

Processing guidelines

Eslon Neo Lumber FFU – synthetic wood for railway sleepers

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FFU

Fiber Reinforced Foamed Urethane

Neo Lumber for railway sleepers

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Table of contents

Introduction.....	4
General	4
Material specification	4
Basic.....	4
Mechanical processing	5
Drilling	5
Hole diameter for sleeper bolts.....	5
Cutting	6
Chiselling.....	7
Milling	8
Grinding	8
Repair of drilling holes	9
Cases of repair.....	9
Handling synthetic resin.....	11

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Introduction

General

These processing guidelines for Eslon Neo Lumber FFU composite material are meant for optimizing processing by an experienced technician.

All the regulatory determinations that apply to this type of work, especially those for processing material containing or of glass fibres have complete validity.

For work safety and professional processing of FFU synthetic wood, it is necessary, before starting to work with FFU synthetic wood to read these processing guidelines carefully and then to adhere to them.

Material specification

Basic

FFU synthetic wood consists of foamed polyurethane reinforced with long glass fibres which mimic the natural fibre structure of the wood. The coating of the Neo Lumber consists of two-component polyurethane.

Mechanical processing is carried out with the same methods and equipment as for the processing of sleepers and bridge timbers of natural wood.

In addition to processing the wood material the following must be taken into account when working with FFU synthetic wood:

- Suitable speeds of revolution of the working tools – otherwise it can lead to the melting of glass fibres and thus to adhesion of the tool (e.g. cutting surfaces).
- As with other commercially available glass fibre construction materials, attention must be paid to the subject of fine particles (itching) and dust and sufficient care must be taken in working this material in the processes of milling, chiselling, drilling, grinding and other processes. The fine particles must be kept away from the skin by means of suitable protective clothing (breathing mask, gloves, protective goggles, overall, etc.).
- The material has a higher strength than timber.
- The density of the FFU synthetic wood corresponds approximately that of wood.
- The surface of FFU synthetic wood is sealed. Water and/or low temperatures can lead to a smooth slippery surface – there is **DANGER OF SLIPPING** – you must take measures to prevent this and adhere to them.

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Mechanical processing

Drilling

- Hole depth** The holes for sleeper bolts must be drilled somewhat deeper than the penetration of the bolt (appr.10 mm). The use of a stop is recommended to control the hole depth.
- Drill:** A drill bit for metal materials (WIDIA) must be used.
- Vacuum cleaner:** The drilling chips must be sucked out during drilling by means of a vacuum suction (vacuum cleaner). Subsequently this should be used to clean out the hole.



Hole diameter for sleeper bolts

The hole diameter and the depth of the hole are specially provided by us for the type of bolt used.

Here one example for commercially available sleeper bolts!!

Bolt dimensions	Hole dimensions	Remarks
∅ 22,2 x 144 mm	∅ 18mm depth 110 mm ∅ 19mm depth 120 mm	Usually In the region of the FFU edge zone
SS76 article number #3054176 ∅ 24 x 160 mm	∅ 19 (20)mm depth 130 mm ∅ 20 mm depth 135 mm	For bridge timbers In the region of the FFU edge zone

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Cutting

Compared to wood work must be carried out with

suitable speed

and with

slow advance

as too much advance and the resulting high temperature of the saw blade can lead to adhesion with melting of the glass fibres!

We recommend the use of Widia circular saw blades with fine teeth for glass fibre processing



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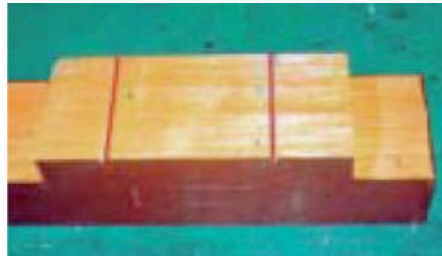
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Chiselling

The material to be removed must be pre-cut at the end of the parts to be removed as shown in the photo.



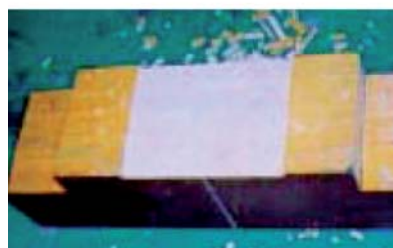
The area between the two ends must then be cut in individual lamellae with a width of 2 to 3 cm



These lamellae are then chiselled out with a chisel suitable for hardwood



Completed hollow



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Milling

The mill must be equipped with an impermeable reception bag for the milled material.

An extra hard mill for processing hard material must be used.



Caution, high speed leads to heat and melting of the glass fibres - adhesion to the tool is a possible result!!!

Grinding

The grinder must be equipped with an impermeable reception bag for the ground material.

The grinding paper should be suitable for processing hard material.



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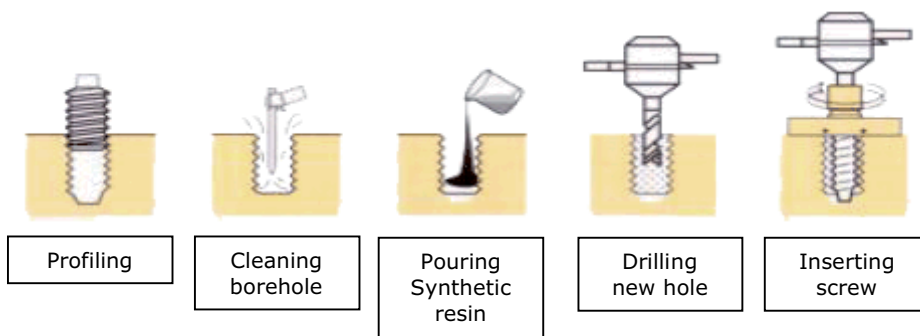


Repair of drilling holes

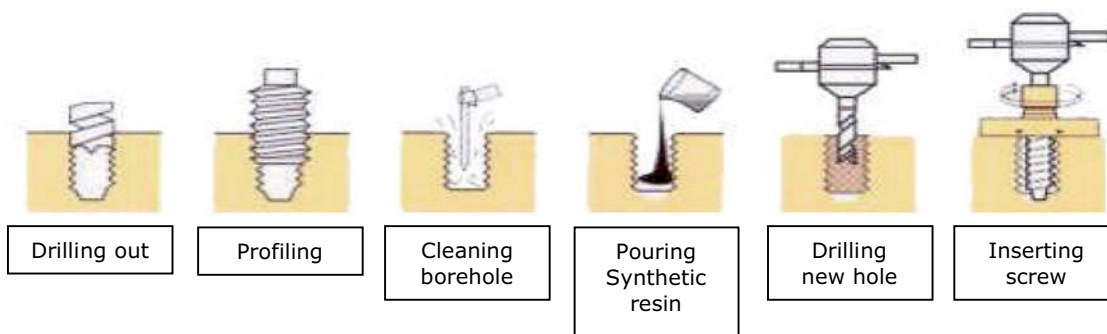
Cases of repair

Old and new hole at the same position or overlapping

Case: The hole is not greatly destroyed



Case: The hole is greatly destroyed



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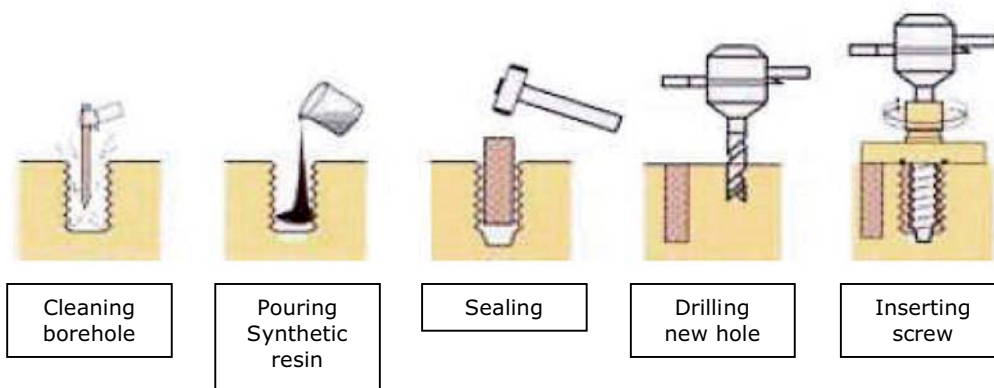
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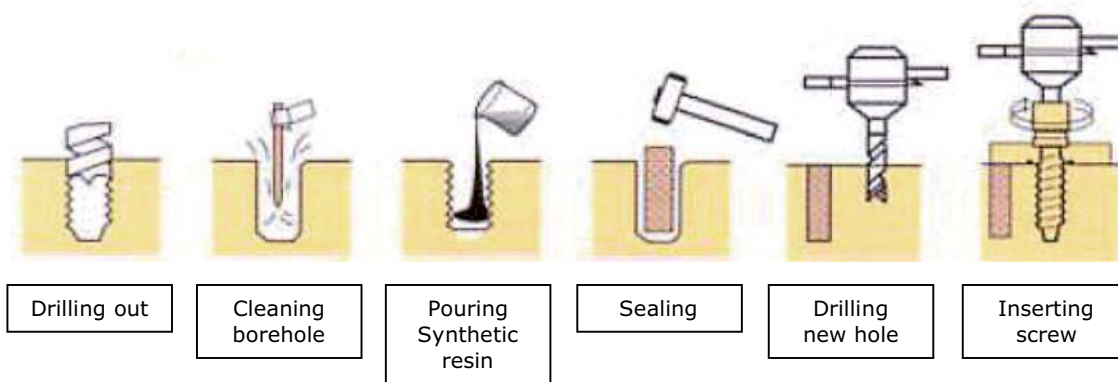


Old and new holes are neither at the same position nor overlapping

Case: The hole is not greatly destroyed



Case: The hole is greatly destroyed



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Handling synthetic resin

Because of its durability, this 2-component material is only supplied as a special order!

Repair work can be carried out in individual cases in borderline conditions (moisture).

Damage and old damaged areas can also be repaired with it.

Required preparation

- Synthetic resin (main material and hardener)
- Plastic measuring beaker
- Stirring rods
- Cleaning cloth

Main material (300 g)
Hardener (6 g)



Mixing

Pour main medium (white 300 g) into a mixing beaker. Add hardener and stir immediately this mixture can be used once.

Caution! When using synthetic resin

- Synthetic resin and individual components must be kept away from children
- Synthetic resin and individual components must be kept away from fire
- The processing and handling of synthetic resin and individual components is not permitted in the vicinity of fire or high heat
- If synthetic resin and individual components are accidentally swallowed medical assistance must be sought out immediately.
- Protective goggles must be worn when working with synthetic resin and individual components
- If synthetic resin and individual components come into contact with the eyes, they must immediately be washed out with pure water and medical assistance must be sought out immediately
- Rubber gloves must be worn when working with synthetic resin and individual components.
- If the skin shows signs of blistering or other alterations then medical assistance must be sought out immediately
- Protective clothing that is strongly soiled with synthetic resin and individual components must be cleaned with a cloth.
- Use the mixture in one working step (one-off)
- Order synthetic resin components only in the right quantity as it has a short shelf life of approximately one month.