

KLP® Hybrid Polymer Railroad Ties



100 series

KLP® Cross Ties



200 series

KLP® Turnout Ties



400 series

KLP® Bridge Ties

Why choose KLP® Hybrid Polymer Railroad Ties?

- Ductile polymer with steel reinforcement
- High bending stiffness
- Low thermal expansion
- Dampening characteristics
- No fibre dust during drilling
- 100% recycled & 100% recyclable
- Design life of 50 year

Sustainable polymer railroad solutions



The increasing scarcity of hardwood and the ban on creosote were the main drivers for Lankhorst to develop the KLP® Hybrid Polymer Railroad Ties, which are manufactured out of 100% recycled material, as a sustainable and maintenance free alternative to wooden ties. In particular situations it also offers an excellent alternative to concrete, especially when this material is too rigid for the application. All types of KLP® Hybrid Polymer Railroad Ties have been specifically engineered for their own application, be it light or heavy rail.

The maintenance free KLP® Hybrid Polymer Railroad Ties are manufactured from a high quality, ductile polymer with steel bars encased. This hybrid construction provides both high strength properties as well as excellent dampening characteristics and herein lies the main technical advantage compared to composite ties with glass fiber, making KLP® Hybrid Polymer Railroad Ties suitable for strength critical and impact critical situations. The steel reinforcement is located where it is most effective and does not interfere with the installation of fastening systems.

This helps it achieve longitudinal and lateral stiffness to maintain the track gauge under all load and climate conditions, while the recycled polymer simultaneously acts as an effective impact absorber and sound damper, resulting in a reduced noise and longer lasting infrastructure.

The KLP® Hybrid Polymer Railroad Tie, designed for longevity, keeps these properties during its lifetime of over 50 years. A solid investment resulting in low Life Cycle Costs. Furthermore the ties manufactured from 100% recycled polymers are fully recyclable again after their long life.

The first railroad ties were installed in track in 2006 and have been performing successfully with no maintenance required and no signs of wear and tear. Since the introduction Lankhorst has supplied various types of the KLP® Hybrid Polymer Railroad Ties to several projects in Europe, North America, South-East Asia, Australia and New Zealand.

KLP® Hybrid Polymer Cross Ties - 100 series

KLP® Hybrid Polymer Cross Tie - type 101

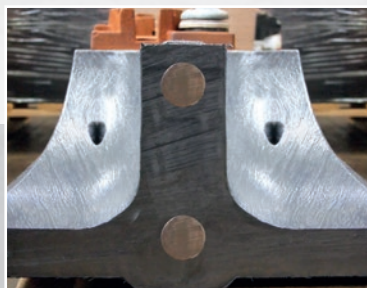
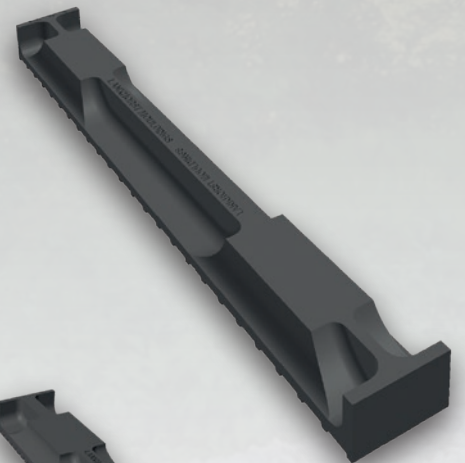
Size (WxHxL) : 11" x 5.9" x 7.9'

- Ideally suitable for light rail purposes with axle loads up to 33,000 lbs
- Fully embedded in ballast-bed due to optimized design
- High lateral and vertical resistance due to the profiled shape
- Design can be customized to include 3rd rail applications

KLP® Hybrid Polymer Cross Tie HS - type 102

Size (WxHxL) : 10" x 6" x 8.5'

- Ideally suitable for main, side and industrial track with axle loads up to 55,000 lbs
- Fully embedded in ballast-bed due to optimized design
- High lateral and vertical resistance due to the profiled shape
- Design can be customized to include 3rd rail applications & for different rail gauges



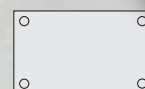
KLP® Hybrid Polymer Railroad Ties

KLP® Hybrid Polymer Turnout Ties - 200 series

KLP® Hybrid Polymer Turnout Tie - type 201

Size (WxHxL) : 10" x 5.9" x 6.5 - 17"

- Ideally suitable for main track, switches and crossings with axle loads up to 55,000 lbs
- Suitable for ballasted and unballasted track
- High degree of flexibility regarding installation of base plates
- Single product length up to 17 ft.
- Connectable type 501 - for lengths up to 34 ft.*



KLP® Hybrid Polymer Turnout Tie HS - type 202

Size (WxHxL) : 10" x 5.9" x 6.5 - 17"

- Ideally suitable for heavy rail purposes with axle loads up to 77,000 lbs
- Suitable for ballasted and unballasted track
- High degree of flexibility regarding installation of base plates
- Single product length up to 17 ft.
- Connectable type 502 - for lengths up to 34 ft.*



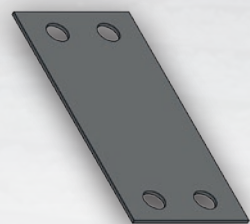
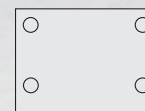
* Ties are installed from both sides and connected after installation; ideal on locations with limited working space and furthermore less deep holes need to be dug. Due to its unique design, the stiffness remains constant over the whole length of the mounted tie.

KLP® Hybrid Polymer Bridge Ties - 400 series

KLP® Hybrid Polymer Bridge Tie HS - type 401

Size (WxHxL) : 10" x 5.9 - 9.5" x 6.5 - 9'

- Ideally suitable for girder bridges
- Suited for bridges with offset, non-offset and canted conditions
- Significant noise reduction of 3 - 5 dB compared to wooden tie
- 1" Milling zone to compensate for height differences
- Detailed compensation in height differences can be achieved with KLP® Shims

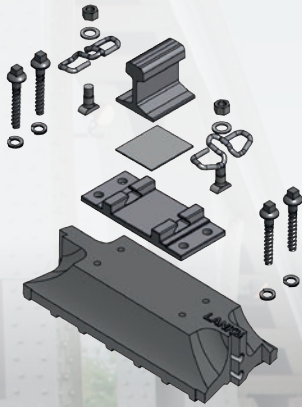


KLP® Shims

KLP® Shims, made from the same polymer as the railroad ties, are typically used to fill out the minor height differences for KLP® Hybrid Polymer Bridge Ties and are available in thicknesses of 5/64, 13/64 and 25/64 inch. KLP® Shims are installed between the tie and the base plate.

Dimensions, specifications, certificates

Feel free to contact us regarding specifications and available certificates. Other dimensions of the 100, 200 and 400 series are available upon request. We will gladly assist you with your local type approval process.



KLP® Pre-drilling and Mounting Service

Lankhorst offers a pre-drilling and mounting service for a faster installation on location. Whether you want pre-drilled ties or even if you require pre-mounting of base plates.

History Lankhorst Engineered Products

- 1803 - Nicolaas Jurjan Lankhorst started a rope manufacturing factory in Sneek, The Netherlands. At that time ropes were made of natural fibers.
- 1964 - A revolution took off in rope production; plastics were introduced and by that new rope types, with a more consistent quality and longer lifetime.
- 1975 - The waste materials of the plastic rope production proved to be useful for a second life. Lankhorst started to produce the first plastic molded products.
- 2004 - Start of development due to EU ban on creosoted wood.
- 2006 - First railroad ties installed in the Netherlands.
- 2008 - European track deployment in Germany, France, Spain, UK.
- 2014 - International track deployment in North America, Asia, Australia..



KLP® Hybrid Polymer Cross Ties,
Zwolle (The Netherlands).



KLP® Hybrid Polymer Bridge Ties,
Gent (Belgium).



Production facilities in Sneek,
The Netherlands.



KLP® Hybrid Polymer Turnout Ties,
Monterrey (Mexico).



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