Directory

Rolling Stock

THK GmbH

Linear Technology for the Railway Industry

In mechanical engineering and in automation technology, the use of components from the field of linear technology is a common standard.

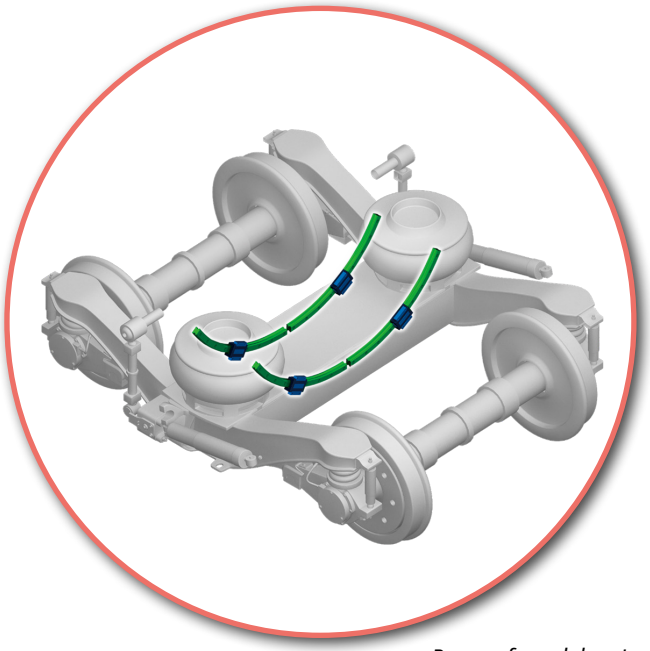
What is less known, however, is that these components also lead to improvements in many areas of railway technology both for railway vehicle technology as well as interiors.

But What Is Linear Technology?

The moving parts of a machine can perform rotary, linear or a combination of both movements. With the development of ball bearings 125 years ago, rolling contact became the standard method of supporting rotary motion. This led to a technical revolution. The rolling contact not only reduced the kinetic energy required, but also reduced the frictional resistance to a minimum and thus drastically increased the performance of the machines. Although a similar development in linear motion would have been very valuable, it took many years for linear motion through rolling contact to become a reality.

The Japanese company THK eliminated the hitherto unsolvable problem of linear guides with rolling contact and, in 1972, was the first company in the world to develop and market linear guides.

The new linear guide systems enabled significant improvements in accuracy and speed and delivered labour savings on demanding mechatronic machines, like machine tools, industrial robots or semiconductor manufacturing equipment.



Bogey of pendulum train with curved guide for tilting movement

The following product examples are offered today by THK, the pioneer of linear technology:

Curved Guides for Tilting Train Bogeys

Curved or R-guides are a unique development by THK that transfers the concept of the linear guide to a curved rail enabling highly precise circular movement. Capable of receiving high load from all directions, curved guides are an ideal product to guide the tilting movement of pendulum trains. By arranging linear motion blocks on the load points, efficient structural design is achieved.

Different radii and sizes are available up to a diameter of 12m, allowing freedom of design as well as easy assembly.

Solutions for Train Doors

Several products are offered for train and platform doors. The ball-related utility slider ATG distinguishes itself from conventional slide rails by heat treating to increase surface hardness and strength. The result is a high load capacity and improved permissible load and service life. The slider features two-point circular arc groove technology with allows easy installation adjusting to slight inaccuracies and it experiences less differential slippage which helps to prevent locking at the stroke end. The ATG is also well suited for applications like sliding steps and storage spaces for railway vehicle maintenance. Another solution for train doors is roller guides, that can carry high loads.

Railway Interiors

THK is experienced in providing development support of the mechanical engineering for customised applications like shown in Deutsche Bahn's IdeasTrain project. The use of combined mechanical components such as linear guides, ball screws and rotary bearings enable flexible train layouts, the greatest possible capacity at rush hour and maximum comfort whenever possible.

In addition, the company offers solutions for sliding tables and chairs as well as cost-effective products for seat reclining.

THK aims to provide the following values to the train industry:

Motorisation: driving motorisation development with actuators and rolling motion products that help reduce CO2 emissions.

Reliability: providing high-quality products with proven success to the railway market.

Comfort: offering products that are optimised for passenger comfort on long journeys.

Convenience: Offering products that require less frequent maintenance and are customized for tilting trains and other specialized railways vehicles.

For more information please contact Wayne Evans:

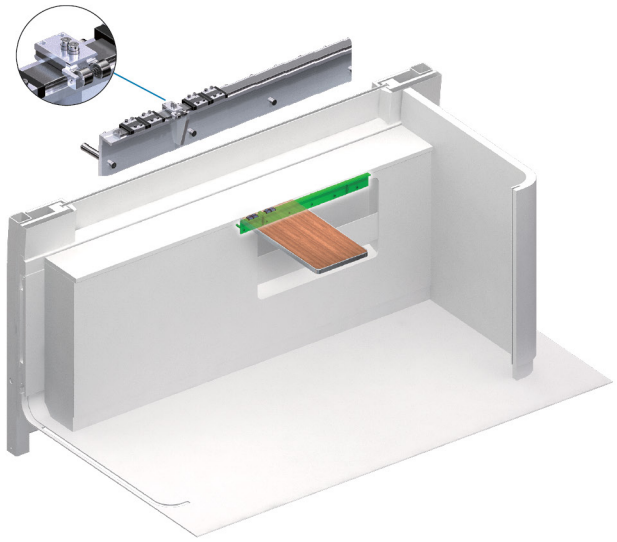
+44 7775 580400
w.evans@thk.eu
www.thk.com

THK
The Mark of Linear Motion

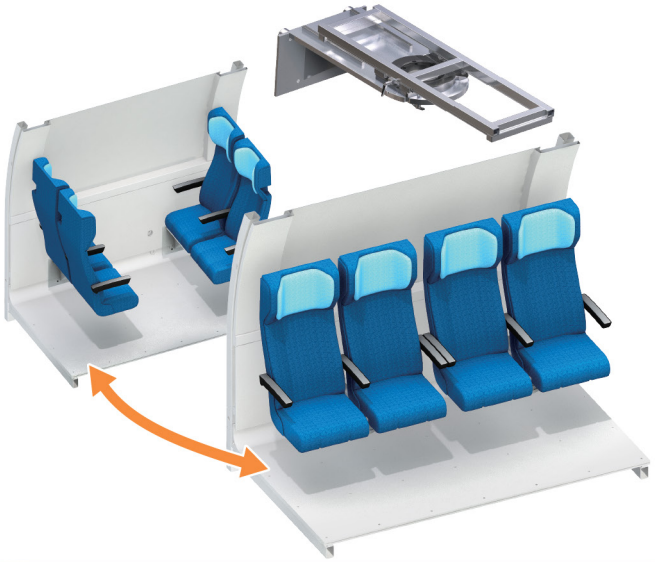
THK
The Mark of Linear Motion

Bringing THK motion to the railway industry

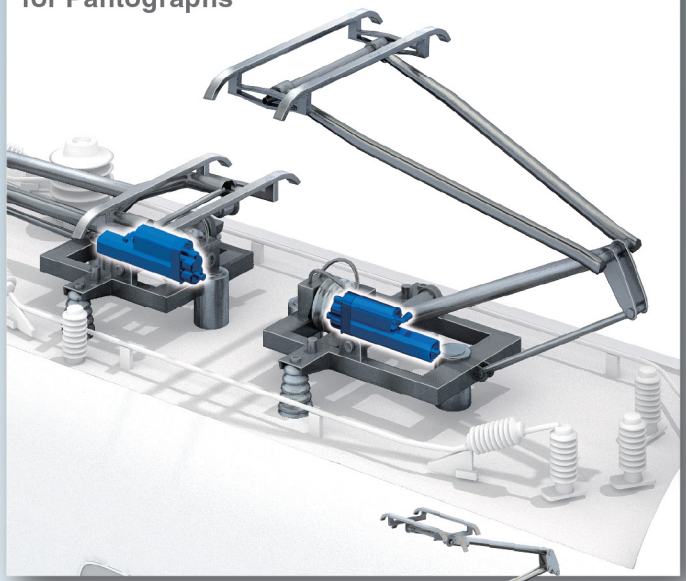
Clamper and Linear Motion Guide Unit
for Sliding Table



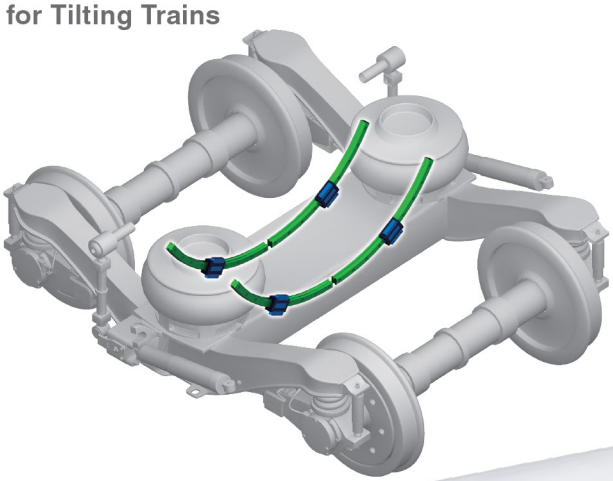
Lightweight Bearing and Linear Guide Unit
for Flexible Train Layouts

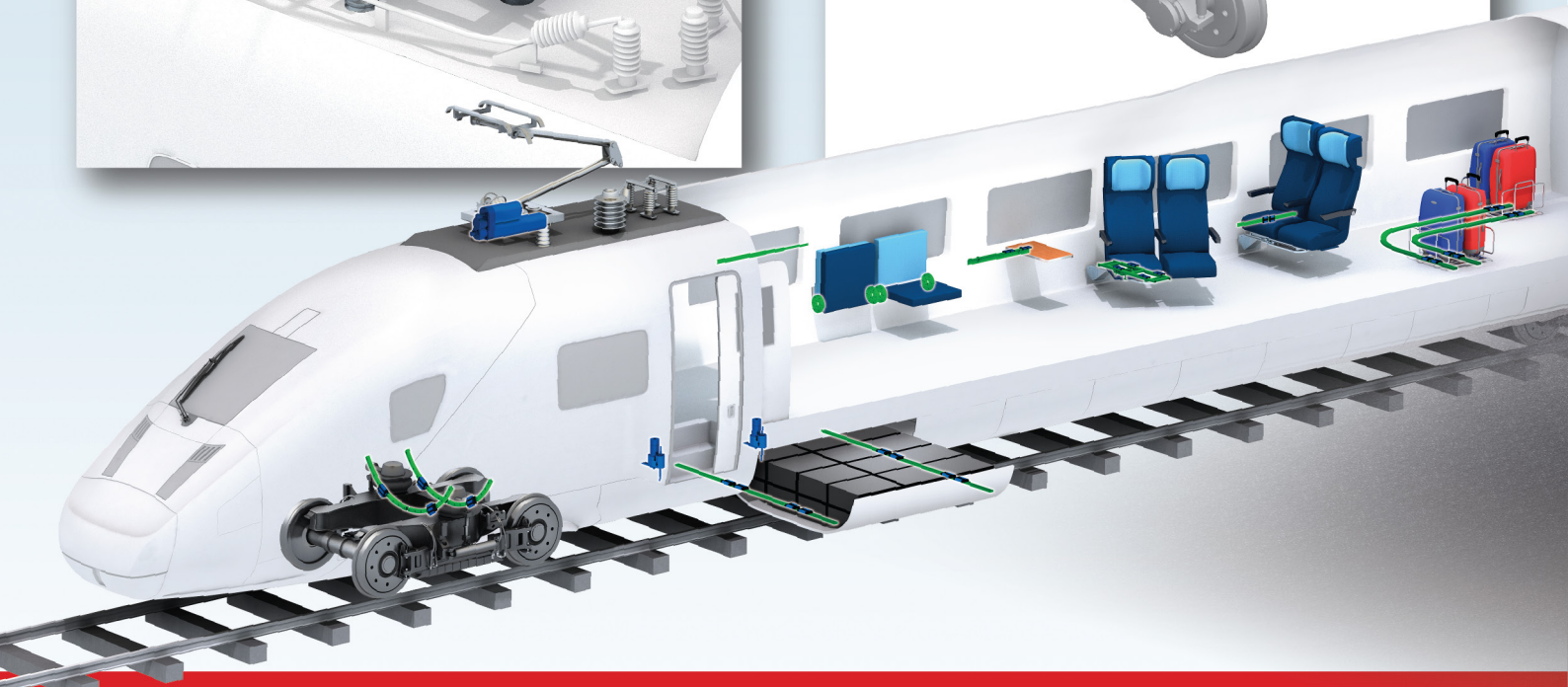


Electric Actuator with clutch
for Pantographs



Curved Guide
for Tilting Trains





THK GmbH • European Headquarters • info.ehq@thk.eu • Tel. +49-2102-7425-555