

ePLAN®
fluid

ePLAN®
electric

PALFINGER AG

Keeping technology on track

Passenger Safety and Comfort: The ultimate goal

Today's rail passengers can enjoy a smooth, quiet ride at speeds of 200 km/h or more with no hint of the enormous force exerted on the trackbed from a train moving at such high speed. The safety and trouble-free operation of the modern railroad depend on the trackbed being level, the rails straight, culverts and bridges sturdy and overhead contact system, or catenary, properly tensioned. All of these have to be maintained in excellent condition, with the added challenge of working within shorter maintenance and inspection intervals so as not to disrupt schedules. It takes special equipment, capable of great dexterity as machines go, to keep a rail line in perfect order.

“The maintenance of railroads and tracks is a complex challenge.

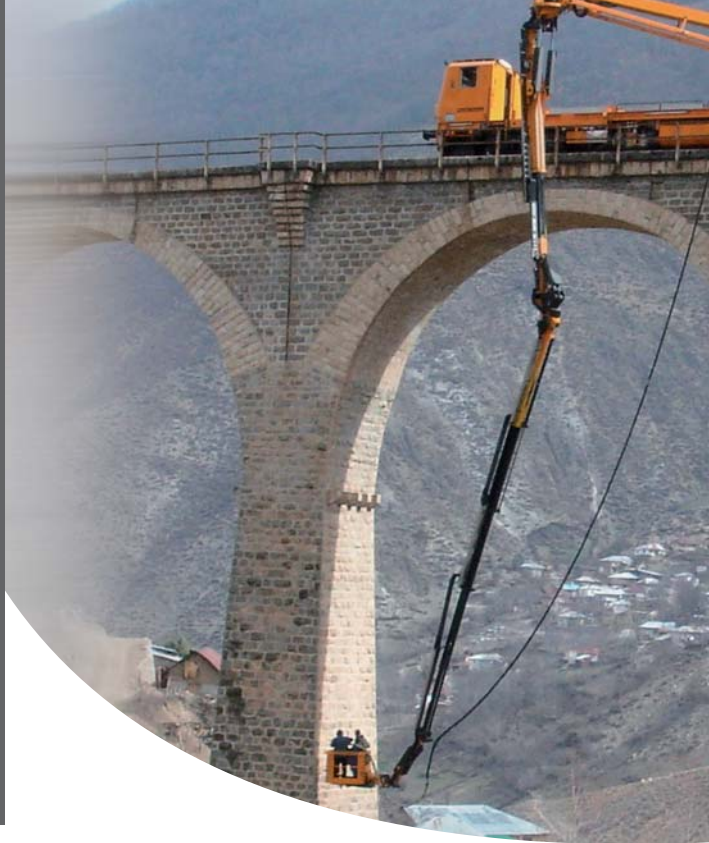
The safety and comfort of passengers literally rides on it. What used to be done through the back-breaking labor of large numbers of workers is performed today by smaller crews using highly sophisticated track-laying and inspection systems. PALFINGER in Köstendorf near Salzburg, Austria, manufactures a range of these special-purpose vehicles and EPLAN plays an important role in the design of the demanding hydraulic and electrical equipment that goes into each.”

ePLAN your engineering

LEADER

in designing
and building cranes

“Although the electrical design is complex enough given the need to maintain stability and respective height limitations and opposite-track blocking requirements, the real challenge lies in the fluid power design,” says Bernd Walch.



Innovations for railway maintenance

Railway maintenance makes very demanding requirements of mobile equipment. The crane or aerial work platform has to maneuver around the various wire and tensioners in the catenary. In the case of double track lines, the equipment cannot stick out over the opposite track. At cambered curves, the crane has to place the load with great precision and in the case of bridge inspections, the extension arm, which has great mobility and range to examine the substructure, has to be operated so as not to cause a weight imbalance.

Efficient electrical and fluid design

PALFINGER is a hoisting technology company with markets in Europe and overseas. Established in 1932 as metalwork and repair workshop, it manufactured its first crane in 1950 and now makes over 150 different models for the transportation and logistics industry. PALFINGER's railway division is a recognized leader in designing and building cranes, aerial work platforms, contact wire positioners and bridge inspection equipment for railways worldwide.

PALFINGER positioners are designed for making accurate and simultaneous adjustment of contact wire and carrying cable. They are flexible enough that a crew can replace insulators or mounting brackets without altering the tension or accuracy of the catenary system. These and other hydraulic-mechanical systems are designed by an 11-member team headed by the engineer Bernd Walch in the PALFINGER works in Köstendorf using EPLAN Electric P8 and EPLAN Fluid for the electrical and pneumatic and hydraulic designs respectively. A telescopic extension arm has to be capable of raising, rotating, slewing and extending itself. The multiple telescopic extension is affected by means of four hydraulic cylinders, also manufactured by PALFINGER.

Pleased with choice of EPLAN

Until 2001, electrical design was carried out with the mechanical design program at PALFINGER, but it was decided that it would be more practical to separate them.



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CORRECT linkage

between the different disciplines

"We started using EPLAN in 2002 for electrical and fluid design", says Bernd Walch. "Back then, the electrical design was done in EPLAN 5. Since 2007 we have been working with the new EPLAN Electric P8 and EPLAN Fluid," adds Walch who has been designing at PALFINGER for 15 years.

EPLAN and one other system made the short list in the evaluation process in 2002. In addition to the numerous system advantages offered by EPLAN, the balance was tipped in its favor by the number of important PALFINGER customers who were already satisfied EPLAN customers – which made it much easier to exchange data with them. "Looking back on that decision today, we are doubly sure we made the right choice," says Bernd Walch. "We are not only working with a powerful system with excellent support, but the other product has disappeared from the market."

Continuity and openness

The complexity of the lifting, loading and handling devices ensure that the possibilities offered by EPLAN are used to their full extent. "Thanks to the migration to the new EPLAN Electric P8, our system has reached an incomparable strength, since many advantages of EPLAN 21 (which PALFINGER used to use) were rolled into the EPLAN 5 version and then into EPLAN Electric P8," says Bernd Walch.

EPLAN Electric P8 and the latest EPLAN Fluid offer many additional opportunities for automating design, including the streamlining of repetitive design functions. The decisive advantage is the way the two programs work together: Both are based on the new EPLAN Platform and utilize its common database. The continuous output of control system documentation, the easy linking of the electrical design with fluid power planning as well as the openness of the system are important for PALFINGER.

“With an average of 50 schematic pages per project the electrical part remains the most extensive, while we solve the greater technical challenges in fluid power design,” says Bernd Walch. “The fact that a designer can be sure that the simple use of a symbol from another discipline will always result in the correct linkage is surely one of the greatest reliefs resulting from the use of the EPLAN Platform.”

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fluid

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electric P8

“Migration to the new system also required the hardware to be upgraded,” adds Bernd Walch. “However, the investment has already paid off through the increase in efficiency and the additional productivity enhancement possibilities it offers.”

High increase in efficiency
and productivity

SUMMARY

PALFINGER is a world leader in manufacturing sophisticated railway maintenance and inspection vehicles to keep both trackbeds and overhead electrified power lines in safe and efficient working order. Fluid planning plays a particularly large role given the complexity of the lifting, loading and handling devices that are the heart of PALFINGER's railway maintenance systems. Working with EPLAN Fluid and EPLAN Electric P8 for electrical design has given the engineering group a particularly robust platform operating from a common database, software that many of PALFINGER's customers also use which facilitates the exchange of data.

Find out more about Palfinger on www.palfinger.com

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