


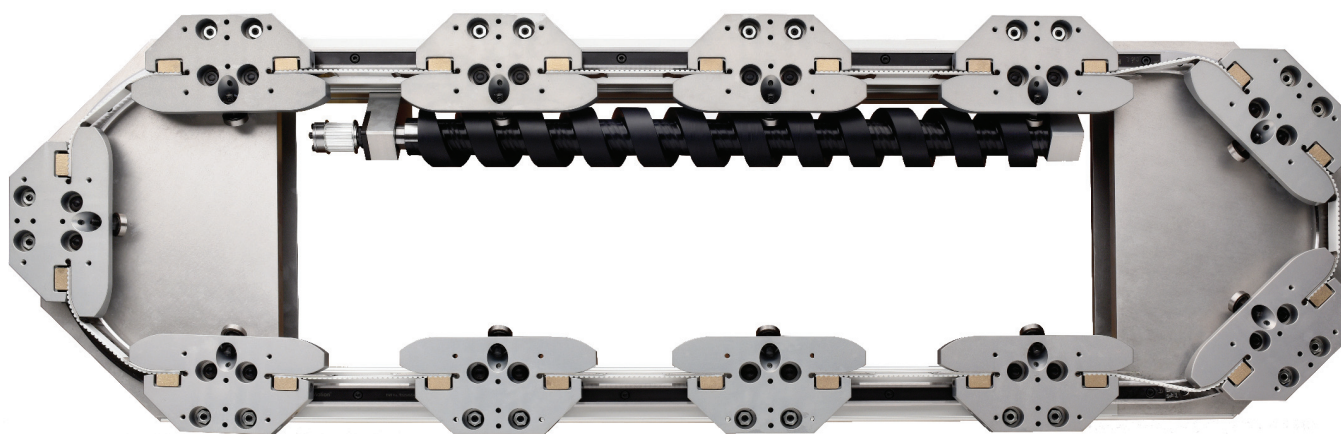


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DTS catalogue	
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# HepcoMotion®

## DTS2 Dynamic Track System

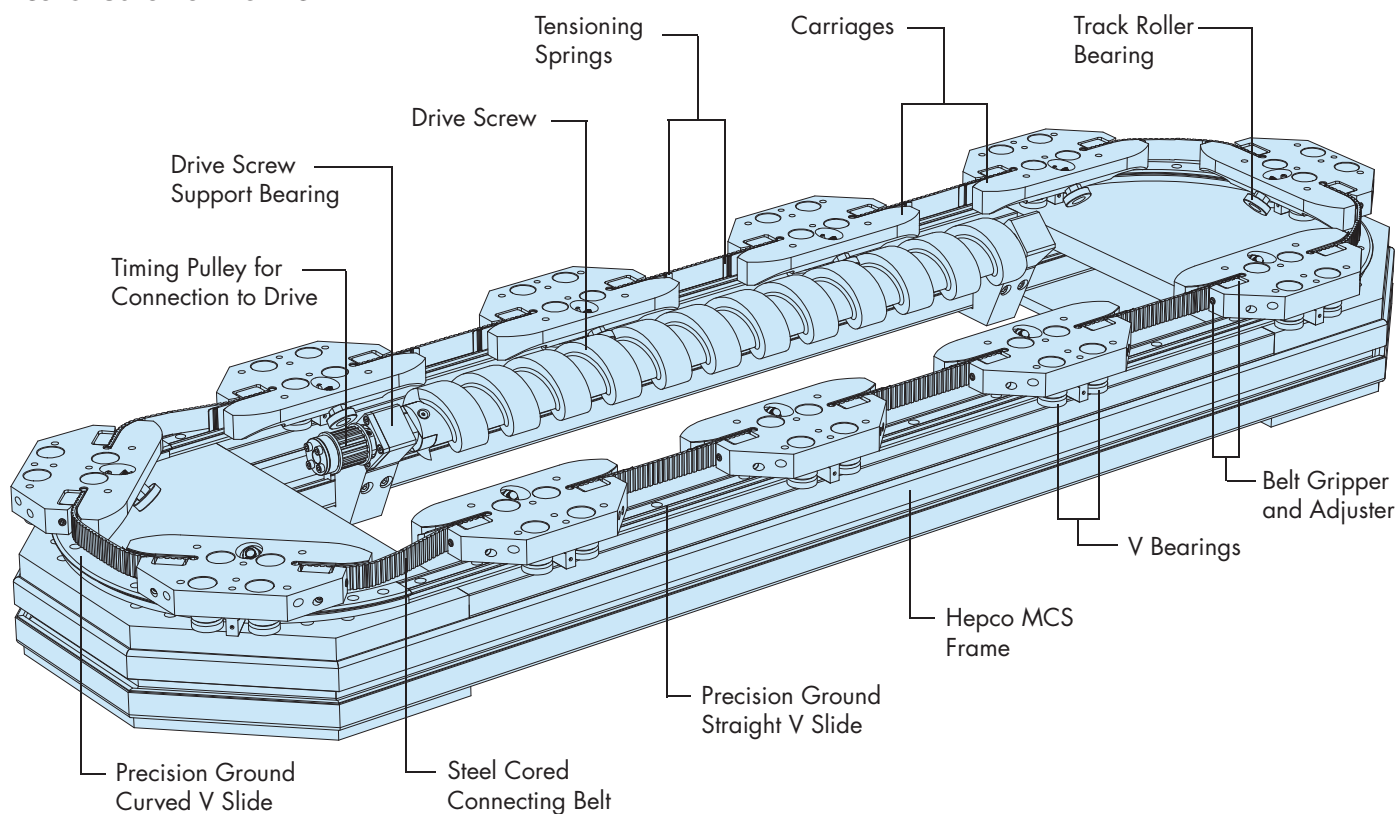
The DTS2 Dynamic Track system incorporates key parts from HepcoMotion's popular PRT2 track system and adds to it a strong, accurate and dynamic drive.



The broad principle is similar to the Hepco DTS Driven Track System. Load bearing carriages are mechanically driven around a closed circuit of straight and curved rails. The novel approach taken to the drive is quite different to the original DTS, and provides important benefits in many cases.

The DTS2 is complementary to the original DTS, which will continue to be right choice in many cases, however the DTS2 will be able to perform well in applications where the original design was unsuitable.

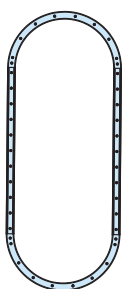
### Construction of the DTS2



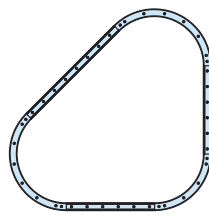
# Key Features and Benefits of DTS2

- **Strong Drive.** DTS2 carriages can accept high driving forces (much higher than DTS). They are linked by extremely strong steel cables encapsulated in a polyurethane toothed belt.
- **Smooth Motion.** The speed of the carriages is the same on the curved segments as it is on the straights, resulting in a smooth motion. The carriages on the curved sections of the original DTS move faster than those on the straight sections, so the carriages experience a pronounced acceleration at every joint between the straight and curved sections.
- **High Speed.** The smooth motion, uniformity of carriage speed and inherent balance of the DTS2 make it suitable for high speed use. Constant linear speeds of 3m/s are possible.
- **Rapid Indexing.** The speed and strength of the drive means that the DTS2 is well suited to indexing applications with high accelerations.
- **Good Positional Accuracy.** The precision straight and curved slides ensure that carriages are guided to a high degree of precision. The drive provides rigid positioning along the track and repeatability of  $\pm 0.2\text{mm}$  depending on system size. The pitching of carriage along the straight sections is held to similar tolerances. Applications requiring even better accuracy may be satisfied by the addition of an auxiliary carriage locking system.
- **Broad Range of sizes.** Standard designs exist based on HepcoMotion PRT2 ring sizes R25-351 & R44-612. These provide typical working loads of respectively 20 & 40kg per carriage. The operating principle is easily applied to other sizes including the Hepco HDRT (Heavy Duty Track System) which has much higher load capacity.
- **Simple & Compact.** There are fewer components in the DTS2 than in the earlier DTS design, making the new product simpler and much less deep than its predecessor.
- **Cost Effective.** The high performance and simple design makes for a cost effective product.
- **Stainless Steel Version.** The DTS2 is available in stainless steel, with all track, bearing, springs and fasteners in stainless steel. Carriages will normally be made in aluminium alloy with a food compatible corrosion resistant coating.
- **Carriages Will Not Disengage.** In the original DTS design, a feature is engineered into the carriage drive to disengage the carriage from the drive belt in the event of an overload. This prevents damage to the belt connections, which is an awkward and costly failure. The much superior drive strength of the DTS2 means that this approach is not necessary, but it would normally be recommended to have a mechanical or software torque limit in the drive to avoid a mechanical failure in the event of a jam-up condition.
- **Flexible Configuration.** The DTS2 track can take any shape made with straight and curved sections. The curved slides must be of a single radius, there must be no 'S' bends, and at least one straight section must be over a minimum length to accommodate the drive. Examples of possible configurations are shown below.
- **Limitations.** Although the DTS2 has the benefits listed above, there will be applications where the use of the original DTS system would be more appropriate.
  - **Number of carriages.** Due to the construction of the DTS2 there is a limit on the number of carriages that can be driven around the system, this is typically 50 carriages.
  - **Carriage pitch.** Available with two carriage options, short & long, the allowable carriage pitch covers a wide range. However, the position of the drive belt within the carriage assembly does limit the pitch that can be accommodated. Details of allowable carriage pitches can be found on page 3.
  - **System length.** The drive belt tension is maintained by high performance leaf springs fitted to each carriage, it is also directly related to the slide system length. It is therefore important during the design and assembly phases that there is some flexibility in the overall system length.
- For applications outside these limitations, please refer to the DTS catalogue available from [www.HepcoMotion.com/DTSdatauk](http://www.HepcoMotion.com/DTSdatauk) , or discuss your application requirements with our Technical Sales team.

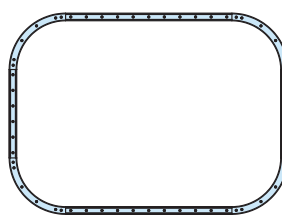
## Typical System Configurations



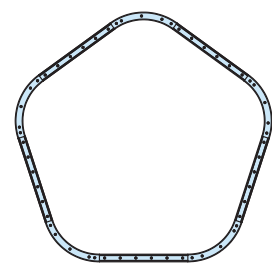
Oval



Triangular



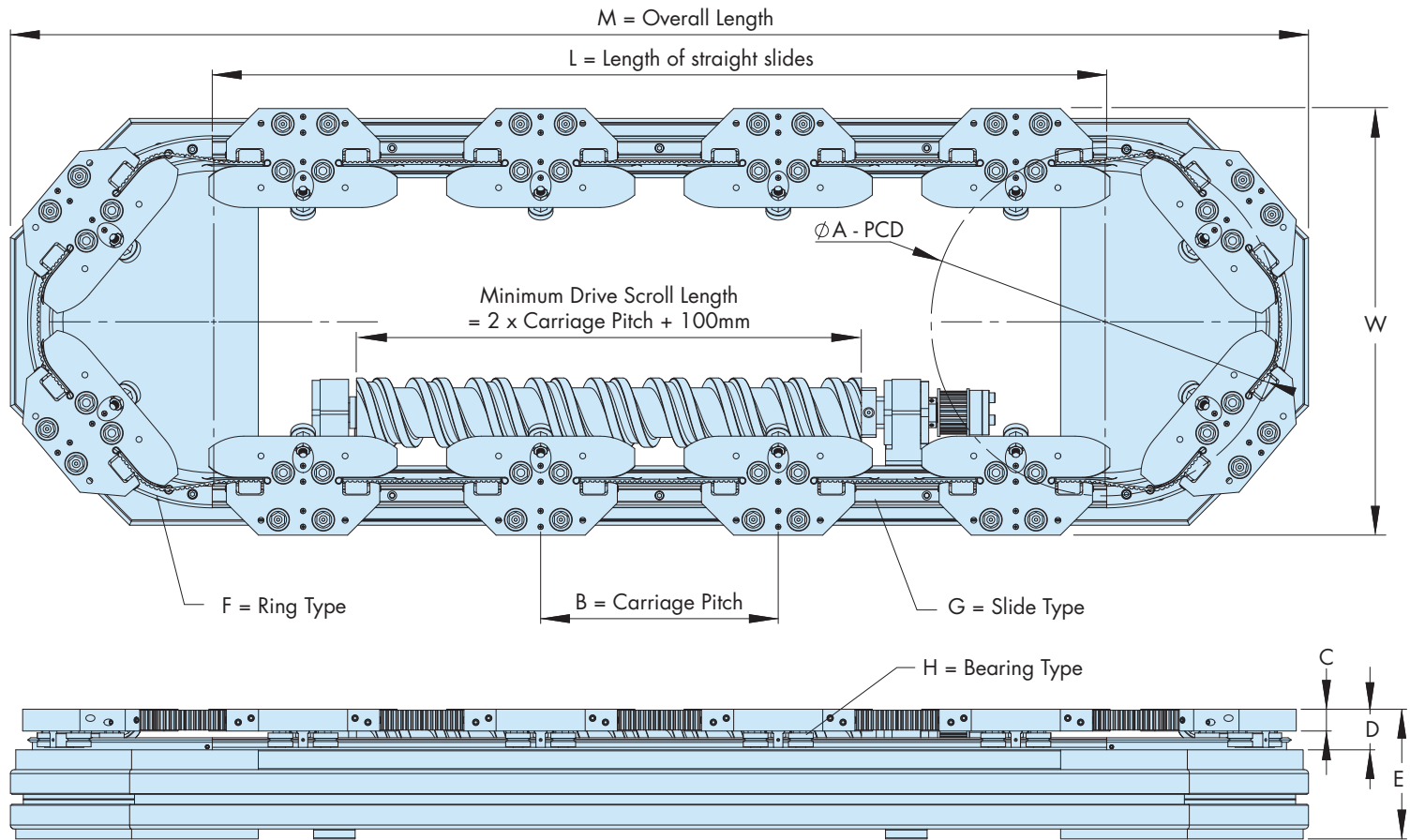
Rectangular



Multi Sided

# DTS2 Data and Dimensions

Due to the nature of DTS2 applications, systems will be adapted to suit customer requirements. It is not therefore practical to detail every dimension within the DTS2 range. The details below give an overview of the major dimensions of the DTS2 systems. An approval drawing will be created for every design ordered.



Shown above is an oval system with a single drive screw. Rectangular and triangular systems, as well as systems with multiple drive screws, are also available.

DTS2 carriage assemblies are specifically designed with optimised geometry to position and support the drive belt over a range of carriage pitches. They are available in short or long options for each size range of DTS2. The type used will be dependent on the carriage range required for the application, see the table below for details.

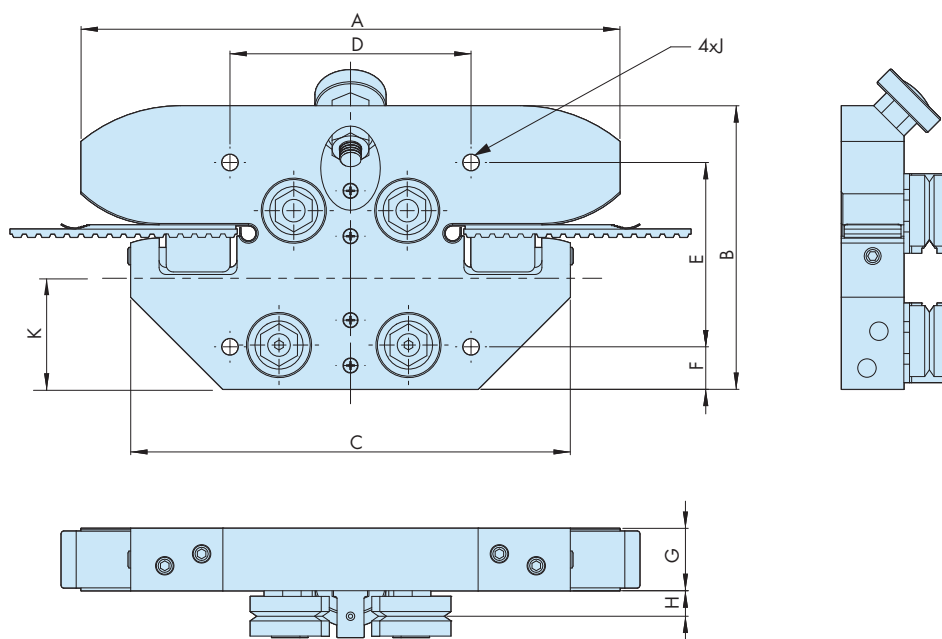
System Part Number	Type	A Ring PCD	B* <sup>1</sup> Carriage Pitch	C	D	E	F Rings	G Slides	H Bearings	M	W (Oval)
DTS2 S ...	Short	351	180-210	22	41	131	TR25-351	TNS25	RSJ25(DR)	L+397	431
	Long		235-250								
DTS2 M ...	Short	612	250-300	27	51	141	TR44-612	TNM44	RSJ34(DR)	L+667	727
	Long		325-380								

1. The carriage pitch maximum limits stated in the table above relate to oval systems with an even number of carriages. Due to Hepco's flexible DTS2 design, systems are matched to customer requirements. Depending on specific factors, it may be possible to accommodate pitches outside the limits stated above. Please discuss your application requirements with our Technical Sales team.

# DTS2 Data and Dimensions

## Carriage Assembly

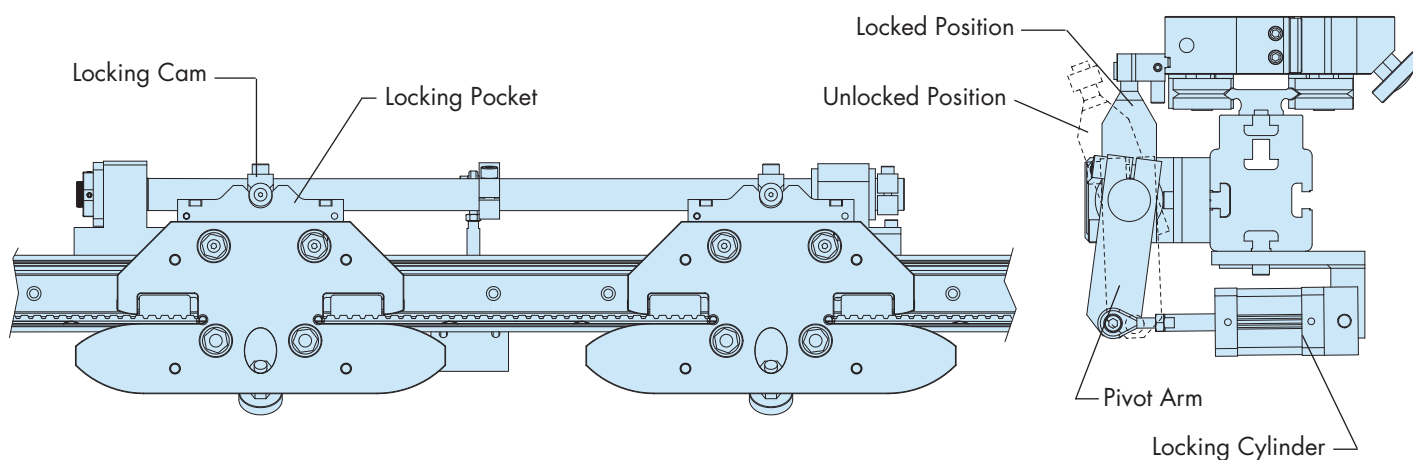
Typical carriage assembly information is given below. Custom features can be easily accommodated, please discuss requirements with our sales team.



Reference	Type	A	B	C	D	E	F	G	H	J	K
DTS2S	Short	150	100	120	100	65	15	22	9	M6	40.0
	Long	194	100	143	97	65	15	22	9	M6	40.0
DTS2M	Short	220	135	150	130	80	30	27	11.5	M8	57.5
	Long	280	135	190	140	80	30	27	11.5	M8	57.5

## Carriage Locking System

A typical DTS2 carriage will stop with a repeatability of  $\pm 0.2\text{mm}$  on straights containing a drive screw, and  $\pm 0.1$  whilst engaged within screw itself. This can be further improved by the addition of a carriage locking system, (see below).



In addition, the bleed lubrication system from PRT2 (see [www.HepcoMotion.com/PRT2datauk](http://www.HepcoMotion.com/PRT2datauk)) and custom transmissions including belt drives and geared motors can be supplied.



# DTS2 - Examples

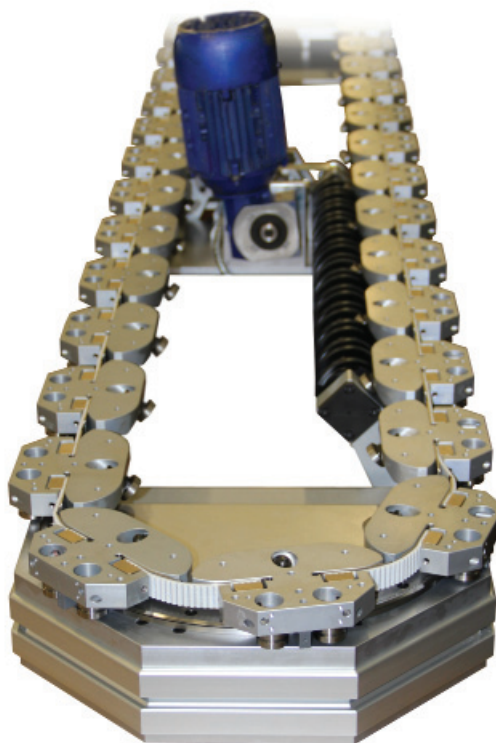
Hepco has supplied many DTS2 units in various sizes and shapes. Pages 5 to 8 contain details and photos of just a few of the multitude of different configurations that are possible with this flexible design.

## DTS2 - S - Short Carriage

This DTS2 S system has the shortest available carriage pitch of 180mm. It has 32 short style carriages, is driven by twin drive screws and, and has an integrated transmission system.

Carriage Pitch = 180mm  
Index Pitch = 360 mm

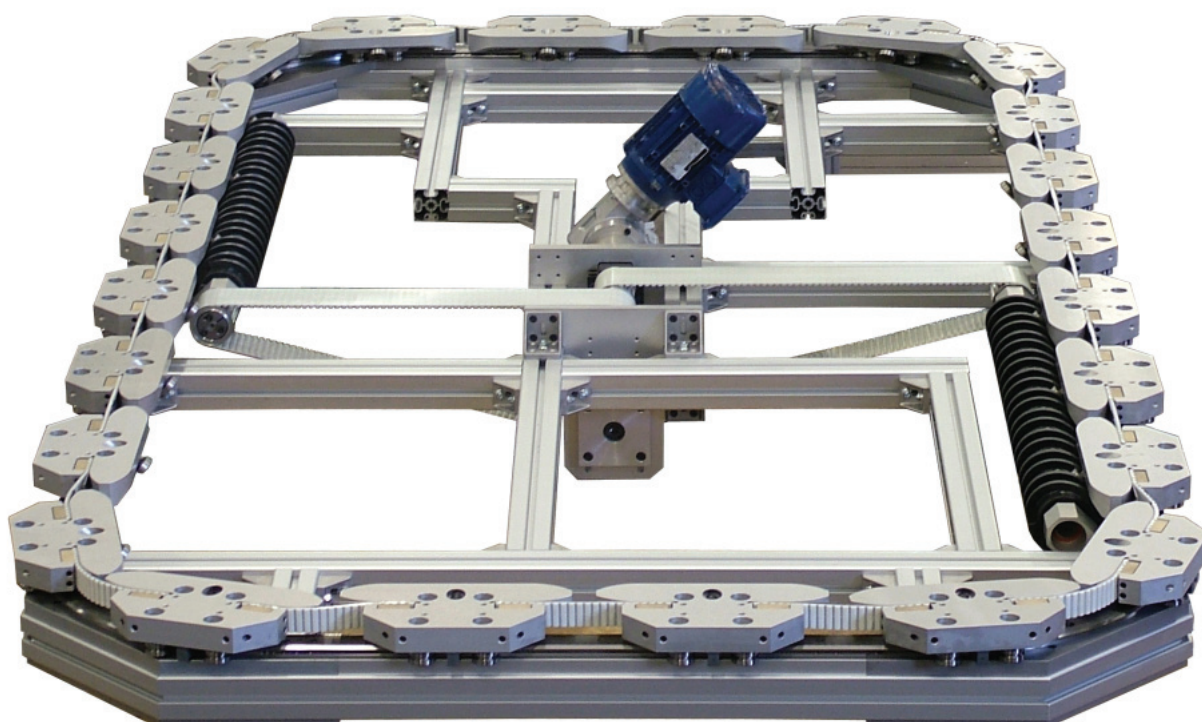
System Speed = 1.3 m/s  
Acceleration = 10 m/s<sup>2</sup>



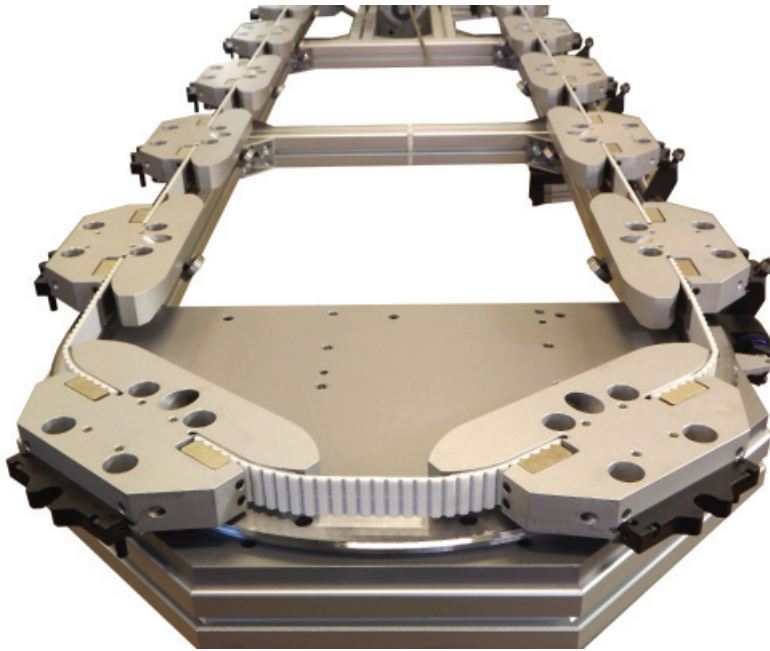
## DTS2 - M - Long Carriage

This rectangular DTS2 M system has 32 carriages, and is driven by twin drive screws and integrated transmission. MCS profiles added to the support frame allow internal access and fixing points for customer components.

Carriage Pitch = 340mm,  
System Speed = 1m/s,  
Acceleration = 4.3 m/s<sup>2</sup>.



## DTS2 - Examples



### DTS2 - M - Long Carriage

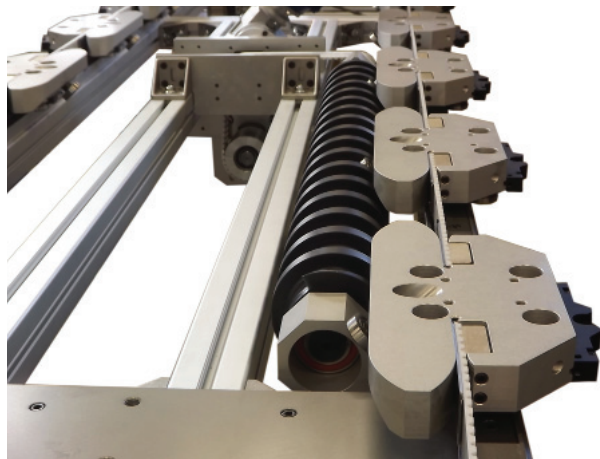
This oval DTS2 M system contains 22 carriages. Driven by a single drive screw and integrated transmission, this unit also includes a carriage locking system, which when locked maintains positional accuracy of locked carriages within  $\pm 0.05\text{mm}$ .

Carriage Pitch	= 400mm
System Speed	= 0.6 m/s
Acceleration	= 5.2 m/s <sup>2</sup>

### Carriages engaged with the drive screw.

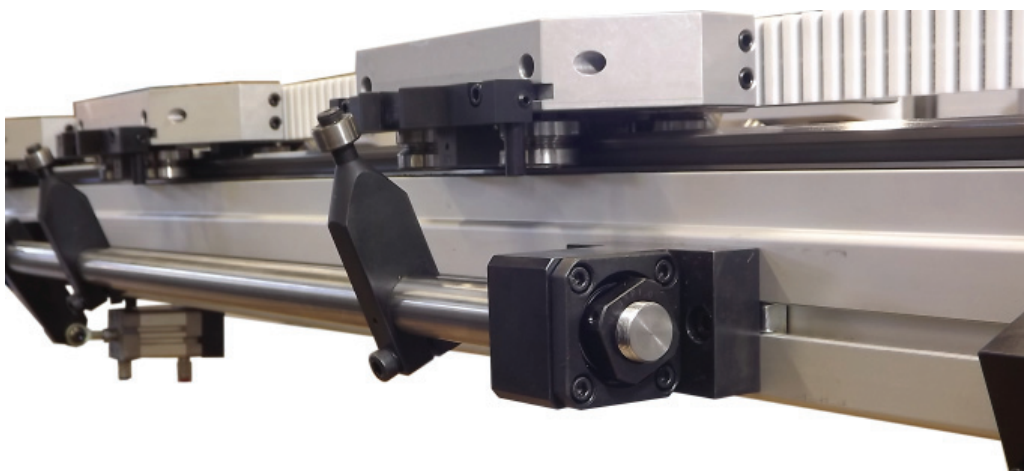
Drive screws are manufactured from high quality bearing grade polymer, design specifically to match the requirements of the application.

Supported by high capacity bearings, with integrated drive belt for direct connect to drive or transmission components.



### Integrated carriage locking system

Ideally suited to indexing applications, where repeated positional accuracy of the carriage is required. Carriages can be positioned anywhere along a straight section of the circuit which doesn't contain a drive screw to typically within  $\pm 0.05\text{mm}$ .



## DTS2 - Examples



### DTS2 - M - Long Carriage

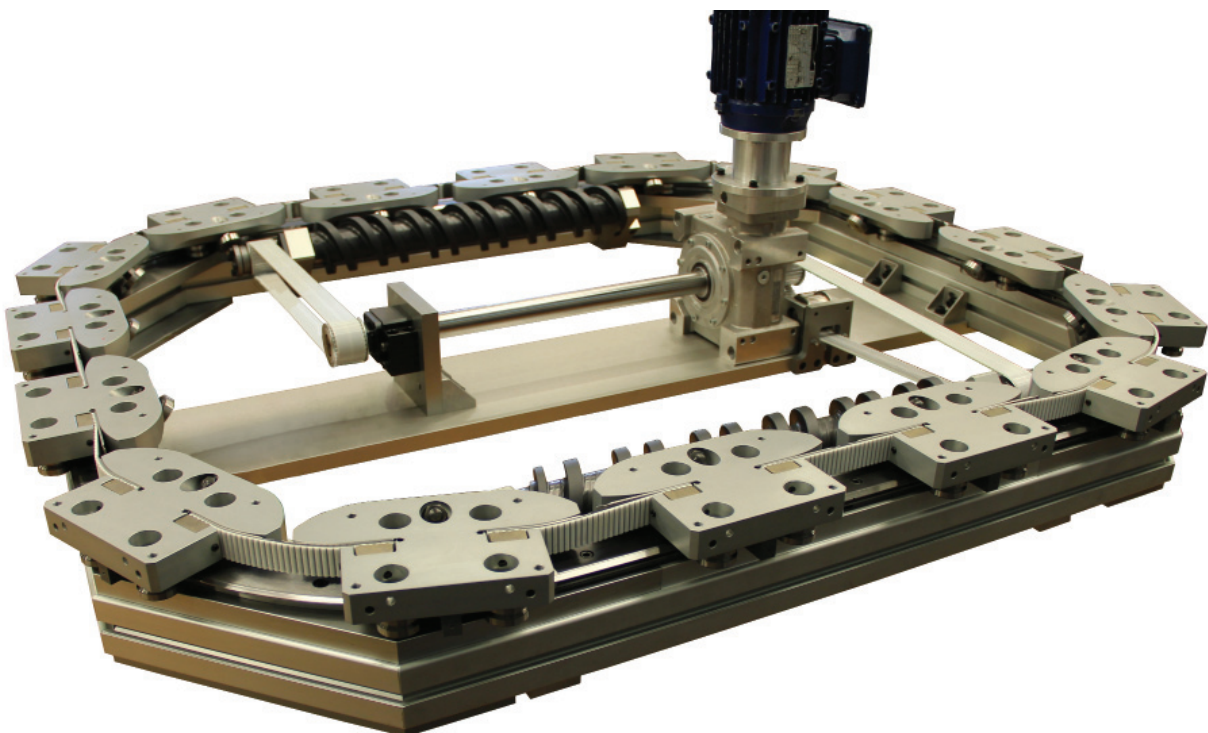
This DTS2 M system has 24 carriages. It is driven by three drive screws two on one straight and one on the opposite straight.

Carriage Pitch	= 400 mm
Carriage Speed	= 0.25 m/s
Acceleration	= 0.45 m/s <sup>2</sup>

### DTS2 - M - Short Carriage

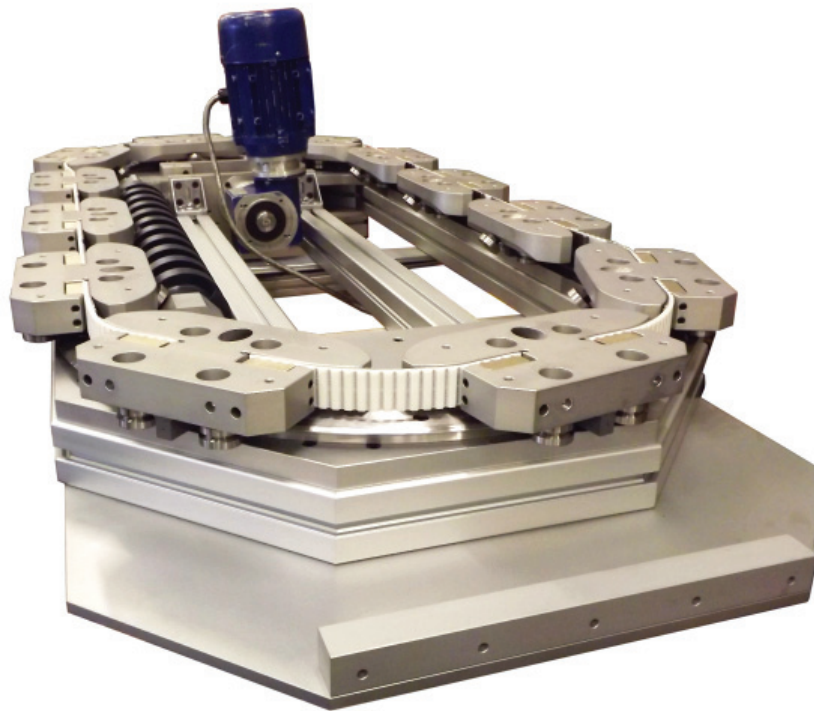
This DTS2 M rectangular system includes 16 carriages. A customer requirement that at least four carriages were engaged with the drive screw at any one time required a twin drive screw with central transmission.

Carriage Pitch	= 250mm
Carriage Index	= 500 mm
Carriage Speed	= 1.5 m/s
Acceleration	= 9 m/s <sup>2</sup>





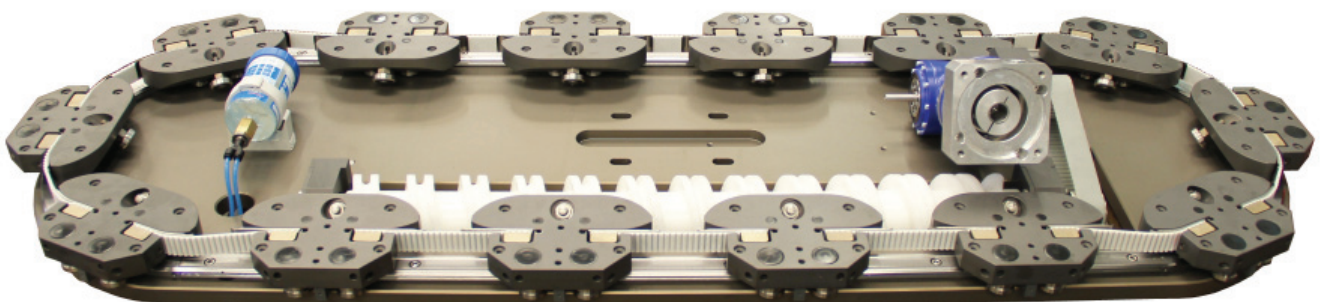
## DTS2 - Examples



Due to the design flexibility of the DTS2, systems can be supplied with fixing plates for direct integration into a customer's machine. In the case above the base plates standard in the DTS2 construction were extended, and brackets added so that the system could be fixed directly in the structure of the machine, reducing cost & assembly time.

Systems can also be supplied with stainless steel components, PRT2 bleed lubrication and custom base plates. For details on available PRT2 options or bleed lubrication please visit [www.HepcoMotion.com/PRT2datauk](http://www.HepcoMotion.com/PRT2datauk).

The DTS2 S system below was supplied with stainless steel components and bleed lubrication. In addition aluminium components were coated with a high performance FDA approved surface treatment. The drive screw used specified food compatible material.



Please contact our Technical Sales Team to discuss your requirements, and help to specify the DTS2 to match your application.

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