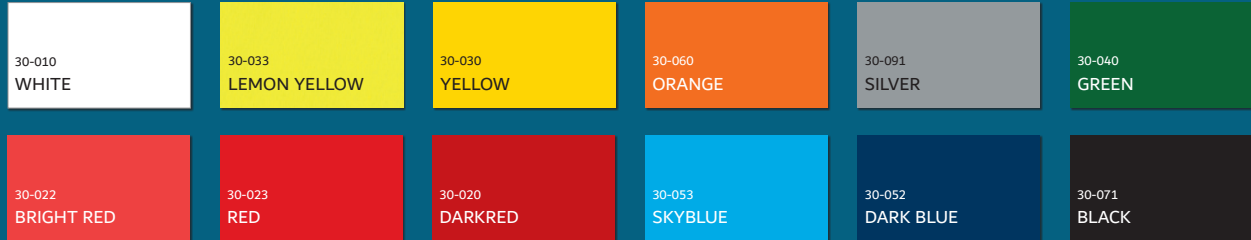


# GQ-COTE®

GQ-COTE® is a low-budget, high-gloss and reliable model airplane covering from Germany.

It is made of real polyester, has a heat-controllable shrinkage of 5% at 150 °C and can be processed quickly and easily over a wide temperature range.

available colors:



## ▶ YOU NEED THE FOLLOWING TOOLS

- ORATEX® T14 Sealing iron up to 160 °C (ref. no. 08420) or
- ORATEX® T18 Sealing iron up to 180°C (ref. no. 08421)
- ORATEX® Self-adhesive sliding coating for ORATEX T14 irons 200 x 150 mm (ref. no. 08461) or
- ORACOVER® protective cloth for ironing for our sealing iron (ref. no. 08460)
- ORATEX® Felt blade (ref. no. 0915 / 0948)
- Working gloves (ref. no. 08428 / 08429 / 08430)
- Respirator Mask with filter and box (ref. no. 08249)
- Kitchen roll, removable adhesive strip
- ORACOLOR® Filler (ref. no. 100-999)
- Degreaser for ORATEX® (ref. no. 08245)
- ORA-Universal Paint Brushes (ref. no. 08497 / 08498 / 08499)
- ORATEX® Wax (ref. no. 08240)
- Heat Gun HG 2320 E in a case with accessories (ref. no. 08465 / 08470)
- Press roller (ref. no. 08150)
- Scissor Zwilling® Twin L - 130mm (ref. no. 08400 / 08401 / 08402)
- Chemical gloves (ref. no. 08431 / 08432)
- ORATEX® Fixing-Tape (ref. no. 08258/08259)
- Scalpel (ref. no. 0914) or Cutting knife (ref. no. 0916)
- ORACOVER® Hotmelt adhesive (ref. no. 0960 or 0972)
- ORACOVER® Special thinner for hotmelt adhesive (ref. no. 0980)
- ORACOLOR® 2K-PU-Mastic (ref. no. 08445)
- ORATEX® Cleaner - ready for use (Item. 08200)
- Cutting bar/ruler/sanding block + fine-grain sandpaper



Fig. 1: recommended tools

## ▶ SURFACE PREPARATION

Take the time to sand your model thoroughly. Fill cracks or depressions in the surface with the ORACOLOR® 2K-PU-Mastic (ref. no. 08445) and the ORACOLOR® Filler (ref. no. 100-999). Finally, sand with fine-grit abrasive paper and use an abrasive block. Then remove all dust, if possible, with a vacuum cleaner; the model must be completely free of dust.

If the surface is stable, you do not need any surface treatment. If the surface is NOT load-bearing, we recommend applying ORACOVER® Hotmelt adhesive (ref. no. 0960 or 0972) to make the surface stable. To test the load-bearing capacity, you can simply stick a strip of self-adhesive tape to the substrate. If the strip can be removed very easily and the adhesive of the strip is covered with fine wood particles (see point 11, tape test), a substrate treatment is required to ensure permanent anchoring of the covering to the substrate.



Fig. 2: Smooth sanding of the structural surface

## ▶ TEMPERATURE SETTING OF YOUR IRON

If you do not have an ORATEX® T14 or T18 Sealing iron with electronic control and digital temperature display, you can either measure the temperature with a thermometer or follow the following "rules of thumb":

- Low setting: 90°C - the (dull) adhesive side begins to stick to the balsa wood. (Fig. 3A)
- Medium setting: 130°C - halfway between low and high temperature settings.
- High setting: 150 °C - at this temperature a strip of GQ-COTE®, which is dropped onto the iron, shrinks and warps (blunt side up see Fig. 3C).
- Styrofoam® test: A simple and reliable method for finding the iron's 90°C setting is to test the heated iron on a piece of Styrofoam®. 90 °C - 95 °C is reached when the Styrofoam® "squeaks" when the iron slides over it, but does not yet melt. Depending on the type of Styrofoam®, the melting point is between 95 °C and 105 °C.



Fig. 3A: Temperature test at 90°C / 194° F



Fig. 3C: Temperature test at 150°C / 260°F

Attention: For particularly difficult edge curves, you can increase the temperature of the T14 Sealing iron to 160 °C or use the T18 to 180 °C or our Heat Gun HG 2320 (ref. no. 08465 / 08470). GQ-COTE® can also be stretched comfortably from 180 °C. GQ-COTE® only begins to melt at a temperature of approx. 250 °C.

## ▶ STRINGING OPEN RIB SURFACES

To ensure optimal load-bearing capacity of the substrate, we recommend applying a thin layer of ORACOVER® Hotmelt adhesive (ref. no. 0960) to reinforce the substrate and allowing it to dry overnight. For the underside of the wing, cut out a piece of GQ-COTE® with an oversize of approx. 2 cm (Fig. 5a), and approx. 15 cm oversize in the edge arch area. Remove the transparent cover film from the GQ-COTE®. For easy removal, we recommend sticking a strip of adhesive tape to one corner of the film, both on the underside (cover) and on the top of this corner with the ends freely protruding. If you now pull on the free, protruding ends of the adhesive tape in the opposite direction, the GQ-COTE® can be easily separated from the cover film (Fig. 5b).

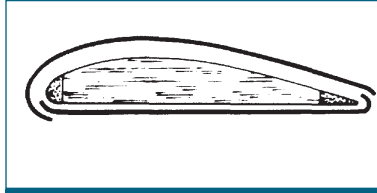


Fig. 4: Cover the underside surface first

When removing, make sure that the top of the film is on a flat surface (table) and ALWAYS separate the cover film from the GQ-COTE® and not the other way around, so that kinks that may form when being separated do NOT appear in the GQ-COTE®, but arise in the cover film (Fig. 5c). Place GQ-COTE® as flat as possible on the underside of the wing (Fig. 4) with the (white) side to be glued against the wing and pay attention to the correct positioning. Set the iron to low (90°C). Iron GQ-COTE® with the iron first on the root rib and then on the main spar (Fig. 6). Gently tighten the edge of GQ-COTE® so that it lies smoothly on the surface. Move the iron along the main bar using light pressure.



Fig. 5a

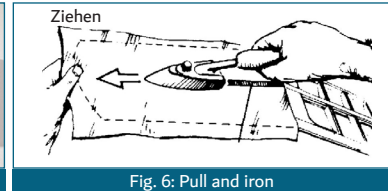


Fig. 6: Pull and iron



Fig. 5b

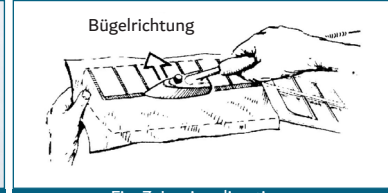


Fig. 7: Ironing directions

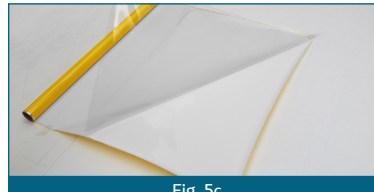


Fig. 5c



Fig. 8: Pull

For the next step (Fig. 7), iron GQ-COTE® onto the area between the main spar and the leading edge. Hold the ironing shoe parallel to the main rail. Press the iron flat onto the strip ironed onto the main spar and move it towards the leading edge, starting at the wing root, towards the edge arch.

ATTENTION: Do not attach GQ-COTE® to the nose strip yet, but leave it exposed. Now continue this procedure for the rear two thirds of the wing. Make sure to hold the iron parallel to the main bar and move it towards the loose end towards the end bar (Fig. 7). For best results, always try to pass the iron over 2 ribs at the same time. ATTENTION: Do not iron GQ-COTE® onto the end strip yet!

The final shrinkage can also be carried out with a hot air gun, see point 9. The hot film must be pressed thoroughly with the ORACOVER® Felt blade (ref. no. 0915 or 0948). When doing final shrinkage, make sure to cover the seams with a piece of corrugated cardboard to prevent the film from shrinking at the seam and the white glue from becoming visible.

## ▶ COVERING CLOSED SURFACES (RIB STRUCTURE)

To ensure optimal load-bearing capacity of the substrate, we recommend applying a thin layer of ORACOVER® Hotmelt adhesive (ref. no. 0960) to reinforce the substrate and allowing it to dry overnight. Iron GQ-COTE® with the iron first on the root rib and then on the main spar (Fig. 6). Gently tighten the edge of GQ-COTE® so that it lies smoothly on the surface. Repeat the procedure as for the open rib surfaces, with one exception: leave your iron on the low temperature (90°C) and iron starting from the middle, as shown in Fig. 6 and Fig. 10. Iron the entire surface at low heat, then repeat at medium temperature (130°C) as described in point 8. Hold the iron level with the surface so that the entire film is ironed firmly to the surface.



Fig. 9a: Work slowly around curves



Fig. 9a: Work slowly around curves

The final shrinkage can also be carried out with a hot air gun, see Fig. 9b. The hot foil must be pressed thoroughly with the ORACOVER® Felt blade (ref. no. 0915 or 0948) (Fig. 9b). When doing final shrinkage, make sure to cover the seams with a piece of corrugated cardboard to prevent the film from shrinking at the seam and the white glue from becoming visible.



Fig. 9b final shrinkage

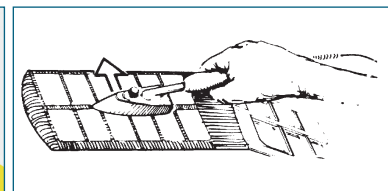


Fig. 10

## ▶ COVERING CLOSED SURFACES (HARD FOAM CORE)

Since hot steam is involved in rigid foam production, there is often a relatively high level of residual moisture in untamped rigid foam cores (unfortunately, almost no cores are annealed anymore for cost reasons). A "micro-climate" builds up in the core at room temperature, so the moisture does not escape even during long-term storage. When covering, this balance is disturbed by the heat supply and the moisture begins to expand, diffuse against the film and build up pressure, which causes bubbles. This can cause some of the wood fibers that are stuck to the film to come loose. "Permanent creases" arise because these wood particles block the adhesive of the film and ironing in the actual sense is no longer possible. To prevent this problem, we recommend applying a thin layer of ORACOVER® Hotmelt adhesive (ref. no. 0960) as a vapor barrier and to reinforce the substrate and allowing it to dry overnight. Only a thin layer should be applied so that the solvents in the adhesive do not damage the hard foam core. After this vapor barrier has dried thoroughly, covering can begin.

Iron GQ-COTE® with the iron first on the root rib and then on the main spar (Fig. 6). Gently tighten the edge of GQ-COTE® so that it lies smoothly on the surface. Move the iron along the main bar using light pressure. Then iron starting from the middle as shown in Fig. 6 and Fig. 10. Iron the entire surface at low heat, then repeat at medium temperature (120°C - 130°C) as described in point 8. Hold the iron level with the surface so that the entire film is ironed firmly to the surface. The final shrinkage can also be carried out with a hot air gun, see point 9. The hot film must be pressed thoroughly with the ORACOVER® Felt blade (ref. no. 0915 or 0948). Do not overheat the film, otherwise you could damage the rigid foam core (Fig. 9a, 9b). When doing final shrinkage, make sure to cover the seams with a piece of corrugated cardboard to prevent the film from shrinking at the seam and the white glue from becoming visible.

## ► COVERING OF THE EDGE ARCH

For difficult edge curves, set the heat gun to a very high temperature (min. 300°C) so that the surface temperature is 150°C - 200°C. Pull and stretch GQ-COTE® firmly around the edge arch while heating with the heat gun and staple in place (Fig. 8). During the cooling phase, you must hold the film firmly as it is under tension and the adhesive has to anchor first.

DO NOT attempt to remove all wrinkles at this time. If deep wrinkles have formed on the edge, heat GQ-COTE® over the entire area, loosen the wrinkles and pull (stretch) everything smooth again while heating. This work can be carried out much better with a hot air blower (Fig. 11a, b, c, d) than with an iron, as this does not deliver flat heat to the spherical surface, but only at specific points.

Please note that GQ-COTE® cannot be ironed off without leaving residue, like ORACOVER®. In the case of ironing, GQ-COTE® would leave a white adhesive layer, which can be mixed with the ORACOVER® Special thinner for hotmelt adhesive (ref. no. 0980) can be washed off.

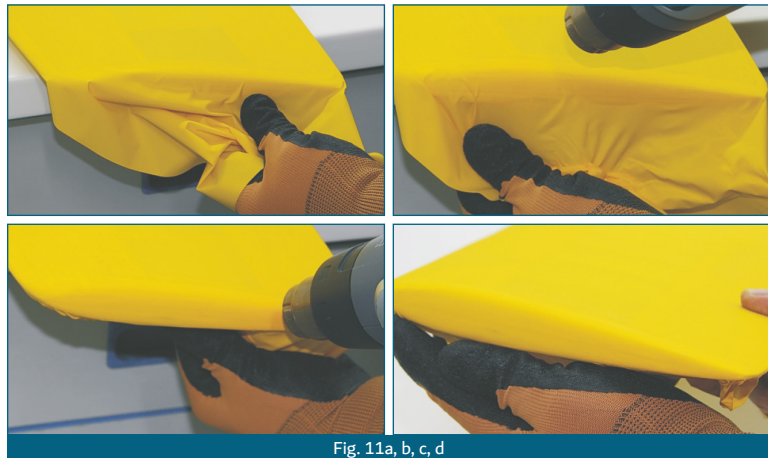


Fig. 11a, b, c, d

## ► IRON THE EDGES

After you have ironed the covering on the underside of the wing and the edge arch at high temperature, cut GQ-COTE® to an excess of ½ cm and iron the edges on the nose and tail strip (Fig. 12a, 12b).

Do not allow GQ-COTE® to shrink above the rib surface at this point ironing the edges, make sure that the direct edge can only be ironed at 90 °C to prevent the film from shrinking and the white adhesive from peeking out. If the edge is ironed on and you are finishing it with a hairdryer, please use a strip of corrugated cardboard to cover the edge to protect it from shrinking at high temperatures.



Fig. 12a: Trimming from the aileron recesses



Fig. 12b: complete ironing

## ► WING TOP

To cover the top of the wing, proceed in the same way as for the underside, except that you leave more foil in the edge area for pulling around.

ATTENTION: Don't forget to set the foil iron back to low temperature (90°C). ironing the edges, make sure that the direct edge can only be ironed at 90 °C to prevent the film from shrinking and the white adhesive from showing out. If the edge is ironed on and you are finishing it with a hairdryer, please use a strip of corrugated cardboard to cover the edge to protect it from shrinking at high temperatures.

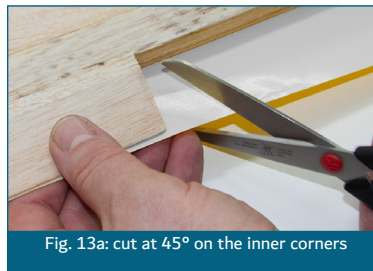


Fig. 13a: cut at 45° on the inner corners



Fig. 13b: place the covering around the strip and iron it

## ► COMPLETION OF THE WING COVERING

After the top and bottom of the wing have been ironed, it is time to shrink the covering material evenly onto the surface and tighten it. Set the iron to high temperature (150°C). Proceed in the same way as described in point 4. This heats the adhesive to a higher temperature, creating an excellent bond to the wood (Fig. 10, 14). Experience shows that once you shrink, sometimes areas are not ironed on correctly. Therefore, we recommend performing this process twice. Regardless of whether you use an iron or a heat gun, please make sure that the film is pressed firmly onto the surface when hot so that the adhesive can permanently anchor to the surface. The ORACOVER® Felt blade (ref. no. 0915 or 0948) is used for pressing (Fig. 9b, 14, 15). If the surface anchoring is insufficient, wrinkles can form or, in the worst case, the film can even come loose.

ironing the edges, make sure that the direct edge can only be ironed at 90 °C to prevent the film from shrinking and the white adhesive from showing out. If the edge is ironed on and you are finishing it with a hairdryer, please use a strip of corrugated cardboard to cover the edge to protect it from shrinking at high temperatures.



Fig. 14

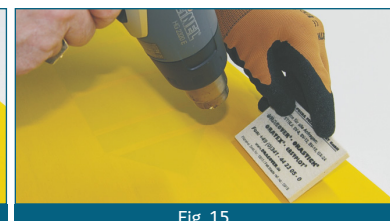


Fig. 15

## ► STRINGING THE HULL

Cut GQ-COTE® to the size of the surface to be covered with an excess of approx. 1 cm (Fig. 16). Place GQ-COTE® on the surface. At low temperature (90°C), iron a center strip down the entire length of the torso. With the ironing shoe lying flat and applying light pressure, move the iron outwards from the center strip, as described in points 4 and 5 (Fig. 16). Cut off excess foil to approx. ½ cm. Iron all edges securely. According to point 8, run the iron over the entire hull at high temperature (150°C - 180°C) to remove any wrinkles, but do not heat the edge areas which may otherwise shrink and expose the glue. And don't forget: Always press the still hot GQ-COTE® immediately with the ORACOVER® Felt blade (ref. no. 0915 or 0948).

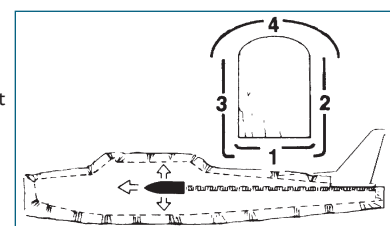


Fig. 16: Fuselage covering – first the underside, then the sides, and finally the top

## ▶ HELPFUL TIPS

### HOLLOW PROFILES (S-SHUT PROFILES)

To cover wings with concave underside profiles, iron GQ-COTE® carefully and with sufficient pressure on all wooden parts at 90 °C without shrinking. Then you cut a template out of corrugated cardboard that has to cover ALL the wooden parts. The purpose of the template is to prevent shrinkage heat from softening the covering's adhesive again and then causing the film to shrink away from the rib shape and distort the profile. The stencil is used to cover the ribs of the wing and the areas between the ribs are shrunk using the hot air gun.

### VENTILATION HOLES (PRESSURE COMPENSATION)

When covering rib surfaces (planked or unplanked) as well as horizontal and vertical stabilizers in web construction (planked or unplanked), it is important to ensure that ventilation holes are available to equalize pressure. If not, holes with a diameter of 1 - 2 mm must be drilled through all ribs and webs so that air that heats up during covering can escape and does not inflate the film, which would then become wrinkled after it has cooled down due to could not shrink due to the excess pressure.

### ENGINE BULK

Firmly iron all edges around the engine area with a hot iron to prevent oil from seeping under the covering. Coat the inside of the engine compartment with the ORACOLOR® 2K paint, allowing the protective coating to overlap the GQ-COTE® surface.

### STYROFOAM® (HARD FOAM) DEPRON®

At low temperatures (90 °C) GQ-COTE® can also be applied directly to Styrofoam®. Try it out on a piece of Styrofoam® until you get a feel for the material. Instead of GQ-COTE® you can also use ORASTICK® and stick it directly onto the Styrofoam® or Depron®. When reworking with an iron, the temperature must not exceed 95 °C, otherwise the surface will be damaged by the heat. Use ORACOVER® Foam adhesive (ref. no. 0981) to optimize adhesion.

### EPP (EXPANDED POLYPROPYLENE)

Rough or non-even surfaces are coated thinly with ORACOVER® EPP hotmelt adhesive (order no. 0982) for better adhesion. Allow to air out overnight. The GQ-COTE® covering can be applied the next day. Since the surface retains a certain amount of tack, it is important to apply the covering smoothly. When ironing and shrinking, the temperature acting on the substrate must not exceed 160 °C, otherwise the substrate material will be permanently damaged by the heat.

### PAINT

GQ-COTE® is easy to paint. Optimal results are achieved when using the ORACOLOR® paint system. With ORACOLOR®, however, only white and black match GQ-COTE®. Since ORACOLOR® is a two-component paint system, it is fuel-resistant and iron-proof, meaning the paint layer can be ironed over without being damaged. For optimal paint adhesion, we recommend cleaning the surface of the covering with our Degreaser for ORATEX® (ref. no. 08245), then dulling it with steel wool type "000" or sanding pads and finishing with ORACOVER® Special thinner for hotmelt adhesive (ref. no. 0980) to clean.

### CLEAN

Residues of paint or glue on the iron can be removed with a clean cloth while the iron is hot. Residues can be removed from the covering film using ORACOVER® Special thinner for hotmelt adhesive (ref. no. 0980) or ORATEX® Special thinner for hotmelt adhesive (ref. no. 0969). These SPECIAL THINNERS may only be used with the iron if the iron is COLD AND POWERLESS! It must NOT be put into operation even if SPECIAL THINNER has adhered! When using SPECIAL THINNER, always ensure that the room is well ventilated, as SPECIAL THINNER can form explosive gases.

### DECALS

Follow the manufacturer's instructions for use.

### DECORATIONS, MARKINGS, DECORATIVE STRIPES ETC.

Since GQ-COTE®'s special adhesive does not create air bubbles when GQ-COTE® is ironed over itself, GQ-COTE® can also be used for decorations and markings. However, you need to work carefully so that you don't accidentally include an air bubble. When applied at low temperatures, GQ-COTE® sticks firmly to itself. For better opacity, a dark color should be glued over a lighter one if possible. Smaller motifs should be placed in position and ironed on at one end. Hold the other end of the motif up and iron it onto the surface, starting from the already ironed end, without ironing in any air. Larger motifs (e.g., sun rays) should be brought into position and ironed on at the narrow end. The motif is then ironed on towards the wide end. Decorative stripes etc. can also be made by cutting GQ-COTE® into narrow strips. To add multi-colored decorations to a lattice fuselage or an open-rib wing, iron the individual decorations on the silicone paper (order no. 12-100-002 or 12-100) at approx. 80 °C on a straight table -005) together to form a covering sheet. The seams should overlap by 1.5 cm. Dark colors should always be ironed onto light colors, otherwise the edges of the dark colors will show through the light colors. When ironing it on afterwards, pay attention to exact positioning. Furthermore, the seam areas should not be heated too much when ironing in order to prevent the adhesive from softening and the seam from "shrinking away". If a heat-gun is used, the seams may need to be protected from overheating using a cardboard template.



Fig. 17

### PATCH AND REPAIR

In order for a patch to fit securely, be sure to remove any remaining engine oil and exhaust deposits. For simple tears, cut out a patch that is approximately 0.8 to 2.0 cm larger than the area to be patched. Iron the patch on with at least ½ cm overlap.

### HEAT GUN

When using a heat gun, GQ-COTE® shrinks onto the surface and appears to stretch well, but it has not bonded firmly to the substrate. If you want to use a heat gun for the final bond, follow points 4, 5, 10 and 10a to achieve a proper bond. Use a heat gun according to point 8 of the instructions to shrink GQ-COTE® over an open rib construction. To cover planked surfaces, heat GQ-COTE® and immediately press the heated GQ-COTE® film firmly onto the surface using our ORATEX® Felt blade (ref. no. 0915 or 0948). This pushes the glue into the wood and creates a tight connection. Make sure to only do this in small sections. The result definitely justifies the time investment.

### WOOD AND MOISTURE

If a model is built and covered in relatively high humidity, the tension of the film will decrease as the humidity decreases, as the wood releases moisture and shrinks. In this case, the covering needs to be ironed again to adapt it to the shrunken surface.

### CLEANING THE MODEL

For optimal cleaning of the model, we recommend the ORATEX® Cleaner (ref. no. 08200 / Ref. no. 08210) for all covered and painted parts.

### PROTECTION AND SHINE

For optimal protection and shine of your model, please use our ORATEX® Wax (ref. no. 08240) for all covered and painted parts. After using the protective wax, clear water is usually sufficient to clean the model. If necessary, oils and exhaust gas residues should be removed with the ORATEX® Cleaner (ref. no. 08200 / Ref. no. 08210).

### TAPE TEST

Stick a strip of adhesive tape onto the wood to be covered and press it carefully with the press roller (ref. no. 08150). Then pull it off again. If the adhesive tape can be removed without much resistance and the adhesive layer is full of wood particles, the surface is not stable. In this case, the wood must be made load-bearing using the appropriate heat seal adhesive.



Tesa test