Linear motion experts HepcoMotion have worked with Beckhoff to develop specialised versions of the PRT2 and 1-Trak guidance systems to work with the Beckhoff XTS eXtended Transport System. This option meets the needs of higher duty XTS applications where motion profiles and long term durability requirements are particularly demanding.

The Beckhoff XTS eXtended Transport System uses linear motor technology to drive independently controlled movers around a track. This provides a solution for complex, high speed motion profiles up to 4m/s, without compromising positional accuracy.

The system integrates Hepco’s patented 1-Trak guidance system and three bearing mover, providing the optimum mover path for Beckhoff’s 180° motor modules. 1-Trak systems consist of an aluminium base plate with 1-Trak end segments and custom ground straight slides attached, providing rigidity and the highest level of accuracy and precision.

Hepco’s PRT2 systems are compatible with motor module segment sizes 22.5° and 45°, offering solutions for larger applications. Based on Hepco’s standard PRT2 range, track solutions can be configured into circular, oval and rectangular systems as standard, and can be supplied as complete factory assembled systems, semi-assembled track systems or components.

Stainless steel versions are available for all track solutions and can be adapted to suit customers’ needs. Please contact Hepco for more information on specialist requirements.

**Features and Benefits**

- Hardened V guidance maintains accuracy over long periods
- Low maintenance bleed lubrication system
- All systems available in stainless steel
- Available with food compatible grease
- High rigidity
- Removable track section for easy maintenance

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**Hepco Guidance Systems for Beckhoff XTS**

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**GFX 1-Trak Lite System Composition**

**GFX 1TL Systems**

GFX 1-Trak Lite is a spacer slide version of Hepco’s 1-Trak guidance system, including a patented curved track form, providing the optimum mover path for 180° motor modules. The track system is mounted on an aluminium baseplate along with a set of motor support brackets, or can be supplied as a kit of parts for custom installation. Its length is only limited by the number of motors and movers supported by a Beckhoff control system. Please see page 7 or contact Beckhoff for information on these limitations.

1-Trak Lite systems use a three bearing mover design. Movers are available in various bearing and length combinations, providing a range of load, moment and acceleration capabilities.

All Hepco guidance systems can be supplied fully assembled, with Beckhoff motor modules, mover magnets and mover encoder flags, partially assembled, or as a kit of components.

Customers should provide their own Beckhoff components for assembly at Hepco.

If you wish to re-use motors predating 2016, please check compatibility with Hepco’s technical department.
Various mover sizes and capabilities are available to suit XTS applications. Below is a list of the key parameters and how they vary with mover size and bearing type:

**Mover Options**

- **Three bearing 1-Trak Mover**
  - 25mm outer bearings
  - Most compact mover
  - Suitable for light moment loads
  - Available in standard lengths of: 52mm and 72mm

- **Four bearing PRT2 Mover**
  - All 25mm bearings
  - Compact high moment mover
  - Suitable for medium moment loads
  - 55mm long as standard

**Defining System Requirements**

When specifying a HepcoMotion guidance system for Beckhoff XTS, the following factors are considered:

- Payload, fixture mass and position relative to the mover
- Orientation
- Speed and acceleration profile of the application
- Additional process loads
- Duty cycle
- Precision requirement
- Servicing and maintenance requirements
- Required system life
- Required mover pitch
- Machine size - system length
- Environmental conditions (temperature, humidity, pollutants, variation etc.)

**Bleed Lubrication**

Sufficient lubrication is essential for all Hepco guidance systems for Beckhoff XTS. All systems incorporate a bleed lubrication facility, which channels lubricant directly to the ‘V’ faces of the slide.

Lubricant is then distributed around the system by the movers. This process can be aided with lubricators mounted on movers (PRT2 systems only). It is highly recommended that lubrication ports are situated approximately once every 3 metres of track. For more information on lubrication requirements, flow rates and food grade lubricants, please see the Hepco Guidance Systems for Beckhoff XTS - lubrication datasheet 01.

Please see the PRT2 catalogue page 52 for more information on bleed lubrication and positioning lubrication ports on a PRT2 track system.

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If you wish to re-use motors predating 2016, please check compatibility with Hepco’s technical department.

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GFX PRT2 ring and track systems use four bearing fixed centre movers. Please see the PRT2 catalogue for more information on fixed centre carriages.

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Defining System Requirements

- Payload, fixture mass and position relative to the mover
- Orientation
- Speed and acceleration profile of the application
- Additional process loads
- Servicing and maintenance requirements
- Required system life
- Required mover pitch
- Environmental conditions (temperature, humidity, pollutants, variation etc.)

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Additional Information

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Mover Options

Various mover sizes and capabilities are available to suit XTS applications. Below is a list of the key parameters and how they vary with mover size and bearing type:

- **Three bearing 1-Trak Mover**
  - 25mm outer bearings
  - Most compact mover
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---

GFX PRT2 track systems can be configured into oval or rectangular systems.

---

GFX PRT2 ring and track systems use four bearing fixed centre movers. Please see the PRT2 catalogue for more information on fixed centre carriages.

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**Application Examples - Features and Benefits**

### High Speed Lane Divider

This example shows a vertically mounted, lightly loaded, high speed and high duty GFX 1-Trak system being used to sort randomly positioned items into two separate lanes.

- High rigidity - solid steel base plate
- Positional repeatability
- Durable - hardened guidance system
- Low maintenance - integrated bleed lubrication
- Standard configuration

### Multi-Operation and Variable Speed Application

The horizontally mounted system shown below comprises of a GFX PRT2 track system mounted on a customisable Hepco MCS support structure.

- Durability - hardened guidance system
- High moment capacity - for higher process forces
- Low maintenance - integrated bleed lubrication
- Machine integration - Hepco MCS support structure
- Precision ring and track technology (PRT2)
- Standard configuration

### Multidirectional Bend

This high temperature assembly application utilises 180° end modules, plus internal and external 22.5° curved Beckhoff modules, creating an ‘S’ bend system layout, with a GFX 1-Trak Lite System.

- Durability - hardened guidance system
- Harsh environment - ‘V’ system technology
- Positional repeatability
- High load capacity
- Flexible layout - patented track geometry
- Customisable - designed to suit a specific application

### Double Sided System

Two GFX 1-Trak systems manufactured with a single ‘back to back’ base provide a compact and accurate assembly.

- High rigidity - solid steel back plate
- Excellent parallelism - ground back plate
- Positional accuracy
- Compact
- Customisable - designed to suit a specific application
Technical Data - GFX 1-Trak Lite Systems

GFX 1TL systems are comprised of two 1-Trak end segments and ground GV3 or SL2 spacer slides. These can be supplied as a set of components or assembled to a solid aluminium baseplate. Assembled systems can be supplied with motor support structures and all the required fasteners for motor connection or fully assembled with Beckhoff XTS motors. External dimensions are shown below, please contact Hepco’s technical department for more information.

### Notes:
1. GFX 1TL is restricted to the capacity of the Beckhoff motor control system which is at least 50 metres of total track length and 100 movers.
2. Please contact Hepco’s technical department for more information on mover load and moment capacity.
3. Mass of movers includes Beckhoff magnet and encoder flag assembly.
4. See page 9 for system designations.

<table>
<thead>
<tr>
<th>Mover Part Number</th>
<th>L</th>
<th>Bearing Diameter</th>
<th>Typical Payload*2</th>
<th>Mass*3</th>
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<tbody>
<tr>
<td>GFX-1TC-C25</td>
<td>52</td>
<td>25</td>
<td>0.5kg</td>
<td>610g</td>
</tr>
<tr>
<td>GFX-1TC-S25</td>
<td>72</td>
<td>25</td>
<td>1.5kg</td>
<td>680g</td>
</tr>
<tr>
<td>GFX-1TC-C34</td>
<td>70</td>
<td>34</td>
<td>4kg</td>
<td>790g</td>
</tr>
<tr>
<td>GFX-1TC-M34</td>
<td>80</td>
<td>34</td>
<td>5kg</td>
<td>820g</td>
</tr>
</tbody>
</table>

Guidance systems for Beckhoff XTS can also be supplied as PRT2 ring and track assemblies, which can be configured into oval, rectangular and circular systems. Motor modules are supplied in 45° or 22.5° segments. PRT2 systems require a four bearing fixed centre carriage (FCC) mover.

### Notes:
1. GFX PRT2 system length is restricted to the capacity of the Beckhoff motor control system, which is at least 50 metres of total track length and 100 movers.
2. Please contact Hepco’s technical department for more information on mover load and moment capacity.
3. Mass of movers includes Beckhoff magnet and encoder flag assembly.
4. See page 9 for system designations.
System and Component Specification - GFX 1-Trak Systems

GFX 1-Trak Systems

Corrosion resistant systems use all stainless steel track components.

System and Component Specification - GFX PRT2 Track Systems

GFX PRT2 Track Systems

Corrosion resistant systems use all stainless steel track components.

Notes
1. 360° GFX ring systems using 22.5° motor modules and 1274mm diameter rings require 16 motor modules.
2. All movers are supplied fully assembled and adjusted to a system, unless requested otherwise.
4. Fixed centre movers (FCC) can be supplied with slide lubricators. One lubricator is supplied per carriage on alternating sides of the carriage to minimise friction.
5. Outer bearing size also determines the size of the mover. Please see page 7 or the GFX Technical Guide for more mover information.
6. System length is determined by the number of straight motor modules.

Optional support structure shown. Contact Hepco’s Technical Sales Department for more information.
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