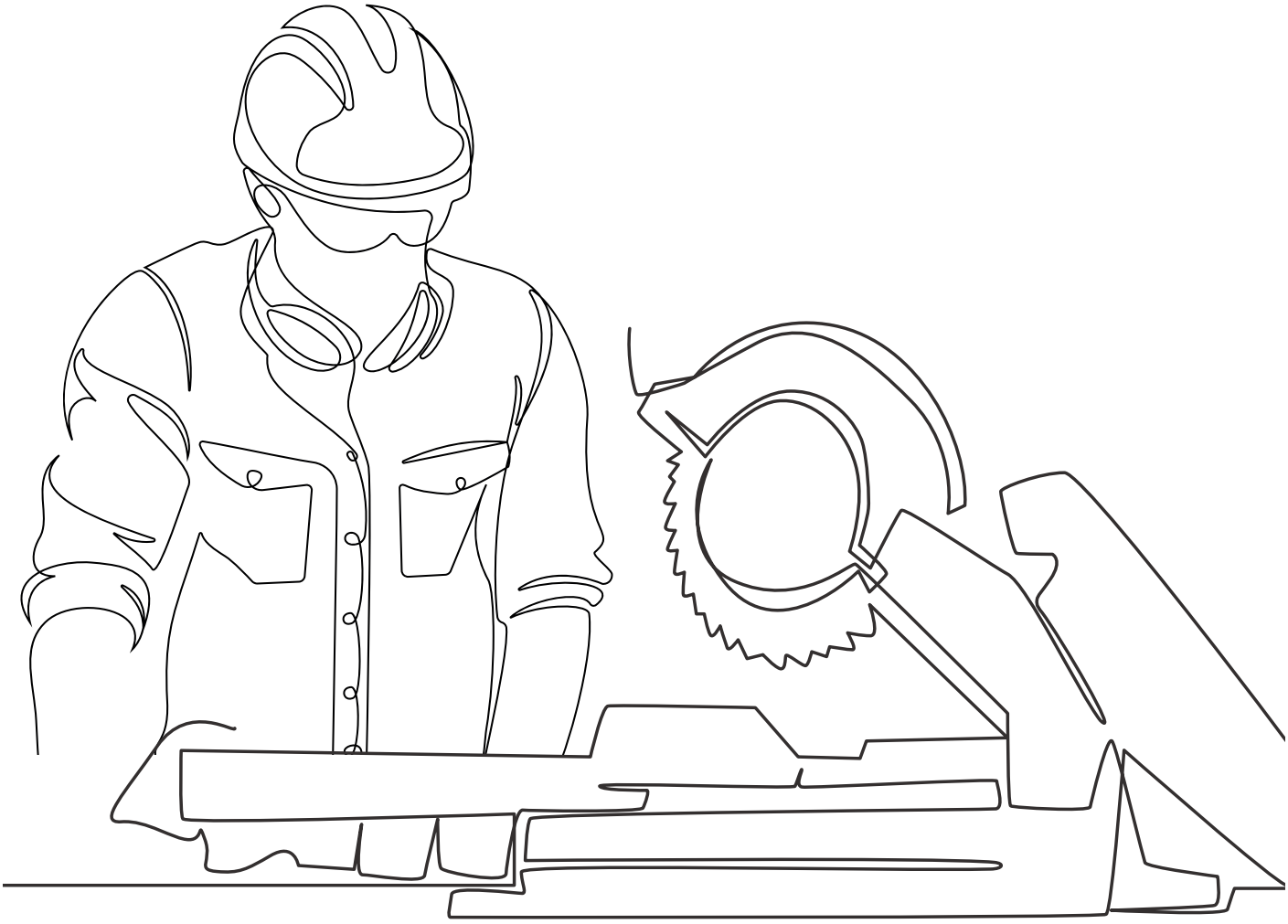
kerrock
by KOLPA



ENG.

PROCESSING INSTRUCTIONS

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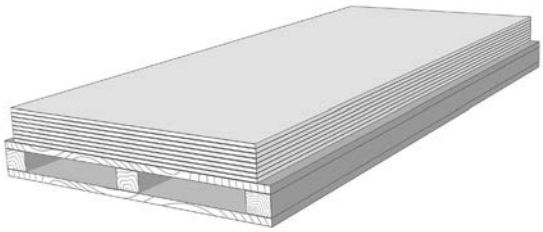
1. STORAGE AND TRANSPORT

1.1. Transport of Kerrock Sheets and Sinks

Kerrock sheets are transported on pallets. Kerrock pallets must be unloaded with a fork lift or other lifting devices which provides safe transport of the following loads:

Thickness	Length	Width	Weight	Qty on pallet	Pallet weight	Total weight
4	3600	760	19	50	40	990
6	3600	760	28	30	40	880
9	3600	760	42	25	40	1090
12	3600	760	56	20	40	1160
18	3600	760	85	10	40	890
6	3600	930	35	20	45	745
12	3600	930	70	10	45	745
4	3600	1350	33	30	60	1080
6	3600	1350	50	20	60	1060
9	3600	1350	75	15	60	1185
12	3600	1350	100	10	60	1060
12	3600	1520	112	10	70	1220



Advice

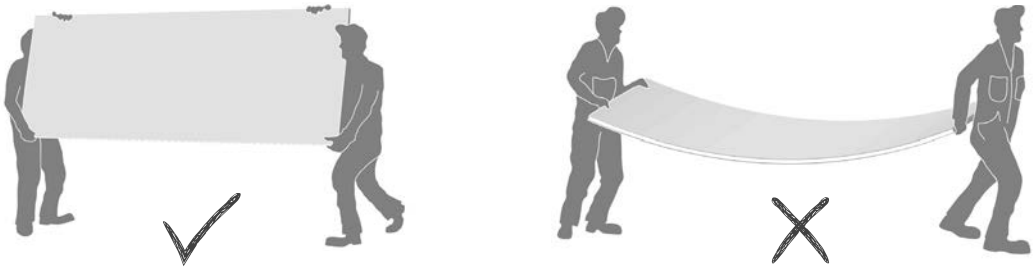
The fork size of the forklift must be at least the width of the pallet and the spacing between the forks must be as wide as possible.

Should no lifting device be available, Kerrock sheets can also be unloaded manually.
If so, it is of the utmost importance to observe the instructions intended for your safety:

- transport only one sheet at a time;
- hold the sheet at its edge;
- transport the sheet vertically;
- always use protective heavy duty gloves and appropriate safety footwear;
- it takes two people to perform the work.

Note

Extreme temperatures affect the product. Be careful when handling the sheets at temperatures below 10°C.



The sheets must be transported individually in a vertical position, where one hand serves as support and the other for control. It is recommended to use vacuum accessories for transporting heavy loads.

1.2. Storage of Kerrock Sheets and Sinks

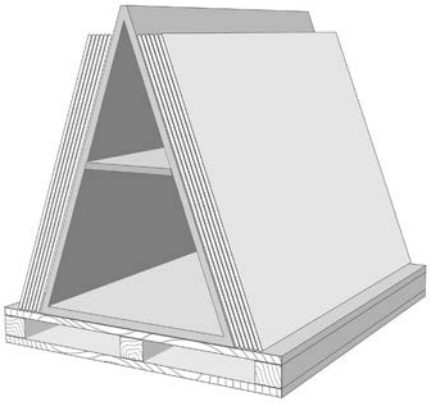
There are two ways to store Kerrock sheets that prevent bending and tilting. It is recommended to store Kerrock sheets at a temperature between 15˚C and 23˚C, in a dry and well ventilated indoor areas. Make sure the product is not exposed to moisture during storage.

- Kerrock sheets must be stored in a horizontal position and evenly arranged, as shown on page 5.

- Kerrock sheets can also be kept in a vertical position (vertical storage). As shown on the Figure below, the sheets must be stored on vertical supports, where the lower edge of a sheet rests on a flat floor.

Note

Due to easy access, Kerrock sheets must be stored so that their batch number and colour are visibly shown.



In order to prevent bending and tilting special attention must be given to storage of Kerrock sheets.

It is essential to organise the storage system to enable easy access, management and identification of goods.

Exposure to moisture and indirect sun light during storage can damage the sheets.

Handling Kerrock sinks and washbowls carefully,
as stated in packaging instructions, is of utmost importance. Packaging of Kerrock sinks and washbowls guarantees maximum protection; however, care is required when handling them.

Advice

Kerrock sinks and washbowls should not be stored more than 6 boxes high. Bear in mind! In order to reduce the possibility of injuries, do not lower, press or mount heavy loads on the top.

2. QUALITY REVIEW

2.1. Quality Review of Kerrock Sheets

The goal of Kolpa, d.o.o., is to offer producers only the highest quality materials, which will satisfy customer demands. In order to ensure compliance with our strict quality standards, every individual sheet is thoroughly checked and examined.
Nevertheless, it is the responsibility of the user to examine every sheet for possible faults and check its colour.

Advice

If, after thorough examination of a Kerrock sheet, you find any faults, which would significantly lengthen the duration of production, we kindly ask you to immediately inform the distributor about the problem.

Your Kerrock distributor will answer all your questions and provide you with appropriate assistance.

Note

Kolpa, d.o.o., will replace any materials that do not conform to product specifications upon delivery. Cut sheets are not subject to complaints. Likewise, Kolpa, d.o.o., does not assume responsibility for any changes which might arise due to the use of damaged materials.

The table shows some provisions of standards which are useful when examining Kerrock sheets (upon delivery).

Control Standards	**Technical Requirements**
Mechanical Damage	None.
Difference in colour (from sheet to sheet)	Inspection of colour matching between individual sheets is not only required, but also highly recommended. Sheets of different batches may deviate in colour.
Difference in colour (on one sheet only)	Before cutting the sheet, it is required to check the homogeneity of colour throughout the surface of the sheet and then orient the sheet appropriately.
Bending	Less than 1.8mm
Holes	They are allowed on the back side of the sheet: - dimensions of permitted holes: 2mm in depth, diameter of 6mm; - a maximum of 10 holes with a diameter of 1 to 6mm per sheet. No holes are permitted on 4mm thick sheets.
Foreign bodies and contrast dots	Contrast dots and impurities are allowed, and namely: - the total surface of the dots may amount to a maximum of $1mm^2/m^2$ or approximately 5 dots with a diameter of 0,5 mm per m^2 of sheet. A maximum 3 dots or foreign bodies are allowed per dm^2 of a sheet.
Edges	Bruises are allowed within tolerance measures of declared dimensions.
Hardness	Hardness measured in accordance with ASTM D2 583 (Barcol 934 1) is between 58 and 65.
Dimensions	The following deviations from declared dimensions are allowed: - thickness: ± 0.5mm; - for 4mm thick sheets: ± 0.25mm; - length: -8mm; +20mm; - width: -4mm; +10mm.
Curvature	Permitted curvature is 2mm/per metre of sheet. The gap between the horizontal base and the laid sheet is measured.

2.2. Quality Review of Kerrock Washbowls and Washbasins

The table shows some provisions of standards which are useful in quality review after the receipt of Kerrock washbowls or washbasins (upon delivery).

Control Standards	**Technical Requirements**
Mechanical Damage	None.
Colour ordered	Check if the supplied goods are appropriate.
Right size	Be careful as there are many sinks and washbasins, which have a similar design. Please, check whether the dimensions are appropriate. Tolerance +/- 5 mm.
Accessories	Make sure all accessories are included in the shipment.
Drains	Check proper location and placement.
Foreign bodies and contrast dots	Contrast dots and impurities are allowed, and namely: – 2 dots/dm^2 or up to 5 dots or impurities per product in the size of up to 0.5mm.
Rough surface on the back side of a product	The back side of a product can have a rough surface. a crack or unevenness of up to 10 cm in length, up to 2 cm in width and 2 mm in depth is allowed.
Difference in colour (bowl and sheet)	Colour match between bowl and sheet is not guaranteed.

Note

Please examine the Kerrock sheets, washbasins and sinks or the final product carefully upon receiving them.
Kolpa, d.o.o., will not consider complaints regarding any parts that have been damaged during use or due to the use of damaged materials resulting from a failure to comply with the processing, use and maintenance instructions.

3. GLUE

3.1. Product Description

Kerrock glue is a two-component adhesive composed of modified methyl-methacrylate resin (component A) and dibenzoyl-peroxside-a hardener (component B). Kerrock glue guarantees excellent gluing of Kerrock sheets and is available in all colours of Kerrock sheets, which results in almost invisible joints, if gluing instructions are duly observed. Kerrock glue is thermally conductive and UV-resistant, resistant to external influences and water.

3.2. Types of Glues with regard to Packaging

Kerrock glue is packed in two ways:

a. in plastic bottles,
b. in cartridge dispensers.

a. Kerrock Glue in Plastic Bottle

With regard to the quantity of adhesive there are three sets of Kerrock glue in plastic bottle:

1. Mini Kerrock glue set 0.20kg (200g of glue);
2. Medium Kerrock glue set 0.50kg (500g of glue);
3. Big Kerrock glue set 1.0kg (1,000g of glue).

An individual set of Kerrock glue in plastic bottle is composed of a plastic bottle (size with regard to the type of set) with a cap, which contains component A, Unguator jar (100ml), Unguator applicator, injection syringe (5 ml or 10 ml), which contains component B, and Kerrock stick for mixing glue. All items are packed in an appropriately sized cardboard box.

b. Kerrock Glue in Cartridge Dispenser

With regard to the quantity of adhesive there are two sets of Kerrock glue in cartridge dispenser:

a) Kerrock glue cartridge dispenser 250ml
b) Kerrock glue cartridge dispenser 50ml

An individual set of cartridge dispensers is composed of a two-component cartridge with a ratio of 10:1 for component A against component B.
Every cartridge dispenser set includes a mixer. Cartridges lie horizontally in a cardboard box.

3.3. Physical and Chemical Properties of Glue in Plastic Bottle

	Component A	**Component B**
Colour	the same colour as a sheet	White (40% suspension)
Mixed ratio with regard to volume	100	1
Flashpoint	>11˚C (EN 22719)	>50˚C (EN 22719)
Open glue efficiency (minutes)	8-12 (20 ± 2 ˚C)	
Setting time (minutes)	20-35 (20 ±3 ˚C)	
Solvents in the product	None	
Period of use	24 months (with proper storage at temperatures 0-25 ˚C)	

3.4. Physical and Chemical Properties of Glue in Cartridge Dispenser

	Component A	**Component B**
Colour	the same colour as a sheet	White-transparent (4% suspension)
Mixed ratio with regard to volume	10	1
Flashpoint	>11˚C (EN 22719)	>50˚C (EN 22719)
Open glue efficiency (minutes)	5-7 (20 ± 3 ˚C)	
Setting time (minutes)	17-23 (20 ± 3 ˚C)	
Solvents in the product	None	
Period of use	24 months (with proper storage at temperatures 0-25 ˚C)	

3.5. Management and Storage

Highly flammable. Irritating to eyes, respiratory system, and skin. Skin contact may cause oversensitivity. In case of contact of with eyes, rinse with running water for at least 15 minutes and seek medical attention if injured.
Consuming the product is dangerous to health. Wear appropriate protective clothing, gloves and protective goggles.
Keep the glue in a well closed packaging, in a well ventilated, dark room, at a temperature of up to 25˚C.Keep away from ignition sources, reducing agents, acids, alkalis, accelerants, and heavy metals.
Do not flush down
drains. Keep injection syringes and cartridge dispensers in horizontal position.

3.6. Glue Preparation

The recommended room temperature where gluing takes place must be 20˚C. A glued joint will be optimal at temperatures between 17˚C and 23˚C.The area must be clean and dust free. Before gluing, check the colour of the Kerrock sheet and the colour of the glue – they must match.

There are two methods that can be used to prepare the adhesive:

a. Glue in Cartridge Dispenser

For dosing glue in the cartridge dispenser a special dosing gun is used. Screw the mixer on the cartridge
and place the set in the gun. Discard the first squirt of glue and then apply
the glue to the gluing site. When gluing with a cartridge there is no need to pay attention to the ratio of the components, as they are dosed automatically.
Further processing can be resumed after 2 hours. The glue reaches its final hardness after 24 hours.

Consumption of glue for a glued joint with a 12mm thick edge:

50ml cartridge	4–5m of glued joint.
250ml cartridge	20-25 m of glued joint

b. Glue in Plastic Bottles

Take Component A, mix it well, and put it in the Unguator jar, then add 1% of component B (which has to be mixed beforehand) and wait about 1 minute to let the air bubbles out. Apply the glue to the desired area. Effective time of glue prepared in this way is 8 to 12 minutes. Further work can take place after 2 hours. Glue reaches its final hardness after 24 hours. Make sure not to put too much of component B, as it speeds up the reaction, damaging the glued joint (glue turns yellow, becomes
fragile).

4. TOOLS AND ACCESSORIES FOR KERROCK PROCESSING

Similar to other processing industries, the equipment for processing Kerrock is based on tools of various brands that are more popular among individual processors.

Listed below are all recommended tools for processing Kerrock sheets.

It depends on the individual processor and his needs which brand of tools he will choose. Nevertheless, it is very important to observe the guidelines describing methods of production and recommended machines and tools.

4.1. Basic Machines and Accessories for Kerrock Processing

- Squaring circular saw 7kW with an appropriate circular saw blade.
- Spindle moulder 7kW with feeder.
- Handheld electrical router 800W for easier milling works and 2,200W for bigger cuts and profile milling.
- Handheld electric router.
- Handheld electrical saw 1,200-2,300W.
- Handheld electrical eccentric grinding machine 250–700W.
- Handheld electric belt grinder 800-1,200W.
- Handheld electric drilling machine 800-1,200W.
- Mobile vacuum cleaner 350–1,200W.
- Work table and trestles.
- 200mm joiner's clamps or fixing clamps 50mm or larger.
- Gun for application of elastic silicone or polyurethane glue.
- Kit for preparing and applying Kerrock glue.

4.2. Additional Machines for Kerrock Processing

To make your work easier, it is advisable to use the machines listed below when processing Kerrock, as they significantly contribute to the quality of the processing and reduce the time required:

- Automatic format cutter.
- CNC machine (12kW)
- NESTING CNC machine.
- Contact grinding machine.
- Furnace for Kerrock heat treatment (up to 180°C) with regulation.
- Vacuum press.
- Hydraulic press.

5. PREPARATION OF WORKING AREA

5.1. Preparation of Working Area in Workshop

Before beginning the processing of Kerrock, ensure the following conditions:

- Recommended temperature in the workshop is 20˚C. Optimum conditions are between 17˚C in 23˚C.
- Before processing, keep the sheets in a room with an ambient temperature of approx. 20˚C for at least 12 hours.
- Working areas must be well lit.
- There should be little or no dust and waste in the workshop where Kerrock gluing is taking place.
- Make sure dust and cuttings are well vacuumed.
- Working surfaces for gluing Kerrock should be completely flat.
- Make sure Kerrock sheets are well protected from any damage during storage.

5.2. Preparation of Working Area on Customer's Premises

Before installing the product on a customer's premises, it is recommended to check the following:

- Access from parking area to entrance doors.
- Distance and other obstacles.
- Size of entrance.
- Condition of walls.
- Ceiling height.
- Electrical and water installations.
- Note any other information that would speed up the process of installing a Kerrock product.

Provide all customers with pleasant service, with an emphasis on treating customers in a polite and respectful way.

Perform all safety measures in order to protect the working area from dust and residue.

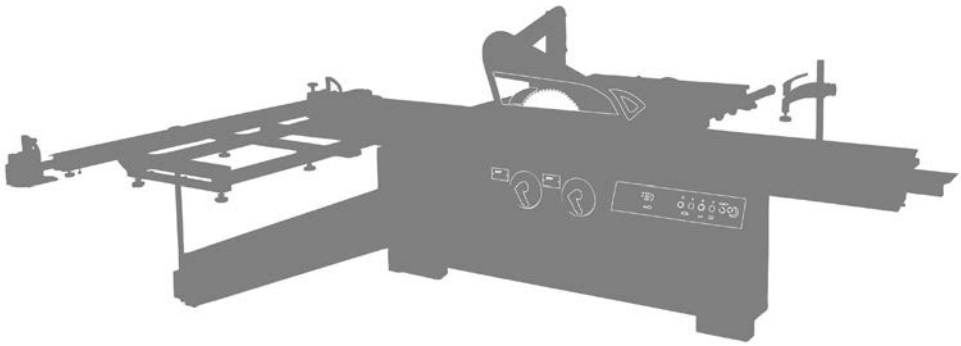
Provide the customer with all required information on the characteristics of Kerrock products and explanations regarding work.
It is required to reach an agreement with the customer about all works prior to the commencement of work.

Provide the customer with written and oral instructions about the correct maintenance and care of the Kerrock products.

6. CUTTING KERROCK SHEETS

6.1. Machines and blades for cutting Kerrock sheets

Sawing of Kerrock sheets is mostly done on
squaring
circular saws for cutting
standard panels such as particle boards,
plywood, mediapan sheets, etc. Cutting is
also carried out on automatic format cutting

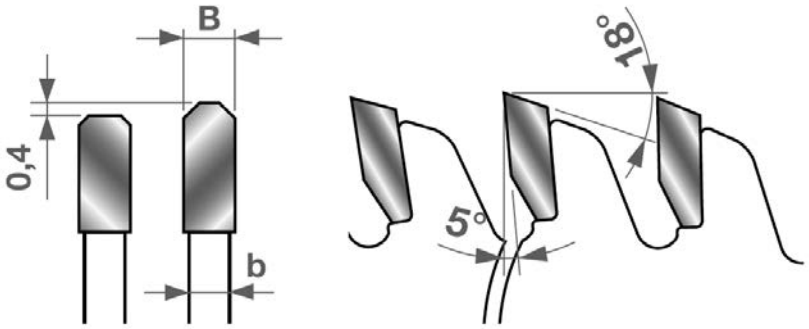


HW (tungsten carbide) or DIA (diamond)
blades are to be used.

machines and nesting machines.

Circular saw blades for cutting Kerrock have
straight and trapezoid-shaped teeth
which are 0.3 to 0.4 mm higher than straight teeth.
Teeth have a rake angle of -5° to -6°.

The cut edge must be straight without chipped edges and micro-cracks.



6.2. Making cut-outs and irregular shapes

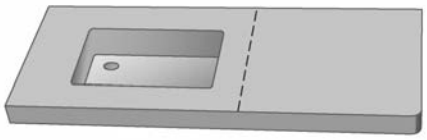
Cut-outs and irregular shapes can be made with handheld routers using templates. For a simpler process and higher quality results, we recommend CNC and NESTING machines with HW and DIA blades.

The milled edge or surface must be straight without chipped edges and micro-cracks.

When making cut-outs and planning adhesive joints, the following rules must be taken into account:

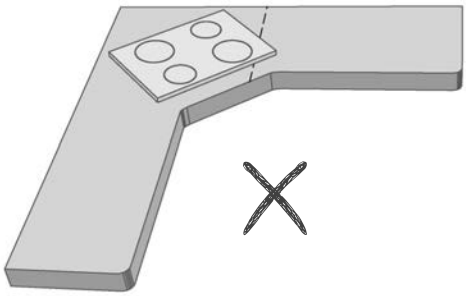
Note

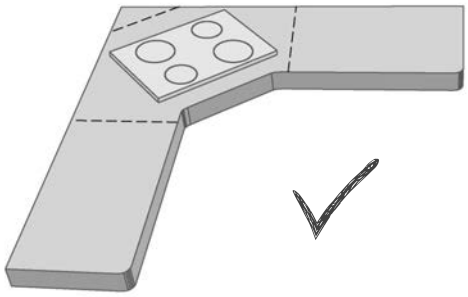
All edges must be at least 50 mm away from any cut (cooktop, sink).



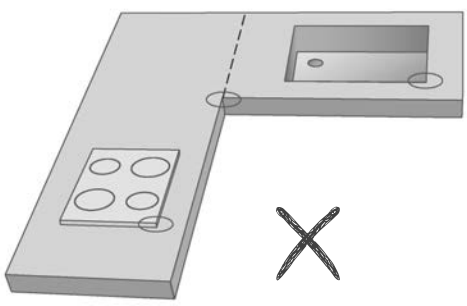
Advice

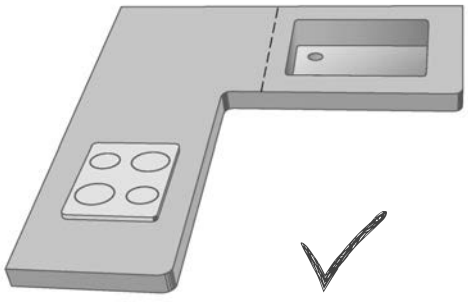
Glued joints must not intersect with cut-outs.





The cut edge must be even and smooth, without any chipped edges, in order to ensure invisible joining.
The edges represent potential weak points, where cracks can form. In planning cuts bear in mind the minimum radius of 6mm, as the rectangular internal joints also represent a point of risk, where a crack can appear.



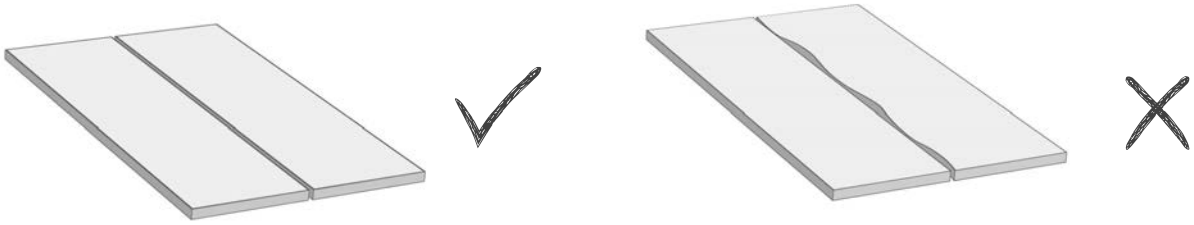


7. GLUING

Basically, there are two types of gluing: gluing Kerrock with Kerrock and gluing Kerrock with other materials.

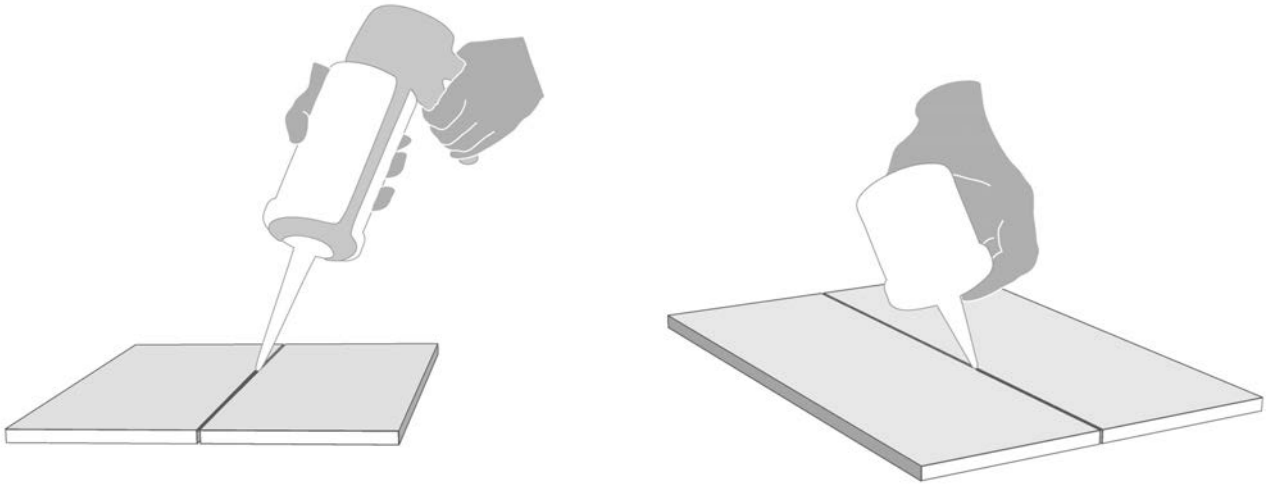
7.1. Gluing Kerrock with Kerrock

For gluing two Kerrock elements, the Kerrock glue is used to achieve invisible joints, and excellent mechanical and physical properties (the glue is in the colour of the Kerrock sheet). Observe the instructions for the preparation of the glue and making the joint. The number of the colour on the glue must match the number of the colour of the Kerrock sheet. Before gluing, check the colour uniformity of the Kerrock material. The execution of edges must ensure the lowest possible glue consumption and the highest product quality. Union points must be flawless on edges, cleaned and defatted with technical alcohol. Stains the alcohol does not remove are removed with sandpaper.



Advice

Before application of glue to the edges of two pieces make sure that both parts fit perfectly to each other. If there is a line visible in dry joining, the same line will also be visible after the glue has been applied.



Place the pieces to be glued on a flat surface facing upwards, leaving a 2-3 mm long gap.

We recommend using a base surface made of material that Kerrock glue does not stick to (PE, aluminum, laminated chipboard, waxed or PVC self-adhesive tape, etc.).

Apply a sufficient quantity of the glue (approx. 2/3 of the thickness of the Kerrock sheet) to the gap between the two Kerrock elements, and press them to their final position.

Make sure that the pressure is not too strong to prevent all of the adhesive being forced out of the joint.

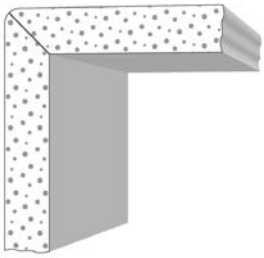
For angle pieces to be glued, apply glue to the surface and then press the piece you are gluing perpendicularly to the surface.
Fix the glued piece with clamps or tongs.
We recommend gluing the glued piece 1–2mm away from the edge.
This ensures a smooth edge after the completed processing.

Surplus glue should not be removed while still soft, because it shrinks by approx. 10% during drying.

Processing can be resumed after 2 hours. The glue reaches its final hardness after 24 hours.

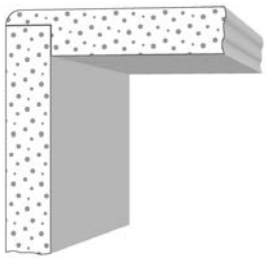
In case of Kerrock sheets containing metal particles (Metalic, Luminaco effect) and Natur effect, the appearance of the surface and edge of the sheet differ, so make sure the edge is not visible when making joints. There are two ways for doing that:

- Joining under a 45° angle.
- Joining with a groove.



For the first method, two Kerrock pieces are cut on the intended joint area under a 45° degree angle and then glued together.

Adhesive tape can be used to make the process easier.



For the second method, a groove is made in the Kerrock sheet up to 2/3 of the sheet thickness in depth and as wide as the thickness of the glued piece. Both pieces are then glued together.

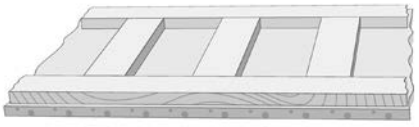
Such a method is compulsory for sheets with Metalic, Luminaco, Marble and Natur effects, and recommended for the other effects.

7.2. Gluing Kerrock with Other Materials

Kerrock sheets and products can be glued to all materials with permanently elastic silicone, polyurethane adhesives and MS polymer adhesives, which enable expansion of glued pieces in line with their expansion properties, thereby preventing product deformity.
The thickness of the elastic layer of glue must be between 1 and 3mm, depends on the material used, dimensions of the material and temperature changes in the room. The distance is assured with a double-sided adhesive tape, which during the setting time of the elastic glue also assumes a gluing role, because the setting time of permanently elastic glues is also up to 24 hours at room temperature and 50% humidity.

In case of horizontally-positioned and load-bearing Kerrock products, a bearing batten sub-construction, which can be made of massive wood, panel sheets, or metal and is elastically glued to Kerrock must be provided.

The wooden sub-construction must be protected from moisture. Strips of cut Kerrock leftovers can also be used for the bearing sub-construction.

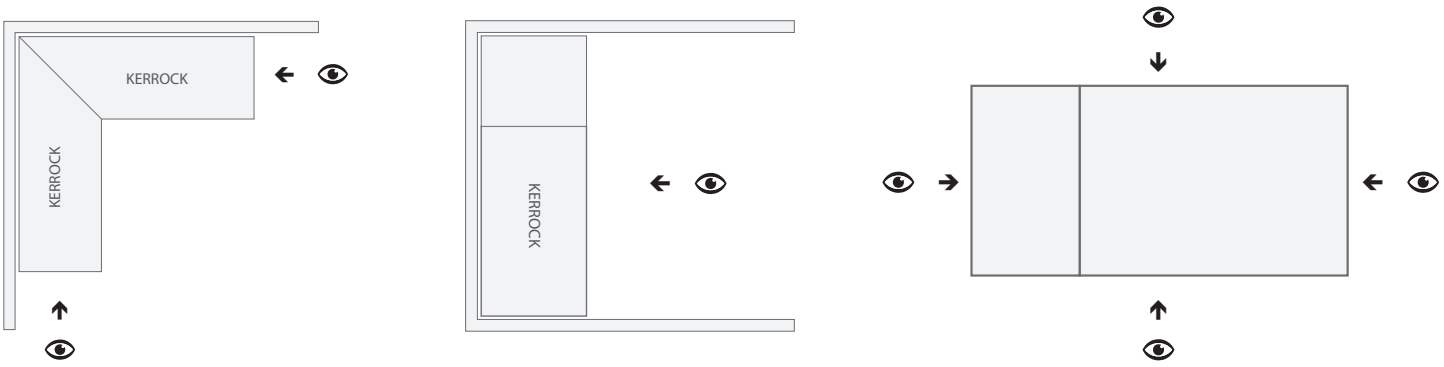


7.3 Special Methods of Joining Marble, Natur and Metalic Effect Sheets

With Marble and Natur Effect sheets, it is necessary to carefully examine the sheet and the pattern before gluing. When bonding, it is first necessary to check whether the pattern from one sheet matches the pattern on the other sheet without any glue. Perfect matching is not possible, however with good planning it is possible to achieve very nice transitions. All joints/glued pieces must be carried out under a 45° angle or with a groove up to 2/3 (see page 16).

Metalic Effect sheets contain metallic particles – glitter and are joined similarly to the previously described Marble effect sheets. When the sheets are being made, the glitter disperses and changes colour depending on the angle it is viewed from.

Prior to gluing and formatting the sheets, it is advisable to roughly place them and inspect whether all the glitter reflect (light-emitting particles) is the same in all directions. It is advisable to perform an inspection from all four directions or from the direction where this will be visible (for example, at the kitchen counter near the wall in an L-form there are only two visible directions; at the kitchen island there are four directions, and at the counter between two walls there is only one direction)



Variations in glitter orientation are enhanced by more qualitative polishing – the more polished, the greater the difference in the orientation of the glitter – which is only visible when joining two sheets.

All the above applies only for joining sheets. If the products are made from one piece of Kerrock sheet and there is no joining, the orientation of the sheet is irrelevant.

8. EDGE DETAILS AND THEIR MAKING

8.1. Making the Countertop Back Edge

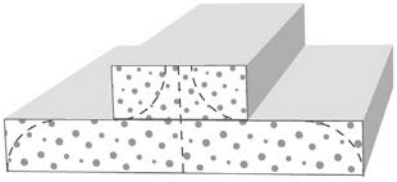
In making the countertop back edge (trims) you have the opportunity to offer your customer unique edges, which ensure excellent appearance and make cleaning easier, increasing the appeal of Kerrock.

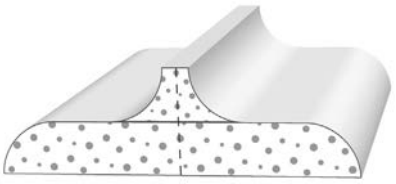
There are two effective ways for making a rounded back edge on the kitchen counter:

- Pre-prepared edge element.
- Edge made with AK edge milling machine.

8.1.1. Pre-prepared edge element

For making a pre-prepared edge element cut two strips of Kerrock material, 80 and 30 mm wide, and glue them together. Make sure the 30mm glued piece is glued parallel throughout the entire length. After the joint has dried, mill the edges to the desired radius and cut lengthwise. Such trim with radius is glued onto the countertop with the groove made in advance.



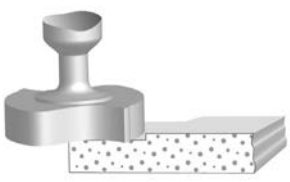


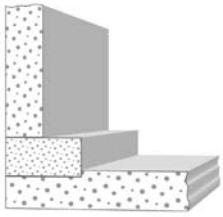
The processed piece is then cut leaving a 2–3mm edge, which is glued on the countertop, where you have previously made a groove 2–3mm deep and 25mm wide.

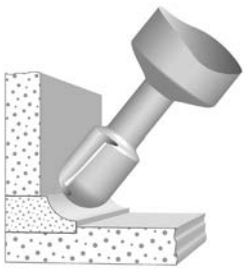
8.1.2. Edge made with AK edge milling machine

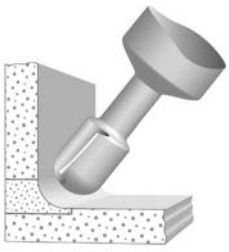
If you have an edge milling machine, the trim can be made in accordance with the following procedure:

- Make a 2 mm deep groove in the sheet.
- Glue a strip of Kerrock material 24mm wide in the groove.
- Glue a strip of Kerrock material in an upright position to the glued strip, reaching to the desired length of trim.
- Use an angle cutter to make the desired radius.







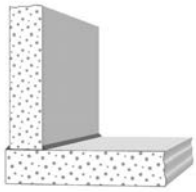


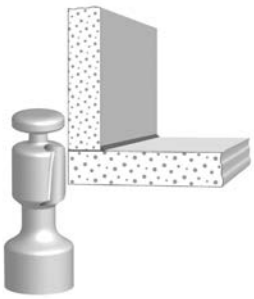
8.2. Making a Countertop Front Edge

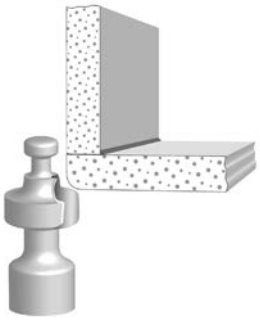
The design of the front edge is limited only by the customer's wishes and imagination. These are just a few of the options for making the front edge:

8.2.1. Making a Classic Edge

The classic edge or a rectangular glued piece is mostly used for making the front edge. Cut a piece of Kerrock material of desired width, and glue it on the back side of the countertop with the front side facing outwards.
The glued piece should be 1–2mm away from the edge to make further processing easier.

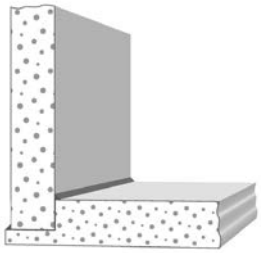






For the groove method, make a groove on the back side of the kitchen counter reaching up to the 2/3 of the counter thickness and as wide as the thickness of the glued piece, allowing for an extra 1-2mm.

The glued piece is glued into the groove.

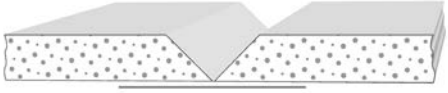


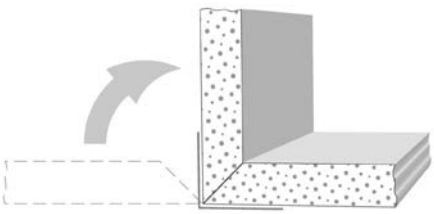
In case of Kerrock sheets that contain particles (Metalic, Luminaco, Marble and Natur effect), the appearance of the surface and edge of the sheet differ. There are two ways to make a good joint between the sheet and the edge:

- Joining under a 45° angle,
- joining with a groove.

In 45-degree joining, both parts, the glued part and the counter are cut at a 45° angle.
Put adhesive tape to the back side to fix both parts. After the glue has been applied, the part to be glued is placed on the sheet, while the adhesive tape prevents joint deformity.

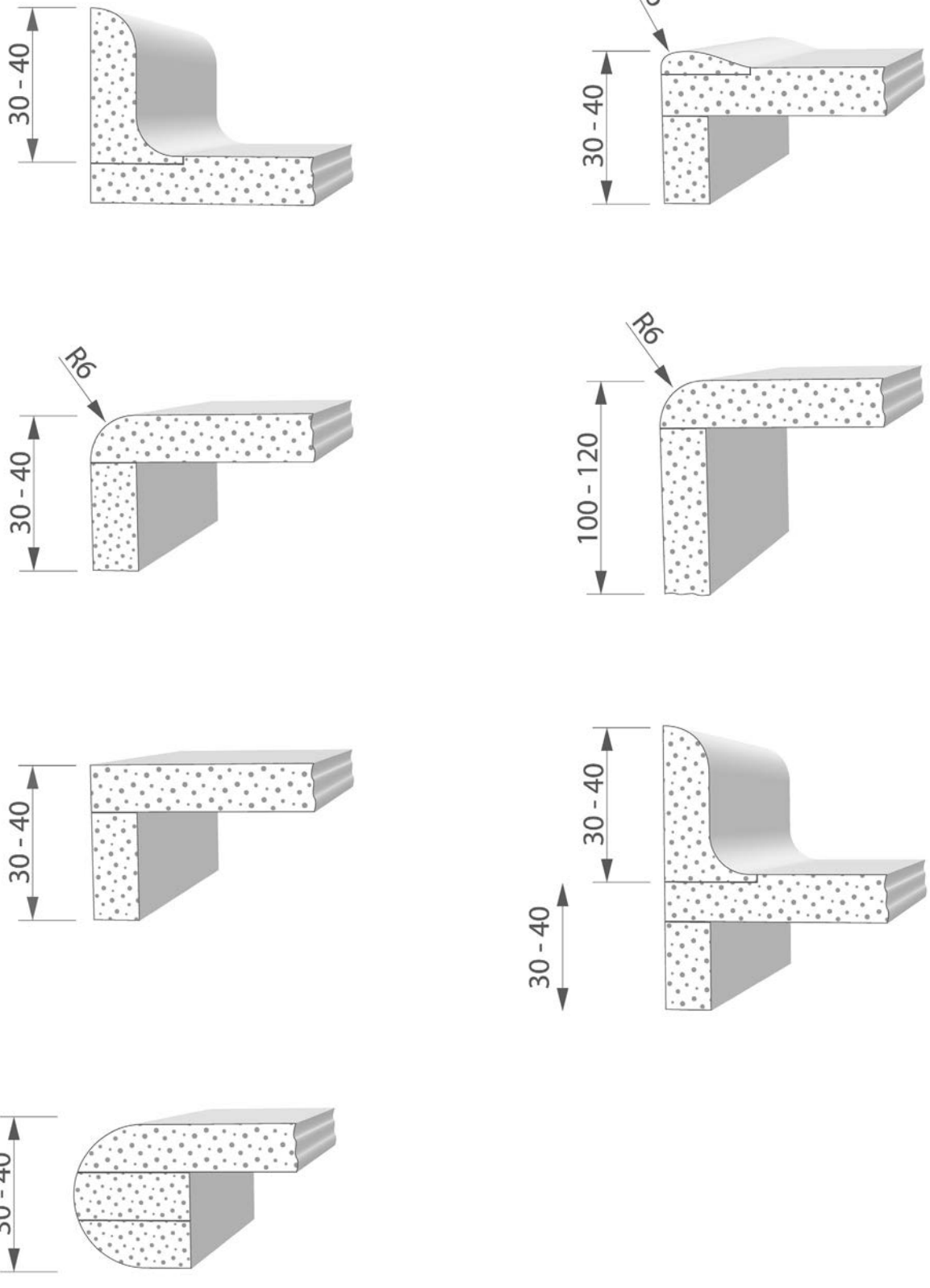
Such a method is compulsory for sheets with Metalic, Luminaco, Marble and Natur effects, and recommended for the other effects.





8.2.2. Profile Edges

In addition to a classic edge, you can also make various profile edges using Kerrock material. Depending on the desired edge width, several pieces of Kerrock material can be glued together and processed with different profile milling machines after the glue has completely hardened.



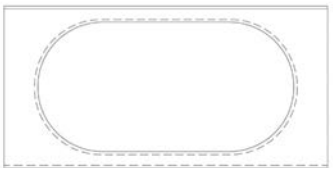
9. INSTALLATION OF SINKS AND WASHBOWLS

It is possible to install a washbasin or a sink made of either Kerrock material or stainless steel.

9.1. Making a Rough Cut

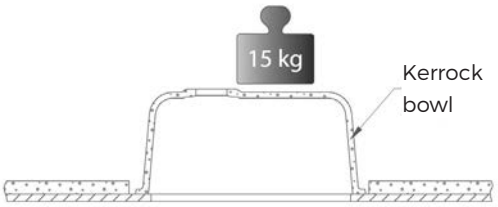
Cut-outs are made with a handheld router using templates or with a CNC machine. For Kerrock washbasin cut-outs, a 5 mm smaller cut-out is made, the extra is needed to process the transition between the bowl and the countertop.

For stainless steel sinks, no extra is required.



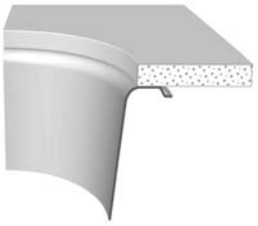
9.2. Installation of Kerrock Sinks and Washbowls

After making a rough cut, prepare the back side of the work counter for gluing, remove all impurities and defat with technical alcohol. Check that the cut fits the sink or bowl and if it lies evenly on the work surface. Then apply a sufficient quantity of Kerrock glue on the circumference of the cut and place bowl or sink on it. It is recommended to additionally weight the glued bowl or sink.

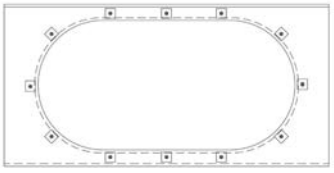


9.3. Installation of an Inox Sink

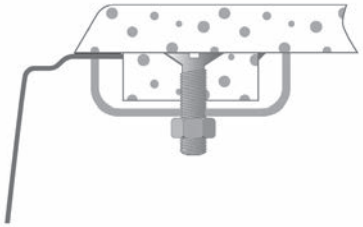
For installation of an Inox sink use bearing screws (not supplied with Kerrock sheets). Cut the Kerrock material into rectangles measuring approx. 20 x 40 mm and drill a 6 mm hole in the centre. One side of the hole is spot-drilled for the M6 screw.



Check if the cut fits the Inox sink and place it in the desired position. Then glue the pre-prepared bearing screws to the Kerrock sheet along the edges of the inox sink, every 10 to 15 cm.



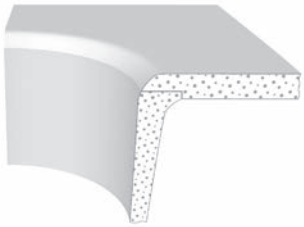
We recommend gluing them close along the Inox sink, so during final installation taking ca required, because the glued hooks define the precise position of the Inox sink.



Once the support screws have been attached, process the edge of the cut-out and the rest of the countertop surface. After finishing the processing, apply silicone glue to the contact surface and attach the inox sink with the installation hooks.

9.4. Making the Finishing Edge of a Cut

There are many options for the finishing edge of the sink or bowl, depending on user preferences and skillfulness of the processor. The picture below shows the most frequently used finishing profiles.
These are made with the handheld milling machine and appropriate blade. It is also possible to install a drainer in the Kerrock countertop.



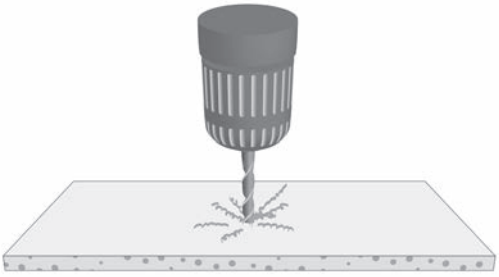
If the sheet and the bowl are the same colour, we recommend that the bowl is fitted in a groove.

This reduces the visibility of the colour shade difference between the sheet and the bowl.

9.5. Making Boreholes

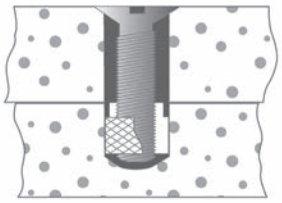
Drill the Kerrock surface using a handheld or stable drilling machine with HW or DIA drills.

In hand drilling, crown drill bits are used for boreholes over 50 mm in diameter. Holes can also be milled by hand with a handheld router using templates or on CNC machines.

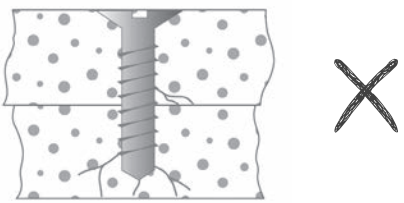


If screw joining into the Kerrock surface is required, a metal or PVC insert must be inserted. Observe work conditions which apply for glass or other more fragile materials. The borehole must be approx. 10% bigger than the screw's diameter. A rubber or silicone spacer must be used between the Kerrock surface and screw and the second material with screw joints.

Advice



Under no circumstances cut threads into a Kerrock surface, as that could result in cracks, and consequently, breakage of a Kerrock surface.



10. INSTALLATION OF A COOKTOP

A cooktop can also be installed into the Kerrock countertop. Be aware that installation of a cooktop is the job where most faults are possible. Below you will find a list of possible causes:

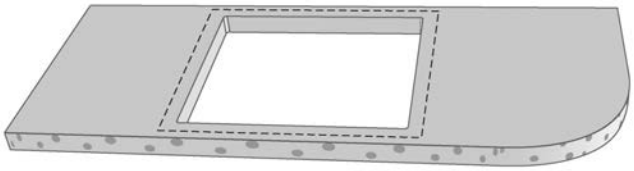
- Heat – expansion and shrinking (overheating).
- Weak points as a result of cutting, increasing the possibility of cracks.
- The missing Al tape for protection against heat.
- Defective cooktop emitting too much heat.
- Not enough space between cooktop and Kerrock countertop.
- Missing or poorly glued reinforcement of a cut.

Advice

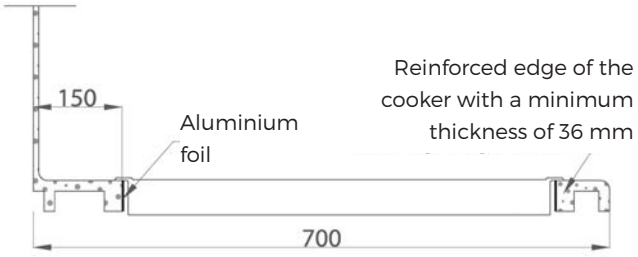
Glass ceramic cooktops are not suitable for flush-mounted installation (in line with countertop) into Kerrock countertops. Kolpa d.o.o. warranty does not cover such installation.

10.1. Making a Cut

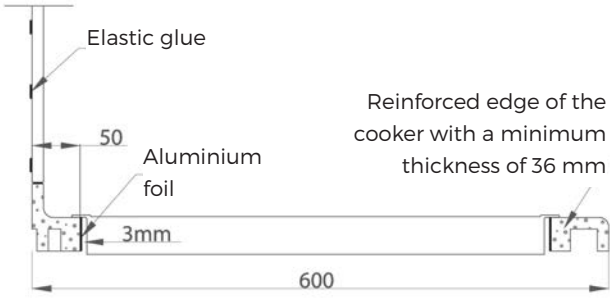
Once the location of the installation of the cooktop has been determined, a milling or CNC machine is used to make the final cut-out dimension. Make sure the longitudinal or transverse joints of a Kerrock countertop is at least 70mm away from the heat source.



If you are installing a cooktop in a Kerrock countertop with Kerrock wall cladding rigidly joined to the countertop, the cooktop must be at least 150mm away from the cladding.



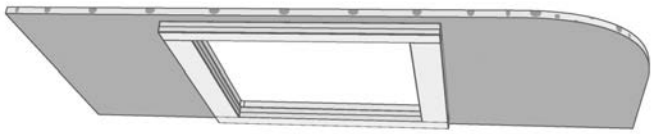
In case of a countertop that is 600 mm wide a wall cladding made of Kerrock material can be mounted, but it should not be rigidly joined with a countertop. It is joined elastically, as the picture shows.



10.2. Reinforcement of Cut

Once your rough cut is finished, fix a reinforcing frame made of two strips of Kerrock, 12mm thick and 30–50mm wide, glued together.
Inner dimensions of the frame should match the dimensions of the cutout foreseen for the cooktop.
Fix the reinforcing frame on the rear side of the countertop to the cooktop cutout.

After gluing, process the cut-out with a router.
Process the edge of the cut-out with a 2 mm radius,
for inner processing, a radius of 6 mm is recommended.
Sand the cut-out with sandpaper of the same quality
as the visible Kerrock surface.

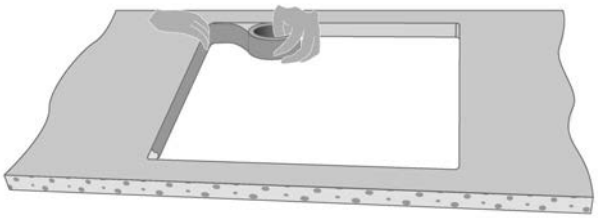


10.3. Installing a Cooktop

Before installing a cooktop check the rim of the cut once again. The better the cut as well as the upper and lower surface have been processed, the fewer problems can be expected during use.
After having made sure the cutout edge is processed to a sufficiently high standard, apply a protective Al self-adhesive tape (3M 425 aluminum tape or similar).

By applying a tape a more equal distribution of temperature
across the entire edge is achieved.

Insert cooktop. Make sure the gap between the edge
of Kerrock countertop and cooktop is at least 3mm.



Advice

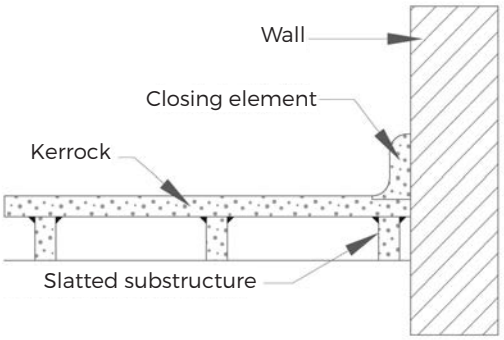
Kerrock is not suitable for installing cooktops flush with the countertop.

11. SUB-CONSTRUCTION

For various applications different thicknesses of Kerrock sheets are used. Further on you will find the minimum thicknesses required for individual applications:

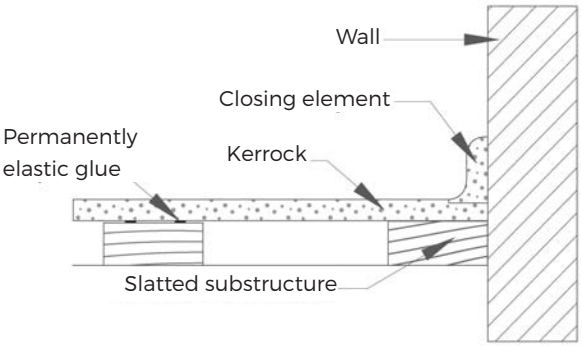
- 4mm Kerrock sheet, used only for vertical wall claddings;
- 6mm Kerrock sheet, used only for vertical wall claddings;
- 9mm Kerrock sheet, used for facades and cladding.
- 12mm Kerrock sheet, used for vanity tops, kitchen countertops, bathroom surfaces, tabletops and other horizontal surfaces.
- 18mm Kerrock sheets, used for self-standing self-bearing sheets.

In all applications, where the spacing between bearing parts is 500mm and more, it is obligatory to use sub-structure. We recommend making the bearing support from Kerrock material, which is resistant to moisture and has the same dilatation coefficient as the working surface.



The support can also be made of wood, wooden sheets or metals, but they must be appropriately protected from moisture.

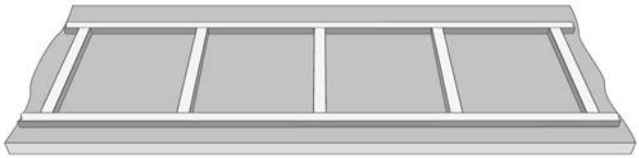
Due to different expansion coefficients, Kerrock sheets must be glued flexibly to a support made from other materials with permanent elastic adhesive.



11.1. Support of Countertop

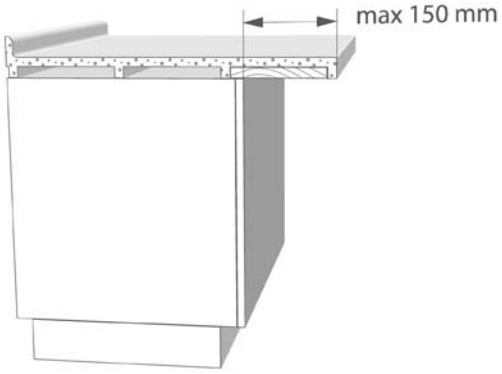
Kerrock countertops are mounted on an appropriate bearing sub-structure. For kitchen counters, a sub-structure in the form of a ladder is most frequently used.
Along the kitchen counter, place the bearing element on the front and back side.
Longitudinal elements are connected with transversal ones every 600mm. Such a sub-structure is made of Kerrock material strips, which are 12mm thick and at least 30mm wide, and then glued with Kerrock glue to the back side of the kitchen countertop.

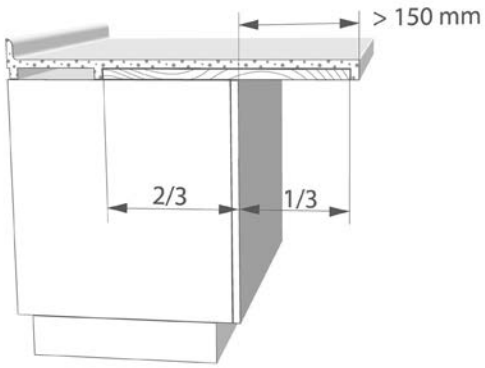
Sub-structure elements can also be made of laminated particle board, at least 18mm thick and 50mm wide.
In this case, use permanent elastic silicone glue.

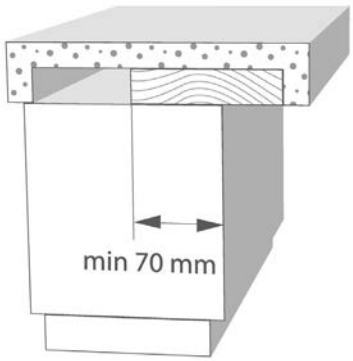


Sub-structure can also be done only with longitudinal reinforcements, by placing bearing parts on the front, middle, and back side.

11.2. Supporting the Overhang



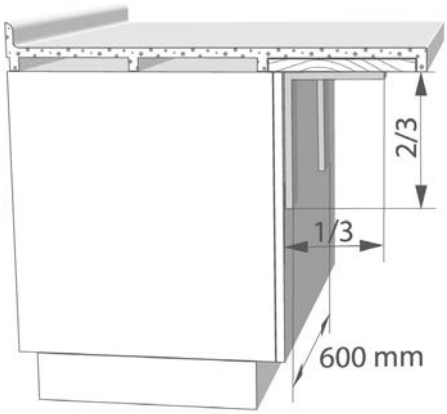


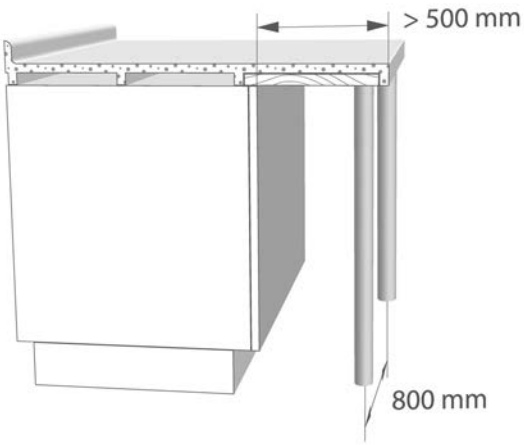


We recommend placing a piece of wood or laminated particle board under overhangs to serve as a filling material and enhance the aesthetic appearance of the product.

The sub-structure of the countertop must extend at least 70 mm into the bearing surface of the cabinet.

For overhangs over 150mm, a sub-structure must be used, whereby 2/3 of the support surface reaches into the cabinet, and 1/3 serves as the bearing part.





In order to reinforce such overhangs, bearing consoles placed at least every 600 mm can also be used.

Vertical parts of the console must be 50% longer than its horizontal part.

Overhangs over 500mm in width must be supported from the ground.

For such bearing supports, wood, metal or Kerrock material can be used.

The support is required every 800mm.

12. GRINDING IN POLISHING

Before final grinding bear in mind the following:

a. Type of sandpaper that will be used.
b. The desired level of shine of finally processed Kerrock surface.
c. The sandpaper grit that will be used depends on the desired final processing.
d. Dark colours are not suitable for matt finishes as matt grinding gives the appearance of a pale surface.
e. For achieving final shine in polishing keep in mind that dark colours are far more difficult to maintain and require more care to preserve the full shine. Therefore we do not recommend using dark colour shades on exposed areas.

The table below shows the recommended 3M Hookit abrasive products with the grinding levels to achieve the desired shine.

Light colours			**Dark colours**		
Matte	Semi-gloss	Gloss	Semi-gloss	Gloss	High gloss
P180	P180	P180	P180	P180	P180
P240	P240	P240	P240	P240	P240
Scotch-Brite (brown)	P400	P400	P400	P400	P400
	Scotch-Brite (grey)	P600	P600	P600	P600
		Scotch-Brite (grey)	Scotch-Brite (grey)	P1000	P1000
				Scotch-Brite (grey)	P1500
					P3000
					Polishing paste

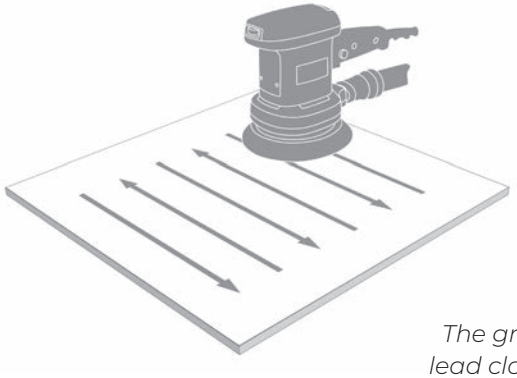
Alternative equivalent abrasive products can be used.

FESTOOL		**MIRKA**	
Light colours	**Dark colours**	**Light colours**	**Dark colours**
P180 Granat		P180 Abranet Ace	
P240 Granat		P240 Abranet Ace	
Vlies FN320		Mirlon Total VF360	
P180 Granat	P180 Granat	P180 Abranet Ace	P180 Abranet Ace
P240 Granat	P240 Granat	P240 Abranet Ace	P240 Abranet Ace
S400 Platin 2	S400 Platin 2	P400 Abranet Ace	P400 Abranet Ace
Vlies SF800	S500 Platin 2	Mirlon Total XF800	P600 Abralon
	Vlies SF800		Mirlon Total XF800
P180 Granat	P180 Granat	P180 Abranet Ace	P180 Abranet Ace
P240 Granat	P240 Granat	P240 Abranet Ace	P240 Abranet Ace
S400 Platin 2	S400 Platin 2	P400 Abranet Ace	P400 Abranet Ace
S500 Platin 2	S500 Platin 2	P600 Abralon	P600 Abralon
Vlies SF800	S1000 Platin 2	Mirlon Total XF800	P1000 Abralon
	Vlies SF800		Mirlon Total XF800
	P180 Granat		P180 Abranet Ace
	P240 Granat		P240 Abranet Ace
	S400 Platin 2		P400 Abranet Ace
	S500 Platin 2		P600 Abralon
	S1000 Platin 2		P1000 Abralon
	S2000 Platin 2		P2000 Abralon
	S4000 Platin 2		P3000 Abralon
	Polishing paste		Polishing paste

12.1 Grinding

Kerrock products need to be ground for the final look. Grinding is done with eccentric vibration machines with vacuuming.
For quality processing of surface grinding must be done gradually, starting with rough grit sandpaper and progressing to fine grit.

For the initial grinding stages, use rotary grinding, and for the last two grinding stages, use eccentric grinding to achieve a high-quality scratch-free surface.



Advice

The grinding machine must be lead clockwise from front to back direction and from side to side in a circular motion.

Otherwise, grinding will create whirls and scratches. The pressure of the grinding machine to the grinding surface should not be too large, as this would cause overheating of the grinding medium and render the processing of Kerrock surface more difficult as a result of material polymerization.

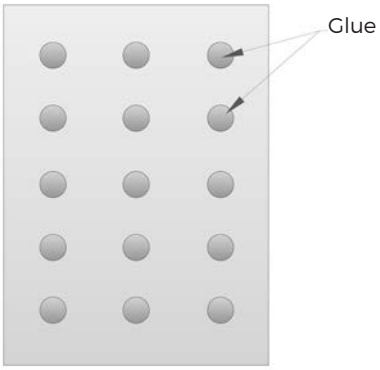
When changing the sandpaper, make sure to wipe the ground surface, because the dust residue has the same grit as the sandpaper, and would leave traces of grit of the previous sandpaper.

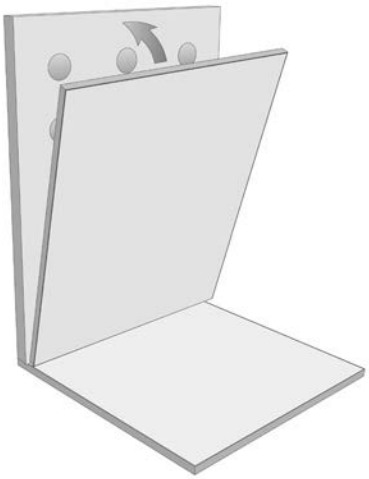
12.2 Polishing

To achieve a glossy Kerrock surface,
proceed with finer grit sandpaper and polishing paste (polishing paste
to the Kerrock surface and polished to the
desired gloss. Finish polishing with a lambswool polishing pad. Note th
is not suitable for work surfaces and other exposed surfaces,
as glossy surfaces require considerably more care.

13. VERTICAL APPLICATIONS

Kerrock sheets can also be used in combination with numerous other applications, such as furniture, various decorative objects, tiles, and wall cladding.





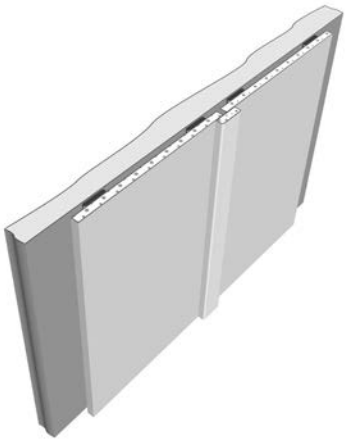
Note

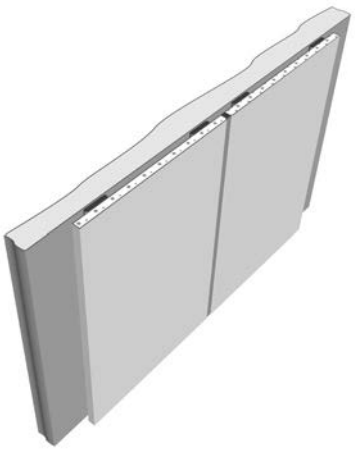
All these products are executed in a manner, similar to the one described for horizontal working surfaces.

13.1. Assembly and Placement

For placing wall cladding Kerrock sheets at least 6mm thick are needed. Check if the wall on which Kerrock cladding will be placed is straight; if not, it is necessary to make it straight (another option is to use a sub-structure made of wood, water resistant chipboard or Al bearing profiles).

After installing a sub-structure or straightening the surface make sure the Kerrock cladding fits the wall perfectly.
Make sure that enough space is left along the edges and joints for material expansion. Kerrock cladding is glued to the surface with elastic glue.
MS polymer-based glues are recommended.





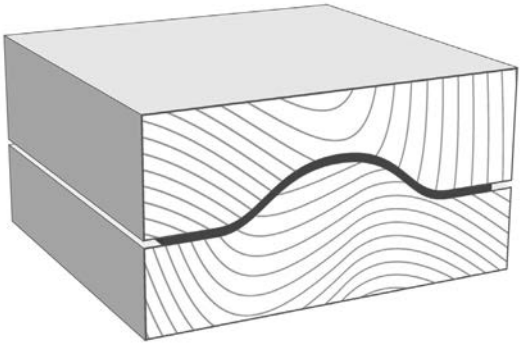
14. THERMAL TREATMENT

Kerrock can also be thermally treated. By heating, it can be moulded into various forms, bent and even partially three-dimensionally formed.

14.1. Preparation of Kerrock Material

The Kerrock surface to be thermally treated must have smooth edges without micro cracks to avoid cutting effects.
The Kerrock surface is also ground to the P240 grit, the final grinding is carried out after thermoforming.
Likewise, the Kerrock surface must be cut with an oversize of at least 20mm, because the material bends at the edges due to cooling too fast.

Only sheets without glued joints can be thermoformed. Glued Kerrock surfaces are not suitable for thermoforming because the glue becomes too soft at high temperatures required for thermoforming.

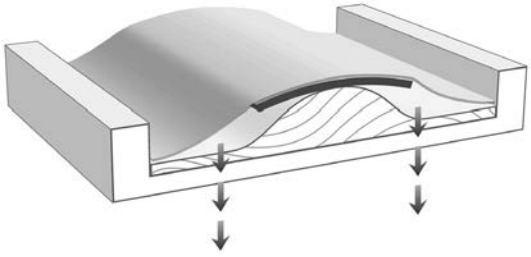


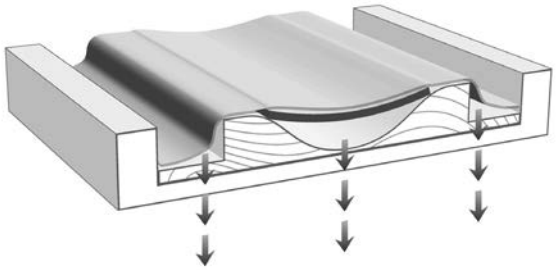
14.2. Preparation of a Template

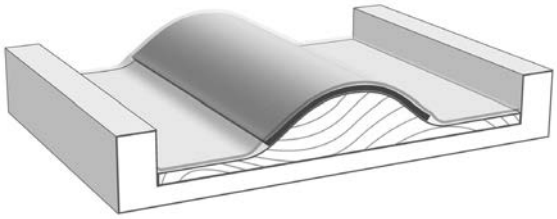
For thermal treatment of Kerrock surfaces, two-sided moulds are used to achieve the desired form after cooling of the Kerrock surface to room temperature.

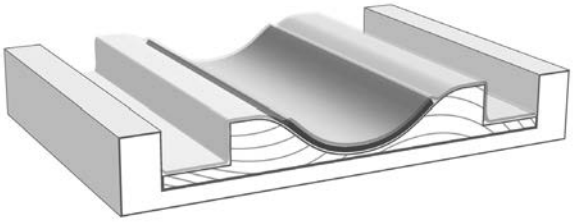
The template is cut out of plywood or MDF panel.
Make sure the surface is smooth without any deformations which would prevent heat transfer.
Internal parts of the template must be supported to endure the pressure.
Avoid using metals or hard wood, as these materials absorb heat and affect the quality of thermoforming.

For thermal treatment, vacuum membrane presses in which the membrane assumes the role of one part of the mould can also be used.



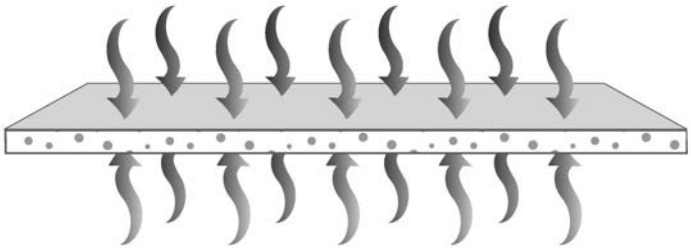






14.3. Thermoforming

Before thermoforming uniform heating of the Kerrock surface must be ensured. It is heated in furnaces (hot-air furnaces or joiner's presses with electric heater) to the temperature of 160˚C± 10˚C.



The table below shows the heating time required and the smallest allowed curve radius.

Sheet Thickness (mm)	Heating Time (min)	Minimum Radius (mm)
6	approx. 16	25
9	approx. 19	50
12	approx. 22	90
18	approx. 30	120

The heated Kerrock surface is then inserted into a double-sided mould or membrane press, where the workpiece will retain the desired shape after cooling. In addition to heating, uniform cooling is of equal importance for uniform distribution of inner tensions in the material. Make sure that the heating temperature does not exceed 170˚C, because it can damage the Kerrock surface. In case of low temperature the material can break or turn pale in the area being bent.

After cooling, the Kerrock surface has a new stable form, but has preserved all technical features it had prior to thermoforming. For final treatment, observe the procedures described in previous chapters.

14.4. Easy Shaping Sheets

Used for products that need to be transformed into more demanding shapes with smaller bending radii.

15. PECULIARITIES OF KERROCK PROCESSING

15.1. KERROCK LUMINO EFFECT

Kerrock Lumino sheets are processed in the same manner as other Kerrock sheets, if they are used without illumination.
All procedures remain more or less the same. Observe additional instructions, however, when Lumino sheets are intended to be illuminated.

To ensure customer satisfaction with a product featuring Lumino sheets, the appropriate characteristics of illumination and the final product must be taken into account from the design stage.

Matching of Lumino Effect sheets

Joints are crucial for appearance. When illuminated, joints turn more visible than at normal ambient light.
Therefore, they should be placed where least noticeable. When designing, consider that any corners and supporting frameworks create shadows when illuminated.

To keep joints as invisible as possible, the gluing must be as accurate as possible (edges perfectly bonded, no bubbles from glue, any excess adhesive perfectly ground off from the seam on both sides).

For an even dispersion of light through the Lumino sheet, it is necessary to ensure uniform treatment on both sides (uniform thickness and the same quality of the treatment across the entire surface).

Illumination

Choosing the most suitable type of lighting depends on the desired effect. Furthermore, take into account the amount of heat generated by the light source to avoid deformation caused by overheating of the Lumino from one side.

For this purpose, make sure there is an adequate cooling space provided between the light fixtures and the Lumino.

The choice of an appropriate type of light has a big impact on the end result. This can vary from warm to cool light.
How to position the light source depends on the type of light source, the thickness of Lumino sheets and the form.
The distance between the light source and the Lumino sheet should be kept above 100mm.
Kerrock Lumino products should not be exposed to direct sunlight.

Thermoforming

During the heating process, the Lumino sheets may change in colour nuances; therefore, thermoforming is not recommended.

15.2. KERROCK MARBLE and NATUR EFFECT

Kerrock Marble and Natur effects are available in several standard Kerrock colours. The patterns are very close to the natural material, thereby offering new options for the expression of style. The Marble and Natur effect is provided by sheets featuring random lengthwise streaks and natural, marble-like particles within its basic colour. These patterns of lengthwise streaks are never repeated on any of two sheets, so they cannot be joined without a visible seam. With proper sheet preparation and planning before joining, it is possible to achieve beautiful joints and thus meet the expectations of the customer. Kerrock Marble and Natur sheets feature a randomly oriented pattern; it is therefore necessary to check whether it is better to join two sheets at a joint angle of 90° or 45°.

The best front edge effect is achieved by joining the vertical edge and horizontal sheet at an angle of 45°.
The same is recommended for the final vertical edge at the rear. This allows the continuation and the natural flow of the pattern.

Due to the random patterns, also called veins, the implementation of details of joints depends on the judgement and creativity of the Kerrock processor.
By faults in joints, edges and endings being more visible, the acceptability of the product with a Marble effect for the final customer can be at risk.

15.3. KERROCK LUMINACO EFFECT

Luminaco and Luminaco S Effect is available in several Kerrock standard colours. Luminaco and Luminaco S sheets are made with a Terrazzo effect and translucent particles. Besides translucent particles, Luminaco S also contains hologram particles (glitter). Luminaco and Luminaco S sheets are suitable for claddings and surfaces not exposed to abrasion and external impact.
Kerrock Luminaco sheets are processed in the same way as any other Kerrock sheets.

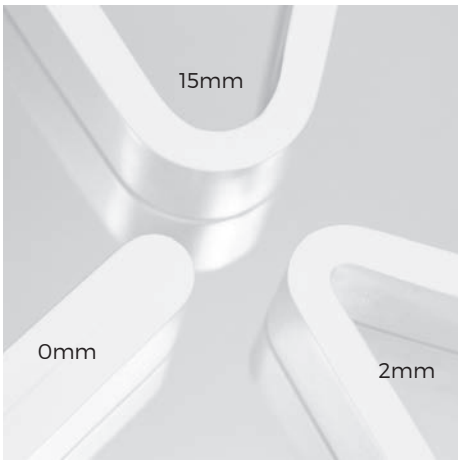
Luminaco sheets contain non-thermoplastic and non-UV-resistant translucent particles.

Note

When heated, these particles change their colour, this is why Lumino, Luminaco and Luminaco S sheets are unsuitable for thermoforming.

15.4. KERROCK ES – EASY SHAPING

Kerrock ES sheets are especially suitable for thermoforming smaller radii and allow for deeper traction in thermoforming products (washbasins etc.). For a 12 mm sheet, the minimum outer bending radius is R12 mm and the inner radius is 0. The other processing operations are the same as for single-colour Kerrock sheets.
However, Kerrock ES does not have a B-s1, d0 class regarding reaction to fire.
Kerrock ES sheets are made in white colour ES 112.



15.5. Kerrock MF (MED Certificate)

Kerrock MF sheets have an MED Certificate (Marine Equipment Directive). They have improved fire resistance or fire safety as compared with standard Kerrock sheets.
While thermoforming of Kerrock MF sheets is limited and not recommended, the other processing operations are the same as for standard Kerrock sheets.
Kerrock MF sheets are manufactured in a thickness of 12mm and in MF 178 colour shade, and for larger orders (200m^2 and over) also in other special UNI colours.
Equipment with a MED certificates can be used on ships.

16. TRAINING

With the purpose of ensuring the highest possible quality of products to buyers of Kerrock material, Kolpa, d.o.o., also provides regular training and updates on new features.
The standard training programme includes introduction of technical and technological features of material, processing theory, and practical presentation.

Training is provided by prior arrangement at the premises of Kolpa d.o.o. and at major distributors.

Advice

For any additional information, you can also refer to the Kolpa, d.o.o. technical service in Metlika.

17. IMPORTANT!

When taking over sheets check the quality of Kerrock sheets and make sure to store them properly.
Before starting work, make sure the temperature of the Kerrock sheets is 20˚C ± 3˚C.

Before cutting sheets, check their colour suitability. Perform test gluing. For every completed piece of work with Kerrock it is important to use sheets of the same batch in order to ensure equal colour shades.

For various applications only corresponding sheet thicknesses are to be used:

- 4mm for vertical cladding
- 6mm for vertical cladding
- 9mm for facades and cladding
- 12mm for vanity tops and kitchen countertops, bathroom surfaces, tabletops and other horizontal surfaces.
- 18mm for self-standing sheets

All edges and corners of cut-outs need to be smooth and rounded, without chipped edges or micro-cracks.
It is important to ensure cooling or equal temperature throughout the entire thickness of the Kerrock in order to prevent any deformities from occurring (batten support).

It is required to ensure the possibility of expansion of Kerrock (dilatation approx. 0.037mm per 1m of length under changed temperature conditions 1˚C).

Gluing Kerrock with other types of materials must always be done with elastic adhesives.
Any elements that emit heat and are installed into Kerrock working surfaces (stoves, dishwashers) need to be insulated.

All critical places on Kerrock products need to be additionally reinforced (alongside cuts for sinks, alongside cuts for stoves).

To prevent any bending or tensions in the material, make sure that elements on which Kerrock sheets are placed are of exactly the same height before installation takes place.
Kerrock must lie flat.

All work with Kerrock must be performed on corresponding machines, with appropriate tools and with high quality blades, the work must be precise and consistent.

Glued joints are visible with Marble and Natur effect sheets.

INSTRUCTIONS FOR TREATMENT OF KERROCK ARE PREPARED ON THE BASIS OF THE KNOWLEDGE AND EXPERIENCE WE HAVE GAINED IN THE COURSE OF ITS TREATMENT.

THE INSTRUCTIONS ARE INTENDED FOR USE BY PROFESSIONAL KERROCK PROCESSORS WITH BASIC KNOWLEDGE OF COMPOSITE MATERIAL PROCESSING WHO ARE FULLY RESPONSIBLE FOR THE END RESULTS AS A CONSEQUENCE OF UNDERSTANDING OF THESE INSTRUCTIONS.

INSTRUCTIONS DO NOT REPRESENT A LICENCE AND THEIR PURPOSE IS NOT TO BREACH ANY EXISTING PATENT RIGHTS.

WARRANTY FOR MATERIAL IS VALID ONLY IF TREATMENT INSTRUCTIONS ARE DULY OBSERVED.

18. TECHNICAL DATA

CHARACTERISTICS	VALUE	METHOD
VOLUME MASS	1,680–1,750kg/m^3	SIST EN ISO 1183-1 Method A
FLEXURAL MODULUS	8600–9200 MPa	SIST EN ISO 178
FLEXURAL STRENGTH	49–80 MPa	SIST EN ISO 178
TENSILE STRENGTH	36–50 MPa	SIST EN ISO 527-2
ELONGATION AT BREAK	0.50–0.90%	SIST EN ISO 527-2
TOUGHNESS	3,0–6,0 kJ/m2	SIST EN ISO 179-1
HARDNESS (Barcol)	58–64	SIST EN 59
LINEAR EXPANSION COEFFICIENT	3,3–4,2 x $10^{-5}K^{-1}$	α (–20 ˚C – +50 ˚C)
ABSORPTION (after 24 hours)	0.03–0.05 %	SIST EN ISO 62 Method 1
RESISTANCE TO THE ACTION OF WATER VAPOUR (1 hour)	Rating 5 – No visible change	SIST EN 438-2
RESISTANCE TO THE ACTION OF HOT VESSELS	Rating 5 – No visible change	SIST EN 438-2
RESISTANCE TO THE ACTION OF BURNING CIGARETTE	Rating 4 – insignificant change in shine, only visible under certain angles	SIST EN 438-2
RESISTANCE TO ATMOSPHERIC AGENTS	no change	2-year outdoor exposure
CLASSIFICATION OF MATERIAL RESPONSE TO FIRE	B-s1, d0	SIST EN 13501-1
SURFACE RESISTIVITY	2.0 x 10^{11} – 2.0 x 10^{12} Ω	DIN VDE 0303-3 IEC 93
SPECIFIC VISCOSITY RESISTIVITY	7.9 x 10^{13} – 1.2 x 10^{14} Ω cm	DIN VDE 0303-3 IEC 93
RESISTANCE TO TRACKING CURRENTS	CTI 600 M	DIN VDE 0303-1 IEC 112
RELATIVE DIELECTRIC CONSTANT (Er)	4,5	DIN VDE 0303-4 IEC 250
DIELECTRIC LOSS FACTOR tg at MHz	2.8 x 10^{-3}	DIN VDE 0303-4 IEC 250
CONTACT WITH FOOD	compliant with	Commission Regulation (EC) No 10/2011 (as amended until 2018) and Regulation (EC) No 1935/2004 of the European Parliament and of the Council.

The data in not applicable to ES and MF Kerrock sheets.

20. CERTIFICATES

Reaction to fire

Vehicle equipment

VOC emissions

MED – Vessel equipment

Train equipment

EN 45545-2

ISO 9001, ISO 14001

Antibacterial effectiveness

Contact with food – National Laboratory of Health, environment and food

Facades and wall cladding – Slovenian Building and Civil Engineering Institute

Environmental Product Declaration – EPD

ISO 19712

LEED

REACH declaration

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