

# **RAILWAY SYSTEMS** **SYSTEM SOLUTIONS** **FOR RAILWAYS**

**LIFETIME EXCELLENCE**





# FOR US, “LIFETIME EXCELLENCE” MEANS DELIVERING THE VERY BEST PERFORMANCE AS STANDARD

LIFETIME EXCELLENCE is our promise. Our central message. The core of our brand. For our customers, it means uncompromising top performance. The most cost-effective, reliable and innovative lifting solutions in a global network of professional service partners – for the lifetime of the product.

## Excellence Economy & Efficiency

PALFINGER products boast an outstanding price-performance ratio. The high level of productivity, ease of use and tight-knit service network mean that an investment in a PALFINGER product more than pays for itself over the product’s service life.

Performance

## Excellence Innovation & Flexibility

PALFINGER is committed to leadership in innovation. In the past, ground-breaking developments have revolutionised products, and intelligent system solutions and unique functionality from PALFINGER will continue to shape the industry and new product developments in the future, too.

Safety

On-site services

Expertise

## Excellence Service & Locations

The combination of outstanding products, a sharp customer focus and expert service makes up the overall concept behind PALFINGER, enhanced by a global dealer network and local sales and service partners.

Support

## Excellence Reliability & Expertise

The premium quality and high capacity of our products, durable components and outstanding workmanship, global service dependability and the stability and strength of the company make PALFINGER a reliable partner for professionals.



# PALFINGER RAILWAY SYSTEM SOLUTIONS

PALFINGER railway systems are uncompromisingly designed for railway applications. Close collaboration with the vehicle manufacturers results in perfectly matched units, thereby ensuring that key vehicle features and characteristics remain fully intact.

Many of our crane and access platform models are equipped with a standardized interface with the vehicle, which allows numerous individual solutions to be implemented easily and cost-effectively without any additional technical outlay.





# PALFINGER RAILWAY PRODUCTS HAVE DIVERSE APPLICATIONS AND ARE SUITABLE FOR ANY RAILWAY APPLICATION

## Railways

Years of experience and a large number of specific models makes PALFINGER a strong partner for rail-bound vehicles.

- Earth bonding
- Opposite track blocking
- Height limiter
- Sophisticated geometry

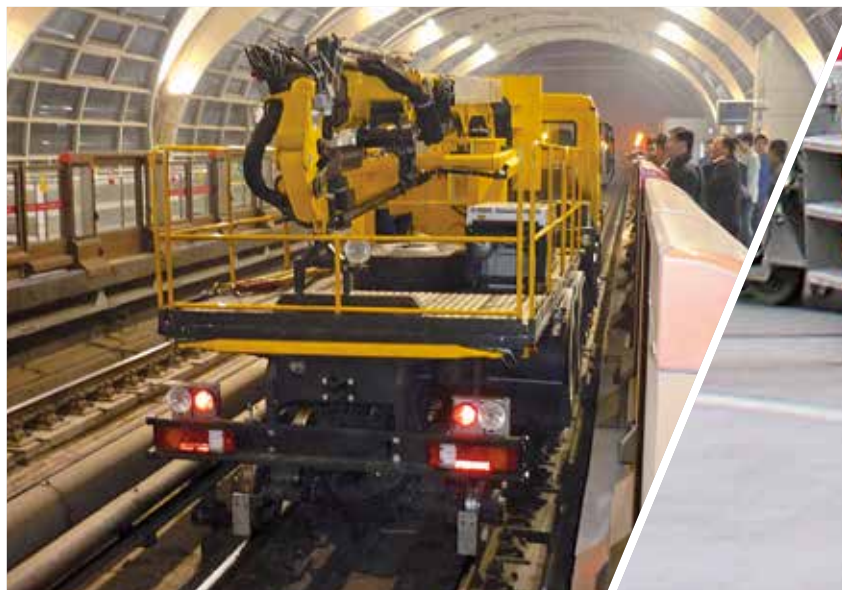
## Underground railways

Tailored solutions with excellent performance in confined spaces make PALFINGER the perfect partner for underground railway works.

- Space-saving designs
- Lightweight

## Tramways

Whether space-saving, lightweight, equipped with an insulated basket or lots more besides, tramway maintenance vehicles have a diverse range of equipment requirements. PALFINGER offers specific, tailored products for precisely this field.





# **PALFINGER RAILWAY** FOR RAIL- BOUND AND ROAD/RAIL VEHICLES



## **Rail vehicles**

For rail-bound vehicles, PALFINGER offers a broad product range for any application. Models available are not only for use over short distances and with light loads but are also designed to perform heavy-duty and complex tasks.



## **Road/Rail vehicles**

Road/Rail vehicles complement rail-bound vehicles. These require products that, above all, are light and compact and meet both railway and road traffic regulations. As a technological leader, PALFINGER offers products that ensure productive working while fulfilling these specific requirements.





# PK CRANE MODELS

Linkage system for optimum lifting capacity in all boom positions.



## Counterweight

A counterweight can significantly increase the vehicle's stability, thereby improving performance – especially when work is carried out without stabilisers, whether at a standstill or in creep speed mode. The counterweight always acts at the optimum place with a large effective distance and is therefore more effective than a ballast weight on the vehicle.



## Linkage system for near constant lifting capacity

The linkage system offers almost constant lifting capacity whatever the boom position. This means that operators will not experience any significant compromises in lifting capacity at unfavourable boom positions. This allows precision manoeuvring where height is restricted under the overhead traction line or if the height limiter is activated.



## Simple kinematics with greater freedom of movement

Thanks to its folding arm system, the PK crane series can be optimally positioned for lifting and, unlike telescopic cranes, does not have to be moved into an upright position. This means that it can also be used for work underneath overhead cables.





# PKR CRANE MODELS

Ideal for overhead line construction thanks to the reverse outer boom.



**Mast erection made easy**  
Whether lightweight masts or heavy concrete masts – no task is too hard for a PKR crane.



**Complex challenges**  
This crane type is right at home in this environment where overhead lines make access difficult. Thanks to its special reverse outer boom, this crane can demonstrate its strengths to the full.



**People-carrier**  
A PKR crane equipped with a swivelling workman basket makes for an unbeatable duo. This combination is an almost complete alternative to an access platform.





# PR CRANE MODELS

Wherever things have to be lifted in extremely confined spaces.



**Optimal reach over the loading deck**  
Because cargo can be brought up very close to the crane pivot, the loading deck can be covered much more easily than with any other model.



**Tilting crane column**  
This special feature offers a number of advantages. Firstly, it reduces the height in the transport position; and secondly, it allows for a smaller turning radius, meaning that the crane rotates within the car gauge profile. Another benefit is the optimum weight distribution of the crane components. This allows for a greater loading capacity in comparison with conventional crane models but with no loss of stability.



**Functional design**  
The special geometry of the PR crane means that it can reach places other crane types cannot. For these models, precision work in extreme situations is daily routine.





# CRANE ATTACHMENTS

An efficient and effective way to significantly increase the versatility of your crane.

PALFINGER Railway offers an extensive range of attachments. Equipping a crane with the right accessories turns it into a multifunctional tool and means it can work even more efficiently. High-quality, perfectly coordinated accessories support our customers and help them to achieve maximum performance. Accessories can be ordered also later on. Our service team will be happy to provide a personalised quotation including an assessment of technical feasibility.

## Extract from accessories list



**Augers**  
To prepare mast foundation holes

Ideal for preparing foundations for masts of overhead cables and signaling systems. The augers are available in different diameters.



**Pile drivers**  
To drive mast foundations into position

Various types of pile drivers (impact or vibration type) can be fitted to suitable crane models to ram mast foundations into position.



**Cable winches**  
To improve handling of parts

Cable winches facilitate the handling of bulky parts, for example installing masts below existing catenary systems.



**Workman baskets**  
For working on overhead wiring

Workman baskets are an ideal tool, especially for working on catenary systems. Fixed or slewable workman baskets are used depending on the field of application.



**Branch saws**  
To cut the structural clearance outline along the line

Branch saws or even branch shears allow the clearance outline to be cut. The cabin offers optimum protection for the operator.



**Mulchers**  
To remove vegetation along the line

The use of mulchers to remove vegetation is both efficient and environmentally friendly.



**Snow blowers**  
To clear areas of snow

Snow blowers fitted on the crane boom enable surfaces and paths alongside the vehicle to be cleared.



**Clamshell buckets**  
Turn a crane into a versatile machine

The universal clamshell bucket is ideal for day-to-day digging and loading applications.



**Bulk material grabs**  
For track ballast, construction rubble and excavated earth

The robust bulk material grab is ideal for transporting bulk materials such as track ballast, rubble and excavated earth, and can also be used for light-duty digging.



**Timber grabs**  
To position sleepers and railway elements

The timber grab is used when handling railway sleepers and short railway elements.



**Polyp grabs**  
Multifunctional device

PALFINGER offers a wide range of multi-arm grabs for handling waste and scrap. Available with 4, 5 or 6 grab arms and with full-length arms, half-length arms or arms with grab tips.



**Rail grabs**  
To handle rails and sleepers

Rail grabs allow you to pick up longer rails positioned close to each other. Rail grabs are also suitable for handling sleepers.



# PA PLATFORM MODELS

Rapid and safe access to all positions in the overhead line and power supply system.



PA95 & PK16502 in Spain



PA1002 & PR220 & PFD99 in Luxembourg



PA240 & PFD99 in Austria



PA120 & PK26502 in the Ukraine



PA115 in Austria



PA360 & PA95 & PFD99 in China





# PFD POSITIONER MODELS

Highly valued by experts working on overhead lines.



## An indispensable aid for replacing overhead lines

With the help of the two independently controlled positioner arms, contact wires and carrying cables can be positioned with millimetre precision at the fixing points.



## Replacing insulators

Maximum efficiency in the replacement of insulators and brackets with no loss of pretension and without moving the overhead lines.



## Remotely controlled

Efficient operation with millimetre precision thanks to proportional remote control.





# COMBINATION OF DEVICES

Maximum efficiency is assured when PALFINGER railway systems are used in combination.



## Insulator replacement

Easy installation of an insulator unit through the combined operation of a PALFINGER access platform and a PALFINGER crane. The perfect complete package enables the greatest possible reach and maximum safety thanks to real-time, geometry-based, combined stability control.



## Repair of overhead line brackets

The combination of a positioner and crane with a workman basket allows work on overhead line sections to be performed easily and efficiently.



## Minimal downtime during emergency intervention

Quick and easy rectification of faults thanks to the use of perfectly matched products.





# BRIDGE INSPECTION SYSTEMS

Proven capability on numerous railway vehicles, road/rail vehicles and wagons over many years. Exceptionally large working range below and above rail level.



**Bridge maintenance**  
Thanks to perfectly matched equipment, routine bridge maintenance can be performed without any problems.



**Can be used on many different carrier vehicles**  
PALFINGER bridge inspection systems can be mounted on many different types of carrier vehicles. Their lightweight design means that they can also be used on lighter-duty carrier vehicles. This means that they can be deployed more quickly without compromising on the necessary stability.



**Different bridge designs**  
PALFINGER bridge inspection systems also allow bridges with unusual designs to be inspected. Drawing on many years of experience, PALFINGER bridge inspection systems have a functional design and are equipped with state-of-the-art technology, making them the perfect partner for challenging bridges.





# UPGRADES

Upgrading old vehicles and wagons is a highly cost-effective alternative to procuring new construction and maintenance vehicles.



**Wagons as maintenance vehicles**  
Old wagons can be repurposed as highly efficient maintenance and construction vehicles with the addition of a crane or an access platform. The power for the crane or access platform is supplied by a diesel or electric power pack, which is in turn powered by the traction vehicle.



**New use — old vehicle**  
During the course of a general overhaul, a 30-year-old vehicle is equipped with a new PA115 access platform. Repurposed in this way, it is used for maintenance activities on the Ore Line in the far north of Sweden.



**Second life**  
Vehicles up to 40 years old are overhauled and equipped with state-of-the-art cranes and access platforms. This gives them a „second life“, allowing them to give many more years of efficient service in construction and maintenance activities.





# SAFETY AND STANDARDS

Safety is PALFINGER's top priority. Thanks to the continuous enhancement and refinement of its products and the use of state-of-the-art technology, PALFINGER systems are among the safest on the market.

- Component safety (mechanical, hydraulic, electrical and electronic EN13849, EN61508, EN50128)

- Stability and derailment safety
- Opposite track blocking (possible in accordance with EN14033 & SIL2)
- Height limiting (possible in accordance with EN14033 & SIL2)
- Other restrictions of movement
- Earthing and insulation

## Stability and derailment safety

In the highest configuration level, the entire geometry of the device including the track inclination is monitored in two axis. In combination with a real-time standard safety evaluation, this allows the highest level of performance and safety.

## Stability and device utilisation under constant observation

For Paltronic 150 systems, the stability status, device utilisation, basket loading and other safety functions including opposite track blocking, height limits and clearance to drive are permanently displayed on the screen of the control stand or on the remote control.

## Opposite track blocking

Simply limiting the turning radius does not constitute opposite track blocking. Limiting the turning radius ensures opposite track blocking only in combination with the right safety equipment (e.g.: sensors, actuators and evaluation in SIL2).





# RAILWAY SERVICE

Optimized lifting capacity / range setting of the machinery in accordance with customer specifications regarding stability. The following criteria are taken into account:

- Slewing angle
- Track cant

- Vehicle at standstill or creep speed
- Position of support legs
- Vehicle frame deflection
- Detachable counterweight
- If applicable - further PALFINGER units on the same vehicle
- Depending on the vehicle concept - further relevant parameters



## Fast and competent support

In order to be able to guarantee optimum performance of PALFINGER products, the following activities are performed by the customer service team during commissioning:

- Monitoring of the signal exchange with the carrier vehicle and between multiple PALFINGER systems on the same vehicle
- Adjustment of safety-relevant systems, such as height limit and opposite track blocking
- TÜV approval and handover to customer
- Operator training

Commissioning by the manufacturer guarantees that devices are operated safely and in the most effective way.

## Professional training

We offer:

- Initial and periodic operator training sessions
- Continuous training of technicians in the PALFINGER Railway Service Network
- Training for operator's technicians for efficient troubleshooting
- Handover training for operators of vehicle pools

## General overhaul in the factory

Retaining old devices is advantageous in a number of situations. Firstly, the vehicle's licence is retained, and secondly, operators do not need to be retrained. The PALFINGER modernisation programme doubles the product life cycle and offers many other advantages:

- Extends the product's service life — new purchase not necessary
- Replacement of damaged parts reduces downtime and increases availability
- Possible to improve performance by making technical enhancements
- Option to adapt device based on customer requirements
- Improved appearance
- Wear parts are replaced





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