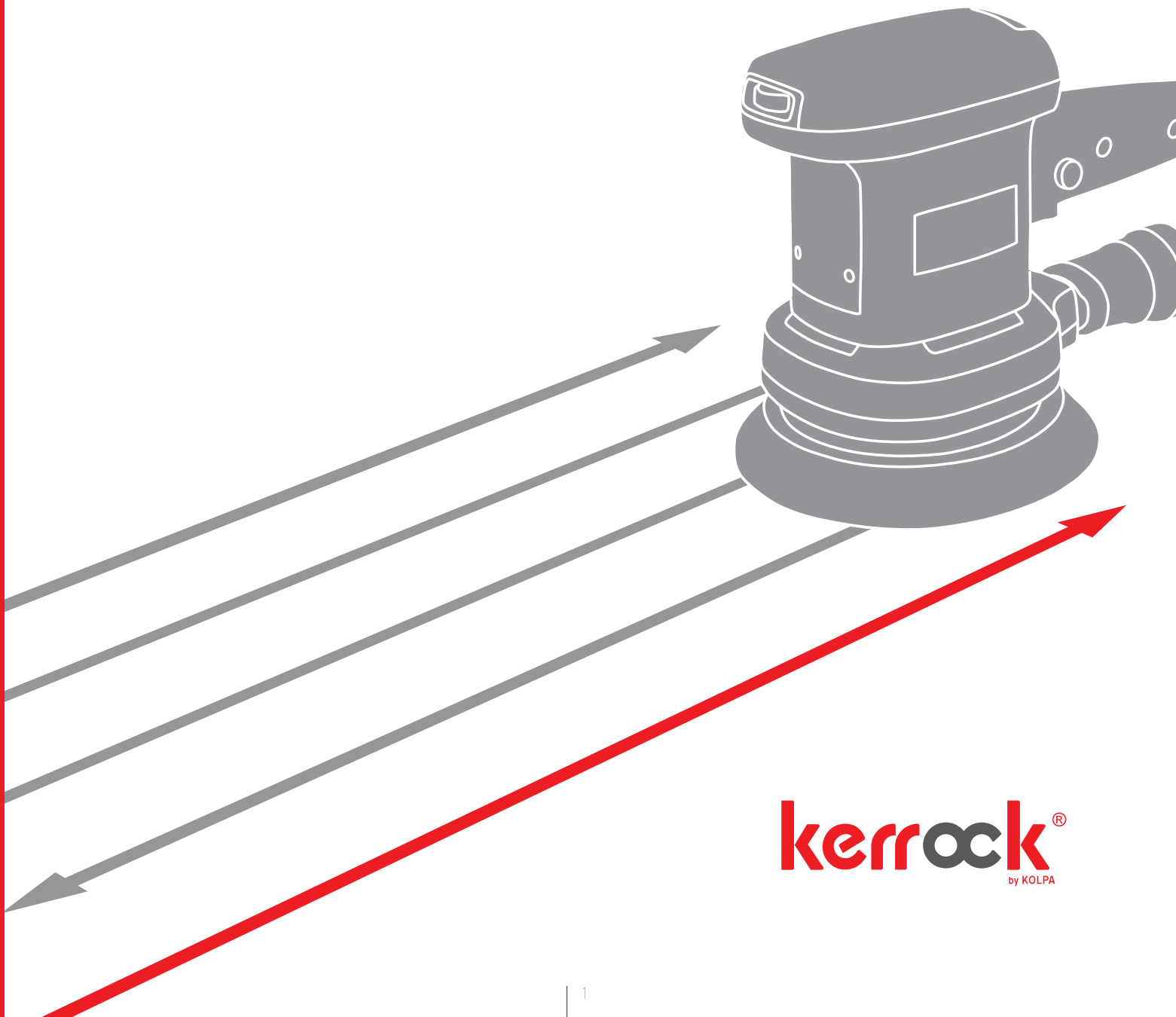
KERROCK
PROCESSING INSTRUCTIONS



kerrock® by KOLPA

PROCESSING INSTRUCTIONS

WORKSHOP EQUIPMENT, TOOLS AND CONDITIONS FOR KERROCK PROCESSING

- Squaring saw 3 kW with an appropriate blade of the circular saw*
- Spindle moulder 3 kW with feeder
- Benchtop milling machine or CNC milling machine 1.5 kW
- Handheld electrical router 800 W for easier milling works and 1,600 W for larger cuts and profile milling*
- Handheld electrical circular saw 1.200-2.300 W
- Handheld electrical jigsaw 450 W
- Band saw 3 kW
- Stable grinding machine for wood grinding
- Handheld electric vibration grinder 280-550 W*
- Handheld electric rotation eccentric grinder 250-450 W
- Handheld electric belt grinder 1.000 W
- Handheld electric drilling machine 800 W
- Stable drilling machine 1.500 W
- Mobile vacuum cleaner 350-1.200 W
- Furnace for heat treatment of Kerrock (max 180°C)
- Joiner's clamps 100 mm or fixing clamps 50 mm*
- Gun for application of elastic silicone or polyurethane glue*
- Kit for preparation and application of Kerrock glue*

/*/ - required machines and kits for Kerrock processing

WORKING CONDITIONS FOR KERROCK PROCESSING

- Keep the temperature in your workshop at the optimal 18*C.
- Keep the plates in a room with the temperature of approx. 18°C for at least 12 hours before processing.
- Make sure your working area is well illuminated.
- Prevent your workshop where Kerrock is glued from dust and waste.
- Make sure dust and cuttings are well vacuumed.
- Use only filly flat working surfaces for gluing Kerrock.
- Make sure plates are well protected from any damages during storage.

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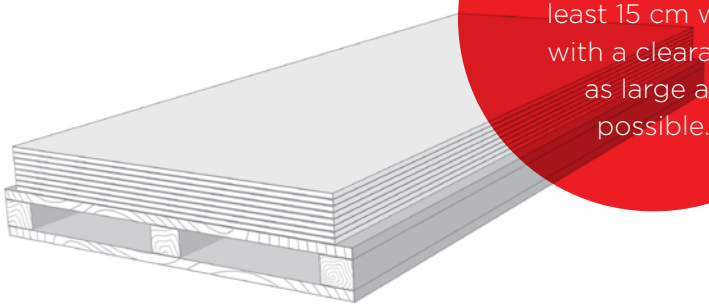
1. STORAGE AND TRANSPORTATION

1.1. Transport of Kerrock Plates and Sinks

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

	Kerrock plate		Empty pallet		10 Kerrock plates + pallet	
Width (mm)	760	1.350	800	1.400	760	1.350
Weight (kg)	56	100	30	50	590	1.050
Length (mm)	3.600	3.600	3.800		3.800	
Thickness (mm)	12	12	100		220	



ADVICE

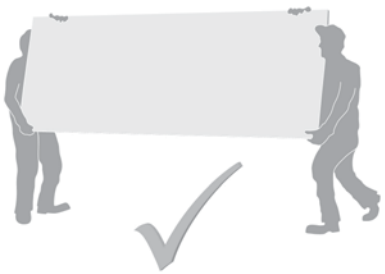
Forks shall be at least 15 cm wide with a clearance as large as possible.

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

- carry only one plate at a time;
- hold the plate at its edge;
- carry the plate vertically;
- always use protective gloves for heavy works and appropriate safety footwear;
- it takes two persons to perform the work.

ADVICE

Extreme temperatures affect the product. Pay attention when handling the plates at temperatures below 10°C.



The plates must be transported individually and in vertical position with one hand serving as support and the other for control. It is recommended to use vacuum accessories for transporting heavy loads.

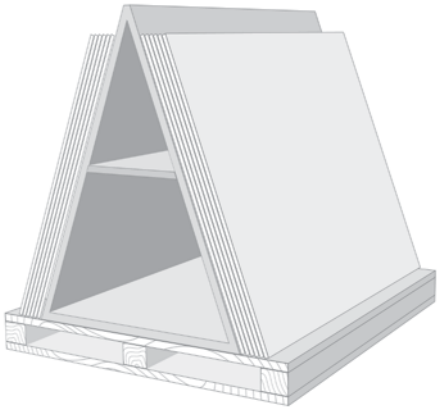
1.2. Storage of Kerrock Plates and Sinks

There are two ways to store Kerrock plates to avoid bending and tilting. It is recommended to store Kerrock plates in a dry and well ventilated indoor area at temperatures between 15 and 23°C. Make sure the product is not exposed to moisture during storage.

- Kerrock plates must be stored in horizontal position and evenly arranged, as shown (Fig. 1, page 3).
- Kerrock plates can also be kept in a vertical position (vertical storage). As shown (Fig. 3, page 4), the plates must be stored on verticals supports, where the lower edge of a plate rests on flat floor.

NOTE

For an easy access, store your Kerrock plates so that their batch number and colour are visible.



ADVICE

To prevent bending and tilting, pay special attention to storage of Kerrock plates. It is essential for the storage system to allow easy access, handling and identification of goods. Exposure to moisture and indirect sun light during storage can damage the plates.

It is of utmost importance to handle Kerrock sinks and washbasins with care and according to packaging instructions. Packaging of Kerrock sinks and washbasins guarantees maximum protection. Nevertheless, extreme care is required.

ADVICE

Kerrock sinks and washbasins should not be stored more than 6 boxes high.

Bear in mind! In order to reduce the risk of injuries, do not lower, press or mount heavy loads on the top.

2. INSPECTION UPON DELIVERY

2.1. Quality Check - Kerrock Plates

The goal of Kolpa d.d. is to provide materials of the best quality and to satisfy customer's demands. In order to ensure compliance with our strict quality standards, every individual plate is thoroughly checked and examined.

Nevertheless, it is the user's responsibility to examine each plate delivered for possible faults and check its colour.

ADVICE

If your thorough examination of a Kerrock plate shows faults, which might result in a significantly longer duration of production, we kindly ask you to immediately inform the distributor.

Your Kerrock distributor will be happy to reply all your questions and provide you with appropriate assistance.

NOTE

Kolpa d.d. will replace any materials non-compliant with product specifications upon delivery. Likewise, Kolpa d.d. assumes no responsibility for changes that might arise from the use of damaged materials.

Table 2.1-A shows some provisions of standards helping checking the quality of Kerrock plates (upon delivery)

Control Standards	Technical Requirements
Bruises	None
Difference in colour (from plate to plate)	Inspection of colour matching between individual plates is required and highly recommended. Plates of different batches may deviate in colour.
Difference in colour (within one plate)	Before cutting the plate, check the homogeneity of colour throughout the surface of the plate and then turn the plate appropriately.
Holes	Tolerated on the rear side of the plate as follows: - Dimensions of holes tolerated: 2 mm deep, diameter of 6 mm - max. 10 holes of a diameter of 1 to 6 mm per plate No holes are tolerated on plates of 3 mm thickness.
Foreign bodies and contrast dots	Contrast dots and impurities are tolerated as follows: - Total surface of dots should not exceed 1 mm^2/ m^2 or approximately 5 dots with a diameter of 0.5 mm per m^2 of a plate. Max. 3 dots or foreign bodies allowed per 100cm of a plate.
Edges	Bruises allowed within tolerance measures of declared dimensions.
Hardness	Measured in accordance with ASTM D2 583 (Barcol 934 I) hardness shall be between 58 and 65.
Dimensions	The following deviations from declared dimensions are tolerated: - Thickness: ± 0.5 mm; - For plates 3 mm thick: 0.25 mm; - Length: - 8 mm; + 10 mm; - Width: - 4 mm; + 10 mm.
Curvature	Allowed is curvature of 2 mm/per meter of plate. Measured is the gap between the horizontal base and the plate laid.

NOTE

Please, examine the Kerrock plate after receipt very carefully. Kolpa d.d. is not obliged to replace any products if damaged during use or as a result of use of damaged materials.

2.2. Quality Check - Kerrock Sinks

Table 2.2-A shows some provisions of standards, helping at quality check of Kerrock wash bowls or washbasins (upon delivery).

Control Standards	Technical Requirements
Bruises	None
Ordered colour	Check if the goods delivered are appropriate.
Right size	Mind, there are lots of sinks and washbasins of a similar design. Please, check if the dimensions are appropriate.
Accessories	Make sure all accessories are included in the shipment.
Outflows	Check proper location and setting.
Foreign bodies and contrast dots	Contrast dots and impurities are tolerated as follows: - 2 dots/dm^2 or up to 5 dots or impurities per product in the size of up to 0.5 mm.
Rough surface on the back of the product	Rear side of the product can have a rough surface. A crack up to 10 cm long, up to 2 cm wide, and up to 2 mm deep is also tolerated.
Difference in colour (form and plate)	Colour match with form and plate is not guaranteed.

NOTE

Please, examine your Kerrock plate, sink and washbasin very carefully upon delivery. Kolpa d.d. is not obliged to replace any products if damaged during use or as a result of use of damaged materials.

3. GLUE

3.1. Product description

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

3.2. Types of Glues with Regard to Packaging

Kerrock glue is available in two types of packaging:
a. cartridge dispensers
b. plastic bottles

a. Kerrock Glue in Cartridge Dispenser

As for the volume, Kerrock glue packed in cartridge dispenser is available in two sizes:
a) Kerrock glue cartridge dispenser 250 ml
b) Kerrock glue cartridge dispenser 50 ml

An individual packaging set contains a two-component cartridge with a ratio component A to component B of 10:1, and a mixer. The cartridges are laid horizontally in a cardboard box.

b. Kerrock Glue in Plastic Bottle

With regard to the volume, Kerrock glue is available in plastic bottle sets of three sizes:

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

Each individual set consists of a plastic bottle with a cap containing component A, an unguator jar (100 ml), an unguator applicator, an injection syringe (5 ml or 10 ml) containing component B, and a Kerrock mixing stick. All together is packed in cardboard box.

3.3. Physical and Chemical Properties of Glue in Cartridge Dispenser

	Component A	Component B
Viscosity according to Brookfield	45.000 – 55.000 mPas (S05; 20 RPM)	3.000 – 3.500 mPas (S04; 50 RPM)
Colour	In the colour of plate	White-transp. (4% suspension)
Mixing ratio with regard to volume	10	1
Flashpoint	> 11 °C (EN 22719)	> 50 °C (EN 22719)
Open glue efficiency (minutes)	10 - 15 (20 ± 32 °C)	
Hardening (minutes)	35 (20 ± 32 °C)	
Solvents contained	none	
Period of use	12 months (under proper storage conditions)	

3.4. Physical and Chemical Properties of Glue in Plastic Bottle

	Komponenta A	Komponenta B
Viscosity according to Brookfield	5.000 – 6.000 mPas (S04; 20 RPM)	3.500 – 4.000 mPas (S04; 50 RPM)
Colour	In the colour of plate	White (40% suspension)
Mixing ratio with regard to volume	100	1
Flashpoint	> 11 °C (EN 22719)	> 50 °C (EN 22719)
Open glue efficiency (minutes)	10 - 15 (20 ± 32 °C)	
Hardening (minutes)	35 (20 ± 32 °C)	
Solvents contained	none	
Period of use	12 months (under proper storage conditions)	

3.5. Handling and Storage

The substances are highly flammable, irritating to eyes, respiratory system, and skin. Skin contact may cause oversensitivity. In case of contact with eyes, use clean water to rinse for 15 minutes. In case of injury, immediately seek medical attention. Consuming the product is dangerous to health. Wear appropriate protective clothing, gloves, and goggles.

Keep the glue in a well closed packaging inside a well ventilated, dark room at a temperature not exceeding 25°C. Keep away from ignition sources, reducing agents, acids, alkalis, accelerators, and heavy metals. Do not release in sewer. Always keep the injection syringes and cartridge dispensers in horizontal position.

3.6. Glue Preparation

The temperature of the space where gluing is taking place shall be at 18°C or more. make sure the area is clean and completely dust free. Before starting, check the colour of your Kerrock plate and the colour of the glue – they must match.

The procedure to prepare the glue depends on its packaging:

a. Glue in Cartridge Dispenser

Use a special dosing gun to dose glue from a cartridge dispenser. Fit the mixer on the cartridge and insert the set in the gun. Before starting, press out one tea spoon of glue tor test and only then start applying it on the desired area. When using the cartridge, it is unimportant to observe the ratio between components, since they are dosed automatically. Just as for the glue in plastic bottle, hardening time is 35 minutes.

b. Glue in Plastic Bottles

Mix the Component A thoroughly. Put it in the unguator jar. Add 1% of component B. Wait approx. 1 minute to let the air bubbles out. Apply the glue in the desired area. This way, the effective time for glue is 8 to 12 minutes. Wait 1 hour before further processing. Allow 24 hours for glue to reach its final hardness. Make sure not to put too much component B to avoid speeding up the reaction excessively and damaging the joint by the glue turning yellow and fragile.

4. TOOLS AND ACCESSORIES FOR KERROCK PROCESSING

The same as for all other processing industries, the equipment for Kerrock processing also features various brands of tools that may be more popular among individual processing experts.

See here-below all recommended tools for processing of Kerrock acrylic plates.

The final choice is on the individual processor according to his needs. Nevertheless, it is very important to observe these guidelines for methods and tools that might be recommended or forbidden.

4.1. Basic Machines and Accessories for Kerrock Processing

- Squaring saw 3 kW with an appropriate blade of the circular saw
- Handheld electrical router 800 W for easier milling works and 1,600 W for bigger cuts and profile milling
- Handheld electrical saw 1,200-2,300 W
- Handheld electrical rotation eccentric grinding machine 250-500 W
- Mobile vacuum cleaner 350-1,200 W
- Furnace for heat treatment of Kerrock (up to 180°C) with regulation
- Joiner's clamps 100 mm or fixing clamps 50 mm
- Gun for application of elastic silicone or polyurethane glue
- Kit for preparation and application of Kerrock glue

Notwithstanding the type, any saw must meet the following conditions:

1 - it must be appropriate for heavy works;
2 - its blade must be made of tungsten carbide of K10, K5 or diamond quality;
3 - its blade must have a negative 6 degree angle;
4 - the blade must turn at 4,000-6,000 rpm; and
5 - it must be appropriate for cutting straight lines.

NOTE

Saw blades must be regularly sharpened with a 400-600 rough (20-40 microns) abrasive wheel.

4.2. Additional Machines for Kerrock Processing

To make your Kerrock processing job easier, we also recommend using the below-listed machines for a further improvement in processing quality and shortening of the time necessary for the operation:

- Spindle moulder 3 kW with feeder
- Benchtop milling machine or CNC milling machine (1.5 kW)
- Handheld electric jigsaw 450 W
- Band saw 3 kW
- Handheld electric vibration grinder 280-550 W
- Stable grinding machine for grinding wood
- Handheld electric belt grinder 1,000 W
- Handheld electric drilling machine 800 W
- Stable drilling machine 1,500 W

5. PREPARATION OF WORKING AREA

5.1. Preparation of Working Area in Your Workshop

Before starting, make sure about the following:

- temperature in the workshop must be at 18°C or more;
- before starting, keep the plates for at least 12 hours in a room with the ambient temperature of approx. 18°C;
- working areas must be well illuminated;
- prevent the workshop from dust and waste;
- make sure dust and cuttings are well vacuumed;
- working surfaces shall be fully flat; and
- make sure the plates are well protected from any damages during storage.

5.2. Preparation of Working Area on Customer's Premises

Before installing the product in your customer's premises, check for the following:

- access from the parking to the entrance;
- distance and obstacles;
- size of the entrance;
- condition of the walls;
- height of the ceiling;
- electrical and water installations; and
- note any other information that might speed up the proces.

Provide a pleasant and respectable service to your customer.

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

Be attentive of customer's worries. Provide all information and explanations required by your customer.

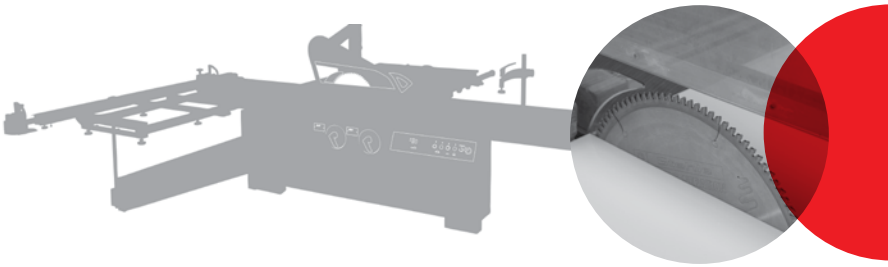
Reach an agreement about all works prior to the commencement.

Provide a customer with all written and oral instructions on proper maintenance and care of Kerrock products.

6. CUTTING KERROCK SHEETS

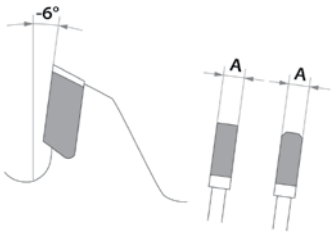
6.1. Required tools

For cutting Kerrock standard panels, such as chipboards, plywood, media pan boards, etc, squaring circular saws are mostly used.

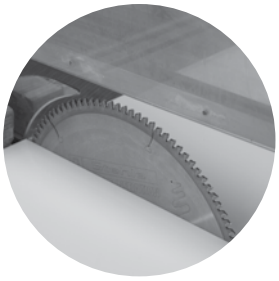


Circular saw blades for Kerrock shall feature both straight and trapezoid-shaped teeth, the latter of which must be 0.3 mm higher than the straight teeth.

Teeth shall be inclined at a negative angle of -6°. Rake angle shall be at 15°.

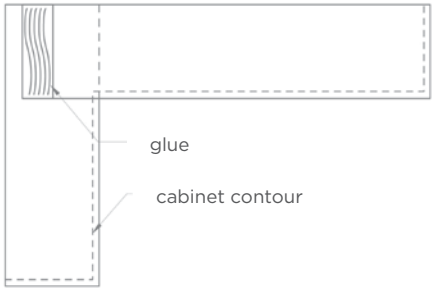


For rougher cuts or for pre-preparation of Kerrock, band saws or jigsaws can be used. Be aware that these may cause tiny cracks in the material, which is why a minimum over-measurement of 5mm shall be taken into account.



Use templates for cutting; these may actually represent the top surface. Keep your templates flawless. From many different procedures to prepare template, you should choose the one which best suits your work style.

Cardboard templates are most frequently used, since they can be adapted even for smaller spaces; you can even write notes down on them. They do not bend easily and are available at favourable prices. Thanks to this type of template, you can view the actual size of the upper surface, and, based on that, change the size of overhang or any other feature if necessary. Likewise, you can also use your cardboard template for the protection of upper surface once the assembly is completed. This is especially useful, when other craftsmen are engaged, such as house painters, electricians, plumbers, etc., by whom the surface might be damaged accidentally.

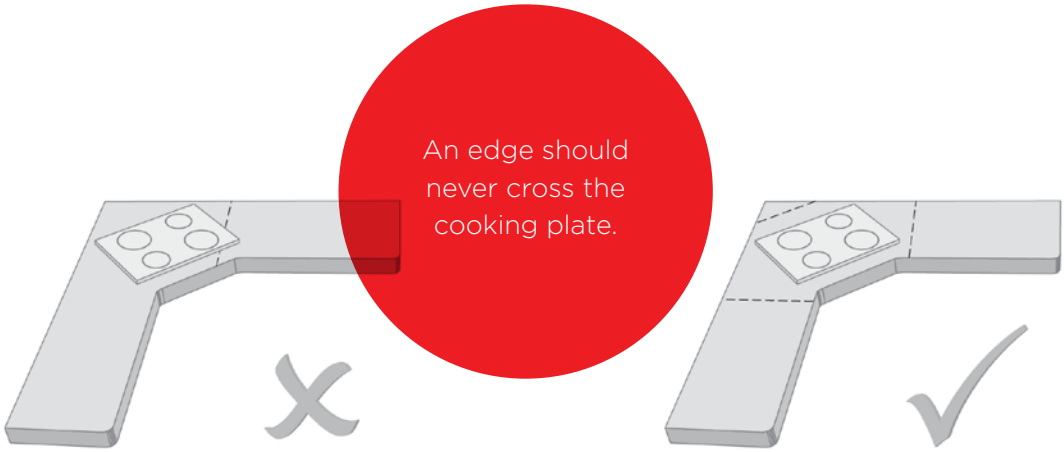


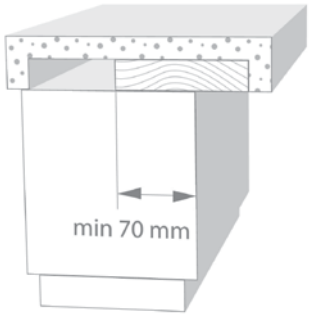
6.2. Execution

Planning is the key for saving time and achieving high quality of execution. For that purpose observe always the following rules:

NOTE

The minimum distance between an edge and a cut (i.e. cooking plate, sink) shall be of at least 50 mm.





For invisible joining, keep the cut edges even, smooth, and free of broken-off edges. Any edge can represent a potential weak point, where cracks may start appearing. When planning the cuts, bear in mind the minimum radius should not be less than 6 mm, since the rectangular inner joints can also represent a risk for cracks.

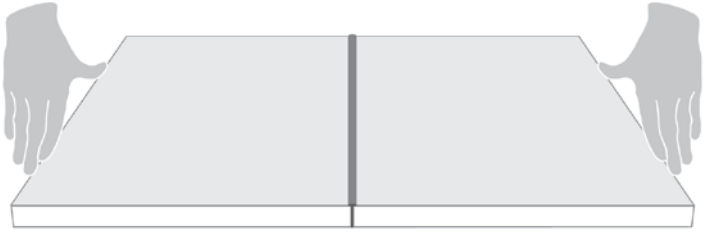
7. GLUING

The procedures differ for gluing Kerrock with Kerrock and gluing Kerrock with other materials.

7.1. Gluing Kerrock with Kerrock

For gluing two Kerrock elements together, a two-component acrylic adhesive is used. Being of the same colour as your Kerrock plate, this type of glue allows for more or less invisible joints. Excellent mechanical and physical properties are a further benefit. Observe the instructions for the preparation of glue and the execution of joint. Glue colour code must match the colour code on your Kerrock plate. Check the colour uniformity of both Kerrock elements before starting. The edges must be planned for the smallest possible consumption of material and the highest quality of product. The joints must be flawless on edges, cleaned and defatted using technical alcohol. Use sandpaper to remove any resting stains.

Place the elements to be glued together on a flat surface facing upwards. Leave a 2-3 mm gap between them. Use a template made of material that Kerrock glue does not stick on (e.g. PVC, aluminium, laminated chipboard, waxed or self-adhesive paper, etc.). Insert the glue into the gap between the two Kerrock elements, and then press them together for their final position.

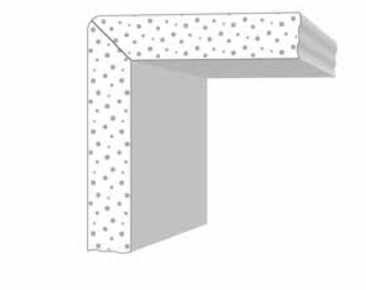


With angle-glued elements, apply the glue on the surface and then press the element perpendicularly to the surface. Use clamps or tongs to fix. We recommend moving the element glued 1-2 mm inside the surface to ensure smooth edging once the process is completed.

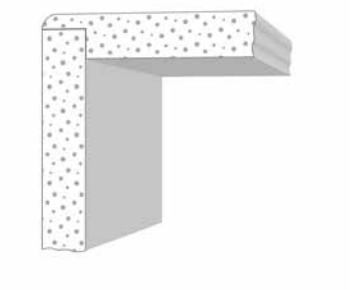
Once the two Kerrock elements are glued together, wait for another 45-60 minutes to process the joint; waiting time depends on the ambient temperature. The glue is only suitable for further processing after is has completely dried and hardened. Do not remove the surplus of the glue while it's still soft, as it shrinks by approx. 10%.

With Kerrock plates containing metal particles (platinum, stardust and graphite), the appearance of the surface and the edge are differing; so make sure the edge is not visible when making joints. There are two ways for doing that:

- joining under a 45° angle
- joining by using a groove



In the first case, cut the two Kerrock elements on the intended joint area under a 45° angle and then glue together. Use an adhesive tape for that purpose.

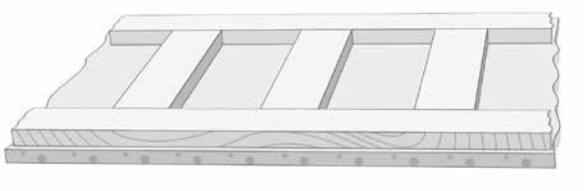


In the second case, cut a groove into the Kerrock plate. Its depth should correspond up to 2/3 of the thickness of the plate, while its width should match the glued element's thickness. Then glue them together.

7.2. Gluing Kerrock with other materials

Kerrock plates and other products can be glued to all materials by using permanently elastic silicone or polyurethane glues. To prevent deformations, these allow stretching of the elements glued following their stretching properties. Keep the thickness of the elastic glue layer between 1 and 3 mm, depending on the material. Use a double-sided adhesive tape to keep the appropriate distance. Since the setting time for permanently elastic glue can reach 24 hours at a room temperature and 50% humidity, the tape will also keep the elements together during that period.

If the Kerrock products are to be positioned horizontally and laden, fix a bearing batten substructure. This can be made of massive wood, panel plates, or metal and flexibly glued to Kerrock. When opting for a wooden substructure, protect it against moisture. You can also use strips from Kerrock leftovers for that purpose.



8. EDGE DETAILS AND THEIR MAKING

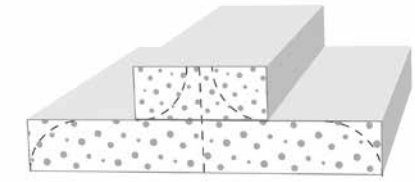
8.1. Making Countertop Back Edge

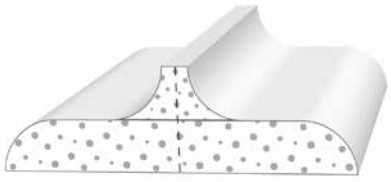
For an elegant appearance and easy cleaning we are offering unique edges (wooden trims) for the countertop rear. This makes the use of the Kerrock material even more popular. You can choose from two efficient ways for making rounded back edge on the kitchen counter:

- use a pre-prepared edge element;
- use an AK edge milling machine to produce the edge.

8.1.1. Pre-prepared Edge Element

To make a pre-prepared edge element, cut two strips of Kerrock of 80 and 30 mm of width respectively. Glue them together. Make sure the 30 mm element is fixed parallel throughout its entire length. Once the joint is dried, mill the edges to the desired radius and cut lengthwise. Use the previously prepared groove and glue the trim with its radius onto the countertop.

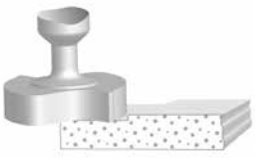


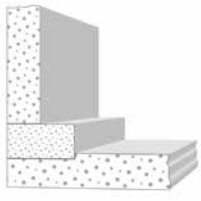


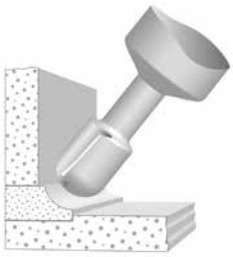
8.1.2. Edge Made with AK Edge Milling Machine

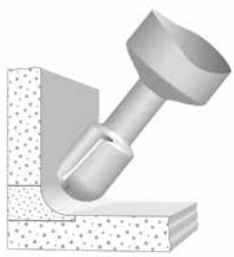
Observe the following procedure to produce the wooden trim by using an edge milling machine:

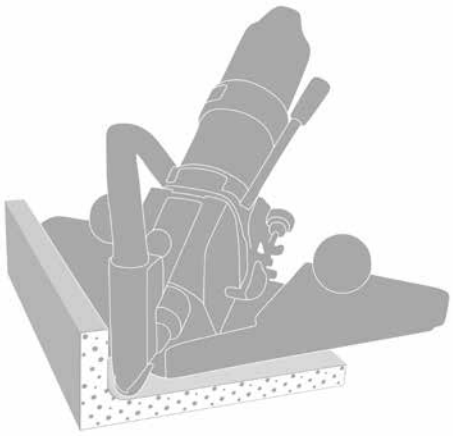
- glue a strip of Kerrock material 24 mm wide on the countertop;
- glue on it a strip of Kerrock material in the upright position reaching to the desired length of wooden trim;
- Once the glue is hardened, produce the desired radius by using your edge milling machine.









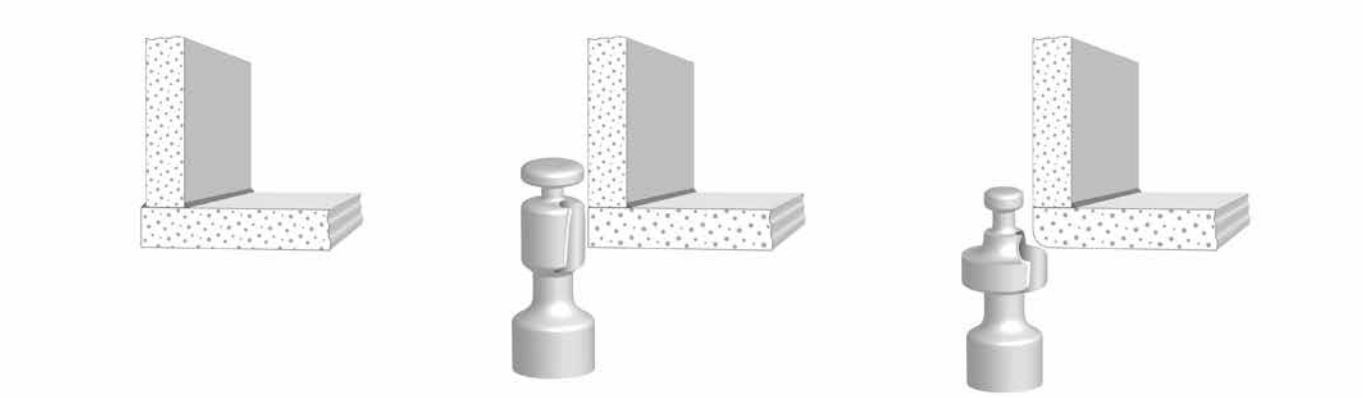


8.2. Making the Countertop Front Edge

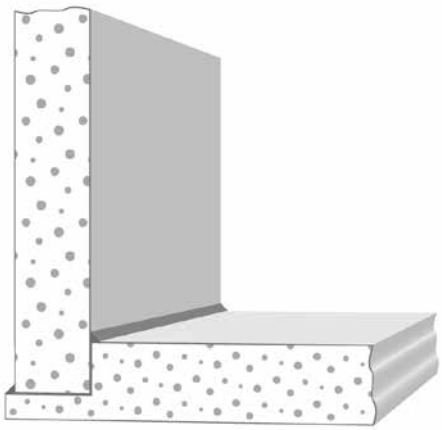
The making the front edge is only limited by customer's wishes and imagination. Here some options:

8.2.1. Making a Classic Edge

For making the front edge, classic edge or rectangular glued element are mostly used. Cut a strip of Kerrock of desired width, and glue it on the back of the countertop, its front side facing outwards. To speed up further processing, move the glued element inside the countertop surface for 1-2 mm.

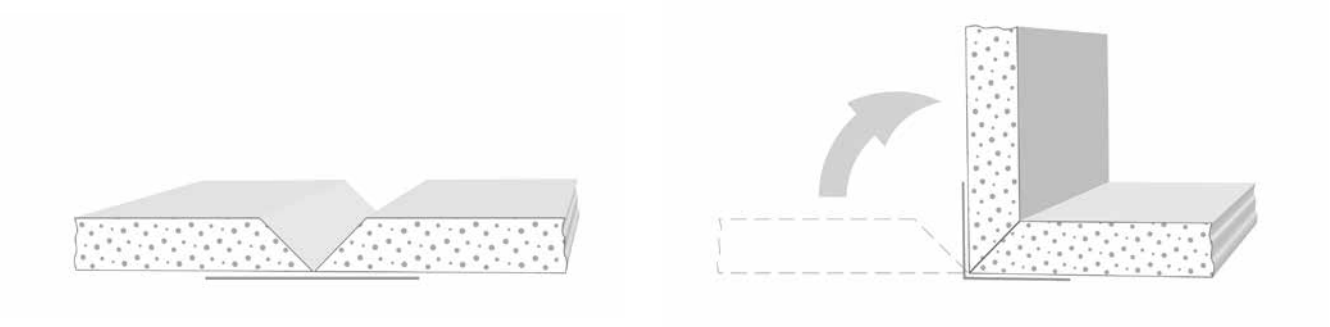


If you opt for the groove, cut a groove into the rear side of the kitchen counter. Its depth should correspond to 2/3 of the thickness of the counter, while its width should match the thickness of the element to be glued. Then glue the patch into the grooved part.



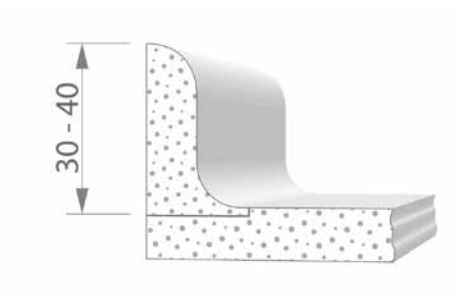
Avoid classic front edges with Kerrock colour decorations containing metal particles (Graphite – 9070, Platinum – 1071, Stardust - 9017, Lumino, Marble or Luminaco), since the metal particles are invisible in side view. We recommend the groove method or 45-degree joining.

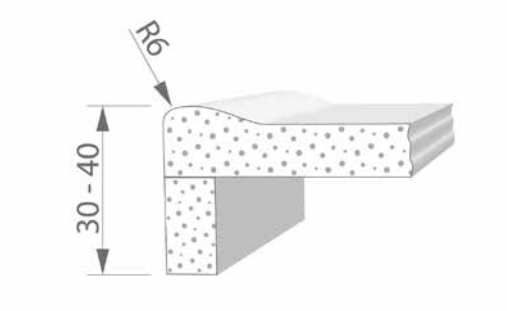
Cut both the glued element and the counter under a 45° angle. Use adhesive tape on the rear side to fix both parts together. Once the glue is applied, fold the glued element to the plate, while the adhesive tape prevents the joint from deformation.

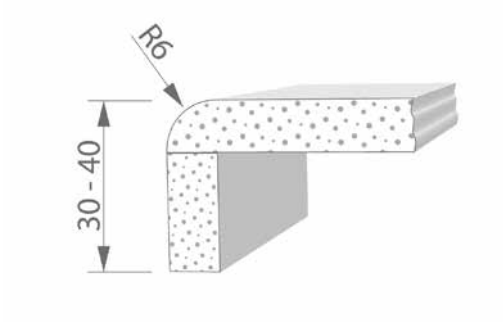


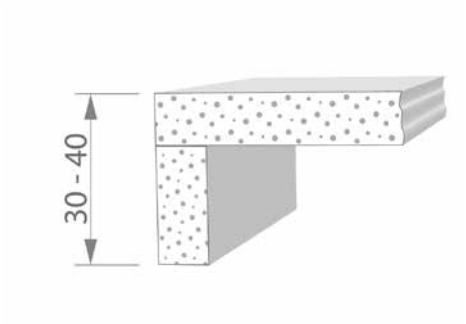
8.2.2. Profile edges

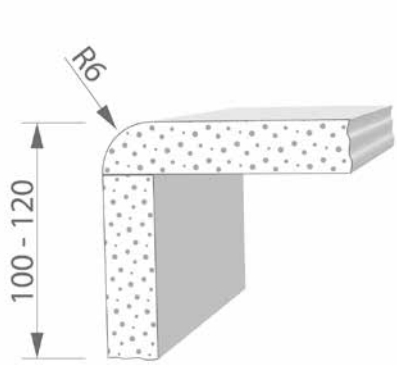
In addition to the classic edge, Kerrock also allows producing various other profile edges. For this purpose, glue several Kerrock elements together depending on the desired edge width. Use different profile milling machines to process once the glue is fully hardened.

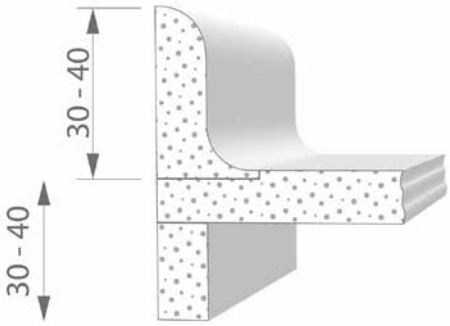


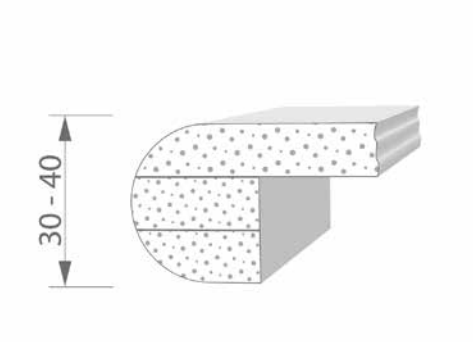










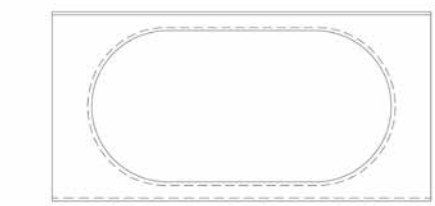


9. INSTALLATION OF SINKS AND WASHBASINS

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

9.1. Making a Rough Cut

Use a pencil to mark the inner edge of a sink on the Kerrock counter's working surface. If this is not possible, mark the external edge instead; then deduct the thickness of the sink plus 5 mm. Use a jigsaw to cut out the marked part. Observe the 5 mm over-measurement, since the jigsaw can only make a rough edge.

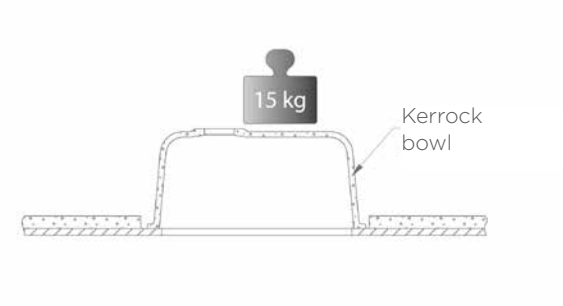


NOTE

If you have a CNC milling machine available, use it and make the cuts even better and faster. All drawings for Kerrock washbasins and sinks are available in dwg format.

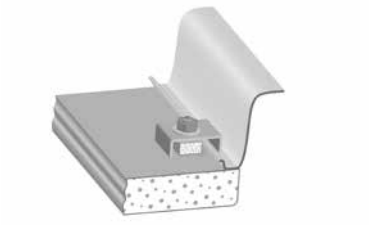
9.2. Installation of Kerrock Sinks and Washbasins

Once the rough cut is made, prepare the back of the work counter for gluing; for this purpose, remove all impurities and defat by using technical alcohol. Check if the opening fits the sink or bowl and if it allows the latter to lie evenly on the work surface. Then apply sufficient Kerrock glue on the circumference of the cut and place bowl or sink on it. It is recommended to additionally weigh the glued bowl or sink.

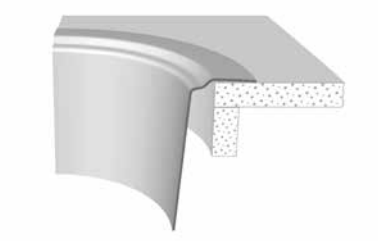


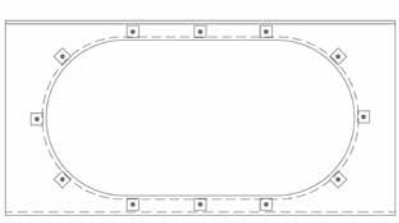
9.3. Installation of Stainless Steel Sink

To install an stainless steel sink, you must use previously prepared bearing screws. Cut the Kerrock material to produce rectangular pieces sized approx. 20 x 40 mm. Drill out a hole with a diameter of 6 mm in the middle of each element. Enlarge from one side to match an M6 screw.

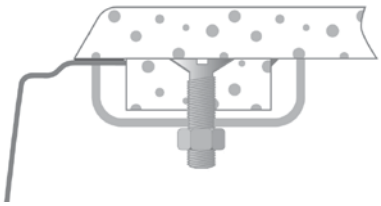


Check if the cut matches your stainless steel sink and set it in the desired position. Use the glue to fix your previously prepared bearing screws on every 10 to 15 cm of the stainless steel sink.





We recommend gluing them tightly along the stainless steel sink to keep their precise location during final installation; this way, the position of your stainless steel sink will simply be defined by the glued hooks.



Once the screws are fitted, use the hooks to fix the stainless steel sink. Now you can start processing the finishing edge of the opening. Once the final processing is completed, dismantle the sink and apply silicone glue on its lying surface; fit the sink back in place.

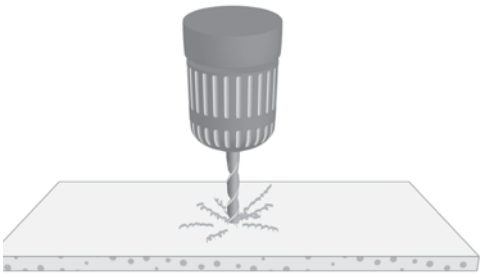
9.4. Making the Finishing Edge of the Cut

Depending on customer's wishes and maker's skilfulness, there are many possible options to choose from for the finishing edge of the sink or bowl. See the figure below for some of the mostly versions. These are made by using a handheld milling machine featuring an appropriate blade. A drainer can also be fitted to the Kerrock countertop.

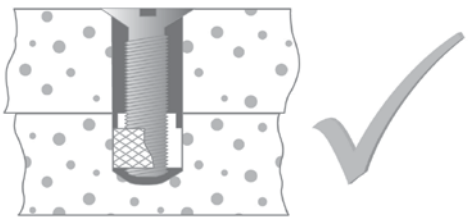
9.5. Making the Boreholes

Use a handheld or

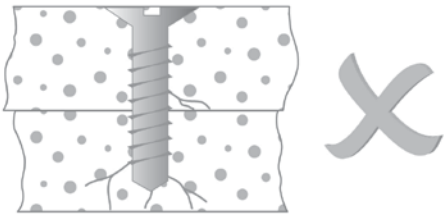
a stable drilling machine with drills made of high speed steel or metal carbide. For boreholes up to 50 mm of depth, use either a high speed steel drill featuring a 120° normal point or a drill with a metal carbide point. For going deeper than 50 mm, use a high speed steel or metal carbide core drill.



Insert a brass or PVC cork when screwing into the Kerrock surface is required. Make sure the borehole is approx. 10% larger that the screw diameter. Do not forget to insert a rubber of silicone spacer between Kerrock and the second material with joints.



Cut under no circumstances any coils into the Kerrock surface; that could result in cracks and break the Kerrock surface.



10. INSTALLATION OF COOKING PLATE

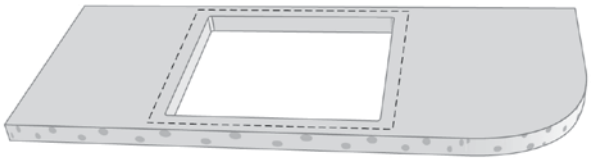
A cooking plate can also be installed into the Kerrock countertop. However, bear in mind that this is the spot where the most of the faults may appear. See here-below the list of their possible causes:

- Heat – expansion and shrinking (overheating)
- Weak points resulting from cutting and increasing the probability of cracks
- Missing heat-protective Aluminium belt
- Deficient cooking plate emitting too much heat
- Insufficient space between cooking plate and Kerrock countertop
- Missing or poorly attached cut reinforcement

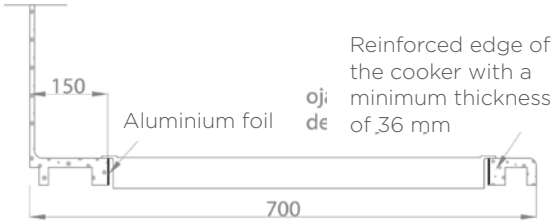
Glass-ceramic cooking plates are inappropriate for drop-forged installation in Kerrock countertops (evened with counter).
For such an installation, Kolpa d.d. warranty does not apply.

10.1. Making a Rough Cut

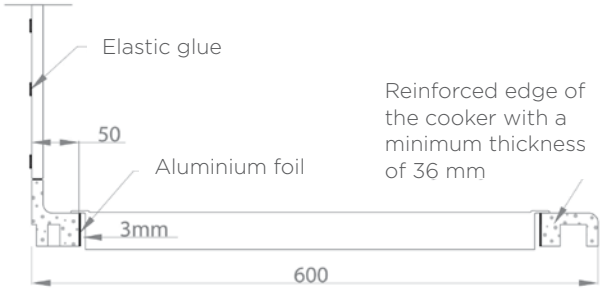
Once the location of the cooking plate is defined, use a jigsaw to make a rough cut; this must be at least 3 mm smaller than the required width. Keep the distance between the longitudinal or transverse joints of your Kerrock countertop and the heating source of at least 70 mm.



When installing a cooking plate in a Kerrock countertop featuring a Kerrock wall cladding, the distance between them must be at least 150mm.



If your work counter is 600 mm wide, you can mount a Kerrock wall cladding; however, it should not be rigidly joined with your countertop. It is to be fixed elastically, as shown in the figure below.



10.2. Reinforcement of the Cut

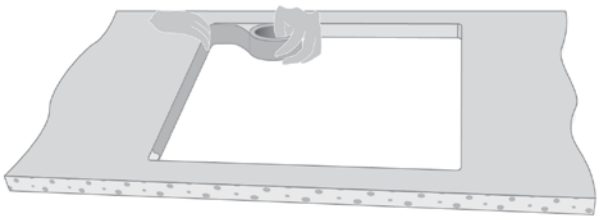
Once your rough cut is finished, fix a reinforcing framework made of two strips of Kerrock, 12 mm thick and 30-50 mm wide, glued together. Its inner dimensions shall match the dimensions of the aperture foreseen for the cooking plate. Fix the framework on the rear side of the countertop.

We recommend grinding the rim of the opening by using rough P150 sandpaper for that purpose.

10.3. Installing the Cooking Plate

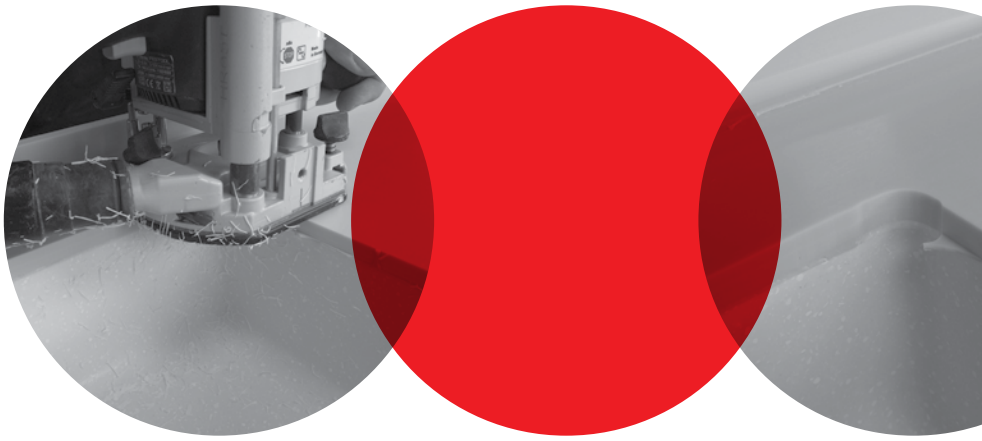
Check once again the rim before installing your cooking plate. A perfectly executed cut, upper and lower surface mean less problems during use. If sure that the rim is finished perfectly, fix the protective Aluminium adhesive tape (3M 425 or similar).

The purpose of the tape is a more equal heat distribution throughout the entire rim. Now insert the cooking plate. Make sure the gap between the Kerrock countertop edge and cooking plate is at least 3 mm.



NOTE

Kerrock is unsuitable for surface-plane-mounted plates.

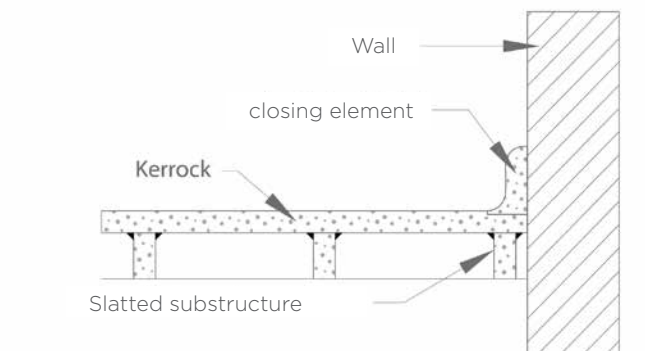


11. SUBSTRUCTURE

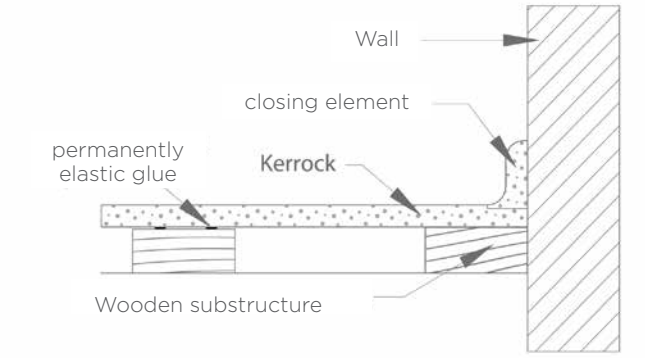
Kerrock plates are available in different thicknesses for various applications of use. The following are minimum thicknesses required:

- 6 mm Kerrock plate, only for vertical wall claddings
- 8 mm Kerrock plate for table plates, sink counters and bathroom
- 12 mm Kerrock plate for kitchen counters and other horizontal surfaces
- 18 mm Kerrock plates for self-standing, self-bearing plates

In all applications where spacing between bearing parts is 500 mm or more, fitting a substructure is obligatory. To produce the bearing support, we recommend using Kerrock material resistant to moisture and having the same dilatation coefficient as the working surface.



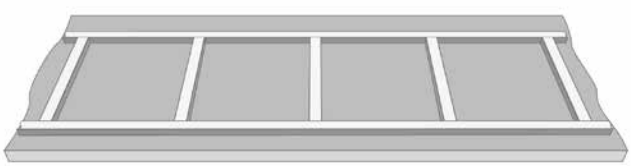
So you avoid troubles related to changes in material due to temperature conditions. The substructure can also be made of wood, wooden plates or metal; note that these must be appropriately protected against moisture. Due to different thermal expansion coefficients, Kerrock plates must be glued to structures from other materials by using permanently elastic glues.



11.1. Support of Countertop

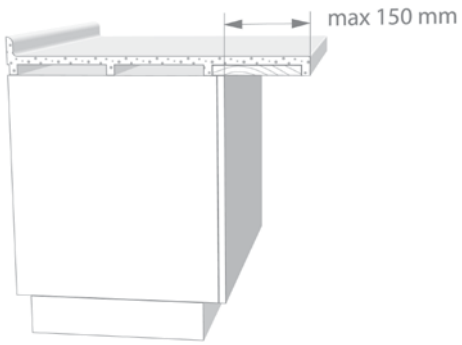
Kerrock countertop shall be mounted on an appropriate bearing substructure. For kitchen counters, ladder-shaped substructures are most frequently used. Place the bearing element on the front and the rear side all along the kitchen counter. Connect its longitudinal elements with the transversal ones at every 600 mm. For this type of substructure, use Kerrock strips 12 mm deep and at least 30 mm wide.

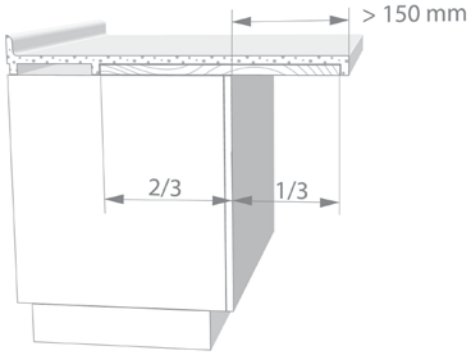
Use Kerrock glue to fix the structure on the rear side of the countertop. Substructure elements can also be made of laminated particle board, at least 18 mm thick and 50 mm wide. In this case use permanently elastic silicone glue to fixi.



The substructure can also consist of longitudinal reinforcements alone. In this case, fix bearing parts on the front, middle, and rear sides.

11.2. Support of Overhang

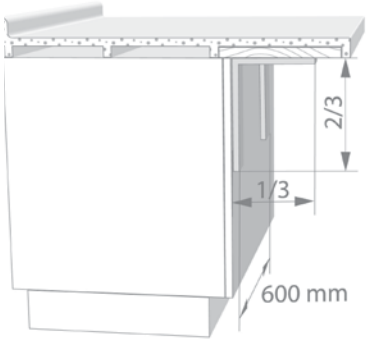


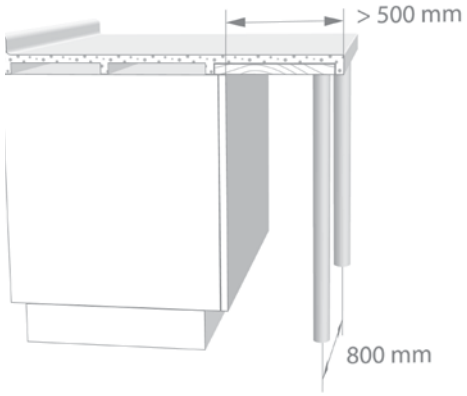


If your counter features an overhang not exceeding 150 mm, no additional support is required.

We recommend placing a piece of wood or laminated particle board under the overhang serving as a filling material improving the final appearance of the product.

With overhangs exceeding 150 mm use a substructure, of which 2/3 reach into the cabinet, while the resting 1/3 serves as the bearing part.





To reinforce the overhang you may also use bearing consoles placed at every 600 mm at least. The vertical elements of the console must be 50% longer than its horizontal part.

Overhangs of 500 mm or more shall be supported from the ground. Wood or Kerrock material can be used for this purpose. The support shall be placed at every 800 mm.

12. GRINDING AND POLISHING

Mind the following before final grinding::

a. type of sandpaper to be used;

b. desired level of shine for the finally processed Kerrock surface;

c. the type of abrasive paper to be used depends on the final processing desired; choose from rough abrasive papers featuring an average size of a rough grit or micron papers for an equally distributed roughness, or sandpapers for wet or wet and dry grinding; we recommend the use of 3M micron sandpapers;

d. as for the final shine, be aware that dark colours are far more sensitive for maintenance and require more care to preserve the full shine; therefore, we do not recommend any dark shades for the exposed areas.

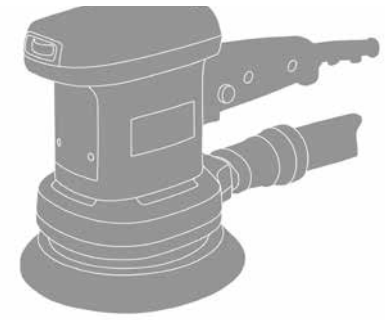
See the table below to check different types of sandpaper for achieving the desired shine:

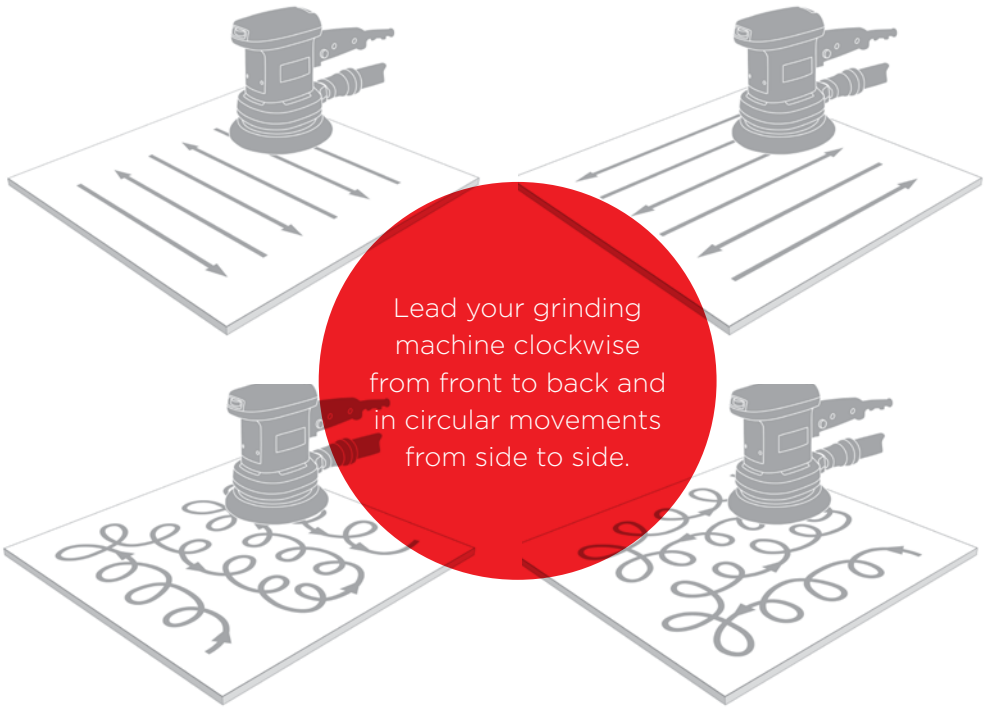
Surface treatment	Sandpaper brand			Maintenance	Advice
	FESTO	3M Mikron	Mirka		
Matt	P150 P180 P240 P320	80 60 30 7447	P150 P320 VF – Mirlon	Easy maintenance, low maintenance costs	For public and frequently-visited areas
Semi-gloss	P150 P180 P240 P320 S600	80 60 30 7448	P150 P320 360 Abralon	Moderate maintenance	Suitable for darker coloured decoration. The most common level of surface treatment
High gloss	Same as semi gloss S800 S1200 Polishing paste	80 60 30 15 9 9639	P150 P320 P500 P1000 4000 Abralon Polishing paste	Frequent maintenance	For decorative and vertical surfaces

For information about other brands refer to your supplier.

12.1. Grinding

To achieve an appropriate finish, Kerrock products shall be ground. Grinding is best done by using eccentric vibration machines with vacuum function. For high quality surface processing, grinding must be done gradually, starting with sandpapers of rough grits, and passing step by step to finer granulations (use, for example, silicon carbide sandpaper starting with P120, P180, P240, P320, and P400 to finish with a P600 granulation).





This way you avoid whirls and scratches. Keep the pressure of grinding machine to the surface in limits to avoid overheating of the medium and polymerization of the material which may make the processing more difficult.

When changing the sandpaper, wipe the surface first; otherwise, dust residue of equal granulation may leave traces.

12.2. Polishing

Use sandpapers P800, P1200 and P2000 to make your Kerrock surface shine.

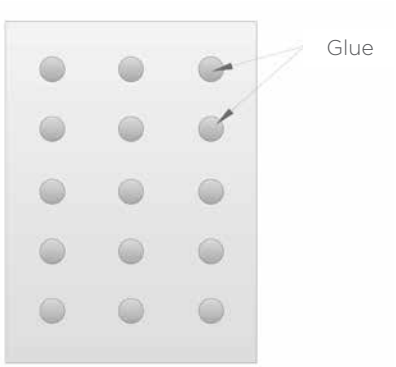
Finish by using a hard polishing pad and an appropriate polishing paste (for dyed surfaces or stainless steel); polish as long as necessary to reach the desired shine. Please note polishing is not appropriate for working surfaces; that would require a far more complex maintenance.

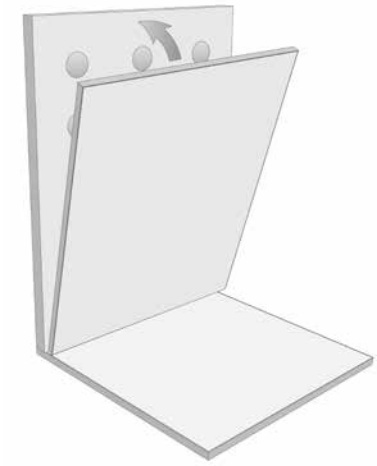
13. VERTICAL APPLICATION

Kerrock plates can also be used combined with various other applications, such as furniture, decorative objects, tiles, and wall claddings.

NOTES

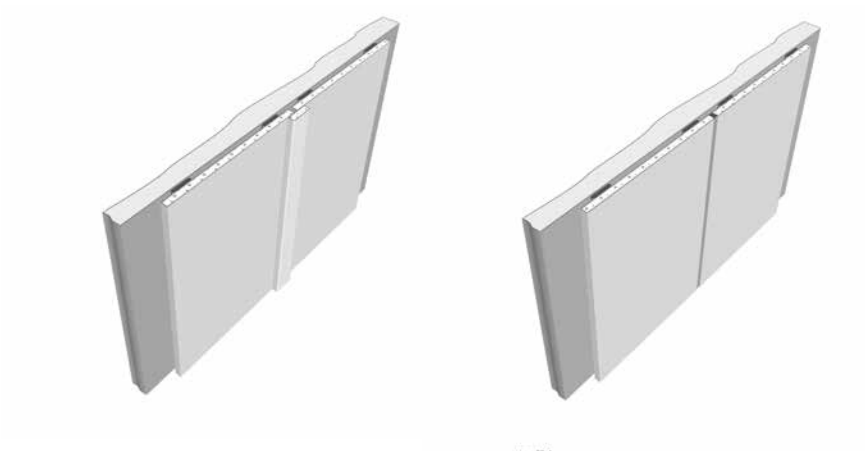
Similar procedures apply for these products as described for horizontal working surfaces.





13.1. Assembly and Placing

For wall claddings, Kerrock plates of at least 6 mm of thickness are required. Check if the wall on which the Kerrock cladding is to be placed is flat; if not, flatten it; you can also use a substructure made of wood, water resistant chipboard or Aluminium bearing profiles. Once the substructure is fitted or the surface is flattened, make sure the Kerrock cladding fits the wall perfectly. Make sure sufficient space is left along the edges for thermal dilatation. Use elastic silicone glue to fix the Kerrock cladding to the surface.



14. HEAT TREATMENT

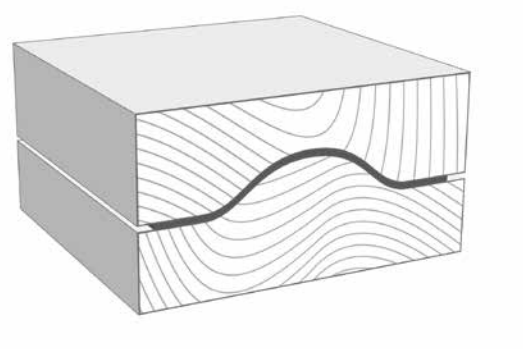
Kerrock can also be thermally treated – heat it up to mould into various forms, bend or form three-dimensionally.

14.1. Preparation of Kerrock Material

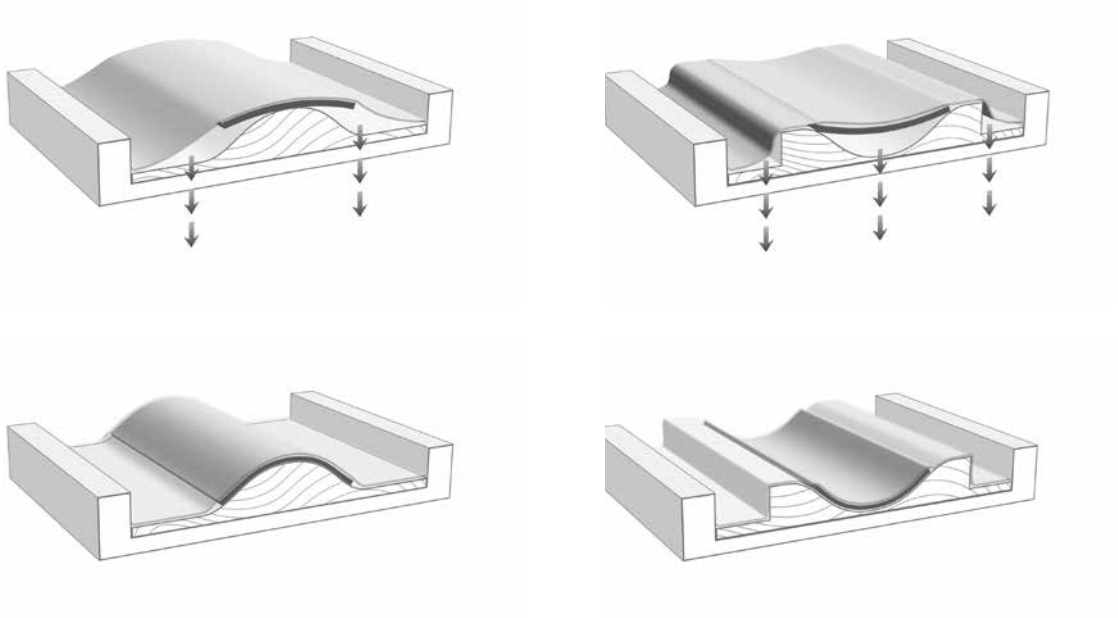
To avoid cutting effects and micro cracks, the edges of the Kerrock surface must be perfectly smoothed before any thermal treatment. You can also opt for grinding the Kerrock surface up to P240 granulation first and leave the final grounding for after thermoforming. Due to possible bending on the edges caused by too rapid cooling, apply an over-measurement of at least 10 mm when cutting the Kerrock surface.

14.2. Preparation of Template

Use two-sided moulds for thermal treatment of Kerrock surfaces. So you achieve the desired form once the surface has cooled down to the room temperature. Cut the appropriate template out of plywood or MDF panel. Make sure the surface is smooth and showing no deformation that might prevent heat transfer. Fit a support to the inner parts of the template to allow the pressure. Avoid metals or hard wood, since these may absorb temperature and affect the quality of thermoforming.

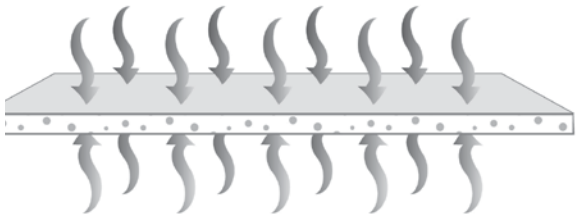


You can also use vacuum membrane presses for thermal treatment; here, the membrane acts as a part of the mould.



14.3. Thermoforming

Before thermoforming, make sure the Kerrock surface is evenly heated. Use either a hot-air furnace or a joiner press featuring electric heater to heat up to the temperature of 160°C ±10°C.

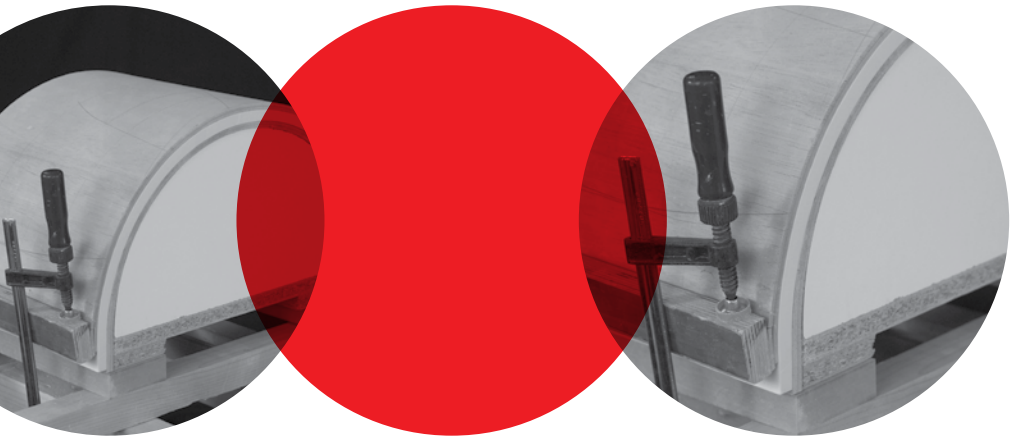


The table here-below shows the heating time required and the tiniest curve radius allowed.

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

Insert the heated-up Kerrock surface into the mould and harden. As for heating, evenly cooling of the surface is of great importance for uniform distribution of inner tensions within the material. Keep the heating temperature below 170°C to avoid damage. On the other hand, too low temperature can turn the material breakable or pale on the bending areas.

Once the Kerrock surface is cooled down, it features a new and stable form while fully preserving its technical features. Follow the procedures described in previous sections for final treatment.



15. PARTICULARITIES OF KERROCK

15.1. KERROCK LUMINO EFFECT

Kerrock Lumino plates are processed in the same manner as any other Kerrock plates; if they are to be used unlighted, the same procedures shall be followed. Observe additional instructions, however, when Lumino plates are intended to be illuminated.

For a product featuring Lumino plates, the according laws of lighting and characteristics distinguishing such a product must be taken into account already at the designing stage.

Matching of Lumino Effect-plates

Joints are crucial for appearance. When illuminated, joints turn more visible than at at normal room light; therefore, they shall be placed where least noticeable. When designing, consider that any corners and supporting frameworks create shadows when illuminated.
To keep joints as little visible as possible, the bonding must be perfectly accurate (edges perfectly bonded, no bubbles from adhesive, any excess adhesive perfectly ground off from the seam on both sides).
For an even dispersion of light through the Lumino plate it is necessary to provide its uniform treatment on both sides (uniform thickness and the same quality of the treatment across its 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 reach from warm to cool light. How to position the light source depends on the type of light source, the thickness of Lumino plates and the form. The distance between the light source and the Lumino plate should be kept above 100 mm.
Kerrock Lumino products should not be exposed to direct sunlight.

Thermoforming

Lumino plates can be thermoformed like any other Kerrock plates. However, higher attention, lower temperatures and shorter heating times shall be applied. Bear in mind that any fault is more visible when illuminated.
All plates must be ground on both sides before thermoforming; they shall feature the same thickness and quality across the entire surface (any damage is shown as shadow under light).
During the heating process, the Lumino plates may change in colour nuances; therefore, all Lumino plates used for the product shall be heated in exactly the same way; this applies for those thermoformed as well as those which remain flat.
It takes 12 minutes to heat the Lumino plates up to 160°C. The thermoforming moulds must be of an extremely high quality, since any fault is mirrored on the object illuminated. Also avoid using bare hands to transport heated Lumino plates.

15.2. KERROCK MARBLE EFFECT

The Marble Effect is available in three Kerrock standard colours. The patterns are very close to the natural material, thereby offering new options for the expression of style. The marble effect is provided by plates featuring random longitudinal streaks and natural, marble-alike particles within its basic colour. These patterns of longitudinal streaks are never repeated on any of two plates, so they cannot be joined without a visible seam. With the proper preparation of the plates, however, the expectations of the consumer can be fulfilled.
The Kerrock marble features a randomly oriented pattern; it is therefore necessary to check whether the connection of two plates is better acceptable at a joint angle of 90° or 45°.
The best effect of the front edge is achieved by coupling the vertical edge and horizontal plate at an angle of 45°. Also recommended is to integrate an incision 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. With those faults in joints, edges and endings becoming more visible, the acceptability of the marble effect-featuring product for the final customer can be at risk

15.3. KERROCK LUMINACO EFFECT

Luminaco Effect is available in two Kerrock standard colours. Luminaco Effect signifies the patterns containing a mixture of the original terrazzo effect and translucent particles. Luminaco plates are suitable for claddings and surfaces not exposed to abrasion and external impact.
Kerrock Luminaco plates are processed in the same way as any other Kerrock plates. All procedures remain more or less the same. Luminaco plates contain non-thermoplastic and non-UV-resistant translucent particles.
When heated, these particles change their colour and tend to crack; this is why Luminaco is unsuitable for either thermoforming or outdoor use.

NOTES

Thermoforming of plates containing transparent particles (colour hues 8101 and 8501) is strictly to avoid; since transparent particles are not thermoplastic, they tend to crack and change in colour when heated.

16. TRAINING

To ensure the highest quality of the final Kerrock product for the purchaser of Kerrock material, Kolpa d.d. provides information on novelties and regular training sessions. Standard training programme includes presentation of basic technical and technological characteristics of the material, processing theory and practical demonstration. Training schedules are available on our website: www.kolpa.si; the sessions are performed at the Kolpa d.d. premises.

ADVICE

For any additional information concerning execution, contact our Kolpa d.d. technical service.

17. IMPORTANT!

When receiving the Kerrock plates, check their quality and make sure to store them properly Warm your Kerrock plates up to 18°C 3 ± 2°C before any processing.

Check the plates for colour suitability before cutting. Perform trial gluing. Use plates of same batch for any job with Kerrock to ensure equal colour shades.

For various applications use only corresponding plate thicknesses:

- 6 mm only for vertical claddings
- 8 mm for table plates and bathroom
- 12 mm for kitchen and other horizontal surfaces
- 18 mm for independent plates

All edges and angles must be smooth and rounded (using vertical cutter for cuts and cuttings allows smooth and almost tension-free edges).

It is important to ensure equal temperature throughout the entire depth to prevent any deformation (batten support).

It is required to leave space for expansion of Kerrock (dilatation of approx. 0.1 mm per 1 m of length at any change in temperature for 1°C).

Always use elastic glues for gluing Kerrock with other materials.

Isolate all elements emitting heat and installed into working surfaces made of Kerrock (stoves, dishwashers).

Reinforce all poorly dimensioned spaces on Kerrock products (i.e. cuts for sinks, cuts for stoves).

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

With Kerrock, all works must be performed very precisely, consistently, and by using appropriate machines, tools and high quality blades.

Mind, the joints between marble effect-featuring plates are never invisible.

KERROCK PROCESSING INSTRUCTIONS ARE BASED ON KNOWLEDGE AND EXPERIENCES GAINED IN THE COURSE OF ITS TREATMENT.

THE INSTRUCTIONS ARE INTENDED FOR USE BY PROFESSIONAL KERROCK PROCESSORS HAVING BASIC KNOWLEDGE OF COMPOSITE MATERIAL PROCESSING AND FULLY RESPONSIBLE FOR END RESULTS AS 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 ONLY VALID WHEN PROCESSING INSTRUCTIONS ARE DULY OBSERVED.

18. TECHNICAL SPECIFICATIONS

CHARACTERISTICS	VALUE	METHOD
UME MASS	1,680–1,750 kg/m^3	SIST EN ISO 1183-1 Method A
FLEXURAL MODULE	8,800–9,800 Mpa	SIST EN ISO 178
FLEXURAL STRENGTH	50–71 Mpa	SIST EN ISO 178
TENSILE STRENGTH	29–53 Mpa	SIST EN ISO 527-1
ELONGATION AT BREAK	0,50–0,90 %	SIST EN ISO 527-1
TOUGHNESS	3,0–5,5 kJ/m^2	SIST EN ISO 179-1
HARDNESS (Barcol)	58–64	SIST EN 59
COEFFICIENT OF LINEAR EXPANSION	3,7 x 10-5 K-1	α(–20 °C do +50 °C) WATER
ABSORPTION (following 24 hours)	0,03%	SIST EN ISO 62 Method 1
RESISTANCE TO THE ACTION OF WATER VAPOR (1 hour)	Level 4 – small change in shine, only visible under certain angles	SIST EN 438-2
RESISTANCE TO THE ACTION OF HOT VESSLES	Level 4 – small change in shine, only visible under certain angles	SIST EN 438-2
RESISTANCE TO THE ACTION OF BURNING CIGARETTE	Level 4 – insignificant change in shine, only visible under certain angles	SIST EN 438-2
RESISTANCE TO ATMOSPHERIC AGENTS	no change	2 year outdoor exposion
CLASSIFICATION OF MATERIAL RESPONSE TO FIRE	B- s1, d0	SIST EN 13501-1
SURFACE RESISTIVITY	2,0 x 1011 – 2,0 x 1012 W	DIN VDE 0303-3 IEC 93
SPECIFICAL VISCOSITY RESISTIVITY	7,9 x 1013 – 1,2 x 1014 Wcm	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
HARMLESSNESS TO HEALTH	compliant with	Art. 3 Regulation of the European Parliament and Council Regulation (EC) No. 1935/2004 on materials and articles intended to come into contact with foodstuffs.

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