

KLEIBERIT 510.3.17

1C PUR adhesive

Fields of application

- finger joint bonding of load-bearing wood components

Properties of the bond

- Tested by the Materials Testing Institute University of Stuttgart (MPA) according to EN 15425:2017 for the adhesives class EN 15425:2017-I-70-GP-0.3-w for the bonding of:
 - finger-joints in lamellas for finger-jointed solid wood according to EN 15497,
 - finger joints in lamellas of glue laminated timber and laminated beams according to EN 14080, and
 - finger joints in lamellas of cross laminated timber according to EN 16351
 - from spruce, pine, and fir.
- Tested according to SANS 10183-4:2009 for Service Class S3 according to SANS 10183-2.
- The glue line is inconspicuous (light in color), highly resistant to heat and achieves very high strength values.

Properties of the adhesive

Base:	polyurethane
Specific gravity:	approximately 1.13 g/cm ³
Color:	white to yellowish
Viscosity at 20°C	approx. 18,500 mPa·s (Brookfield RVT, Sp. 6/ 20 rpm)

Identification:	see our safety data sheet
Note:	Intended for commercial use only.

Application techniques

General processing conditions:

The room and material temperature should be 20 °C, but must not fall below 18 °C. This must be documented in a traceable manner.

Wood

The finger joints must be produced immediately before the bonding process. Care must be taken to ensure that the joints fit in accordance with the applicable standards. The surfaces to be bonded must be free from any release agents that hinder adhesion.

Wood moisture requirements according to DIN EN 14080 or DIN EN 15497:

One-piece finger-jointed wood must have a moisture content between 8% and 18%. The difference in moisture content between the ends to be joined must not exceed 5%. One-piece finger-jointed wood that is to be glued for wall and ceiling elements must have a moisture content of between 8% and 15%. The difference in moisture content between the ends of the wood to be joined must not exceed 5%. Finger-jointed wood that is further glued for glue laminated timber must have a moisture content of between 8% and 15%. The difference in moisture content between the ends of the timber to be joined must not exceed 5%.

Adhesive application:

The adhesive is processed directly from the original packaging in automated form by means of a processing system that is suitable for this application and continuously moisture-proof.

The adhesive is applied in the form of an application comb or contactless application system. Depending on the application system, the adhesive is applied on one or both sides in a quantity of 120 g/m² to 160 g/m². Uniform and full-surface wetting of the finger joint profile after the pressing process must be ensured. Visual observation of adhesive continuously being pressed out of the glue joints after applying full pressure is necessary but not sufficient. The regulations for the required application monitoring systems must therefore be observed.

Maximum waiting time:

It must be ensured that the adhesive is still fully capable of bonding when pressure is applied. When bonding finger-jointed joints, the pressure should always be applied as quickly as possible. In a room climate of 20°C and 65% rel. humidity and 12% wood moisture, the full pressure must be applied to the wood components to be bonded no later than 17 minutes after the start of adhesive application. A higher room temperature, a higher rel. air humidity and a higher wood moisture content shorten this time period.

Pressure:

Note: Before processing, all press elements that come into contact with the adhesive must be treated with release agent KLEIBERIT 885.0.

The required longitudinal pressing pressure depends on the geometry of the finger joint and is regulated in DIN EN 14080 Annex I.4.7 or DIN EN 15497 Annex G.4.7.

Pressing time:

Due to the influence of moisture (from the room air or the wood), the adhesive hardens, foaming slightly, to form a waterproof, tough adhesive film.

The minimum pressing time is specified in DIN EN 14080 Annex I.4.7 and DIN EN 15497 Annex G.4.7. In principle, the pressing time and the pressing pressure must be selected in such a way that freshly glued finger

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joints can be transported to the curing area after leaving the press without impairing the finger joint.

Minimum curing time for bonded wood components

The minimum curing time depends on the temperature and moisture.

After pressing, a minimum curing time of 35 minutes is required at a wood moisture content of 12% and a room climate of 20 °C and 65% relative humidity. During this time, the not yet fully cured finger-jointed wood may only be moved in such a way that the curing process is not impaired by either deformation or vibration (see DIN EN 14080 Annex I.4.8 or DIN EN 15497 Annex G.4.8).

If the wood moisture content is 9% and the curing process takes place in the same room climate as above, the minimum curing time is 50 minutes.

Exact times for the respective application must be determined according to the actual temperature and humidity conditions.

Storage time of bonded wood components

After the minimum curing time has elapsed, a storage time of 70 minutes is required at a wood moisture content of 12% and a room climate of 20 °C and 65% relative humidity.

If the wood moisture content is 9% and the post-curing process takes place in the same room climate as above, the post-curing time is 100 minutes.

During this storage period, further processing can already be carried out. This has to be checked and documented by self-tests. According to DIN EN 14080 Annex I.4.8 and DIN EN 15497 Annex G.4.8, it must be ensured that neither the further curing process nor the strength of the finger joint are impaired by early further processing

Achieving final strength

At a wood moisture content of 12% and a storage climate of 20°C and 65% relative humidity, this is reached after 24 hours.

Note:

In order to ensure a high bonding quality, we recommend setting up a suitable self-monitoring system. The relevant standard specifications must be complied with.

Cleaning

PUR adhesive that has not yet cured can be removed with KLEIBERIT 820.0.

Already cured PUR adhesive, e.g. on tools or machine parts, can only be removed mechanically.

Packaging

KLEIBERIT 510.3.17:

Carton with 6 dosing bottles at 0.8 kg net each

Metal pail, 20.0 kg net

Metal drum, 210.0 kg net

Cleaner

KLEIBERIT 820.0:

Metal can, 22.0 kg net

Release agent

KLEIBERIT 885.0:

Plastic pail, 5.0 kg net

Additional packaging sizes available upon request.

Storage

KLEIBERIT 510.3.17 can be stored in closed air-tight containers at 20 °C for approx. 12 months.

Keep in a cool and dry place and carefully protect from humidity.

This product is not frost sensitive at temperatures above -20°C.

KLEIBERIT 510.3.17 must be brought to room temperature before processing.

Contents of opened containers should be used as soon as possible.

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Adhesives and Waste Disposal

Waste Code 080501

Disposal of contents and/or containers should comply with all applicable federal, state and local regulations.
Our containers are made of recyclable material.

Service

Our application department may be consulted at any time without obligation. The statements made herein are based on our experience gained to date. They are to be considered as information without obligation. Please test and establish for yourself the suitability of our products for your particular purposes. No liability exceeding the value of our product can be derived from the foregoing statements. This also applies to the technical consultancy service which is rendered free of charge and without obligation.