

GFX

HEPCO GUIDANCE SYSTEM FOR BECKHOFF XTS

Hepco Guidance Systems for Beckhoff XTS

Introduction	1
GFX 1-Trak Lite System Composition	2
GFX PRT2 System Composition	3
Mover Options	4
Defining System Requirements	4
Bleed Lubrication	4
Application Examples	5
Technical Data	
GFX 1-Trak Lite Systems	7
GFX PRT2 Systems	8
Ordering Details	
System and Component Specification	9

Introduction

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 lightweight three bearing mover, providing the optimum mover path for Beckhoff’s 180° motor modules. 1-Trak systems consist of a 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 | ■ Lightweight mover |
| ■ Low maintenance bleed lubrication system | ■ High rigidity |
| ■ All systems available in stainless steel | ■ Removable track section for easy maintenance |
| ■ Available with food compatible grease | |

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.



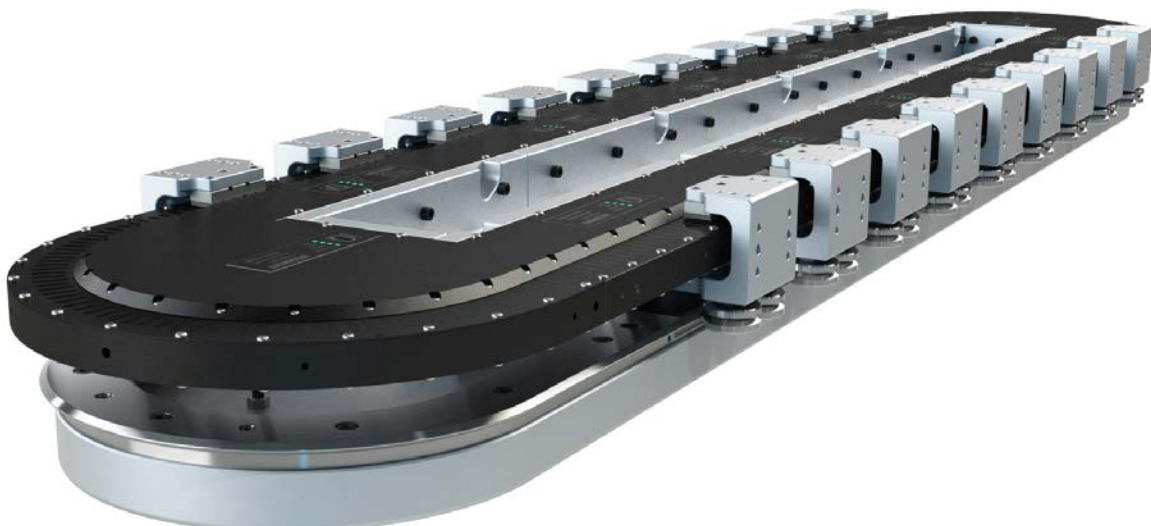
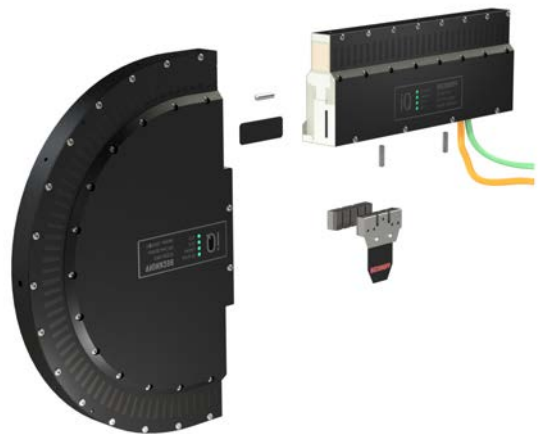
1-Trak Lite systems use a three bearing mover design. Movers are available in various bearing and length combinations, providing a range of load, moment and acceleration capabilities.



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.



GFX PRT2 System Composition

PRT2 Ring and Track Systems

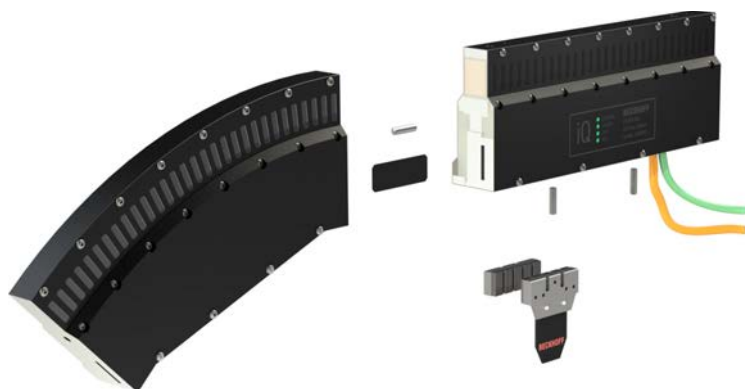


GFX
PRT2 track
systems can be
configured into oval or
rectangular systems.

PRT2 Ring Systems



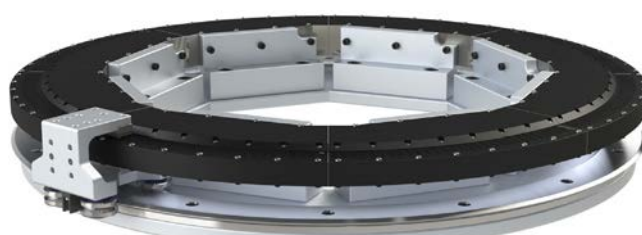
GFX PRT2 ring and track systems use four bearing fixed centre movers. Please see the PRT2 catalogue for more information on fixed centre carriages.



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.



Additional Information

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
- Lowest mover mass
- Suitable for light moment loads
- Available in standard lengths: 52mm and 72mm



- 34mm outer bearings
- Compact mover
- Low mover mass
- Suitable for medium moment loads
- Available in standard lengths: 70mm and 80mm

Four bearing PRT2 Mover

- All 25mm bearings
- Compact high moment mover
- Low mover mass
- Suitable for medium moment loads
- 55mm long as standard



- All 34mm bearings
- Longer bearing life
- Lubricator option
- Suitable for heavier moment loads
- 85mm 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 mover
- Speed and acceleration profile of the application
- Duty cycle
- Precision requirement
- Required system life
- Machine size - system length
- Orientation
- Additional process loads
- Servicing and maintenance requirements
- Required mover pitch
- 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 vee 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.

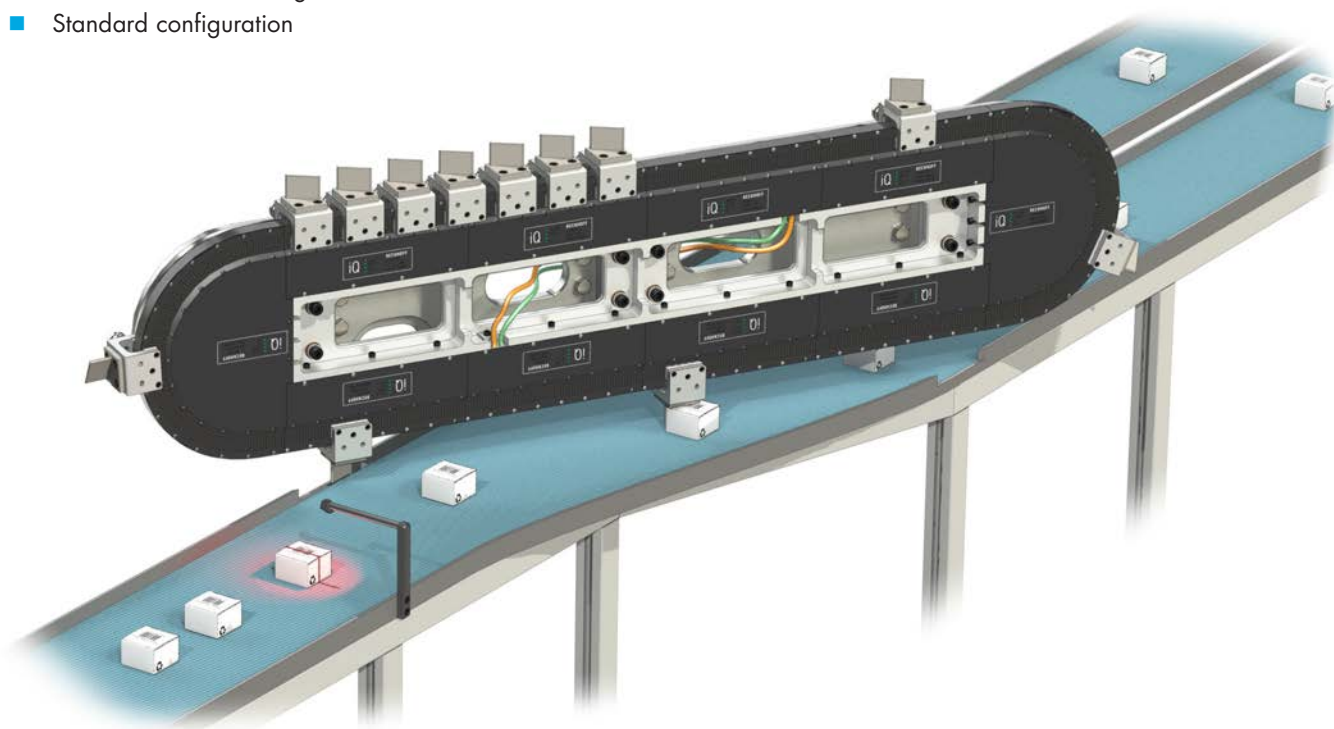


Application Examples - Features and Benefits

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.

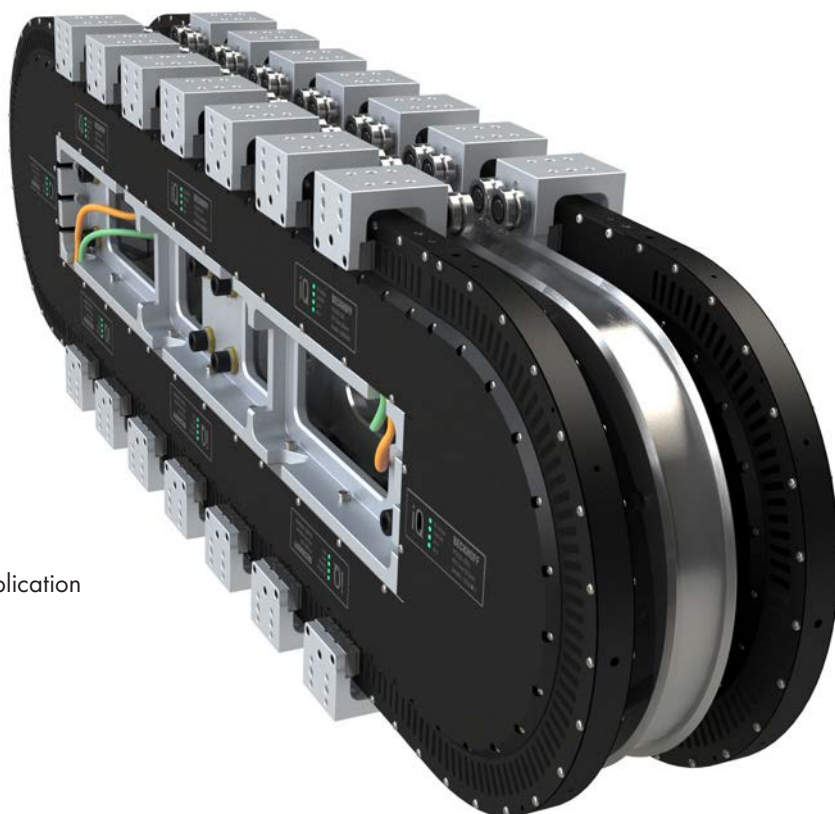
- High rigidity - solid steel base plate
- Positional repeatability
- Durable - hardened guidance system
- Low maintenance - integrated bleed lubrication
- Standard configuration



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

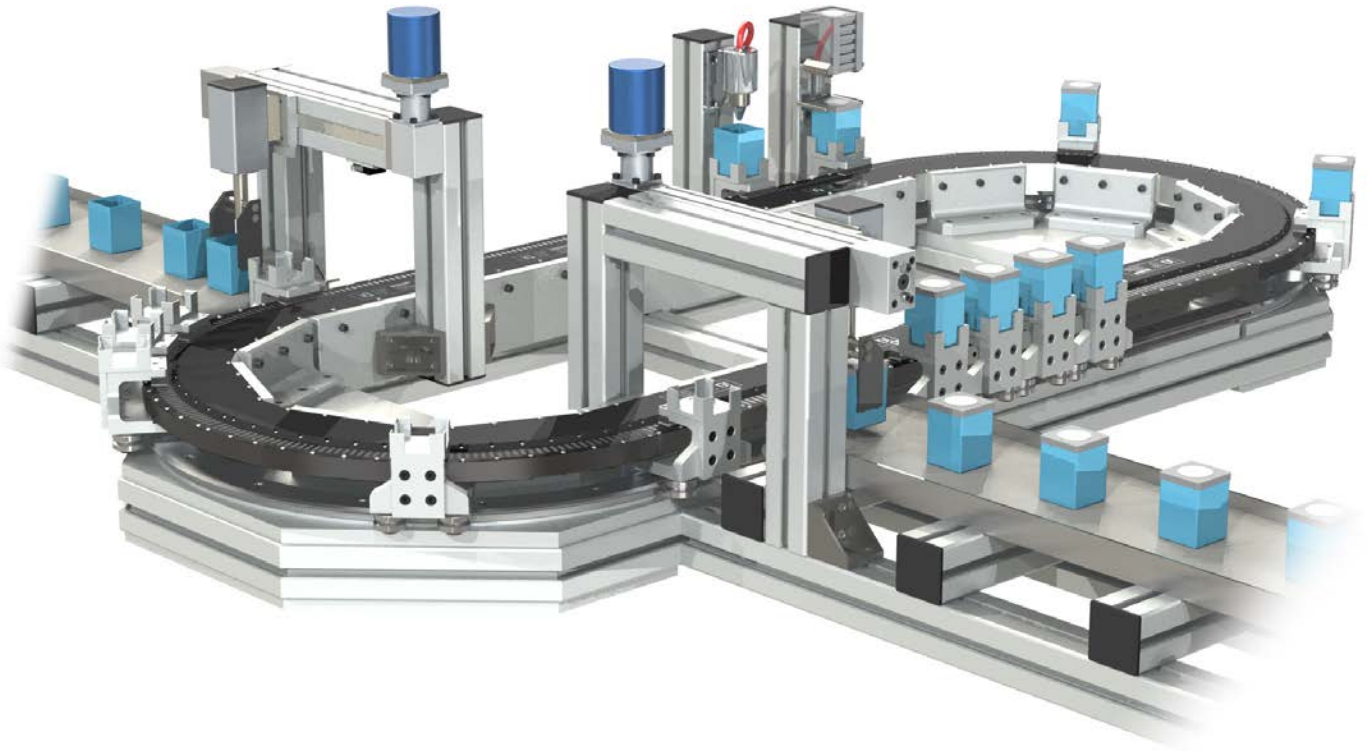


Application Examples - Features and Benefits

Multi-Operation and Variable Speed Application

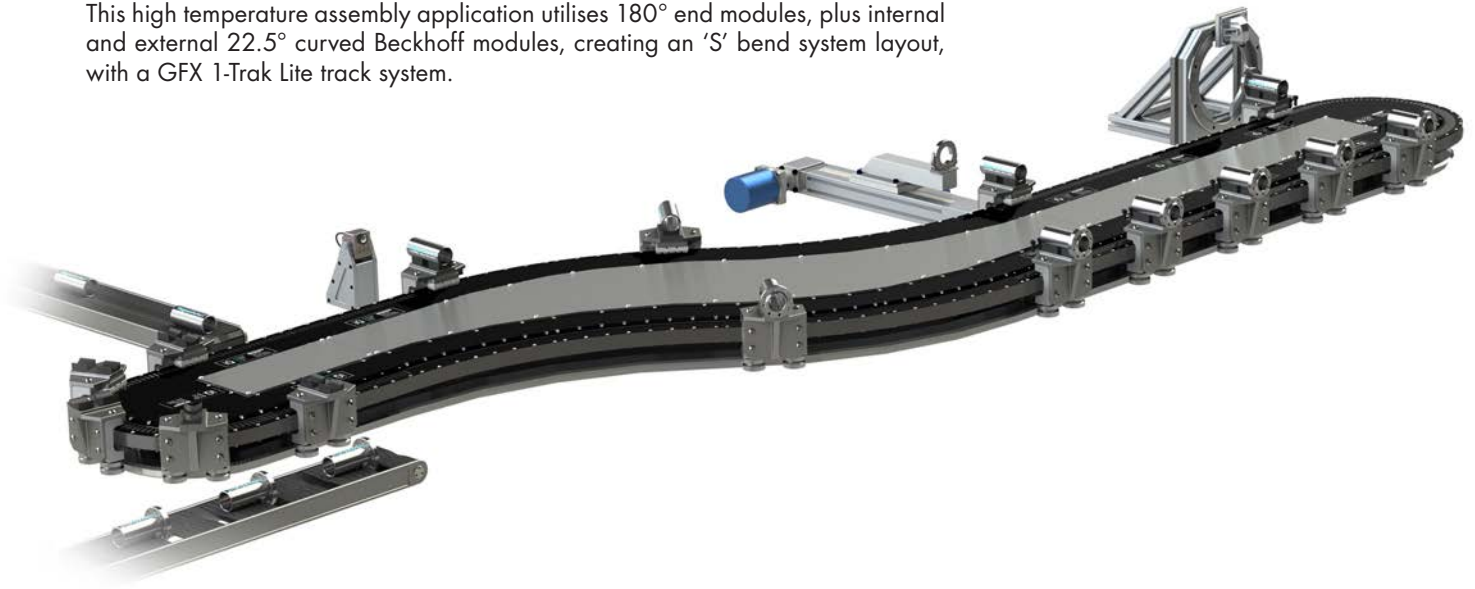
The horizontally mounted system shown below comprises of a GFX PRT2 track system mounted on a customisable Hepco MCS support structure.

- 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

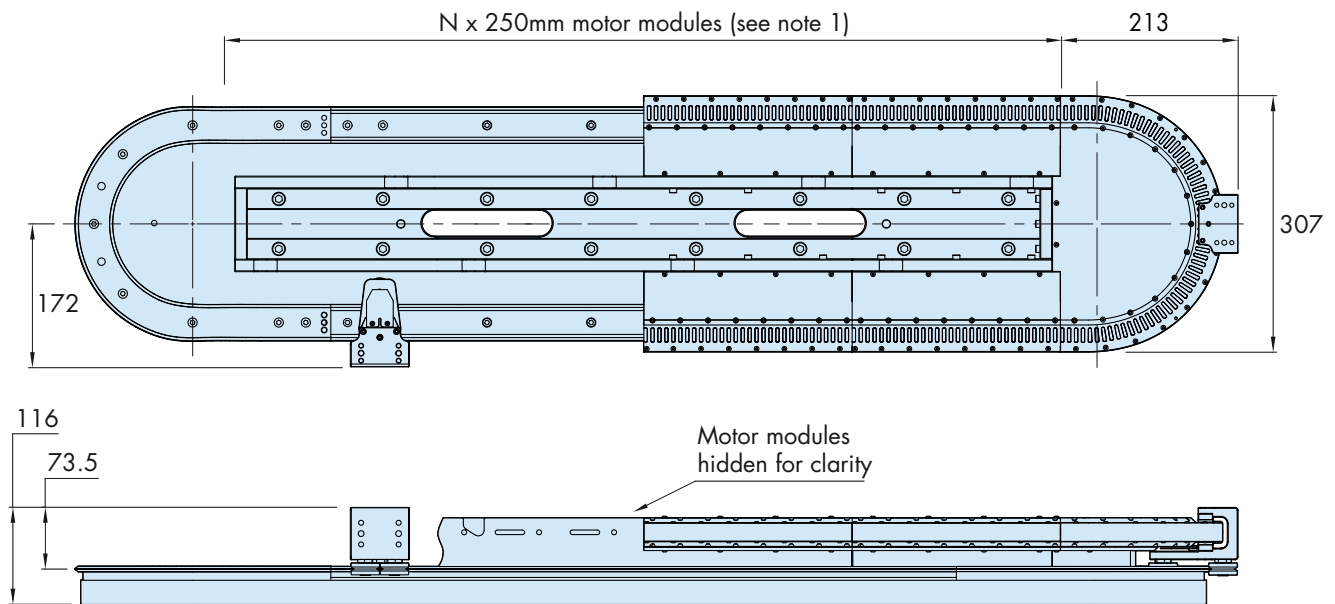
This high temperature assembly application utilises 180° end modules, plus internal and external 22.5° curved Beckhoff modules, creating an 'S' bend system layout, with a GFX 1-Trak Lite track system.



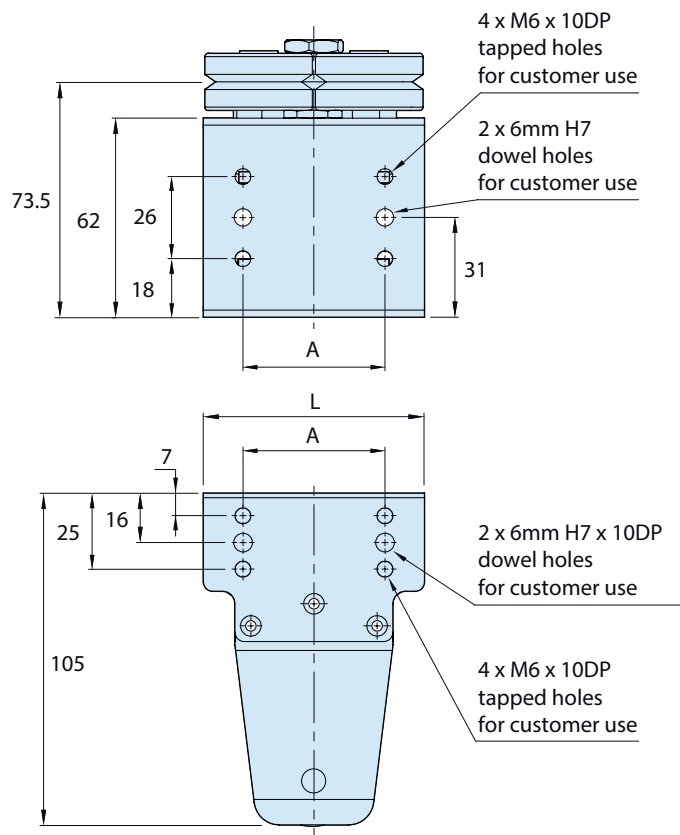
- Special mover designed to overcome temperature variation.
- Low maintenance - integrated bleed lubrication
- High load capacity
- Durability - hardened guidance system
- Harsh environment - Vee system technology
- Positional repeatability
- Flexible layout - patented track geometry
- Customisable - designed to suit a specific application

Technical Data - GFX 1-Trak Lite Systems

GFX 1TL systems are comprised 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 for more information please contact Hepco's technical department.



	Mover Part Number			
	GFX-1TC-C25	GFX-1TC-S25	GFX-1TC-C34	GFX-1TC-M34
L	52	72	70	80
A	26	45	45	55
Outer Bearing Diameter	25	25	34	34
Typical Max Payload*2	0.5kg	1.5kg	4kg	5kg
Mass*3	610g	680g	790g	820g

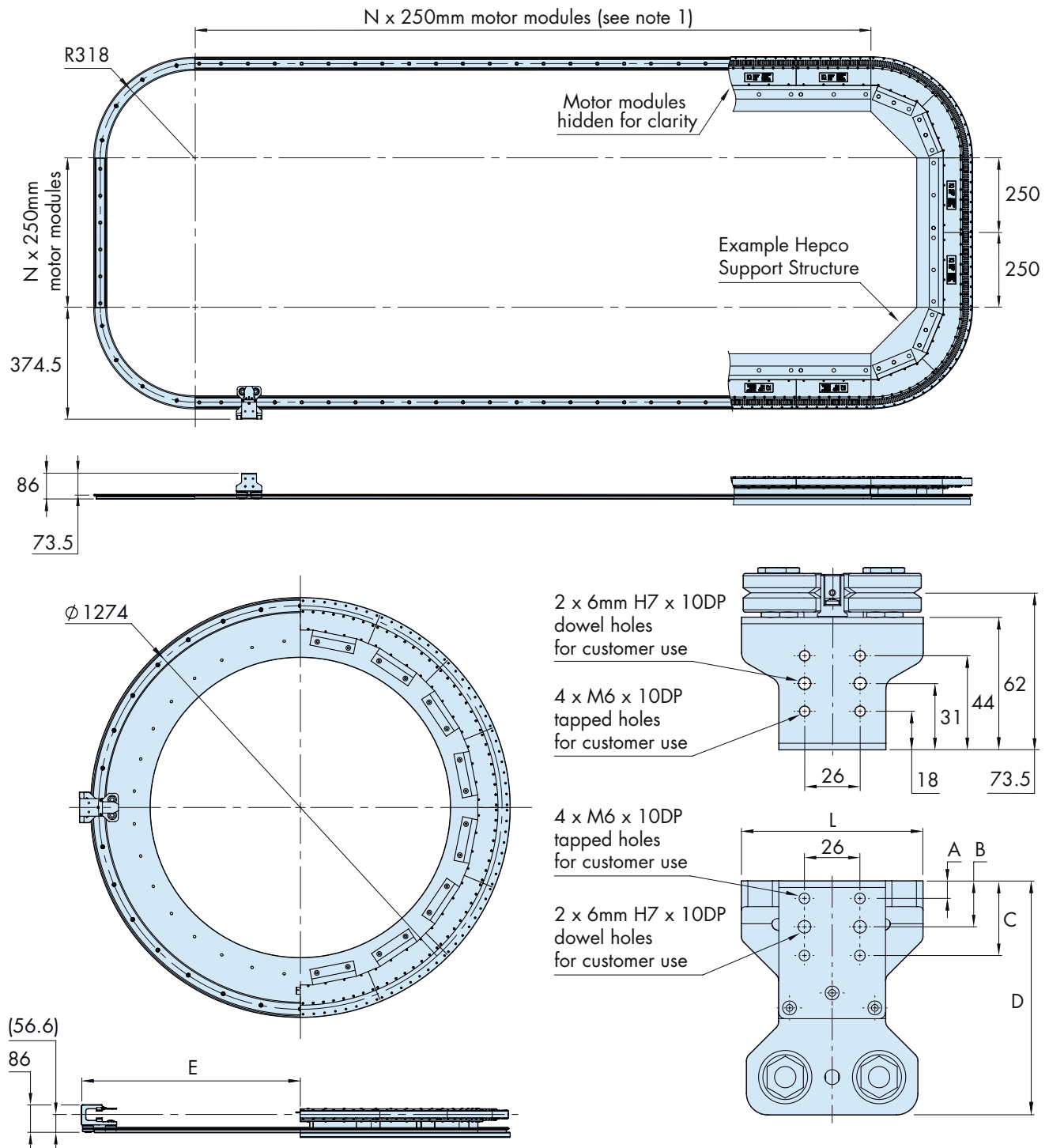


Notes:

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 designs.

Technical Data - GFX PRT2 Systems

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.



Mover Part Number	A	B	C	D*4	E	L	Bearing Diameter	Typical Payload*2	Mass*3
GFX-FCC-C25	7	18	29	100	681	55	25	0.5kg - 2kg	600g
GFX-FCC-M34	8	21	34	110	690.6	85	34	2kg - 10kg	950g

Notes:

1. GFX PRT2 system length is restricted to the capacity of the Beckhoff motor control system, which is in excess of 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. Size 25 and 34 mover profiles vary slightly, please see page 4 for a visual comparison.

System and Component Specification - GFX 1-Trak Systems

GFX 1-Trak Systems

Corrosion resistant systems use all stainless steel track components.



System length is determined by the number of straight motor modules.

Product
GFX

Corrosion Resistant Option

System Type
1TL - 1-Trak Lite
(See page 2)

System Length

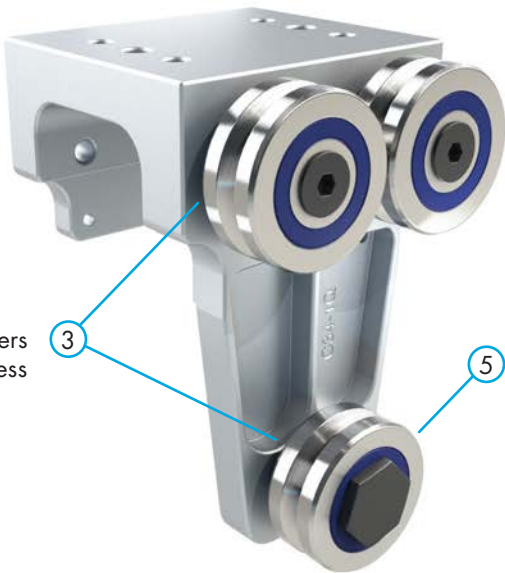
GFX - **(CR)** - **1TL** - **4M**

1

2

Movers

Corrosion resistant movers are supplied with stainless steel bearings.



Outer bearing size also determines the size of the mover. Please see page 7 or the GFX Technical Guide for more mover information.

Bearings are axial stiffness as standard. **-DR** movers incorporate double row bearings. Please see the GFX Technical Guide for mover load information.

Product
GFX

Corrosion Resistant Option
(Leave blank if not required)

Mover Type
1TC - 1-Trak Mover

Bearing Type
AS - Axial Stiffness
DR - Double Row Bearings

Mover Size
(See page 7)
C25 - Compact 25 bearings
S25 - Standard 25 bearings
C34 - Compact 34 Bearings
M34 - Standard 34 bearings

10 x **GFX** - **(CR)** - **1TC** - **M34** - **AS**

3

4

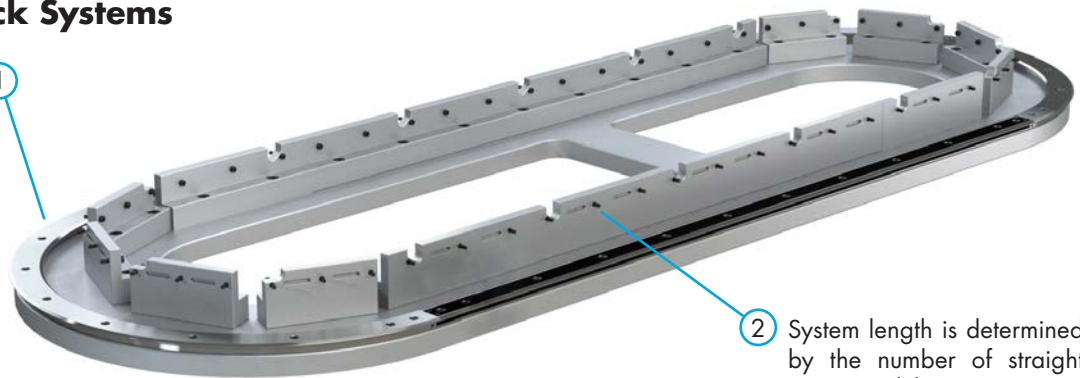
5

System and Component Specification - GFX PRT2 Systems

GFX PRT2 Track Systems

Corrosion resistant systems use all stainless steel track components.

1



2 System length is determined by the number of straight motor modules.

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

Product GFX - (CR) - 637 - OVAL-4M

Corrosion Resistant Option (Leave blank if not required) 1

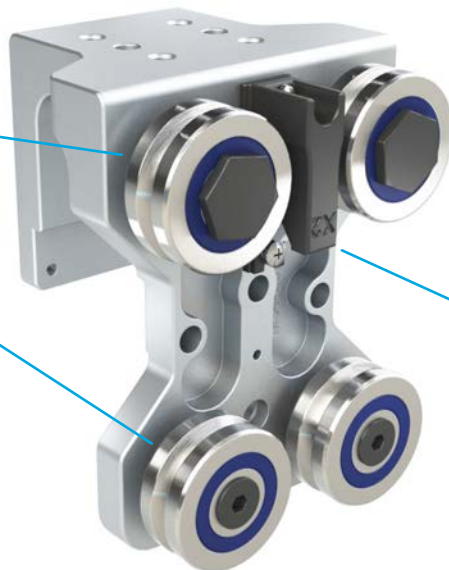
System Size (See page 8)
OVAL-4M - (Oval)
4MX2M - (Rectangular)
RING-8M - (360° Ring*1)

Segment Diameter
637 - 45° Modules
1274 - 22.5° Modules*1

Movers

Corrosion resistant movers are supplied with stainless steel bearings.

3



4 Outer bearing size also determines the size of the mover. Please see page 8 or the GFX Technical Guide for more mover information.

Bearings are axial stiffness as standard. **-DR** movers use double row bearings. Please see the GFX Technical Guide for mover load information.

5

6 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.

20 x GFX - (CR) - FCC - 637 - M34 - AS - (LB)

Product GFX

Corrosion Resistant Option (Leave blank if not required) 3

Mover Type FCC - Fixed centre (PRT2)

Segment Diameter
637 - 45° modules
1274 - 22.5° modules

Additional Options LB - Slide lubricators (Leave blank if not required) 6

Bearing Type AS - Axial Stiffness
DR - Double Row Bearings 5

Mover Size (See page 8)
C25 - Compact 25 bearings
M34 - Standard 34 bearings 4

Notes

- 360° GFX ring systems using 22.5° motor modules and 1274mm diameter rings require 16 motor modules.
- All movers are supplied fully assembled and adjusted to a system, unless requested otherwise.

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