



Introduction for Composite Sleeper

合成轨枕产品介绍





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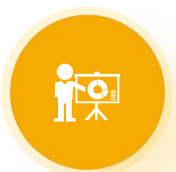
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Product Advantages 产品优势

General introduction

Composite sleeper is a product produced by foaming and pultrusion process with continuous glass fiber as reinforcement material, polyurethane as basic material, supplemented with additives. Its size and density can be continuously adjusted according to different loading requirements, and it has the advantages of high strength, good toughness, light weight, good durability, and long service life .

概述

复合轨枕是以连续玻璃纤维为增强材料，聚氨酯为基本材料，辅以添加剂，通过发泡拉挤工艺生产的产品。它的尺寸和密度可以根据不同的载荷要求不断调整，具有强度高、韧性好、重量轻、耐久性好、使用寿命长的优点。





Product Advantages 产品优势

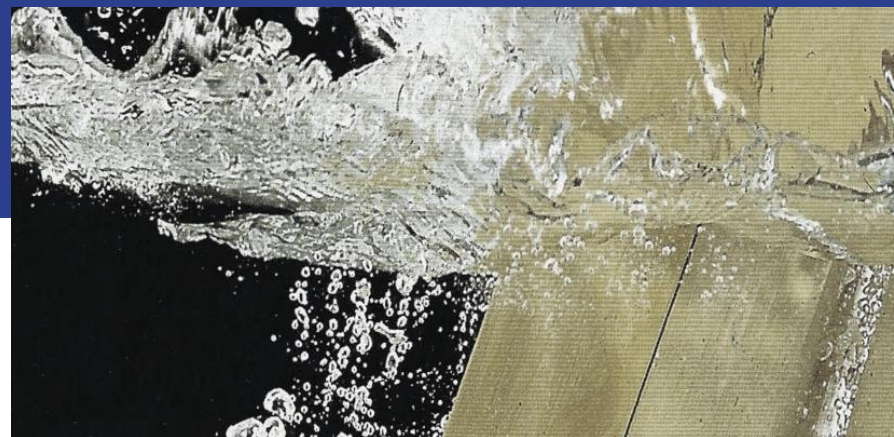
Polyurethane composite sleepers exhibit high chemical resistance to oils, lubricants, pollutants, artificial fertilizers, road salts, and many other chemicals from railway operations. And polyurethane composite sleepers have a closed cell structure with low water absorption, which can maintain excellent electrical insulation performance and ensure smooth railway signals.

聚氨酯复合轨枕对来自铁路运营的油、润滑剂、污染物、人造肥料、路盐和许多其他化学物质表现出非常高的耐化学性。且聚氨酯复合轨枕具有闭孔结构，吸水率低，可保持优良的电绝缘性能，确保铁路信号畅通。



The polyurethane used in composite sleepers is a thermosetting material with no small molecule releases. Based on the water quality test of polyurethane composite sleepers, the conclusion is that the immersion water and control water meet the water quality standards.

复合轨枕使用的聚氨酯是热固性材料，没有小分子释放物，根据对聚氨酯复合轨枕进行的水质测试，其结论是浸没水和对照水符合水质标准。



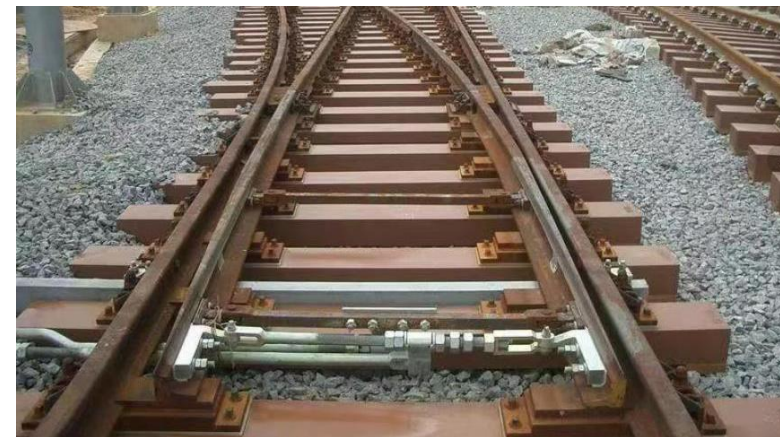


Product Advantages 产品优势

Comparison of sleepers

Concrete sleepers are heavy and difficult to install in some special road sections, wooden sleepers with light weight are generally used on bridges. However, the service life of wooden sleepers is 10 to 15 years, and the service life of wooden sleepers on large railways is as short as 2 to 3 years.

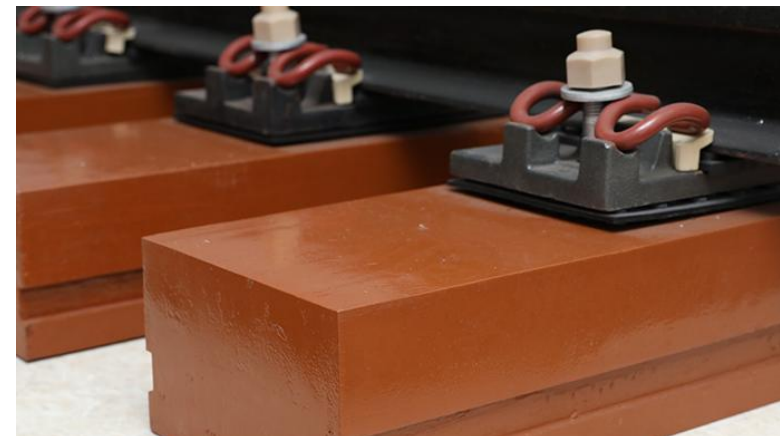
The synthetic sleeper is light in weight, can be used for more than 50 years without maintenance, and has a low price . Synthetic sleepers are the most suitable high-performance new materials for railway tracks.



轨枕比较

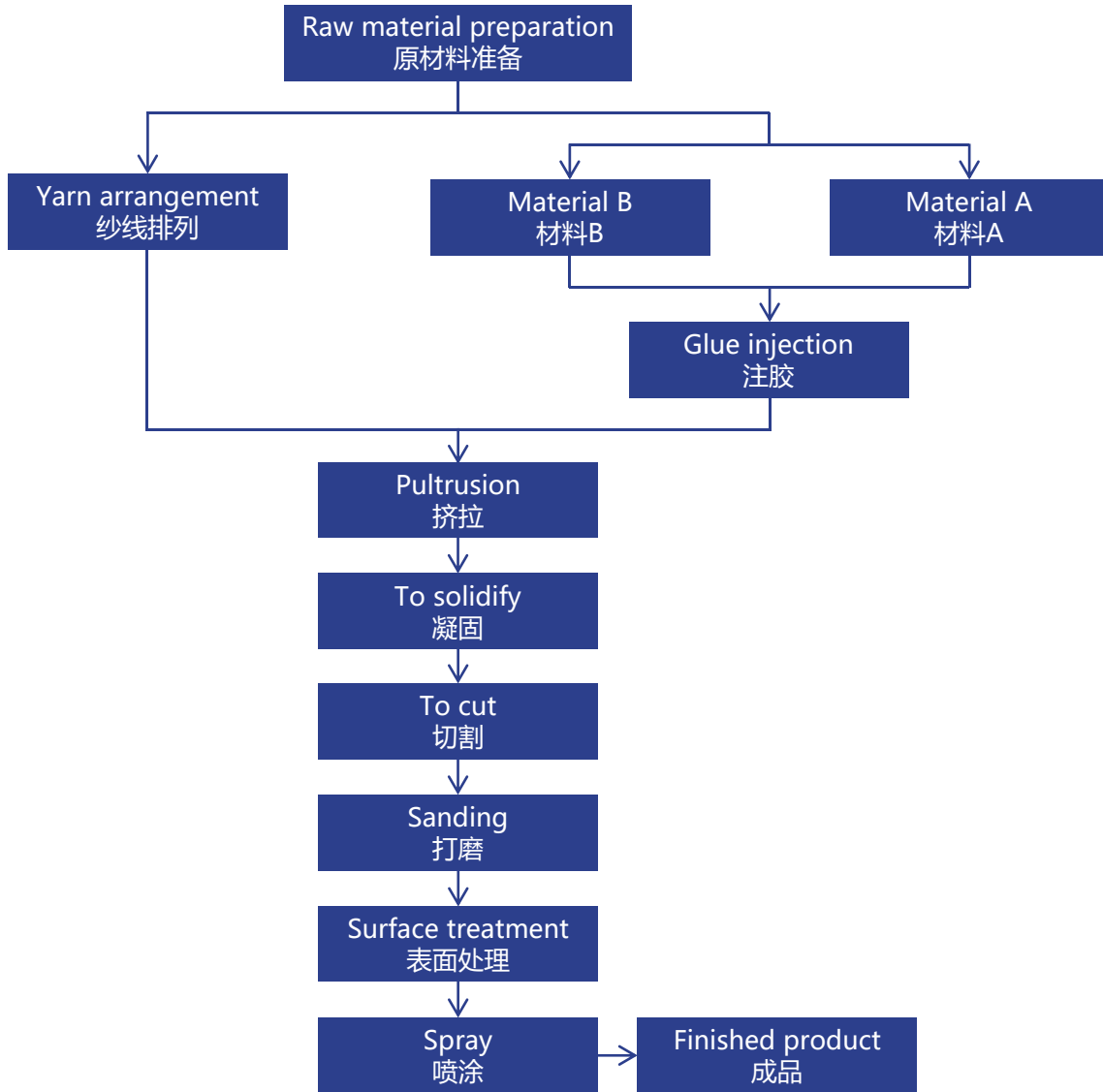
混凝土轨枕较重，在一些特殊路段安装困难，桥梁上通常使用重量较轻的木枕。然而，木枕的使用寿命为10至15年，大型铁路上的木枕使用寿命短至2至3年。

合成轨枕重量轻，无需维护即可使用50年以上，价格低廉，是最适合用于铁路轨道的高性能新材料。





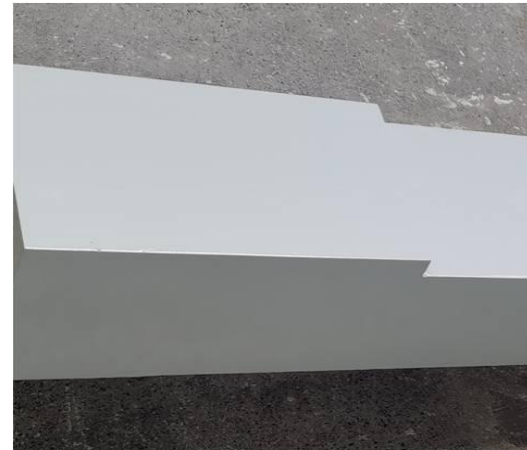
Production Process 生产过程



Pultrusion
挤拉



Cutting Palletizing
切割托盘



Paint Spraying
喷漆



Sanding
打磨



Production equipment 生产设备

The production line is equipped with 33 sets of equipments, such as pultrusion laminating machine for composite sleeper, yarn room for constant temperature and humidity system, automatic sleeper spraying line, yarn filling trolley, electric forklift truck, experimental equipment, air compressor, polyurethane gluing machine, fixed length cutting machine, automatic palletizing machine, sanding machine, etc., to meet the production needs of the production line.

该生产线配备了33套设备，如复合轨枕拉挤层压机、恒温恒湿系统纱线室、轨枕自动喷涂线、纱线灌装车、电动叉车、实验设备、空气压缩机、聚氨酯涂胶机、定尺切割机、自动码垛机，砂光机等，以满足生产线的生产需要。





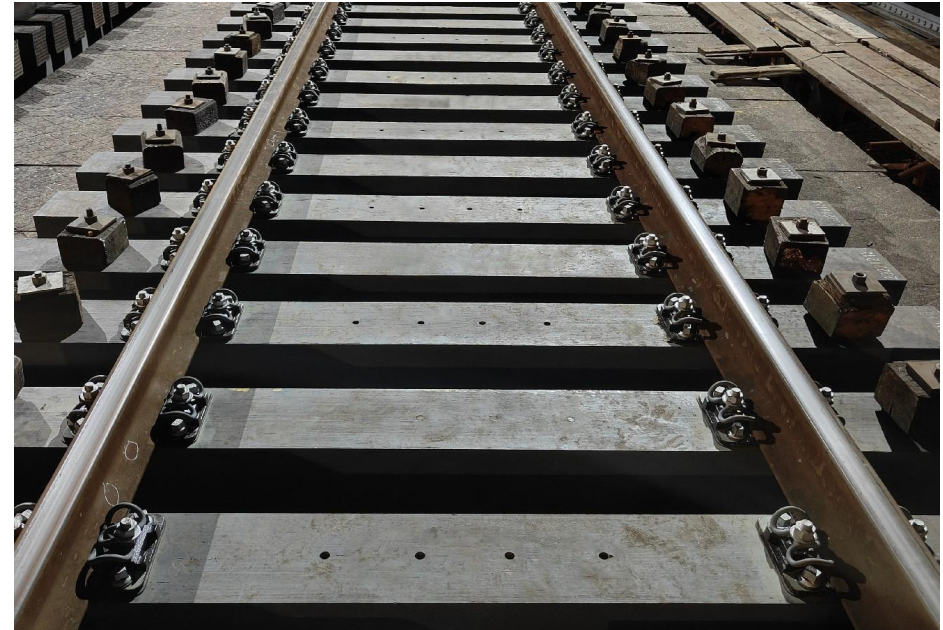
Product Introduction 产品介绍

The composite sleeper are mainly divided into two types, one type is the lightweight composite sleeper used for urban rail transit. The second type is heavy-duty composite sleeper for the large railway and steel bridge.

复合轨枕主要分为两种, 一种是用于城市轨道交通的轻质复合轨枕。第二种是用于大型铁路和钢桥的重型复合轨枕。



Composite sleepers for subway (Low Density Sleeper)
地铁复合轨枕 (低密度轨枕)



Composite sleepers for large railway (High Density Sleeper)
大型铁路用复合轨枕 (高密度轨枕)



Product Introduction 产品介绍



Low density sleeper 低密度轨枕

Product section size 产品截面尺寸		Product density 产品密度
230×160mm	230×140mm	0.74±0.1
220×180mm	150×150mm	



High density sleeper 高密度轨枕

Product section size 产品截面尺寸		Product density 产品密度
220×240mm	240×240mm	1.2±0.06
260×240mm	280×240mm	

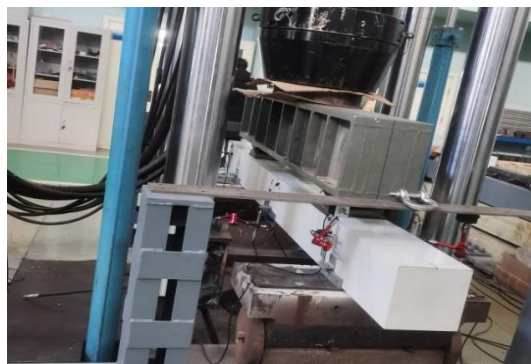


Product Introduction

产品介绍



Fatigue Performance Experiment
of Low Density Sleeper
低密度轨枕疲劳性能试验



Fatigue Performance Experiment
of High Density Sleeper
高密度轨枕疲劳性能试验

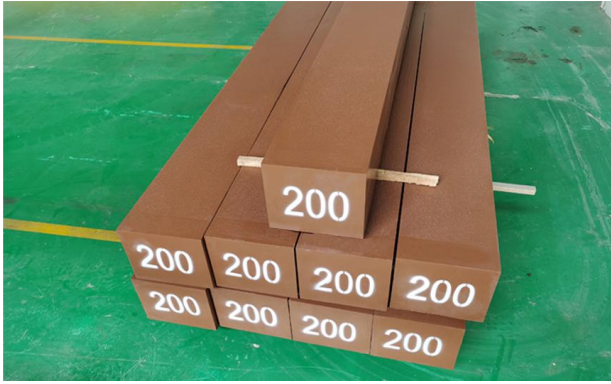
Test items 试验项目	Unit 单位	Low density sleeper 复合轨枕	High Density Sleeper 复合轨枕
Density 密度	g/cm ³	0.8	1.2
Bending strength 弯曲强度	MPa	154	263
Flexural modulus 压缩强度	GPa	11.2	17.6
Compressive strength 抗压强度	MPa	74.4	149
Shear strength 剪切强度	MPa	8.7	24.3
Screw spike pullout resistance 螺纹道钉抗拔力	KN	40	60
Finished product bending load 成品弯曲强度	KN	228	1463
Fatigue performance 成品疲劳性能	—	≥ 2 million times ≥200万次	≥ 2 million times ≥200万次



Project 项目业绩

Project Name 项目名称	Country 国家	Year 日期	Quantity(PCS) 数量(件)
1. Taiwan Xinzhuang Airport Line 台湾新庄机场线	China 中国	2018	88
2. Taiwan Current Lines Maintenance 台湾现有线路维护	China 中国	2019	74
3. Gaoxiong Project 高雄项目	China 中国	2020	12
4. China Hukun Line 中国沪昆线	China 中国	2020	90
5. Guangdong Jingguang Line 广东京广线	China 中国	2020	290
6. Guangshen Line 广深线	China 中国	2020	496
7. Hukun Line 沪昆线	China 中国	2022	776
8. Jingguang Line 京广线	China 中国	2022	1304
9. Guangshen Line 广深线	China 中国	2022	2060
10. Australia Maintenance Project 澳大利亚维修项目	Australia 澳大利亚	2022	10

Product Delivery
产品发货



Obtained the 2023-2025 Synthetic Sleep Project 获得2023-2025 印度尼西亚复合轨枕项目

The 2023 order is as follows:
2023年订单如下:

Specifications 规格	Quantity(PCS) 数量(件)
180mm x 220mm x 2000mm	1554
180mm x 220mm x 2000mm	7932
180mm x 220mm x 2000mm	8585

Customer Taking Delivery
客户提货

