ZIMM drive solutions for railway technology

A use case for rail vehicles and rail infrastructure

ZIMM – Reliable movement functions for servicing, transport and maintenance

During the servicing, transport and maintenance of rail vehicles and rail infrastructure, heavy loads have to be lifted, tilted and positioned in a controlled manner, while components have to be reliably clamped and released. Precise and reproducible movements as well as drive technology tailored to the respective application are essential.

ZIMM provides a modular solution for this: screw jacks and electromechanical actuators generate the required linear movements – in wheelset changing systems, on turnout transport wagons and in mobile workshops, among other applications. Combined with matching screws, motors, connecting shafts, couplings and add-on parts, they form coordinated drive systems for a wide range of vehicle, workshop and transport applications.

ZIMM solutions for railway technology: Screw jacks and electromechanical actuators for lifting, tilting and positioning in vehicle, workshop and transport applications.

Typical movement tasks in railway technology

Wheelset change | Lifting and positioning

In a wheelset changing system for railcars, the vehicle is raised and secured in a defined working position. A two-part fork design separates the vehicle lift from wheelset handling: while one fork tine lifts the vehicle, the second lowers and positions the wheelset.

ZIMM screw jacks generate the required linear movements. The number and arrangement of the jacks are adapted on a project-specific basis to the vehicle, load distribution, stroke and system design.

Benefits

Vehicle lifting and wheelset handling in a single device

No separate repositioning of the vehicle

Reproducible lifting and transfer positions

Several lifting points can be coupled or synchronised

Adaptable to different rail vehicles

Operating principle

Screw jacks generate the linear lifting movements

One fork tine lifts and positions the vehicle

The second lowers the old wheelset and positions the new one

Load-bearing, guiding and safety elements secure the workflow

Application scenarios

Wheelset changes on railcars

Further rail vehicles with project-specific design

Stationary systems in railway workshops

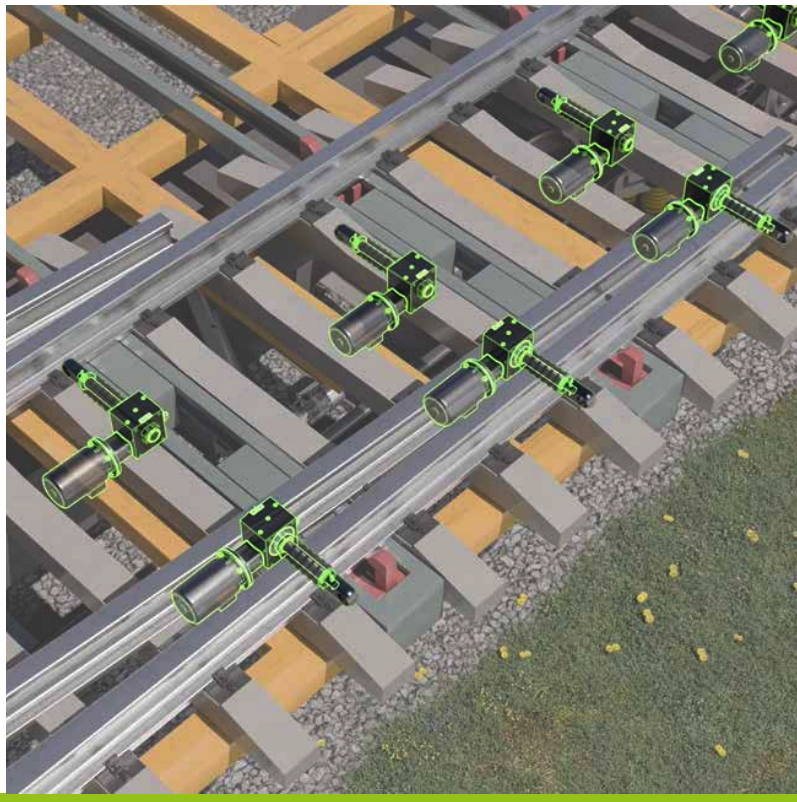
OEM and suitable retrofit applications

Typical movement tasks in railway technology

Turnout transport | Tilting and securing

Turnout transport wagons take fully assembled turnouts directly from the assembly plant to the track worksite. For transport, large turnouts are tilted so that they remain within the prescribed loading gauge. Before unloading, they are returned to the horizontal position in a controlled manner.

Electromechanical actuators handle the tilting and positioning of the turnout. Screw jacks actuate the mechanical clamping system for securing and releasing the turnout components.



Benefits

Transport of large pre-assembled turnouts within the loading gauge

Direct installation enables the use of short track possessions

Quick securing and releasing of turnout components

No pre-assembly area required near the worksite

Return transport of removed turnouts within the same transport process

Operating principle

Electromechanical actuators move the tilting mechanism

The turnout is tilted for transport

Before unloading, it is positioned horizontally

Screw jacks actuate the mechanical clamping system

The control system and sensors monitor the movement sequences

Application scenarios

Just-in-time delivery of fully assembled turnouts

Turnout transport with a limited loading gauge

Turnout renewals without a pre-assembly area on site

Track worksites with limited space

Return transport of removed turnouts

Typical movement tasks in railway technology

Mobile workshop | Opening and closing

Mobile workshops bring personnel, tools and equipment directly to rail infrastructure worksites. Access flaps provide controlled access to working, tool and transport areas.

ZIMM electromechanical actuators perform the opening and closing movement. They can be integrated mechanically into the flap structure and into the vehicle control system.

Benefits

Controlled opening and closing of the access flap

Reproducible and monitorable flap positions

Integration into the electrical vehicle control system

No hydraulic fluid within the ZIMM drive axis

Adaptable to flap geometry, installation space and environment

Operating principle

Electromechanical actuators generate the linear adjusting movement

The actuator opens and closes the flap via defined connection points

Sensors can report the flap position to the vehicle control system

Separate guiding and locking elements secure the flap

Application scenarios

Access flaps on mobile workshops

Maintenance and engineering train vehicles

Tool and material flaps

Access to working and service modules

Retrofit of existing flap drives

Submit an inquiry for your application now

Are you planning a lifting, tilting, positioning, clamping or flap function in railway technology?
Send us your movement task and the most important technical parameters. You can also attach a drawing or sketch of the installation situation.

ZIMM supports you in selecting and sizing suitable screw jacks and electromechanical actuators.

ZE-Series | Screw jacks

ZIMM screw jacks convert rotary motion into linear lifting and adjusting movements and are available in various series and sizes for lifting forces from 2.5 to 1,000 kN. Several jacks can be combined via connecting shafts, couplings and bevel gearboxes to form a mechanically coupled system, enabling the coordinated movement of several lifting points.

ZA-Series | Actuators

ZIMM actuators generate controlled linear movements for lifting, lowering, positioning and adjusting. Depending on the version and system design, lifting forces from 25 to 200 kN are available.
In railway technology, they are used for tilting, adjusting, opening and closing movements, among others.
The protected screw and sealed gearing support use in demanding environments.

In-depth information on applications, products and technical sizing is available online:
zimm.com/railway-technology

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