

UNDER SLEEPER PADS (USP) FOR COMPOSITE SLEEPERS

INSTALLATION GUIDELINE

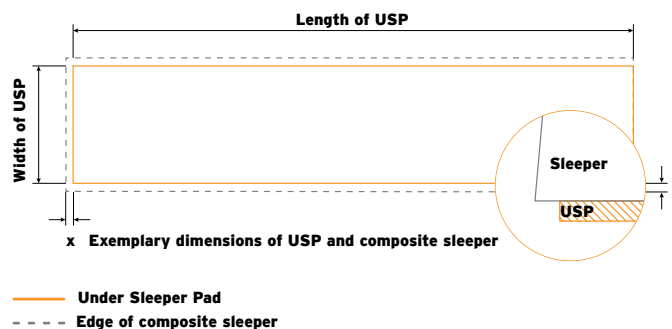


1. Transport and Storage

- Always transport in original packaging.
- Damaged packaging shall be immediately repaired (using plastic foil and adhesive tape).
- Storage should be in a dry environment in original packaging.
- Protection from direct sunlight is preferred.
- Once the original packaging is removed, USP must be kept dry.
- Temperatures below -20°C and above $+50^{\circ}\text{C}$ should be avoided.
- Do not stack pallets and parcels.
- USP are subject to normal thermal expansion/shrinking. This physical effect is completely reversible.
- Storage conditions (and temperature) should match installation conditions; in case of big temperature differences between storage and production area, it is recommended to condition/temper USP for at least 24 h.
- Shelf life of Getzner USP is not limited: if stored correctly, the USP can stay in storage for years to be installed at any later point in time.

2. Quality Control of the Assembly

- The edge distance between outer contour of sleeper and outer contour of USP, x , is jointly agreed upon with the customer (refer to illustration below). This ensures that USP are not damaged during tamping.
- Testing the quality of the connection is done by pull-out testing. The test is executed according to the standard EN 16730.



3. Adhesive Bonding of Under Sleeper Pads

For sleepers made of composite material, the USP can be retrofitted by bonding them to the sleeper. For this application, the USP are exclusively delivered without mesh or flock.

3.1 Adhesive

The adhesive is provided together with the USP by Getzner Werkstoffe. Please follow the safety data sheet and instructions for use to ensure correct handling.

3.2 Sleeper

The bonding surface of the sleeper has to be dry and clean. It should be level and smooth (the rougher, the more adhesive is required). The surface may not have depressions.



3.3 Bonding

The sleeper is placed upside down and the surface is cleaned if necessary. Prepare the adhesive as described in the instructions for use. Please mind temperature and pot life of the adhesive. The prepared adhesive is applied to the ballast side of the sleeper. If the pad is divided into parts, the joints also have to be bonded. The required amount of adhesive is determined by the roughness of the sleeper surface. Typically, an amount of 0.5–2 kg of adhesive is used per sleeper. The USP is then placed centrally on the sleeper. During curing time, the pad shall be evenly loaded on the whole surface with at least 50 kg. After bonding, there should be no cavities, that are not filled up with adhesive. The total thickness of the adhesive layer should not exceed 5 mm because the stiffness of the system could be influenced.

Attention: Please note that in case of bonding the USP with Diisocyanate containing bonding agents, staff needs to be trained and certified conform EU legislation 2020/1149. More information you can find via link [https:// safeusediisocyanates.eu/](https://safeusediisocyanates.eu/).



4. Storage of Padded Sleepers

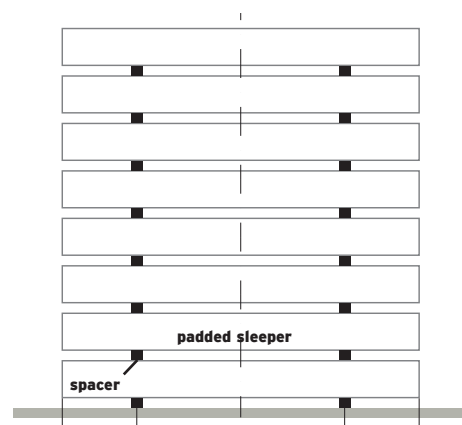
Usually padded sleepers are stacked on top of each other and stored outside.

The stacking capacity of padded sleepers is generally limited by the static load limit of the material. The maximum number of sleepers to be stacked is determined by a laboratory test procedure (according to the standard EN 16730).

Specific values for the maximum number of stacked sleepers are dependent on the sleeper weight and the size of the spacer that is used between the sleepers because both determine the specific load on the elastic material. The wooden spacers resting on the rail seats between any two sleepers should be as wide as possible, a minimum of 100 mm is absolutely required. The exact number of sleepers that can be stacked depends on the USP type and the sleeper type.

USP types with max. number of stacked sleepers: (assumed sleeper weight: 100 kg)

Due to the low dead weight of the composite sleepers there is no limit to stacking.





5. Transport of Padded Sleepers

Attention has to be paid during transportation to avoid mechanical damage.

6. Lifetime and Recycling

USP made from Sylomer® and Sylodyn® materials are long-lasting elastomers. The lifetime of the USP matches the lifetime of the sleeper, which means: no USP has to be exchanged prior to the exchange of the sleeper.

At the end of the lifetime of a padded composite sleeper the USP can be peeled off the sleepers mechanically and be thermally recycled. Unused USP or pieces thereof can be recycled in standard plastic waste containers. All our materials are non-hazardous to the environment.

7. Disclaimer

This guideline only serves to support the customer or his authorised specialist in the installation of Getzner USP. Getzner Werkstoffe draws the attention to known demands and problems. This guideline was compiled with the utmost care based on Getzner's current knowledge.

Due to the large number of different construction designs and requirements, Getzner Werkstoffe accepts no liability for the completeness of the installation guideline. In particular, Getzner Werkstoffe is not responsible for the proper installation of Getzner USP and the resulting negative effects on the condition/quality of Getzner USP or its performance. It is recommended that the installation is carried out by a specialist. All other rights are reserved! Sharing with unauthorised third parties is expressly prohibited.