

mirostone[®]

impeccable solid surfaces for the home

Mirostone[®] fabrication and installation guidelines

November 2016

solid surface

Mirostone fabrication and installation guidelines

It is a condition of the Mirostone limited warranty that the following supplementary guidelines are followed and that you have attended an approved solid surfacing course and are proficient at applying solid surface fabrication and installation techniques. Blackheath Products Ltd offers solid surfacing courses: please see our website for details.

It is also a condition of the Mirostone limited warranty that before commencing any fabrication or installation work, you first inspect the condition of your Mirostone solid surface products and in particular ensure that you are satisfied that there are no colour matching issues.

Before working with Mirostone, please carry out a risk assessment and take all steps to minimise any risks to your Health and Safety and also for anyone who may be affected. This must include the use of PPE (Personal Protective Equipment), adequate dust extraction for all power tools and the provision of adequate ventilation within the area of work. The Mirostone MSDS is available from Blackheath Products Ltd on request.

Offcuts of Mirostone should ideally be stored at the installation premises for any future repair work or modifications. Any offcuts that cannot be stored at the premises should be disposed of in a skip or bin. Do not incinerate any Mirostone waste.

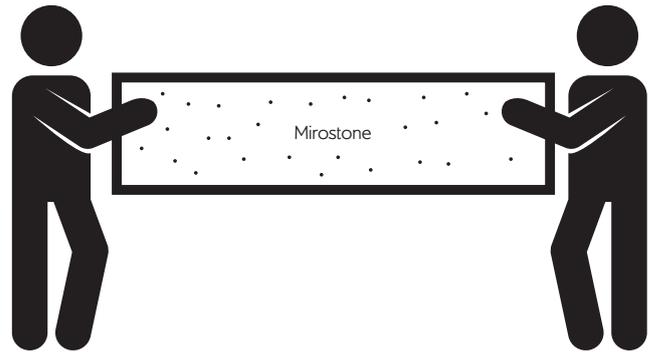
Mirostone worksurfaces can be installed using standard woodworking tools.

The following guidelines are a supplement (and not a replacement) for the solid surface knowledge you will have obtained by attending an approved solid surfacing course. The guidelines refer to Festool tools, dust extraction and also Trend router cutters, but any high quality and equivalent brand of tools and dust extraction will suffice.

You may wish to use a proprietary solid surface polish. We recommend Eagle solid surfacing polish.

Handling

Mirostone is available in sizes 3010x630x20mm, 2000x900x20mm and 2000x450x20mm. The 2 larger sizes weigh approximately 75kg and the smaller size approximately 37.5kg. Full sheets of Mirostone should never be handled by a lone individual; it should always be a team lift. Where possible you should endeavor to use handling aids to minimize the amount of manual handling required. When moving Mirostone by hand, it should be carried so that the shorter edge is vertical, this avoids unnecessary bouncing which can cause stress cracks in the material.



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. Mirostone worksurfaces should be stored horizontally and supported adequately to prevent any bowing of the product and to prevent a collapse of the stored materials.

Removing the protective film

Each Mirostone worksurface and breakfast bar is supplied with a protective film. Before commencing fabrication, remove the protective film in one movement. Do not stop and start the removal of the film as the film adhesive could in that situation, mark the surface. Once the film has been removed, wipe over the entire surface with denatured alcohol to remove any residues which may cause your tools to snag on the surface.

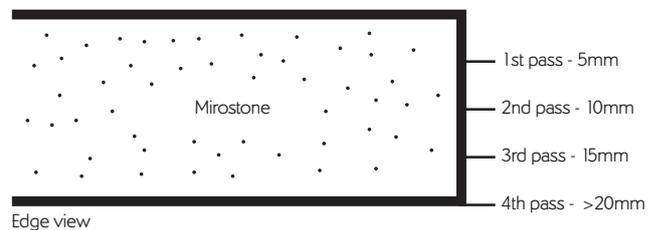
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Tools & materials required

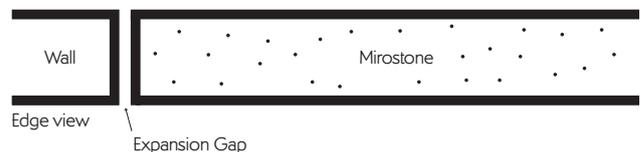
- A dust extractor (We recommend the use of an M class extractor)
- Plunging circular saw with fine tooth or solid surface blade
- 1400watt (or above) ½" router with tungsten carbide cutters including straight ½" two flute
- Pendulum jigsaw with a fine tooth blade, solid surface blade or blade designed for acrylics
- 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
- 25x25x50mm blocks of MDF (minimum of 6 per joint)
- A hand sanding block
- Adhesive gun (both for silicone and also 50ml & 250ml solid surface adhesive cartridges)
- Hot melt glue gun
- Masking tape
- Mirostone installation kit, this contains:
 - 12x150mm abrasive discs – 3x150 grit, 3x240 grit, 3x320 grit & 3x500 grit
 - Solid surface polish
 - Heat reflective tape 3mx50mm
 - 250ml denature alcohol
 - 2x150mm 500 grit Scotch-Brite polishing pads
 - 3x lint free wipes
 - Microfiber cloth
- Colour matched solid surface adhesive
- A complimentary colour silicone sealant
- Silicone adhesive
- Optional: 600 grit abrasive discs, 800 grit abrasive discs

Cutting & 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 leaves 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 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. We also recommend the use of guide rails with cutting tools where possible to maximize 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 and prevent scratches.



Mirostone naturally expands and contracts as the ambient temperature around it changes. Please allow a 1mm per 1 metre of worksurface expansion gap wherever Mirostone is adjacent to any object which could prevent this expansion and contraction. For example 3mm for a 3m long worksurface.



If the cut edge is to form part of a joint then a light sanding with a hand sanding block with 150 grit abrasive paper is sufficient. Care should be taken not to 'round over' the top and bottom of the cut edge: use of a power sander can easily lead to this due to their tendency to 'grab' and their lack of feel. A square cut will give a much better joint.

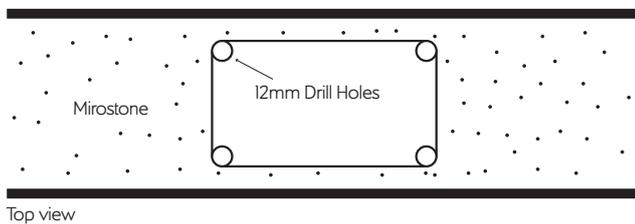
If the cut edge is to be visible, for example at the end of a run of worksurface then the edge can be finished to match the top surface (please see the later section 'surface finishing').

Mirostone fabrication and installation guidelines

Cut outs, Tap holes, Drainer grooves and corners

Most kitchen or bathroom installations have at least one of these features within their design, so it is important to understand these.

Cut outs are required for sinks, hobs or electrical sockets etc. Cutouts 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 significantly. The cutout should be marked out with masking tape placed directly on the Mirostone surface (do not use permanent markers or other ink based pens directly on the surface of the Mirostone). Ensure all measurements are thoroughly checked prior to any cutting or drilling. Ensure the piece that is being cut out is adequately supported; even small pieces of Mirostone can be heavy enough to cause injury. When happy with the positioning and size of the cut out, the first step is to drill each internal corner of the Mirostone with a 12mm drill bit. The smooth curve of the drilled hole instead of a 90° angle reduces the risk of 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 and cause damage. If the cut does not reach the end, this can be finished 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 sharp sections or rough cuts. If fitting a hob, you must use heat reflective tape around the inside edge of the cutout.



When fitting hobs or inset sinks, it may be necessary to artificially 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). If fitting drawers or a built under oven below the hob, it may be necessary to adjust the position of the drawer box or oven support to accommodate the hob sitting lower than it normally would in a 25mm or thicker worksurface. With drawers, you will only need to adjust the rails and the mounting plates which are on the rear of the upper-most drawer fascia. Carefully measure how much lower the drawer box needs to be then create a copy of the existing mounting holes, both on the inside of the cabinet side panels and rear of the upper-most drawer fascia, but at the amount lower than the drawer box needs to be. This will lower the drawer box relative to the hob, but leave the drawer fascia in the correct position when viewed from a normal position. The oven support panel can be lowered in the same way, however the oven may need a fascia creating between the top of the front panel of the oven and the underside of the worksurface. Please double check these processes with your cabinet manufacturer's instructions prior to creating any mounting points.

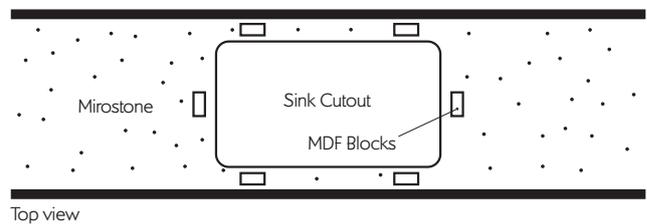
For tap holes use a flat drill bit or hole cutter.

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

Acrylic sinks are not supplied with a jig due to the differences created in their manufacturing process. Instead we use the sink itself as a jig.

Position the sink and mark the inside of it then mark again but 6-10mm to the inside of this. Then 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 assist with the adhesion. Position the sink again and use 4-6 MDF blocks glued (use your hot melt glue gun for this) to the underside of the worksurface, secure the position of the sink.



These will now act as 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 and not the worksurface. Trim away the excess material. Apply a rounded profile around the top edge of the sink. Finish the raw edge as shown in the section 'Surface Finishing'.

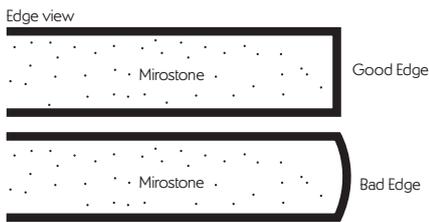
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Jointing

When fitting Mirostone to kitchen or bathroom cabinets apply dabs of silicon every 200mm to the top surface of the cabinet and then place the worksurface on top of the cabinet. Mirostone worksurfaces are supplied square edged, removing the need for a butt & scribe joint. You can save time on site using a butt joint.

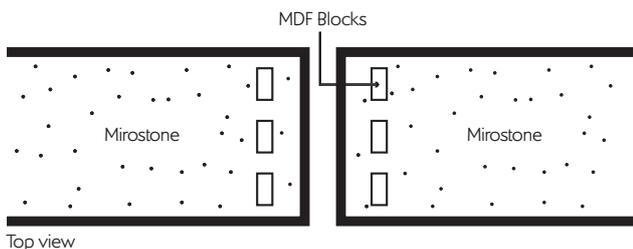
Inconspicuous method of jointing

As mentioned in 'Cutting & edge finishing', edges of the material which are intended to be joined together should be square with no rounding of the edge.

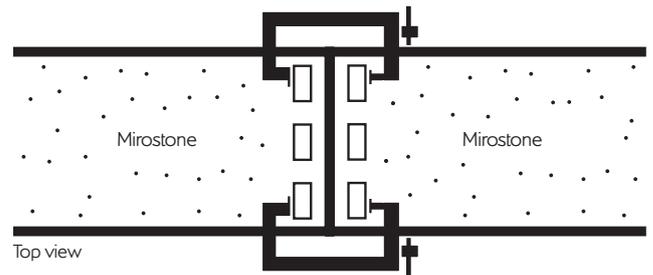


Prior to the joining of the 2 pieces of material, a trial 'dry fit' should be performed, the material should be moved together till both pieces are touching. The proposed joint should then be inspected for any gaps or excessive variation in levels. If any issues are detected they should be rectified at this point with the 'dry fit' process being repeated until you are satisfied with the quality of the 'dry fit'. A solid surface joint should not need to be forced together; both sides should sit neatly against each other with no gaps whatsoever.

The 2 pieces should be separated, thoroughly cleaned with denatured alcohol and a lint free cloth from the Mirostone installation kit. All marks such as pencil lines, grease or other contaminants must be cleaned from the dry joint, if any of these are left, the adhesive will pick these up and it will show on the finished joint surface. Using anything other than a lint free cloth may also result in the dye from the cloth being transferred to the joint. Glue 3 MDF blocks on each side of the joint using your hot melt glue gun, see diagram (If you have solid surface seaming tools then you do not need to glue the MDF blocks to the surface).



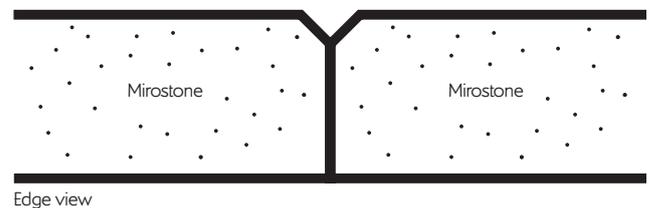
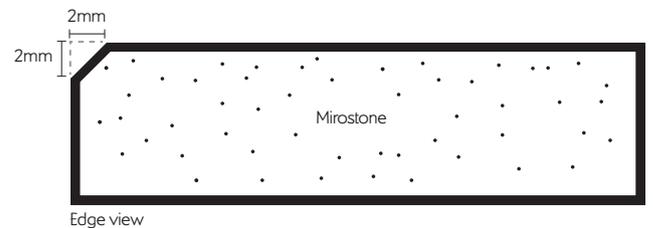
The blocks will be used to pull the joint together so must be opposite and parallel to each other. Leave the blocks to adhere fully before proceeding to the next step. You will now need to apply the 2 part solid surface adhesive. The ambient temperature in which you are making the joint affects the drying time: the colder the temperature the longer it will take to cure and the higher the temperature the quicker it will cure. Insert the adhesive cartridge into the adhesive gun and attached the mixer nozzle. 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 100% certain the adhesive is fully mixed. Working quickly, but not rushing, apply adhesive to both faces of the joint that will contact each other. Apply enough adhesive so that it will squeeze out the joint but not so much that it will make removal difficult. When finished, set your adhesive gun down on a piece of scrap material so any drips from the nozzle will be caught. Place your clamps on the blocks as per the diagram.



Gently and evenly increase the pressure so that the joint comes together and the excess adhesive squeezes out of the top, front and rear edges. If you are using solid surface clamps attach these to the joint now and bring the 2 pieces of material together. Check the level of the 2 pieces by moving an MDF block between the 2 pieces of material and adjust as necessary. Take a sharp chisel and remove the excess adhesive from the front edge only. Take care not to damage the surface. Leave the joint to set, once the adhesive that has squeezed out of the joint has dried and is hard, remove the clamps and MDF blocks or solid surface seaming tool. Now take your random orbital sander with a 150 grit abrasive disc and begin to sand the hardened adhesive. Once the hardened adhesive is level with the surface of the Mirostone: cease sanding. The joint will need 'finishing' along with the rest of the worksurface, please see the later section 'Surface finishing' for more details.

V-groove method

When jointing 2 pieces of Mirostone using the V-groove method the material should be cut as per the 'Cutting and cut edge finishing' with the following additional step; You should fit a 45° bevel tungsten carbide router bit into your router and proceed to set this so it produces a bevel no more than 2mm wide (see diagram below).

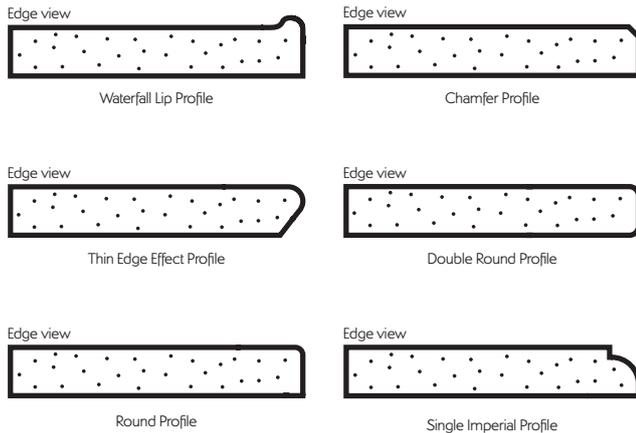


Any larger than this and it will become a large dirt trap and also produce too small a contact area between each piece of material. Apply the 45° bevel to the edge of the material which will contact the other piece of Mirostone. For best effect, apply the 45° bevel to all top edges of the material. As with the inconspicuous method, it is essential to perform a 'dry fit' to ensure the accuracy of cuts and that no gaps are left between the pieces of material. Once you are satisfied that the 'dry fit' will produce a good joint apply clear neutral cure silicone between the 2 cut edges of the material and push the 2 pieces of material together until they are firmly seated against each other. Wipe off the excess silicone immediately (including within the V-groove) and allow to set.

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Edge profiling

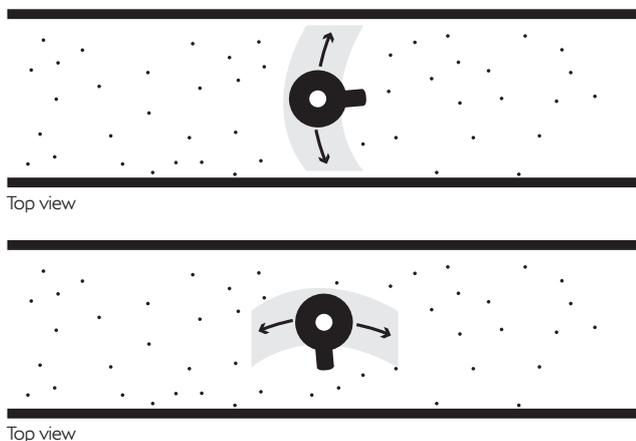
The edges of Mirostone are supplied square cut for you to select which edge finish you require. We recommend applying a minimum of a 1.5mm radius to the edges to reduce the likelihood of edges becoming chipped or being too sharp for safe use. Any tungsten carbide tipped (TCT) router cutter will cut through Mirostone. When applying an edge, allow the router and cutter time to cut through the material, do not force the operation as this can lead to tooling marks which, on an edge profile, can be difficult to remove.



Surface Finishing

Once the Mirostone is in situ with all the above processes complete, the surface must be sanded all over to create an even, consistent finish. We recommend that all Mirostone installed into high traffic working areas should be sanded to no more than 500 grit (for example most family domestic kitchens), and no more than 800 grit in all other rooms and applications. Higher levels of finish than these will result in a worksurface that requires intensive maintenance.

Begin the finishing process by sanding all joints, unfinished edges and exposed cut outs and any other areas that have been worked on by you. Start with a 150 grit abrasive disc on your random orbital sander and 'feather' the area into the factory finish. Sand in long flowing movements in a North/South and then East/West pattern.



Never sand in short sharp movements or allow the sander to sit in one spot for any amount of time. Always keep the sander moving. Do not apply excessive pressure, it is extremely difficult to ensure consistent heavy pressure.

Instead, allow the weight of the sander tool to apply the pressure. Once you have sanded all of the areas listed above, change the abrasive disc to a 240 grit, wipe the sanded area with a microfiber cloth to remove any grit or debris and then repeat the process. Always wipe the sanded area between sanding grits. Once complete, change the abrasive disc to a 320 grit and move onto the next part of the finishing.

Wipe the entire surface of the Mirostone with a microfiber cloth to ensure all grit and debris is removed. Sand the entire surface with your random orbital sander with a 500 grit abrasive disc. Sand the surface in long flowing movements as noted above. Once the entire surface has been sanded with a 500 grit to an even, consistent finish, replace the 500 grit abrasive disc with the 500 grit Scotch-Brite polishing pad from the Mirostone installation kit (If you are finishing your Mirostone to a higher level than 500 grit please sand the entire surface with 600 grit then 800 grit abrasive discs using the principals described above, before sanding with the 500 grit Scotch-Brite polishing pad.). Lightly sand the entire surface of the worksurface in the same flowing manner as noted before.

With a damp microfiber cloth wipe the entire surface, being sure to remove all dust and debris, and allow to dry naturally. You can now apply a solid surface polish of your choice (we recommend Eagle solid surface polish) and buff to a sheen using a microfiber cloth. Remember: polish is an applied finish, this means it sits on top of the solid surface and will need topping up as it will naturally degrade over time. It is also crucial to note that polish is not a cleaning product but a finishing product.

Installation of upstands and splashbacks

Mirostone upstands and splashbacks can be finished in the same way as worksurfaces, however these should be finished before the installation as it is very difficult to consistently finish a vertical surface. Please ensure when finishing upstands and splashbacks that they are adequately supported (for example, on builders trestles and a baseboard) and prevented from bowing.

Mirostone upstands and splashbacks should not be installed by fixing them to the worksurface with solid surface adhesive, they will expand and contract differently (due to their 12mm thickness) than the worksurface. Bonding them with solid surface adhesive could result in the joints between the upstand or splashback and worksurface fracturing, which would take considerable time to rectify. Instead apply dabs of silicone every 100mm to the vertical surface to which the upstand or splashback is to be fitted against. 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 continuous bead of silicone is required at the junction of the worksurface and upstand or splashback to ensure a waterproof seal.

Maintenance

We have produced a leaflet entitled 'How to care for your solid surfaces' and also a solid surface care and maintenance kit. This contains detailed instructions on how to care for your Mirostone solid surface worksurfaces along with all the materials and tools required. We recommend this is 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 the cabinet, should any repairs ever need to be undertaken that will need colour matched material.