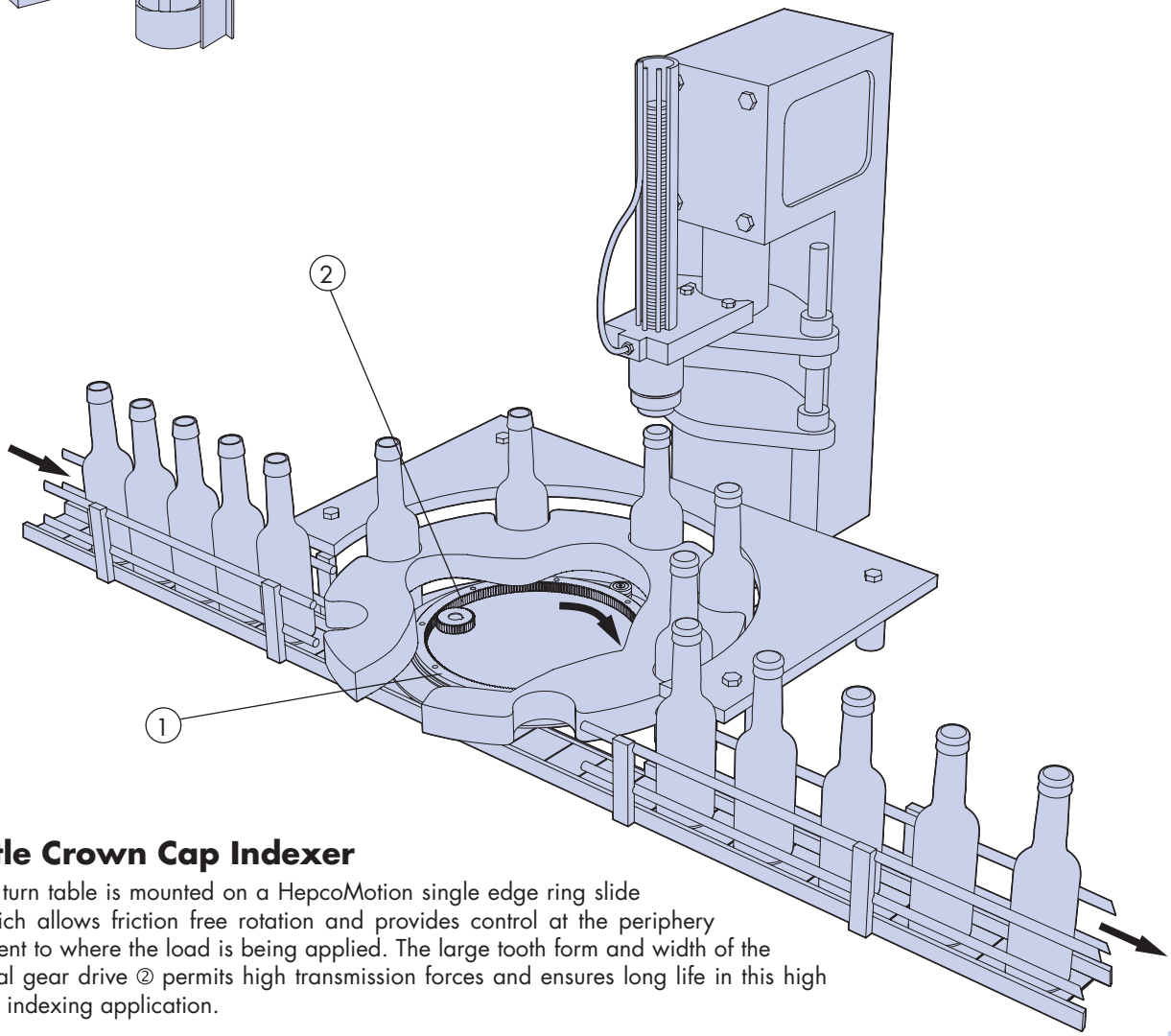
HepcoMotion ring disc with gear drive ① provides an ideal platform on which to mount the robot. The large diameter disc with HepcoMotion bearings gives support at the periphery, ensuring excellent stability and friction free motion.





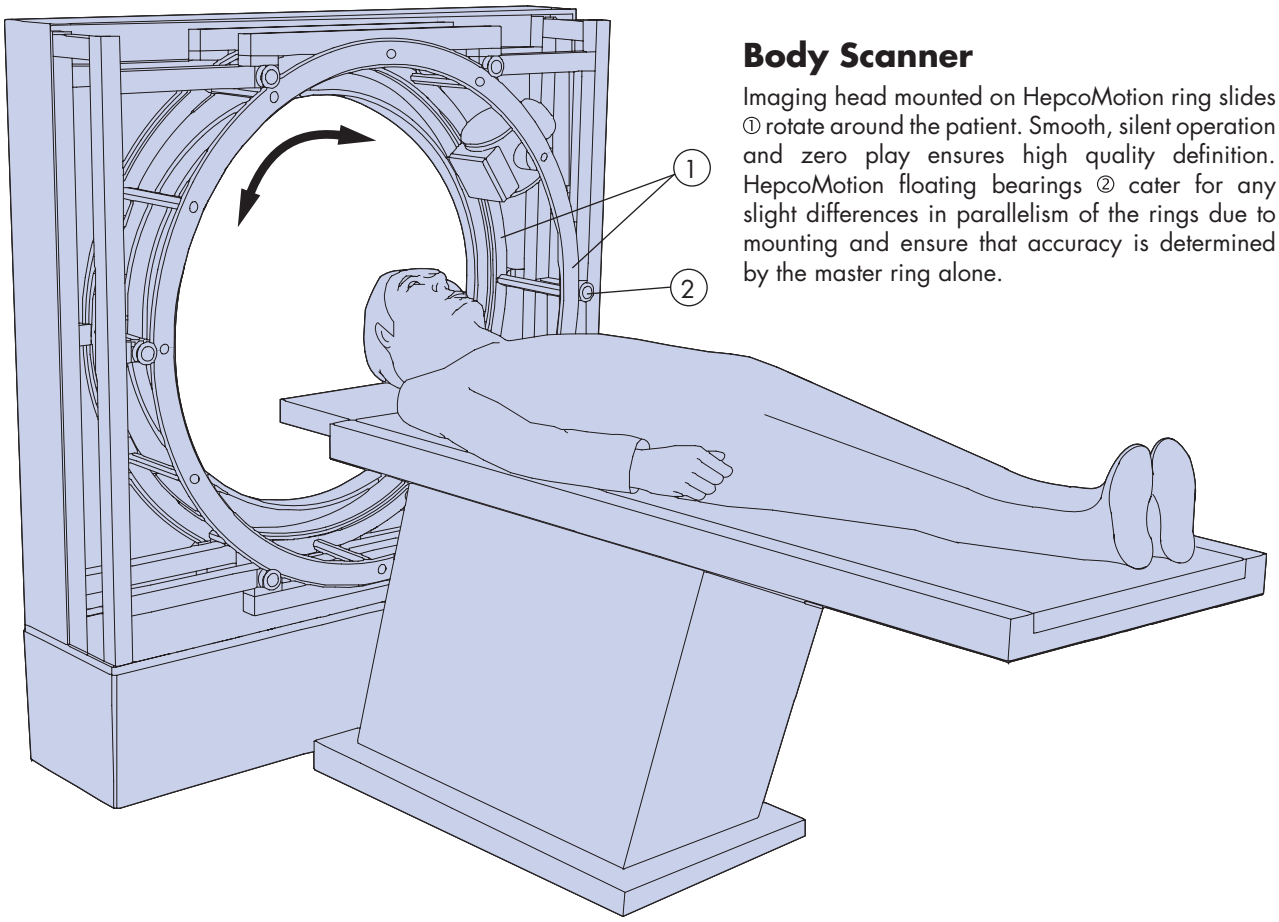
Rotary Assembly fixture

HepcoMotion ring disc ① provides a large mounting area for attaching components. The precision ground surface ensures accuracy and the unhardened area inboard of the V's enables tooling holes to be drilled as required.



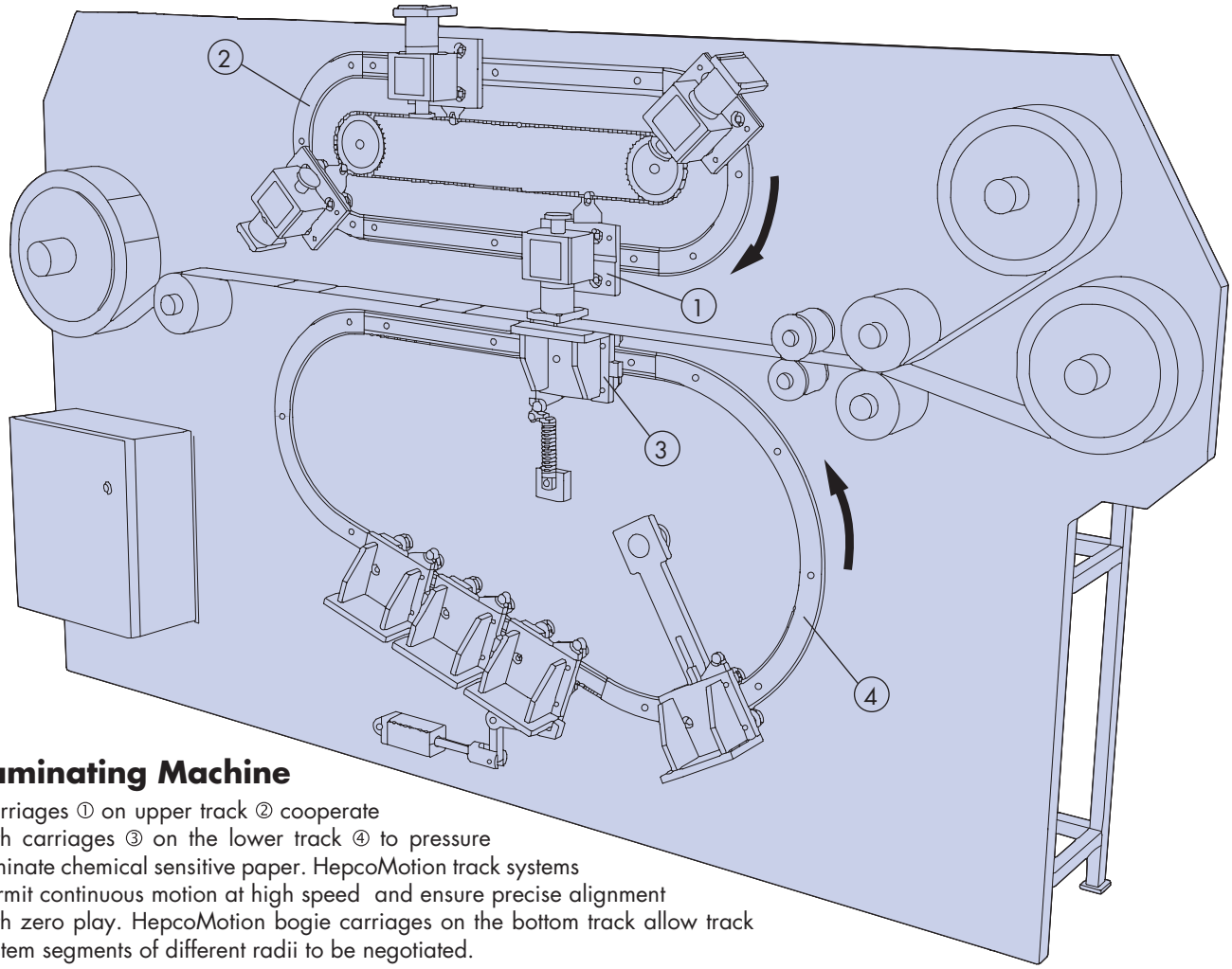
Bottle Crown Cap Indexer

Bottle turn table is mounted on a HepcoMotion single edge ring slide ① which allows friction free rotation and provides control at the periphery adjacent to where the load is being applied. The large tooth form and width of the internal gear drive ② permits high transmission forces and ensures long life in this high speed indexing application.



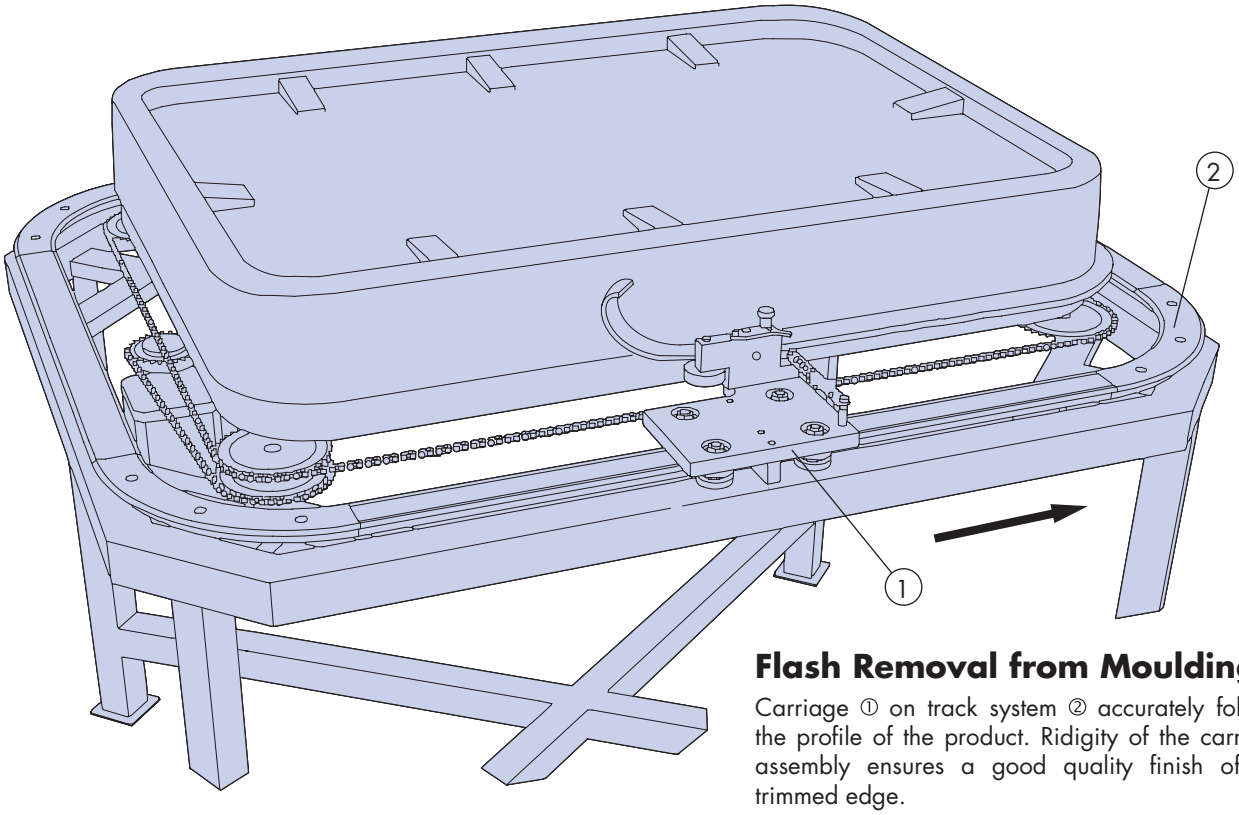
Body Scanner

Imaging head mounted on HepcoMotion ring slides ① rotate around the patient. Smooth, silent operation and zero play ensures high quality definition. HepcoMotion floating bearings ② cater for any slight differences in parallelism of the rings due to mounting and ensure that accuracy is determined by the master ring alone.



Laminating Machine

Carriages ① on upper track ② cooperate with carriages ③ on the lower track ④ to pressure laminate chemical sensitive paper. HepcoMotion track systems permit continuous motion at high speed and ensure precise alignment with zero play. HepcoMotion bogie carriages on the bottom track allow track system segments of different radii to be negotiated.

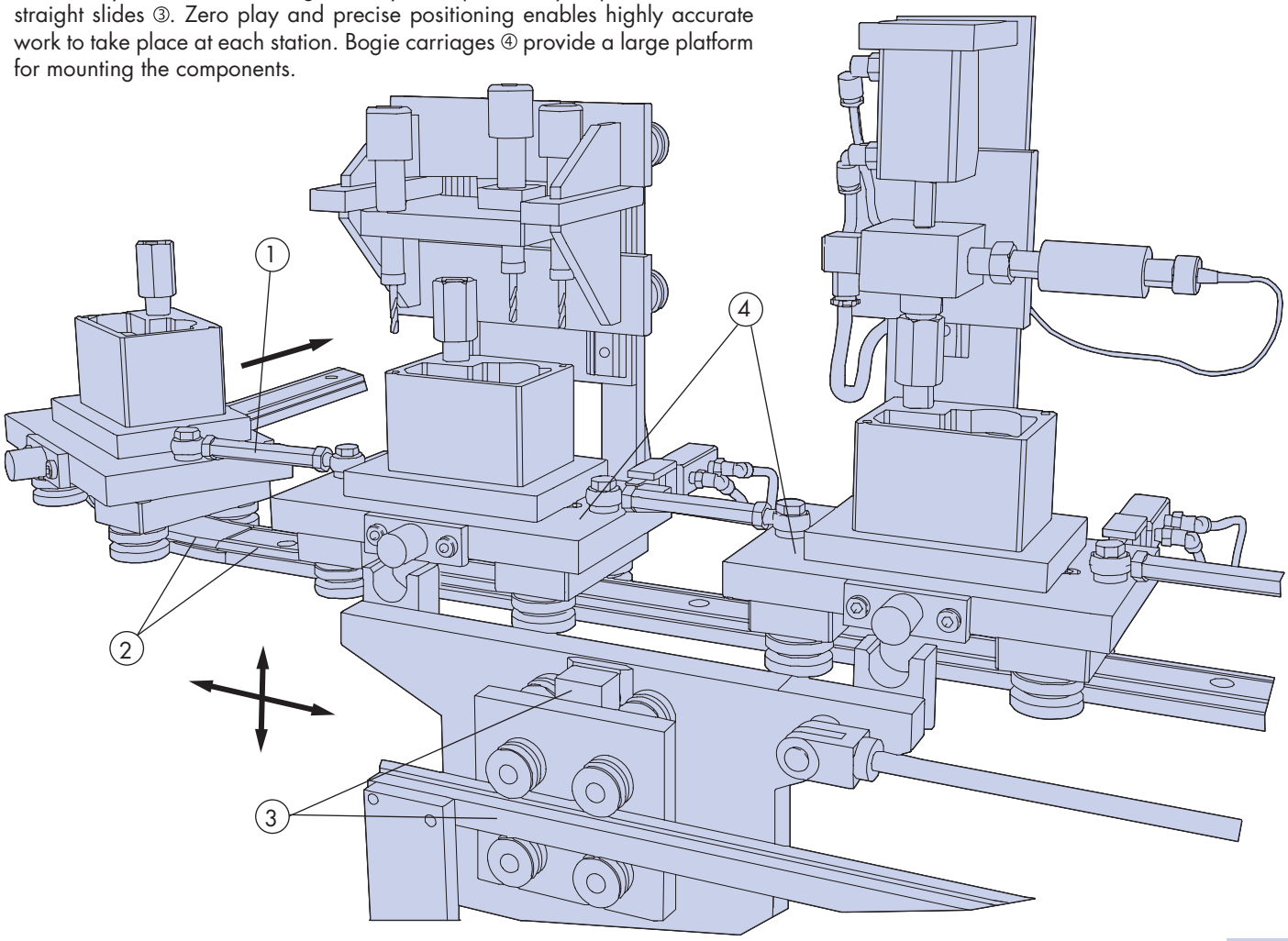


Flash Removal from Moulding

Carriage ① on track system ② accurately follows the profile of the product. Ridigity of the carriage assembly ensures a good quality finish of the trimmed edge.

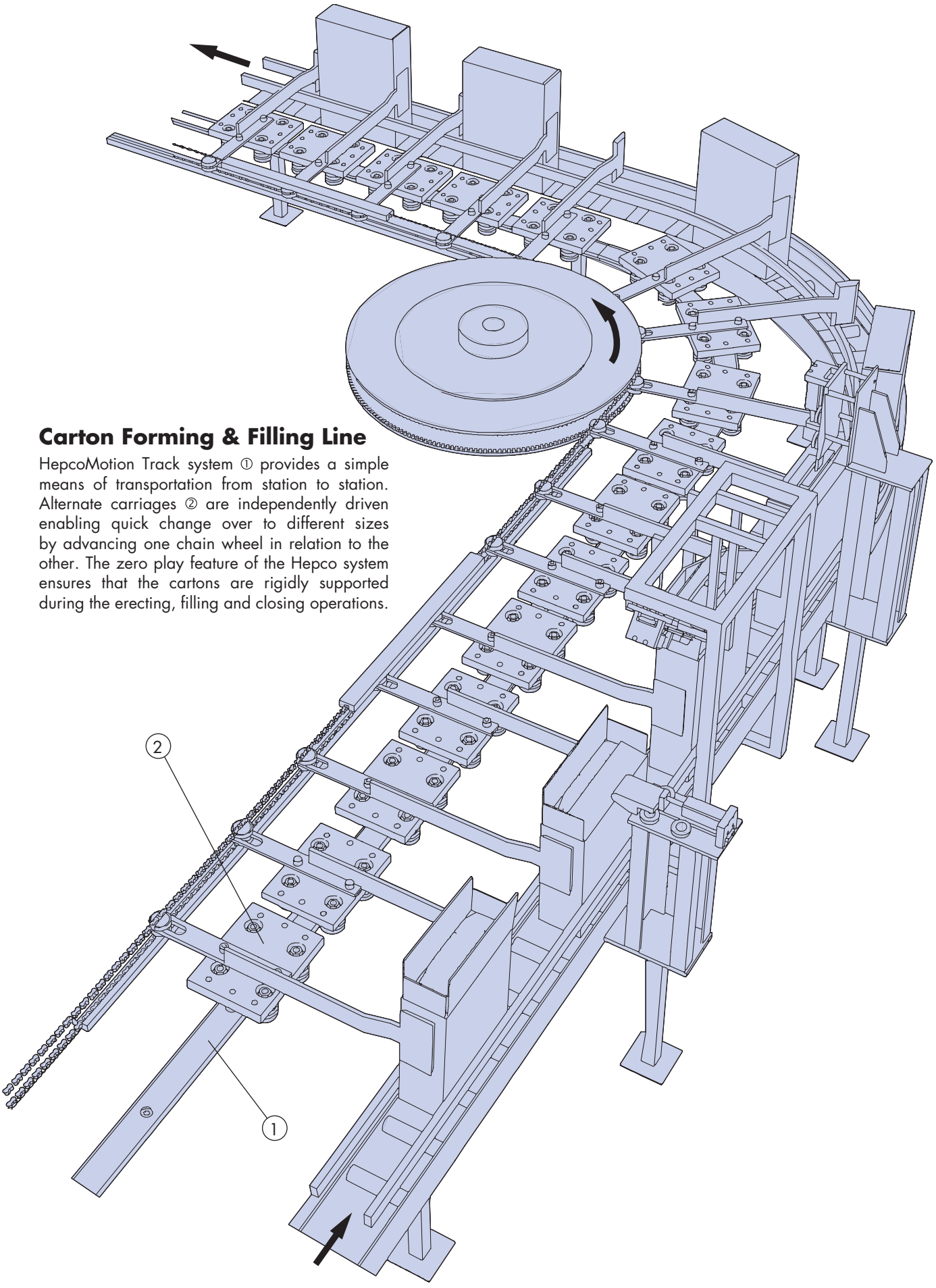
Multi-Station Assembly Machine

Carriages linked by connecting rods ① are indexed around a track system circuit ② by means of a walking beam system operated by HepcoMotion GV3 straight slides ③. Zero play and precise positioning enables highly accurate work to take place at each station. Bogie carriages ④ provide a large platform for mounting the components.



Carton Forming & Filling Line

HepcoMotion Track system ① provides a simple means of transportation from station to station. Alternate carriages ② are independently driven enabling quick change over to different sizes by advancing one chain wheel in relation to the other. The zero play feature of the Hepco system ensures that the cartons are rigidly supported during the erecting, filling and closing operations.



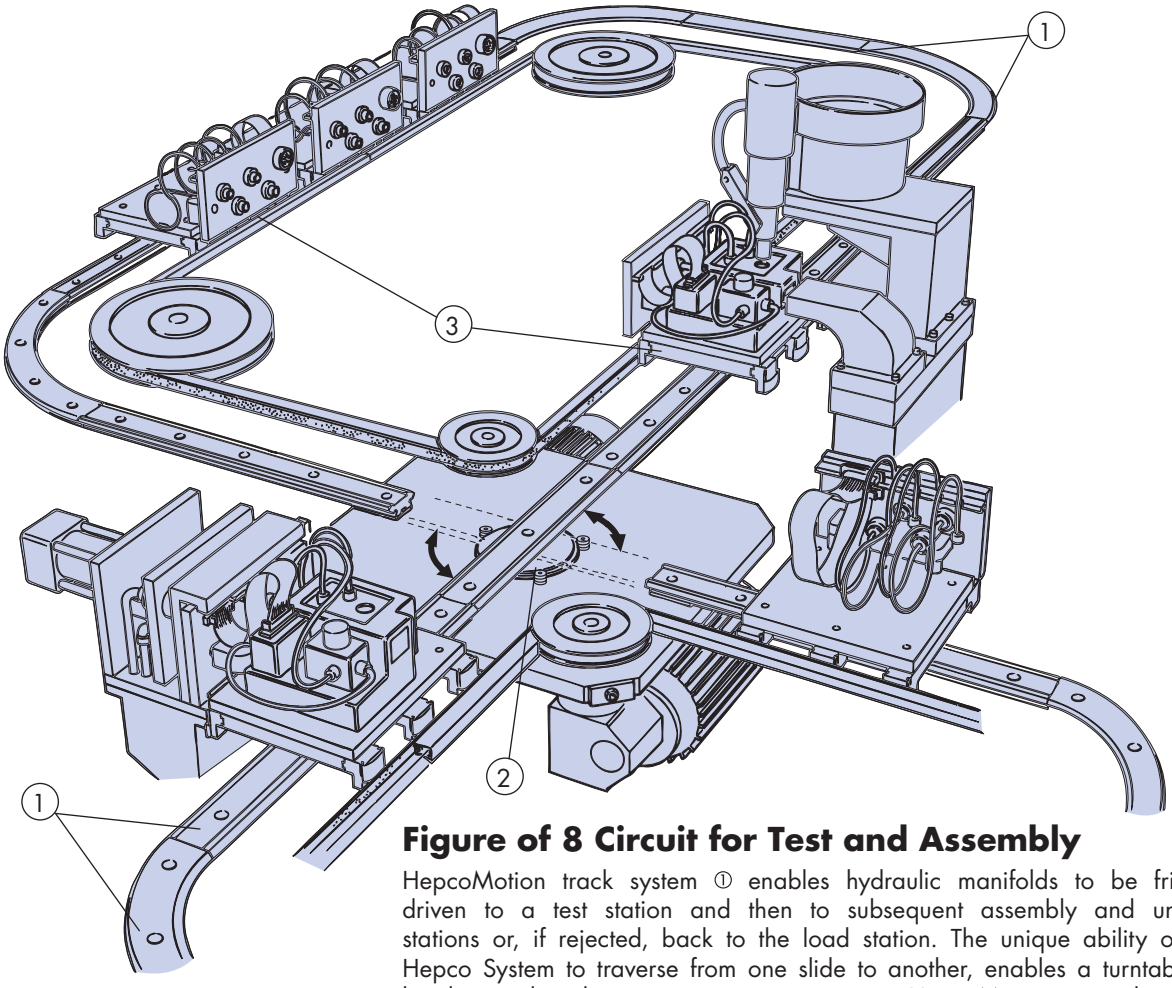
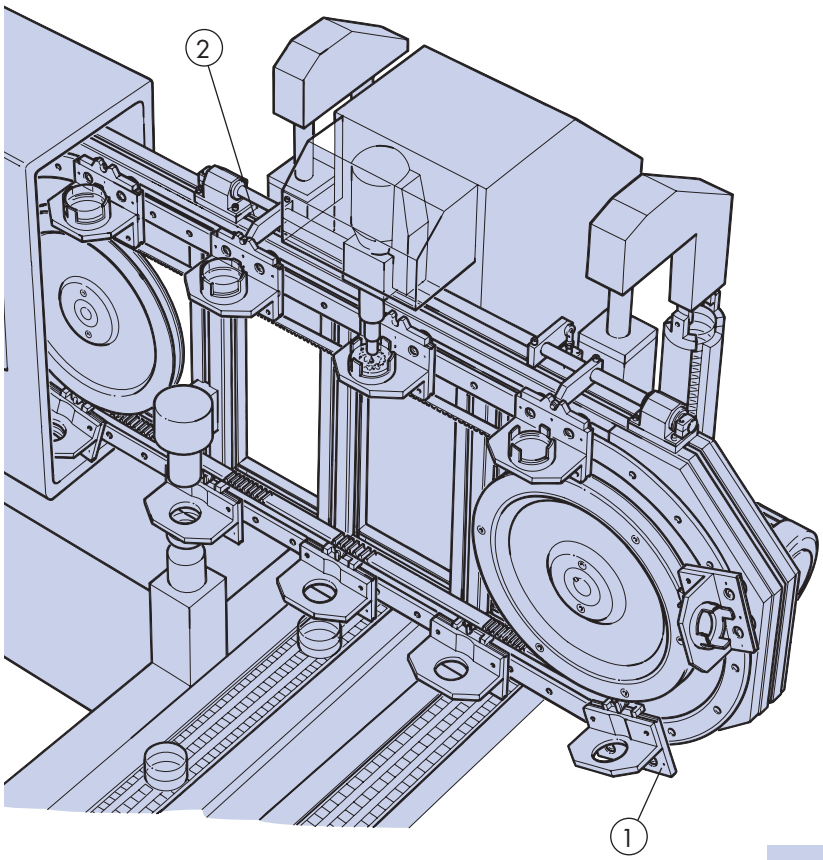


Figure of 8 Circuit for Test and Assembly

HepcoMotion track system ① enables hydraulic manifolds to be friction driven to a test station and then to subsequent assembly and unload stations or, if rejected, back to the load station. The unique ability of the Hepco System to traverse from one slide to another, enables a turntable to be designed at the crossover junction using a HepcoMotion ring disc ② to provide rotary movement. Bogie carriages ③ allow S bends to be traversed.



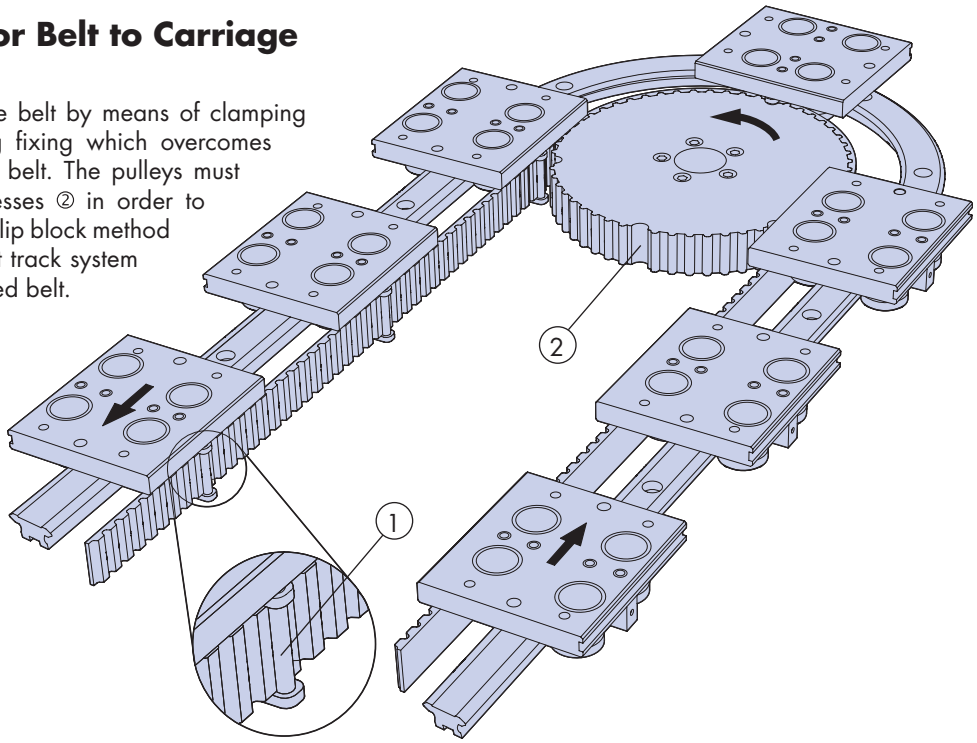
Optical Lens Assembly

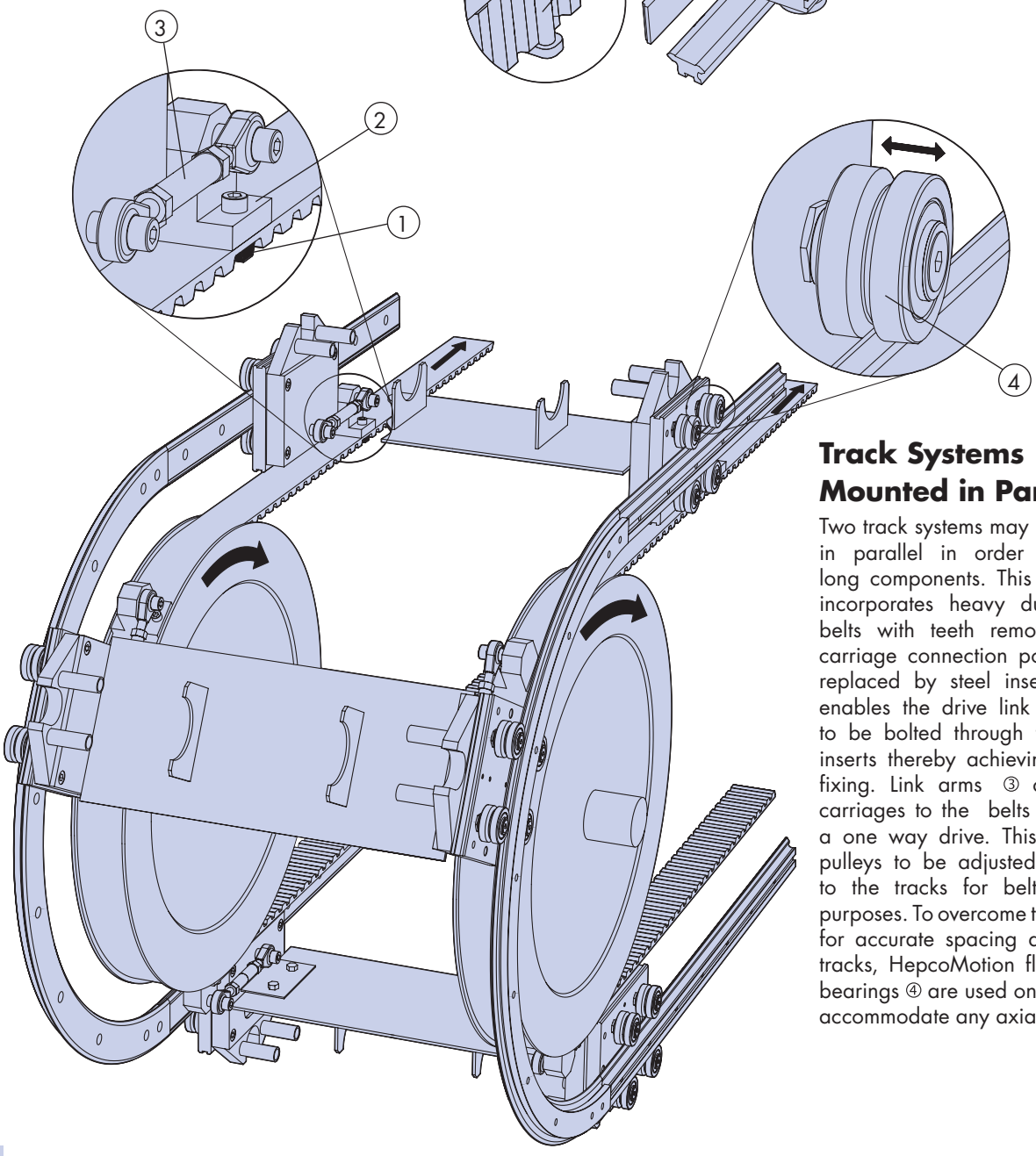
Machine incorporates a standard HepcoMotion DTS complete driven track system for which there is a separate catalogue. See also 📖 50 & 51.

Lenses are loaded by pick and place units onto clamp fixtures mounted on HepcoMotion carriages ①. Optical adhesive is applied between lenses before passing through ultra-violet light box to activate hardener. Precise positioning of carriages is required at work stations, this is achieved by means of the HepcoMotion carriage locking system ②.

Clamping Method for Belt to Carriage Connection

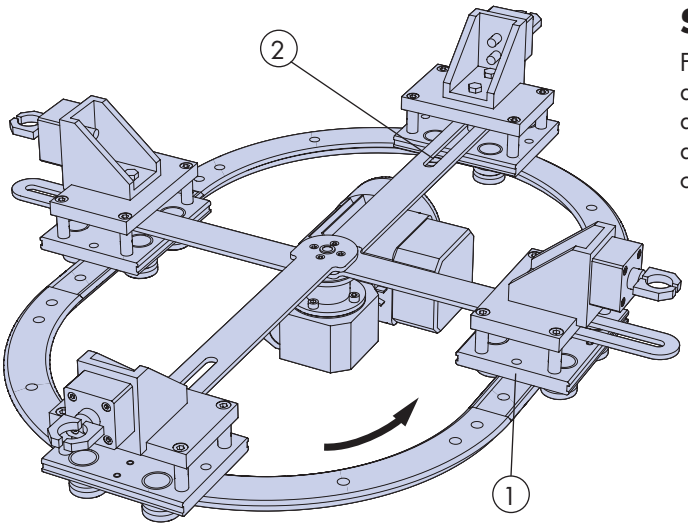
Carriages are connected to the belt by means of clamping device ①, resulting in a strong fixing which overcomes the need to screw through the belt. The pulleys must be machined to provide recesses ② in order to accommodate the clamps. The slip block method 📖 19 should be used to adjust track system length in relation to the tensioned belt.





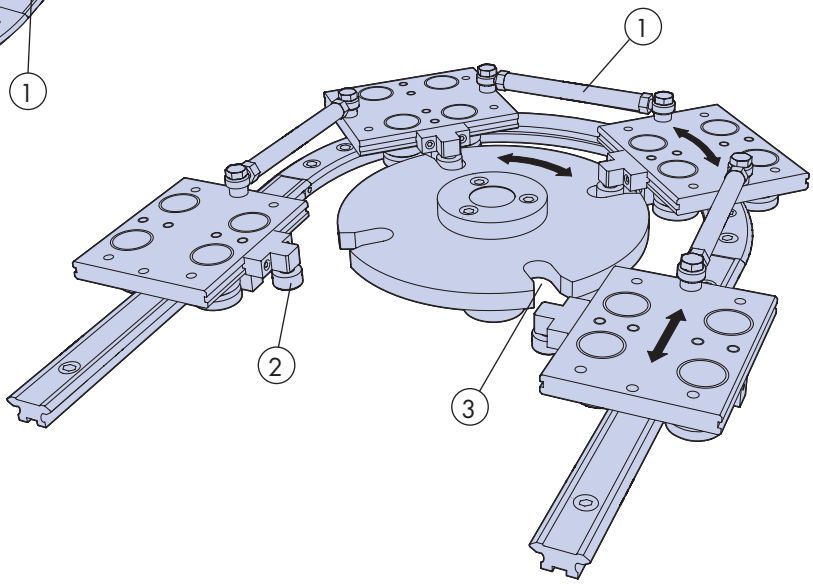
Track Systems Mounted in Parallel

Two track systems may be mounted in parallel in order to support long components. This application incorporates heavy duty toothed belts with teeth removed at the carriage connection positions and replaced by steel inserts ①. This enables the drive link brackets ② to be bolted through to the steel inserts thereby achieving a strong fixing. Link arms ③ connect the carriages to the belts to provide a one way drive. This allows the pulleys to be adjusted in relation to the tracks for belt tensioning purposes. To overcome the necessity for accurate spacing apart of the tracks, HepcoMotion floating type bearings ④ are used on one side to accommodate any axial wander.



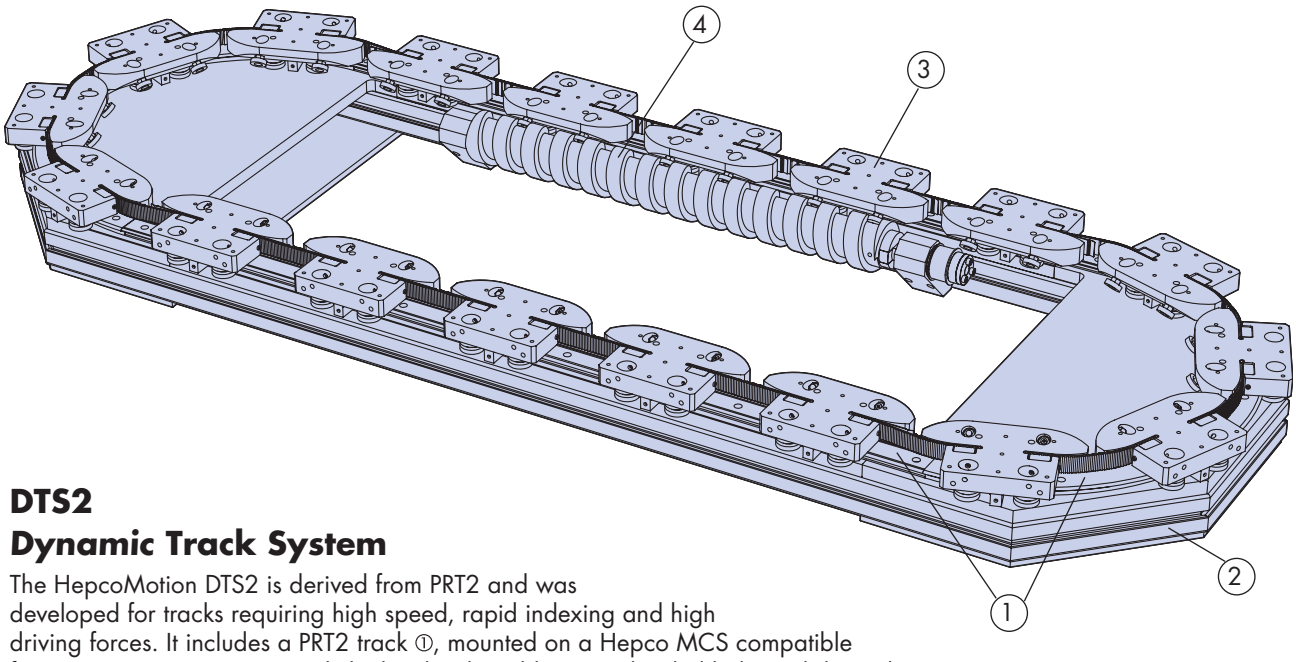
Spider Drive

For short track systems carriages ① can be driven from a central motor and spider. The arms of the spider ② incorporate slots to accommodate the changing distance of the carriages from the motor drive shaft.



Pocket Wheel Drive

Carriages are linked together by connecting rods ①. A cam follower ② located on each carriage engages with cutouts ③ in a pocket drive wheel which moves the carriage around the track system. This method of driving requires some compliance in the connecting rods and sufficient clearance in the wheel for cam follower engagement.



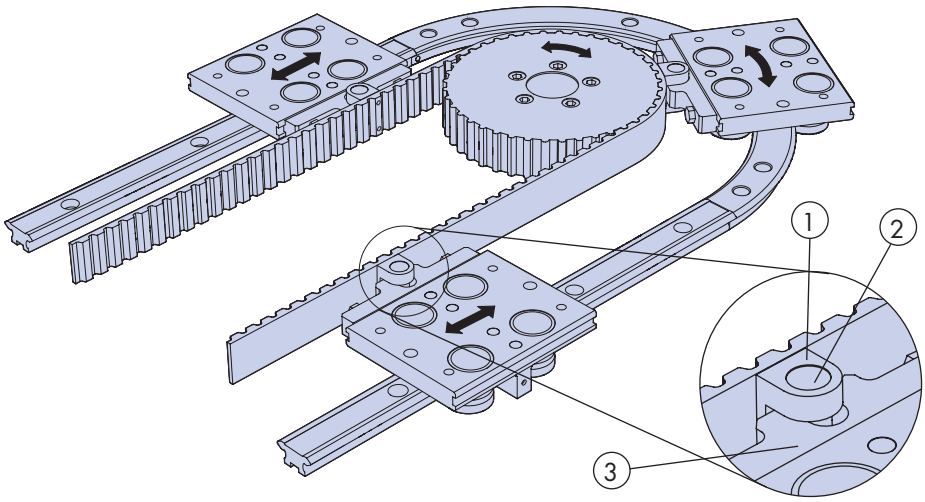
DTS2
Dynamic Track System

The HepcoMotion DTS2 is derived from PRT2 and was developed for tracks requiring high speed, rapid indexing and high driving forces. It includes a PRT2 track ①, mounted on a Hepco MCS compatible frame ② . Its carriages ③, are linked with adjustable spring-loaded belts and driven by a screw ④. The DTS2 can be supplied with motors, drives and bleed lubrication system (🕮 52).
DTS2 units can be oval as illustrated, rectangular, or have any other valid track layout without S-bends. A range of sizes is available, in either standard or corrosion resistant version.

A datasheet for DTS2 is included at **www.HepcoMotion.com/dts2datauk**.

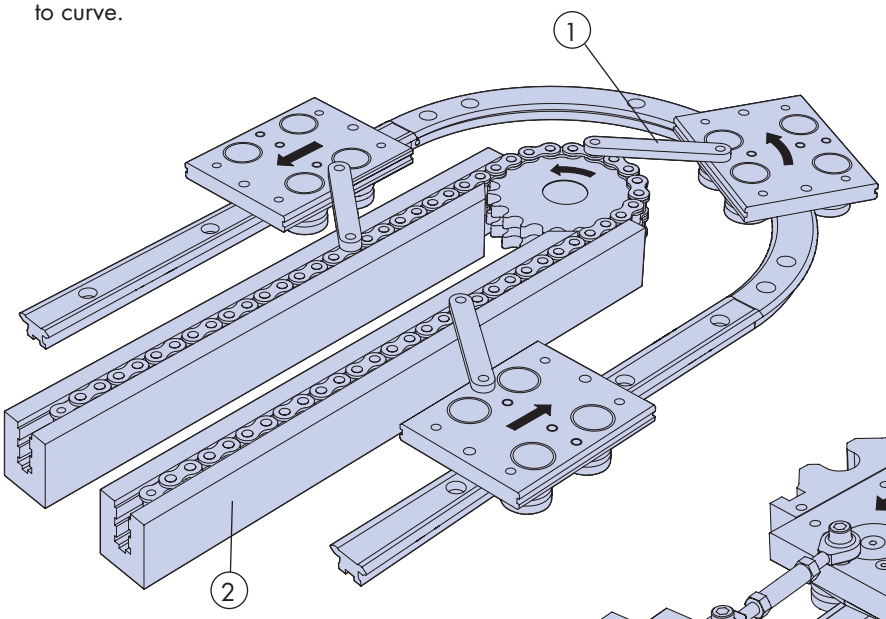
Slotted Carriage Connection For Belt Adjustment

The timing belt is fitted with U section attachments ① secured to the belt with countersunk screws. Pins ② engage with slotted drive member ③ which drives the carriage around the circuit. In this type of design whether using a belt or chain, it is important to provide a slot to allow for tension adjustment and also to cater for slight variation in the proximity of carriage to belt or chain, as the carriage traverses from straight to curve.



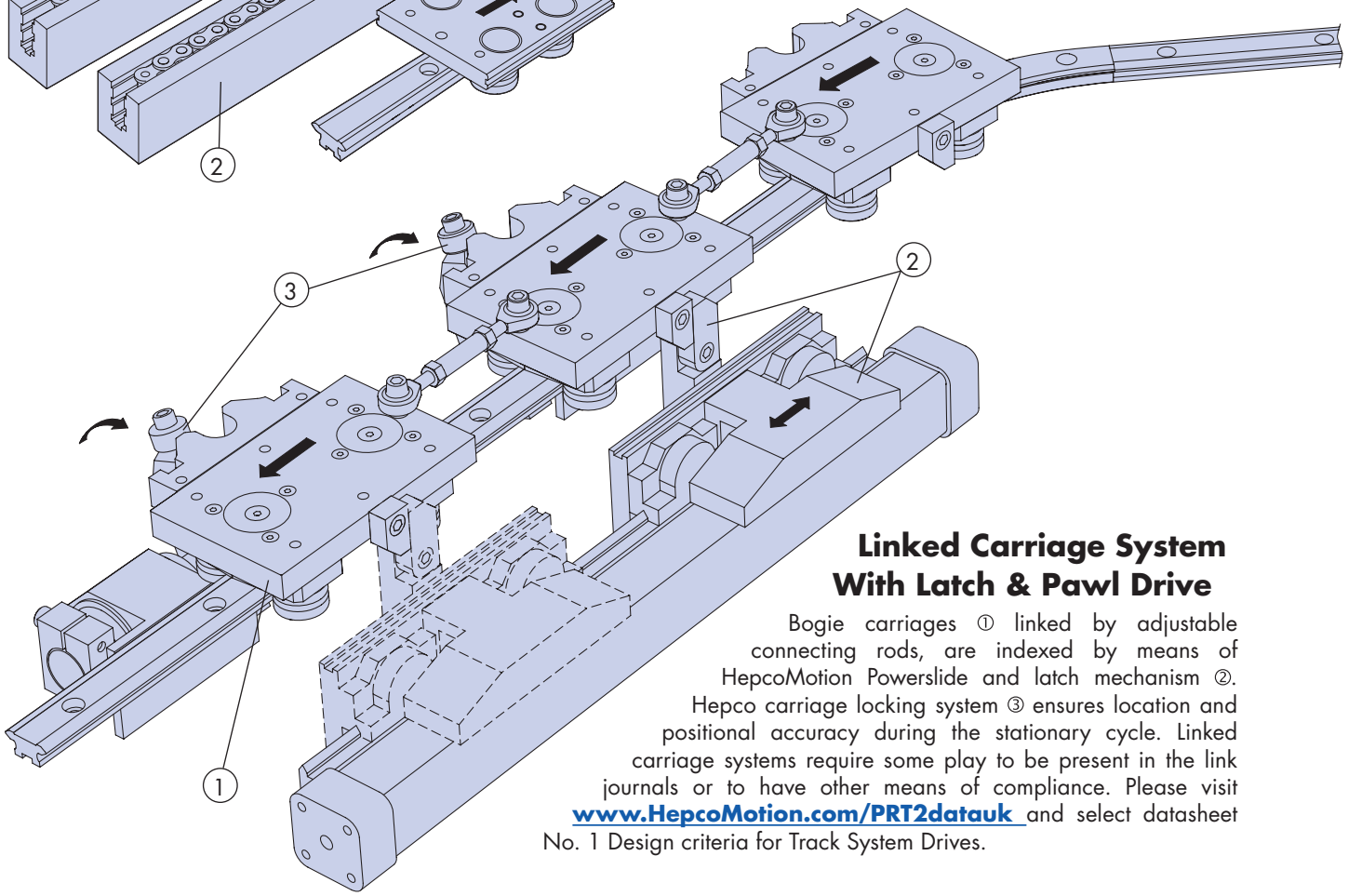
Link Drive

A simple link arm ① pivoting on an extended pin, connects to the carriage and provides for a drive in a single direction only. The design allows an amount of chain adjustment to take place and caters for slight variation in the proximity of carriage to chain, as the carriage traverses from straight to curve. It is recommended that chain support rails ② are fitted to overcome the offset drive forces.



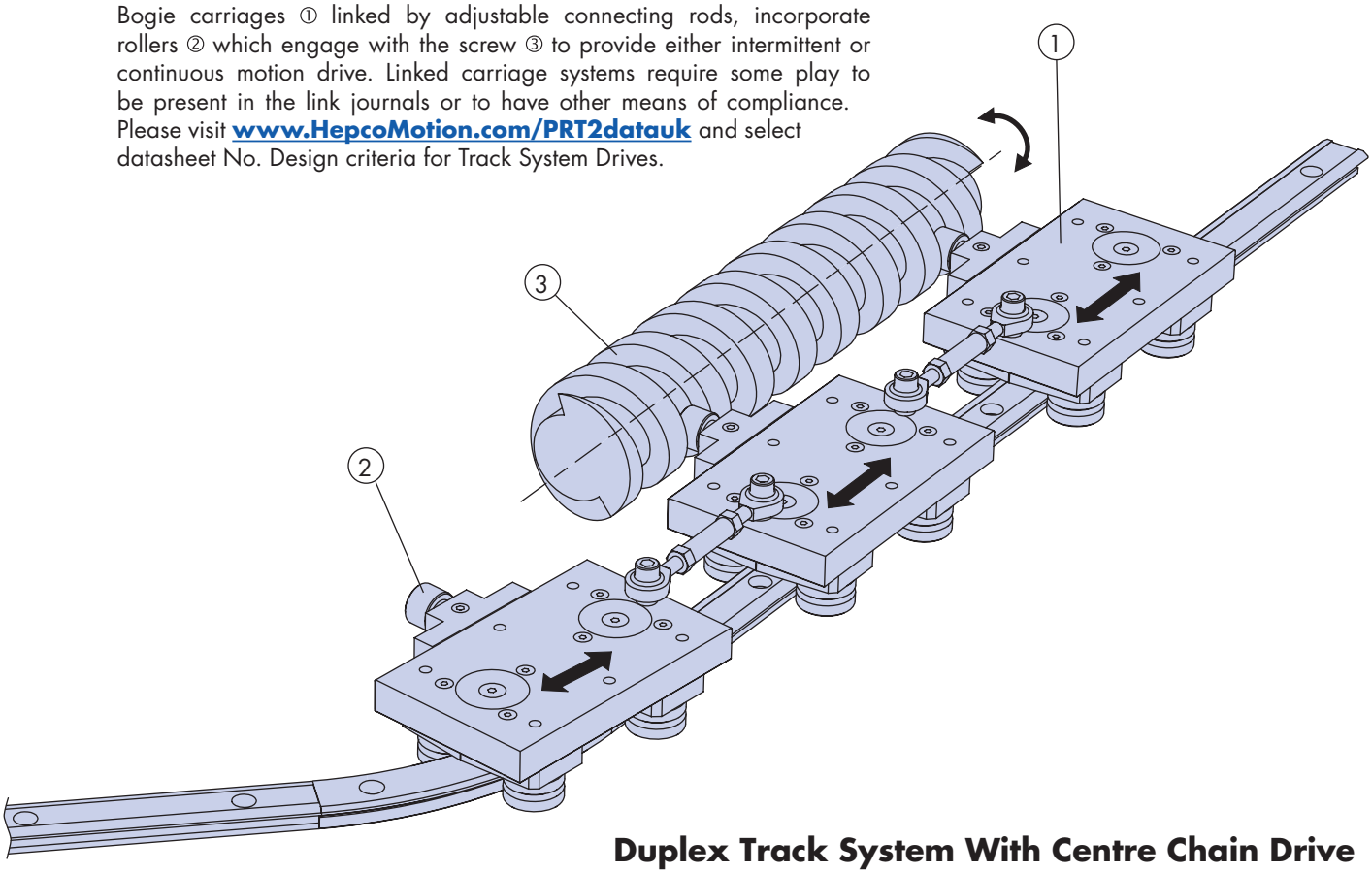
Linked Carriage System With Latch & Pawl Drive

Bogie carriages ① linked by adjustable connecting rods, are indexed by means of HepcoMotion Powerslide and latch mechanism ②. Hepco carriage locking system ③ ensures location and positional accuracy during the stationary cycle. Linked carriage systems require some play to be present in the link journals or to have other means of compliance. Please visit **www.HepcoMotion.com/PRT2datauk** and select datasheet No. 1 Design criteria for Track System Drives.



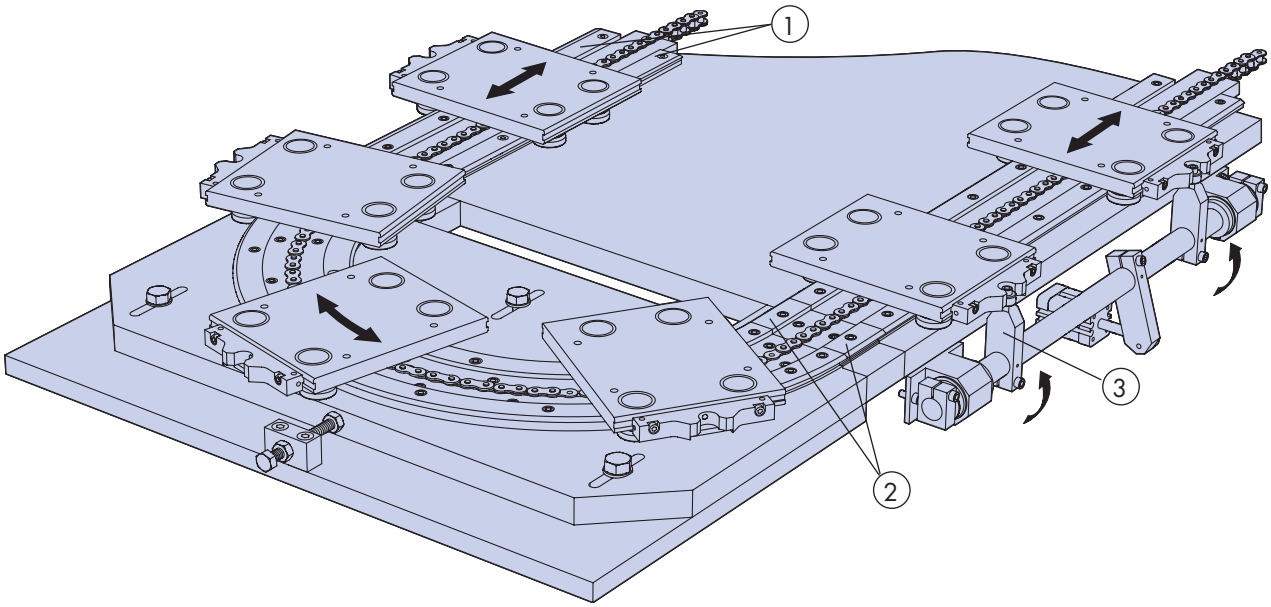
Linked Carriage System With Scroll Drive

Bogie carriages ① linked by adjustable connecting rods, incorporate rollers ② which engage with the screw ③ to provide either intermittent or continuous motion drive. Linked carriage systems require some play to be present in the link journals or to have other means of compliance. Please visit **www.HepcoMotion.com/PRT2datauk** and select datasheet No. Design criteria for Track System Drives.



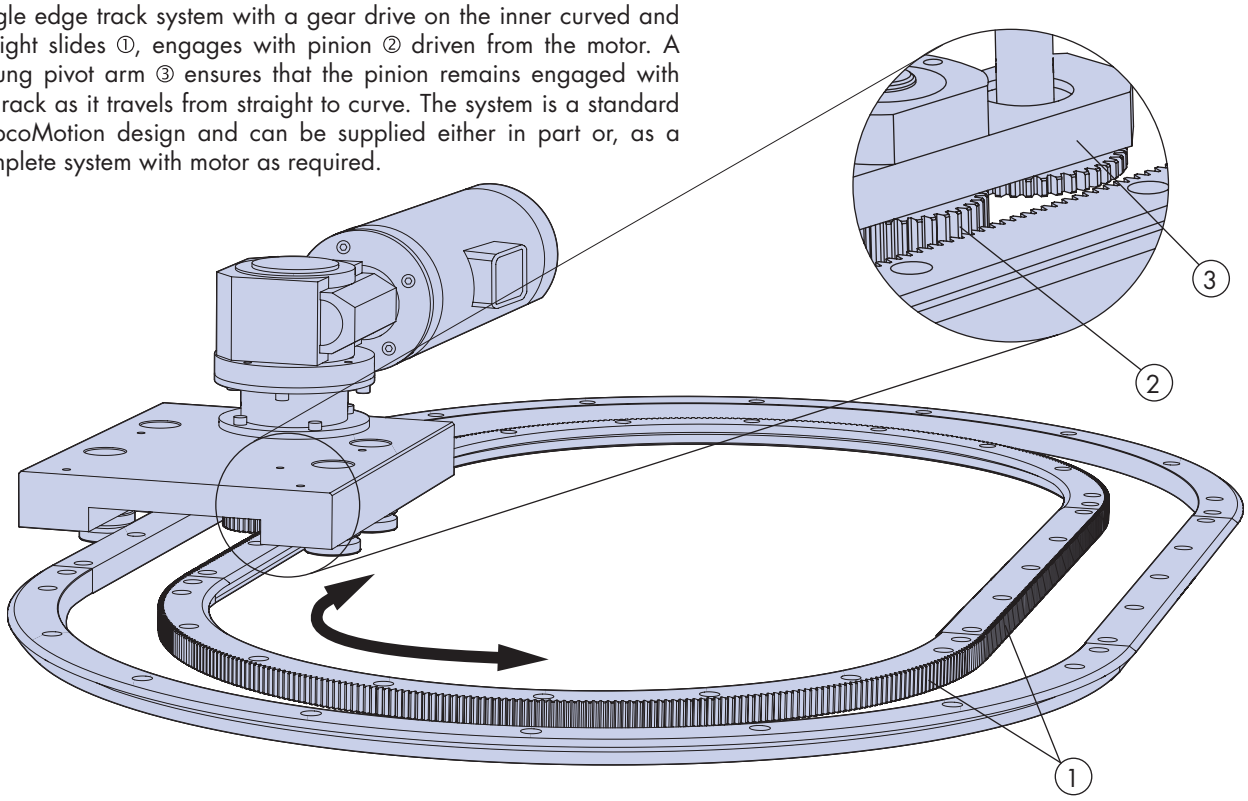
Duplex Track System With Centre Chain Drive

This durable and highly stable duplex track system capable of withstanding high loads, is available complete with special chain and scroll drive system from Hepco. The track system comprises of duplex single edge slides ① and a central drive to ensure constant velocity around the circuit. Any number of carriages at virtually any spacing can be accommodated on the system which can be supplied complete with motor and mounted on a Hepco MCS frame. Chain adjustment is rarely required but is achieved by the slip block method ② as shown and further illustrated 🕮 19. Either intermittent or constant motion is possible in either direction. A unique mechanism within the carriage in conjunction with the carriage locking system ③ 🕮 50-51, enables index positioning to within 0.02mm to be achieved.



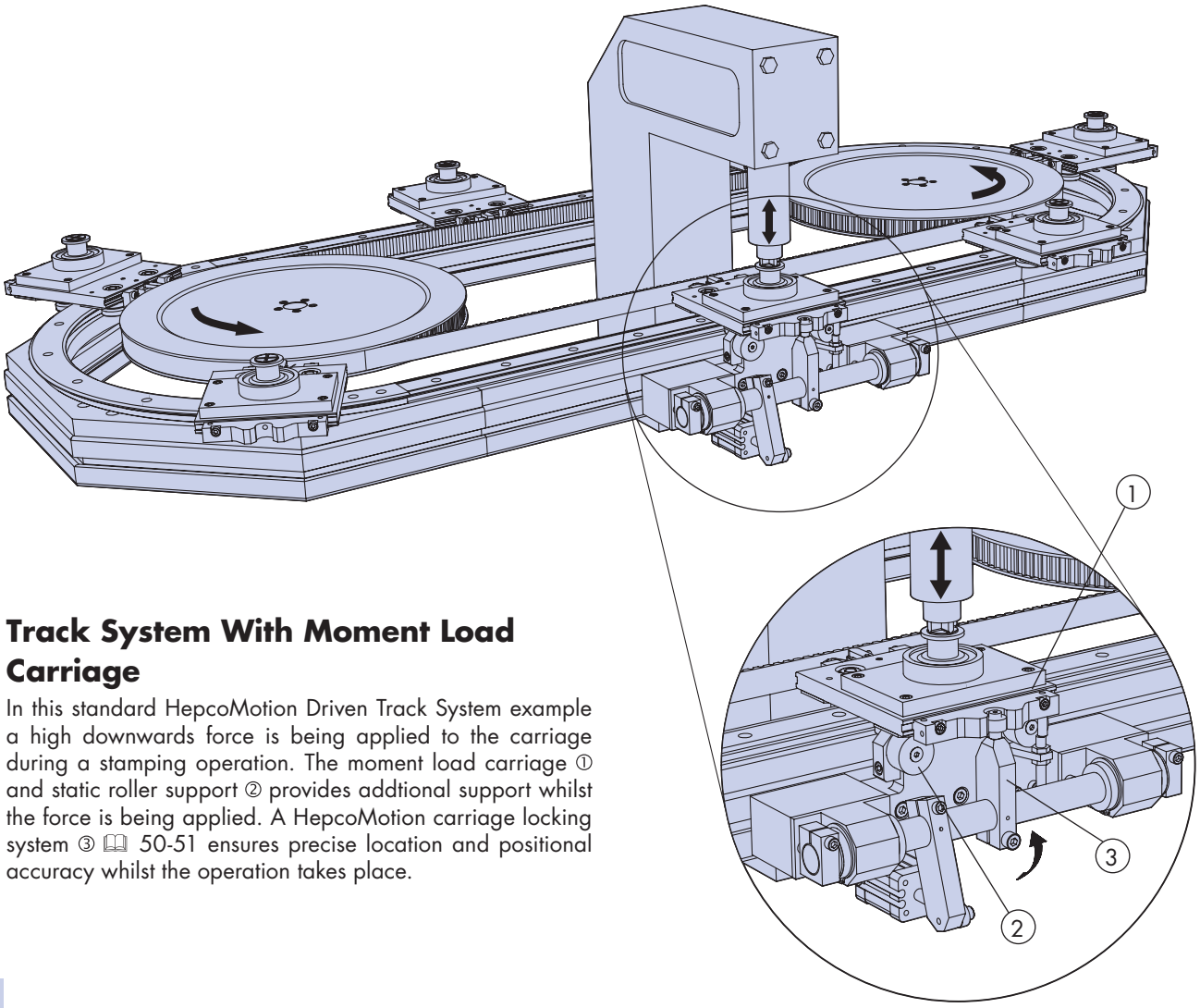
Gear Driven Duplex Track System

Single edge track system with a gear drive on the inner curved and straight slides ①, engages with pinion ② driven from the motor. A sprung pivot arm ③ ensures that the pinion remains engaged with the rack as it travels from straight to curve. The system is a standard HepcoMotion design and can be supplied either in part or, as a complete system with motor as required.



Track System With Moment Load Carriage

In this standard HepcoMotion Driven Track System example a high downwards force is being applied to the carriage during a stamping operation. The moment load carriage ① and static roller support ② provides addtional support whilst the force is being applied. A HepcoMotion carriage locking system ③ 📖 50-51 ensures precise location and positional accuracy whilst the operation takes place.

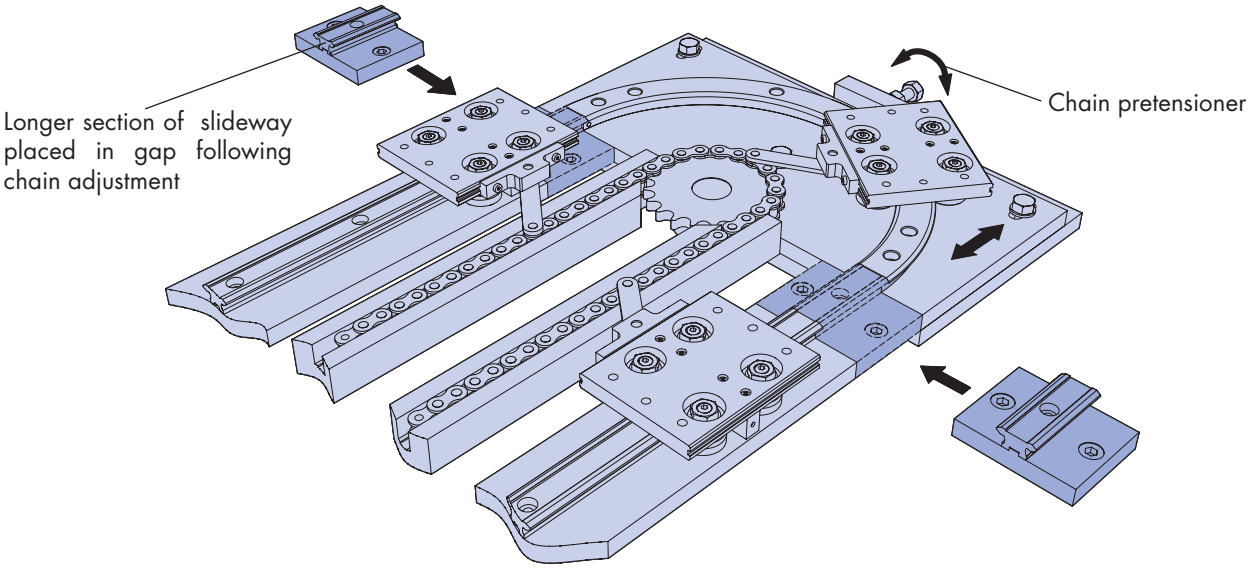


Chain Tensioning for Long Track Systems

A track system driven by a chain or belt ideally requires a means of adjustment for pretensioning and to allow for subsequent wear and stretch, particularly in the case of a chain drive. Limited adjustment can be achieved by providing a slot at the chain to carriage connection point (see top illustration 📖 16) or by link connection of chain to carriage (see centre illustration 📖 16 and example below). However, in systems where a large amount of adjustment is anticipated or where the path of the belt or chain must follow in exact relationship to the path of the track, the Slip Block or Bridging methods of adjustment should be considered.

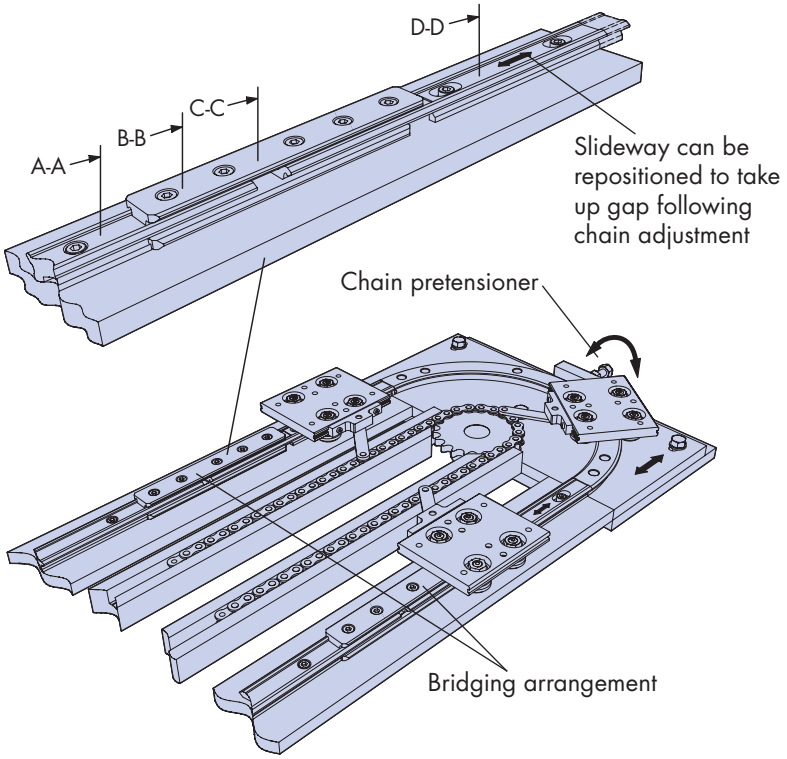
Slip Block Adjustment Method

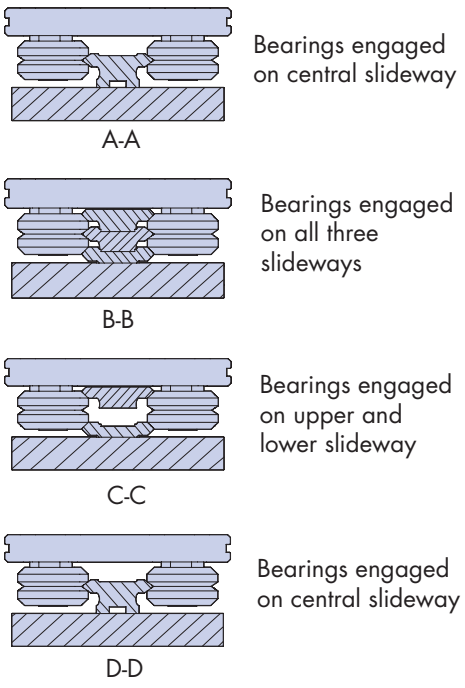
Hepco can provide sets of short length straight slides in various increments of length, precisely matched to those on the track system and with square ground ends. Each slide will be marked according to its length. Slide support blocks can also be supplied to customer's drawing if required. Please visit **www.HepcoMotion.com/PRT2datauk** and select datasheet No.10 Slip Block adjustment method.



Bridging Slide Adjustment Method

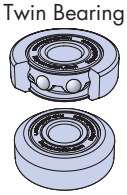
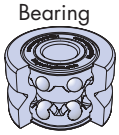
The bridging slide arrangement enables the track to be extended following adjustment of the chain drive whilst maintaining continuity of guidance and control. In order to traverse the adjustment gap, the bearings have external chamfers on the outside diameter in addition to the normal central V. The bridging slide arrangement comprises of three fixed slideways and one adjustable slideway, see illustrations below. All components comprising the bridging slide arrangement and special bearings can be readily supplied. Please advise total amount of slide adjustment required.

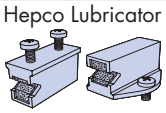
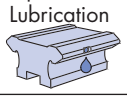


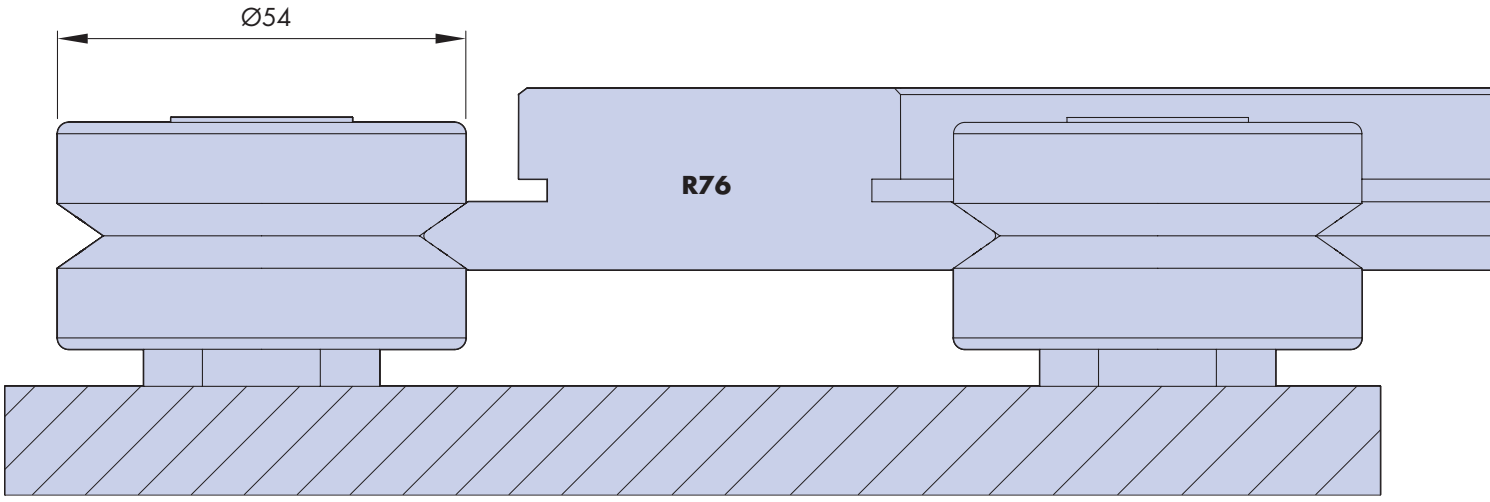


Full Size Illustrations For Initial Selection

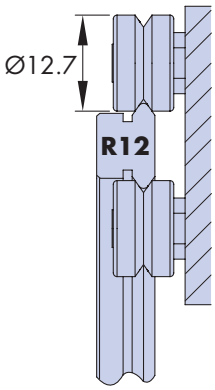
Full size illustrations of the basic range of Ring slide systems together with a comparison table for bearings and lubrication are provided to help with initial selection. Customers should refer to the individual component pages for dimensions and to the Technical section for details of load and life. There is a wide range of other options and components complementary to those shown in this section. These are illustrated in the System Composition 📖 2-7 and throughout the catalogue.

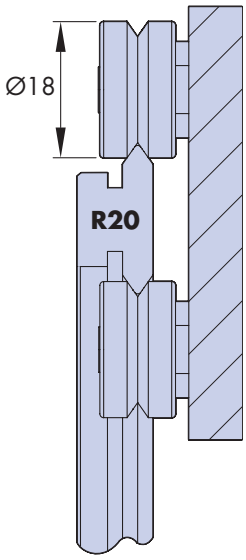
Bearing	Load		Speed	Smoothness	Tolerance of Misalignment	Ridgity	Tolerance of Debris	Price
	😐 ☺	😐 ☺	😐 ☺	😐 ☺	😐 ☺	😐 ☺	😐 ☺	☺ 😐
Twin Bearing 								
Double Row Bearing 								
Floating Bearing 								

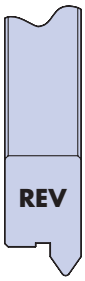
Lubrication Method	Load		Lubrication interval	Friction	Life	Price
	😐	☺	😐 ☺	☺ 😐	😐 ☺	☺ 😐
None						
Hepco Lubricator 						
Hepco Bleed Lubrication 			Automatic lube frequency possible			

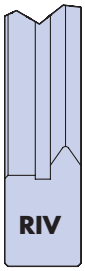


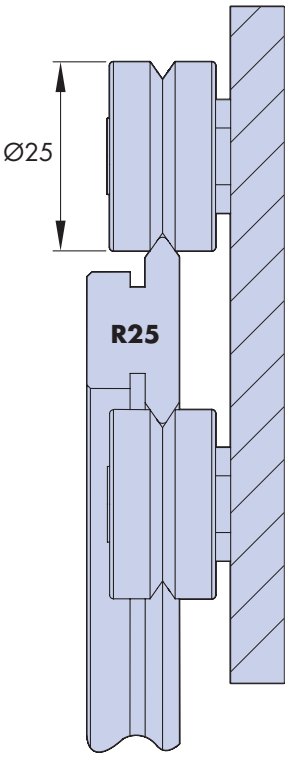
Full Size Illustrations For Initial Selection

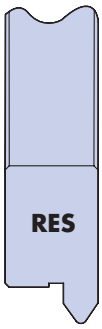


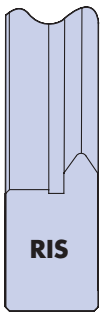


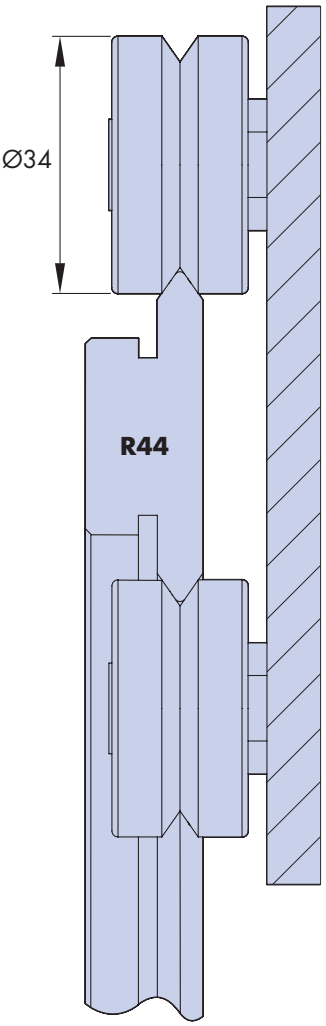


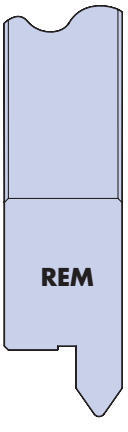


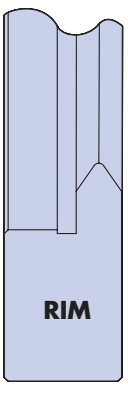


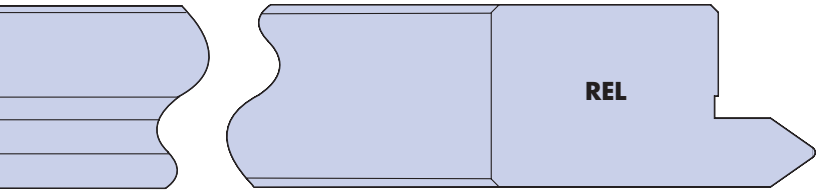


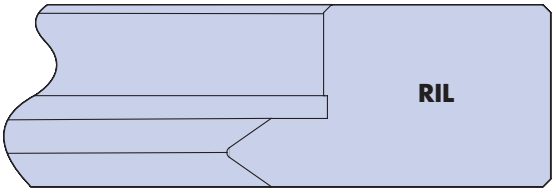












Assembled Systems 22-25

Ring slides 26-33

Bearings 34-36

Lubricators 37

Bleed Lubrication 52

Calculations 54-57