



# Installation instructions

December 2019

solid surface

# Mirostone<sup>®</sup> installation instructions

It is a condition of the Mirostone limited warranty that the following instructions are followed.

Please attend an approved solid surfacing training course. See our distributor's websites for training course dates. Also look at our installation and maintenance videos on YouTube and [mirostone.co.uk](http://mirostone.co.uk).

Before working with Mirostone, carry out a risk assessment. Minimise any risks to your Health and Safety and for anyone who may be in the vicinity. This must include the use of the correct Personal Protective Equipment such FFP2 rated dust masks, M class dust extraction for all power tools and adequate ventilation within the work area. The Mirostone MSDS and a copy of the Mirostone air quality report is available from the distributors.

Before commencing any fabrication or installation work, inspect your Mirostone solid surface products and ensure you are satisfied that there are no defects, for example: colour matching defects.

Use only Mirostone approved adhesives.

A reasonable size of Mirostone offcut should be stored at the installation premises for any future colour matched repair work or modifications. Any offcuts that cannot be stored at the premises should be disposed of in a skip or other bin. Do not incinerate Mirostone waste.

The following instructions are a supplement (not a replacement) for the knowledge gained by attending an approved solid surfacing course.

Please read the terms and conditions of the Mirostone warranty document, available within the Mirostone How to care for your solid surfaces booklet and from the website: [mirostone.co.uk](http://mirostone.co.uk).

## Handling

Mirostone worktops and breakfast bars are supplied in protective cardboard boxes in sizes 3000 x 650 x 20mm and 2000 x 960 x 20mm respectively. These weigh approximately 75kg each. Mirostone splashbacks and upstands are 12mm in thickness and are much lighter in weight.

Mirostone worktops, breakfast bars and splashbacks must be handled by a team, not alone. Where possible, use handling aids. When moving Mirostone by hand, carry it so the shorter edge is vertical. This avoids unnecessary flexing which can cause stress cracks in the material.

Mirostone can be seamlessly jointed. Please refer to the 'Joining methods' section below. Potentially, a Mirostone worktop or breakfast bar can be seamlessly jointed to over 6 metres in length. When considering the construction of exceptionally large seamlessly jointed Mirostone surfaces, you must plan for the weight and the feasibility of gaining access to the installation area.

Mirostone products should be stored horizontally and supported adequately to prevent any bowing or collapse of the product.



## Conditioning

All materials must be given a minimum of 24 hours to meet room temperature prior to installation. This is especially important for adhesives and silicone sealants because temperature affects curing time and consistency.



## Removing the protective film

Each Mirostone worktop and breakfast bar is supplied with a protective film. Before fabrication, remove the protective film in one movement. Do not intermittently stop and start the removal as the film adhesive could then mark the surface.

Once the film has been removed, wipe over the entire surface with denatured alcohol to remove any adhesive residues which may cause your tools to snag on the surface.



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## Tools and materials required

Mirostone products can be installed using woodworking tools.

- A dust extractor. We recommend the use of an M class extractor.
  - Plunging circular saw with fine tooth or solid surface blade.
  - 400watt (or above) 1/2 inch router with tungsten carbide cutters including straight 1/2 inch two flute.
  - Pendulum jigsaw with a fine-tooth blade or solid surface blade.
  - Random orbital sander. Having a 150mm or larger diameter head speeds up the finishing process. Non-random orbital sanders have a sanding pattern which is predictable and can lead to linear or circular marks in the material.
  - Electric hand drill with a 12mm drill bit suitable for plastics.
  - A hole cutter if fitting tap(s).
  - A-Clamps, G-Clamps, F-Clamps or Rapid action clamps. The more clamps you can have available the better, but as a minimum you will require 3 per joint or alternatively a pair of solid surface seaming tools or the Mirostone suction clamp tool.
  - 25 x 25 x 50mm blocks of MDF for the manual jointing method.
  - A hand sanding block.
  - Adhesive gun (both for silicone and 50ml & 250ml solid surface adhesive cartridges).
  - Hot melt glue gun.
  - Masking tape.
  - Colour matched Mirostone approved solid surface adhesive. A 50ml cartridge should complete 2no. 630mm joints.
  - A colour matched silicone sealant.
  - Silicone adhesive.
  - Optional for bathrooms only: 600 grit abrasive discs, 800 grit abrasive discs.
- **Mirostone Installation kit**, this contains:
    - Heat reflective tape 3mx50mm
    - 12x 150mm abrasive discs (3x 150 grit, 3x 240 grit, 3x 320 grit and 3x 500 grit)
    - 2x 150mm 500 grit Scotch-Brite polishing pads
    - 500ml solid surface rejuvenator (a mildly abrasive cleaner to help remove light surface scratches)
    - 250ml denature alcohol
    - 500ml solid surface non - abrasive daily cleaner
    - 3x lint free wipes
    - Microfibre cloth
    - 6 plastic lamellas.



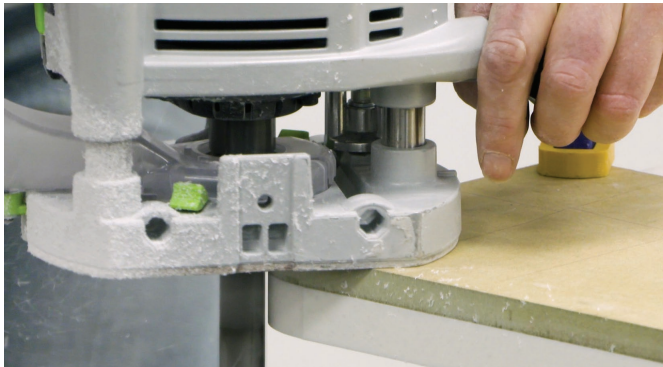
- **Mirostone Care and Maintenance kit**, this contains:
  - 500ml solid surface non-abrasive daily cleaner
  - 500ml solid surface rejuvenator (a mildly abrasive cleaner to help remove light surface scratches)
  - 500 grit Scotch-Brite pad
  - Microfibre cloth
  - 250ml Solid surface shine and protect polish.



# Mirostone® installation instructions

## Cutting and edge finishing

Mirostone can be cut in a variety of ways, the most common being with a router, circular saw or jigsaw. Standard wood working blades can be used; however, there are now blades which are specifically suited to solid surface material. These leave a cleaner finish to the cut which speeds up the finishing process.



We recommend that all cuts are finished with a router as it will leave less tooling marks than other methods. When cutting with a router or circular saw, the cut should be made in several passes to prevent overheating. We recommend cutting 20mm thickness Mirostone using 4 consecutive passes. The first at 5mm depth, the second at 10mm depth, the third at 15mm depth and the final pass should be greater than 20mm to ensure the cut is complete.

Use of guide rails with cutting tools where possible to maximise the accuracy of the cut. If not using guide rails or if the cutting tool is sliding across the surface of the Mirostone then you must use masking tape to protect the surface.

Mirostone expands and contracts very slightly when the ambient temperature changes. Allow 1 millimetre per 1 metre of expansion gap wherever Mirostone is adjacent to any object (such as a wall) which could prevent this expansion and contraction. For example, 3mm for a 3m long worktop. In addition, leave a 2mm gap to the wall which will be covered by the upstand or splashback. Please do not screw or bolt the Mirostone surfaces to the cabinets or walls. (see the section "Securing cabinets to Mirostone surfaces").

If the cut edge is to form part of a joint, it must first be machined to become square with no rounding of the edge. Care should be taken not to 'round over' the top and bottom of the cut edge: use of a power sander can cause this due to their tendency to 'grab' and their lack of feel. Please refer to 'Joining methods' for more details of this critical process.

If the cut edge is visible, then the edge can be finished to match the top surface. Please see the later section 'surface finishing'.

## Cutting directional décors

The décors Angel and Twilight are "directional". This means that these décors need to be cut to size and installed in the same direction as the surface they were cut from to avoid any colour change. For example, 2 pieces cut from a 3000 x 650 x 20mm worktop should not be turned 90, 180 or 270 degrees from each other. They should both face the same direction they did before they were cut. If the same direction cannot be maintained (for example when jointed around a corner), then a colour change may be experienced.

## Cut-outs, tap holes, drainer grooves and corners

Cut-outs are needed for sinks, bowls, hobs and electrical sockets. Cut-outs should be a minimum of 75mm from any joint and as far away from any edge as possible, so that the strength of the surface is not weakened. The cut-out should be marked out with masking tape (do not use ink-based pens directly on the surface of the Mirostone).

Ensure all surfaces are supported prior to any cutting or drilling; even small pieces of Mirostone can cause injury. When happy with the positioning and size of the cut-out, drill each internal corner with a 12mm drill bit or larger bit if possible (to suit the sink, bowl, hob or electric socket shape). The smooth curve of the drilled hole instead of a 90° angle helps to prevent stress cracking.

Once all corners are drilled, cut the straight lines to join the drilled corner sections in accordance with the above section 'Cutting & edge finishing'. Where possible use a jig made of compact grade laminate or MDF and a router with a guide bush. Ensure these are clamped securely to the surface. Take care not to get too close to the corners.

If the cut does not reach the corner, finish with a jigsaw. Once the section to be cut out has been removed, use a 150-grit abrasive disc and your hand sanding block to remove any rough cuts. If fitting a hob, use heat reflective tape around the inside edge of the cut-out.

When fitting hobs or inset sinks, it may be necessary to increase the thickness of the material on the underside of the cut out so that the fasteners for the sink or hob do not 'bottom out'. This is achieved by cutting the waste material from the cut out into small blocks and adhering these to the underside of the edge of the cut out (please refer to 'Fitting acrylic sinks' and apply the same principals when adhering the blocks).

When fitting hobs or inset sinks, use the Mirostone metal support bar and bracket kit under the front section of the Mirostone and secure it to the cabinet walls.



Ensure all hobs are positioned, installed and connected in accordance with the hob manufacturer's instructions and all relevant gas/electrical regulations.

If fitting drawers or a built-under oven below the hob, adjust the drawer box or oven support to accommodate the hob within Mirostone's 20mm thickness. For the drawers, you will only need to adjust the rails and the mounting plates which are on the rear of the upper-most drawer fascia. Measure how much lower the drawer box needs to be. Then create a copy of the existing mounting holes at the required lower level on the inside of the cabinet side panels and rear of the upper-most drawer fascia.



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This will lower the drawer box relative to the hob but leave the drawer fascia in the correct position. The oven support panel can be lowered in the same way. However, the oven may need a fascia installed between the top of the front panel of the oven and the underside of the worksurface. Please check your cabinet manufacturer's instructions prior to creating any mounting points.

For tap holes use a hole cutter.

Because Mirostone is a solid surface, you can create a 'waterfall' effect by having your drainer groove design moving from a depth of 2mm to 5mm. Elevate the drainer groove template at one end by 3mm. Use a router and radius cutter.

## Fitting acrylic sinks and bowls

Acrylic sinks are not supplied with a jig. Instead we use the sink itself as a jig. Position the sink and mark the inside of it, then mark again at 6-10mm to the inside of this. Now remove the sink. Drill a hole and use a jigsaw to remove the waste material. Sand the underside of the surface where the sink will contact the worksurface using a 150-grit abrasive disc; this will help adhesion. Position the sink and use 4 - 6 MDF blocks hot melt glued to the underside of the worksurface. These will be a guide each time the sink is positioned. Remove the sink and clean the areas sanded on the underside of the worksurface and the top edge of the sink. Apply the solid surface adhesive to the underside of the worksurface, place the bowl back in position and clamp in place until the adhesive has set.



Once the adhesive has set, using a two-flute bottom bearing guide cutter, set the bearing so that it is contacting the uppermost inner face of the sink. Trim the excess material. Apply a rounded profile around the top edge of the sink. Finish the raw edge as described in the section 'Surface Finishing'.

If you are using a Mirostone A0004 1.5 bowl pure acrylic sink, the measurement across the outside flange of this sink is 575mm. If the sink is to be installed into a 600mm base cabinet, the side panels of the cabinet will require modification to accept the width of the sink and the depth of the flange. The cabinet front and back rails should be adjusted to accept the bowl and tap in the same manner as for all other sinks.

## Fitting stainless steel sinks

### Using a router cutter with a top bearing

Purchase or create an MDF or compact grade template of the chosen stainless steel sink. Accurately position the template and mark the cut-out shape with a pencil. Then mark with the pencil the same shape, but this time 6mm inside the original shape.

Drill a 12mm hole and with a jigsaw cut around the second (smaller) marked out shape. Remove this excess material; to give you room to use your router. Now clamp the template back into position and set the top bearing, using the router to trim smoothly around the first shape. Finish the cut out with 150-grit sandpaper, then 240, 320, 500 and finally a Scotch-Brite pad.

Turn the worktop over so the reverse side is facing you and position the sink centrally above the cut out. Use a pencil and trace around the sink perimeter. Hot melt bond a few small blocks of MDF around the sink so that the sink will relocate to this position after you move it. Now put the sink to one side. Then drill holes around the pencil line of the sink perimeter to accept the threaded brass inserts used for securing the sink.

Now, around the edge of the cut out, put a bead of neutral cure clear silicon and position the sink on top of this, apply some pressure. Insert the bolts with washers into the brass inserts and tighten these to clamp the edge of the sink to the underside of the worktop.

Turn the worktop over and remove excess silicon from around the sink.



### Using a router cutter with a collet

Accurately position the sink template and clamp onto the Mirostone worktop. Using the router with a 12mm cutter, plunge 5mm at a time and follow the template in 5mm increments until you are through the worktop. Now follow the above surface finishing instructions.

## Unsupported surfaces

If you need to allow a Mirostone surface to overhang a cabinet (e.g. at a breakfast bar area) do not have an unsupported overhang of more than 150mm. If the overhang exceeds 150mm, use either a continuous steel plate or plywood panel on the adjacent cabinet and under the overhanging Mirostone.

When built under heat generating appliances such as dishwashers are installed under Mirostone, fit an 18mm MFC panel directly above the appliance by securing it to the appliance cabinet walls.

When fitting hobs or inset sinks, use the Mirostone metal support bar and bracket kit under the front section.

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## Jointing tools

### Suction clamps

Mirostone suction clamps are a professional way of levelling two panels and bringing them together for a bonded joint.

### MDF blocks

As an alternative to suction clamps, hot melt glue 3 MDF blocks on each side of the joint. Then use G clamps on the blocks to bring the 2 panels together.



## Inconspicuous jointing methods

Edges that are joined together must be machined square. Use clear lamellas to level the two surfaces. Carry out a trial dry fit with the 2 panels. Inspect for any gaps or excessive variation in levels.

The 2 pieces are now separated and thoroughly cleaned with denatured alcohol on a clean, undyed lint free cloth from the Mirostone installation kit. Any marks will mix with the adhesive and be seen on the finished job, so the joint must be clean.

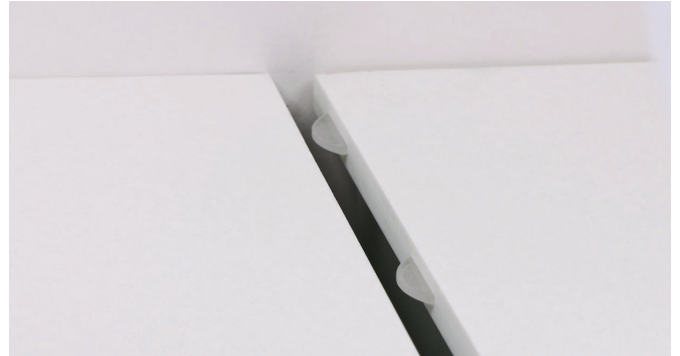
Now apply the 2-part solid surface adhesive. The ambient temperature affects the adhesive drying time: in the cold it takes longer and, in the heat, its quicker. With the adhesive cartridge in the gun and mixer nozzle fitted, squeeze the adhesive right to the end of the nozzle. Then squeeze a nozzle length out of the mixer onto a piece of scrap material so you are certain the adhesive is mixed. Apply adhesive to both faces of the joint that will contact each other. Apply enough adhesive so that a small amount squeezes out the joint.

Use the suction clamp method or manual method as noted above. Gently and evenly increase the pressure so that the joint comes together. Take a chisel and carefully remove the excess adhesive from the front edge only. Leave the joint to set. Once the adhesive that has squeezed out of the other joint edges has dried and is hard, remove the clamps and MDF blocks or suction clamps.

Now take your random orbital sander with a 150-grit abrasive disc and sand the hardened adhesive. Once the hardened adhesive is level with the surface of the Mirostone: stop sanding. The joint will need 'finishing' with the rest of the worktop, please see the later section 'Surface finishing' for more details.

### Inline butt jointing

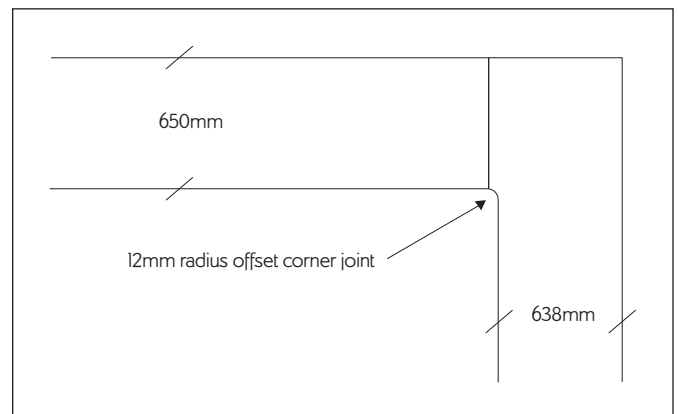
Wherever Mirostone worktops are jointed in line, without any corner joints, they can be butt jointed.



### Off-set corner jointing

Corner joints must be offset by reducing the width of one of the worktops from 650mm to 638mm to create a 12mm radius internal corner as shown in drawing below. The other worktop can then be butt jointed onto the 650mm wide section adjacent to the 12mm radius. This method reduces the risk of stress cracking at the joint.

If 960mm wide breakfast bars are corner jointed, please use the same off - set technique to create a 12mm internal radius corner.



### Jointing marble décors

The large scale designs of the veined marble décors can make it difficult to create a truly inconspicuous joint. See the décor collection section of the Mirostone consumer brochure which will give you examples of how Mirostone marble décors will look when jointed.

### V-groove jointing

The material should be cut as the advice under the 'Cutting and edge finishing' section with the following additional step. Fit a 45° bevel tungsten carbide router bit into your router for a bevel no more than 2mm deep. Any larger than this and it will become a dirt trap and produce too small a contact area between each piece of material. Then apply the 45° bevel to the Mirostone panel which is to form the other half of the joint.

Perform a 'dry fit' to ensure the accuracy of the joint. Then apply clear neutral cure silicone between the 2 cut edges of the material and push the 2 pieces of material firmly and evenly together. Wipe off excess silicone immediately and allow to set.

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## Edge profiling

The edges of Mirostone are supplied by the distributors square cut for you to decide which edge finish you require. We recommend applying a minimum of a 1.5mm radius. Any tungsten carbide tipped (TCT) router cutter will cut through Mirostone. When applying an edge, allow the router and cutter time to cut through the material without excessive pressure to avoid tooling marks which can be difficult to remove.



## Surface finishing

When Mirostone is installed with all the above processes complete, sand over the surface to create a consistent finish. Mirostone is supplied by the distributors with a standard 600-grit surface. This is an attractive finish for bathrooms, but we recommend that Mirostone installed in kitchens is sanded to no more than 500-grit. 500-grit is more resistant to visible scratches. We also recommend that you finish to no more than 800-grit in all other rooms.

Begin by sanding all areas that have been worked on by you. Then move across the entire surface to create a consistently sanded surface. Start with a 150-grit abrasive disc on your random orbital sander using long flowing movements in a North/South and then East/West pattern. Never sand in rapid movements or allow the sander to sit in one spot. Allow only the weight of the sander tool to apply the pressure. Wipe the entire surface with a microfibre cloth to remove any dust. Now, repeat this sanding process with a 240-grit abrasive disc followed by 320-grit and then 500-grit.

Once the entire surface has been sanded with a 500-grit to an even, consistent finish, fit a 500-grit Scotch-Brite polishing pad from the Mirostone installation kit (If you are finishing your Mirostone to a higher level than 500-grit, sand the entire surface with 600-grit then 800-grit abrasive discs using the principles described above, before finishing with a Scotch-Brite polishing pad).

It can be difficult to use an orbital sander, such as when the Mirostone surface is installed next to a tall oven housing unit and where a sink or hob is being fitted. In these difficult areas, carry out the sanding before you fit the sink and hob and before you install the surface into the final position. Then, when the surface has been positioned and the sink and/or hob have been installed, complete the remaining sanding and finishing.

Finally, with a damp microfibre cloth, wipe the entire surface removing all dust and allow to dry naturally. You can now apply a solid surface polish of your choice and buff to a sheen using a microfibre cloth. Remember: polish sits on top of the solid surface and will need topping up as it will degrade over time. Polish is not a cleaning product but a finishing product.

## Securing cabinets to Mirostone surfaces

Cut blocks of MDF approximately 50 x 18 x 18mm. Apply silicon to top and side of blocks and adhere to the side wall of the cabinet and the underside of the Mirostone. Should the surface ever need to be removed in the future simply remove the blocks.

## Installation of upstands and splashbacks

Mirostone upstands and splashbacks should not be fixed to the worktop with solid surface adhesive. Instead apply dabs of silicone every 100mm to the wall surface to which the upstand or splashback is to be fitted. Press the upstand or splashback firmly against the wall to ensure a secure bond. You can use masking tape to hold the upstand or splashback in place whilst the silicone sets. A carefully applied continuous bead of silicone is required at the junction of the worktop and upstand or splashback to ensure a waterproof seal.

Mirostone upstands and splashbacks are finished in the same way as worktops and breakfast bars but carry this process out before fitting as it is difficult to get a consistent finish when they are attached to a wall. Ensure they are adequately supported whilst finishing.



## Maintenance

We have produced a leaflet entitled 'How to care for your solid surfaces' which includes details of the Mirostone warranty. We also offer a solid surface care and maintenance kit. We strongly recommend these are left with the occupant of the property. It is also a good policy to inform the occupant that solid surfaces do require re-finishing periodically: dependent on the level of use.

Any offcuts of Mirostone should be placed under a cabinet, should any repairs ever need to be undertaken that require colour matched material.



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