

prime porcelain fabrication guide



Prime Porcelain is an ultra-compact sintered stone manufactured from clays, feldspar, and natural mineral oxides fused together under extremely high temperature without resin binders and solvents.

Working with Prime Porcelain

While some techniques and processes used in the fabrication of Prime Stone apply to Prime Porcelain there are a number of differences.

Before undertaking any fabrication check the slab for flatness, surface irregularities, cracks and fissures.

Note: The maximum tolerance for flatness is 2mm across the width, length and diagonally.

Record the colour name and batch number printed on the short edge of the slab for future reference.

Planning and Layout

Prepare a layout and cutting plan particularly when veined slabs are used, to ensure joins in adjacent surfaces meet expectations. When veining is required to run in a continuous direction from one surface to the next, additional slabs may be required.

Note: Prime Porcelain slabs are digitally printed with each slab in a batch almost identical, however minor variations in base colouring can occur from batch to batch.

Useable slab size

Prime Porcelain is supplied in slabs 3200mm x 1600mm x 12mm however the useable slab size is 3160mm x 1560mm after trimming the slab to release tension.

Cutting sequence and positioning

When cutting, ensure that there is adequate support under the slab and that it is sitting flat. Each component including offcuts must be supported. If using suction cups these should be positioned evenly under the slab clear of the cut lines.

All processing must be performed wet to reduce friction, prevent overheating and control dust. Water should always be directed at the point of contact.

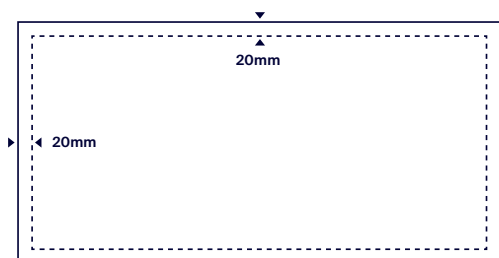
Always start the cutting from outside the cut line and exit to the outside.

Cutting discs must extend at least 1.5mm through the slab while cutting.

When cutting L-shaped tops or cutouts for sinks and cooktops on a bridge saw, first drill a 10mm diameter hole in each corner. This will form a 5mm corner radius.

Important: 20mm must be cut from around the perimeter of the slab to release tension before further fabrication:

- **Step 1:** Cut 20mm from each long side
- **Step 2:** Cut 20mm from each short side

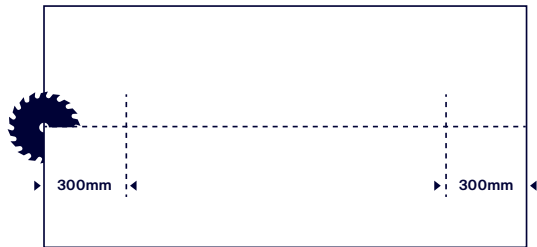


Declare.

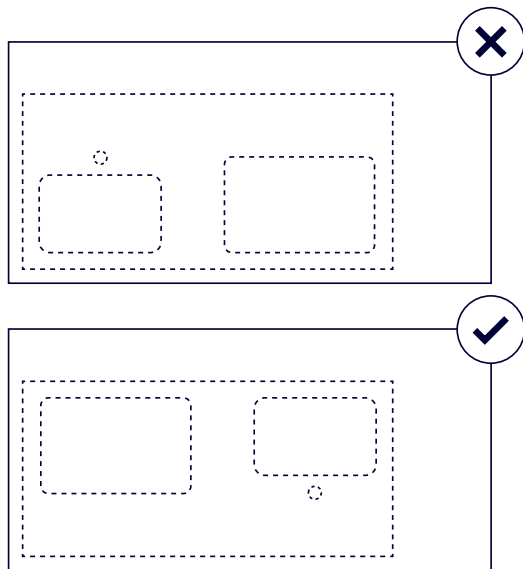




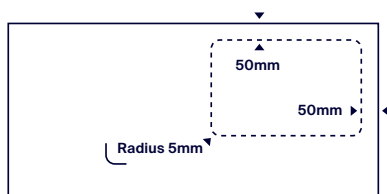
The cutting speed for the first and last 300mm of the cut should be 600-750mm/min. Increase to 1-2m/min for the middle of the cut.



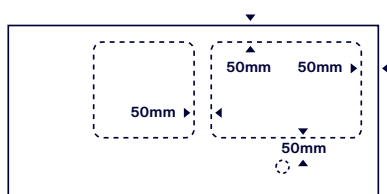
Position cutouts as close to the centre of the slab as possible



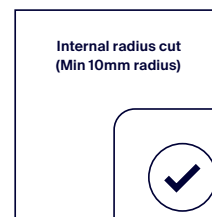
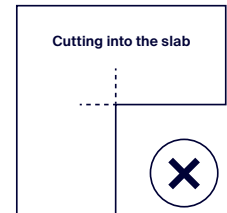
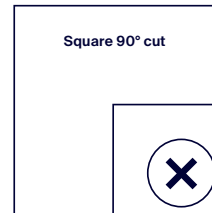
Cutouts must be a minimum of 50mm from the edge of the bench top with a radius of at least 5mm in the corners. **Note:** If the design allows, incorporate a greater radius as this strengthens the top by reducing even more stress. Square-cut 90° corners are not permitted.



A distance of at least 50mm is required between adjoining cutouts and tap holes.



One piece, L-shaped benchtops must have a corner radius of 10mm. Square-cut 90° corners are not permitted.



Cutting sequence and positioning

All mechanical fabrication must be undertaken using a wet process to reduce friction, prevent overheating and control dust.

- Drilling: Use diamond core drills specifically designed for porcelain.
- Cutting: Use continuous rim or segmented diamond discs for porcelain.
- Profiling & edge finishing: Use peripheral diamond grinding and polishing wheels.
- Water jet: Refer below.

Bridge saw

- Ensure the disc extends at least 1.5mm through the slab while cutting.
- Reduce the cutting speed by 50% during the first and last 300mm of the cut.
- Recommended disc descent speed 100-200mm/min
- Make sure the disc comes all the way out at the end of the cut.
- While cutting there must be a constant high stream of water directed to the front and sides of the disc, as close as possible to the cutting area.

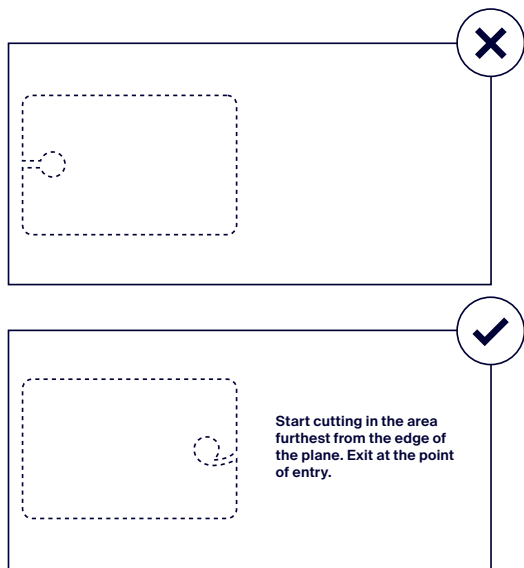


Processing parameters for bridge saw:

Slab thickness	Disc diameter mm	RPM	Speed m/min straight cut	Speed m/min bevel/mitre
12mm	300/350/410	3000/3500	1000-2000	2000
20mm	350/410	3000/3500	800-1000	1000

Water jet

- Maintain 3mm of water above the slats.
- Keep a 3mm separation between the nozzle and slab.
- Make continuous cuts with the initial piercing made from outside the cut line.
- For holes and cutouts the initial piercing should be made from inside the cutout and join the edge of the finished panel with a slight curve. See image below.
- Square-cut 90° corners are not permitted - always finish with a radius of at least 5mm.



Processing parameters for Water Jet: Note reducing the forward speed will improve the quality of the cut.

Slab thickness	Forward speed	Entry Pressure	Cutting Pressure	Abrasive
12mm	1m/min	300-320 bar	350-370 bar	0.4 kg/min
20mm	0.7m/min	300-320 bar	350-370 bar	0.4 kg/min

CNC

CNC machines are more versatile than bridge saws with similar processing parameters:

- Tooling must extend 1mm through the slab while cutting.
- Make sure the tool comes all the way out at the end of the cut.
- While processing there must be a constant high stream of water directed at the cutting area.
- Position suction cups so that they support all areas including off-cuts and are free of the cut lines.
- Make continuous cuts with the initial piercing made from outside the cut line.
- For holes and cutouts the initial piercing should be made from inside the cutout and join the edge of the finished panel with a slight curve.

Processing parameters for CNC: Note: The following recommendations will vary depending on the process and tooling.

Slab thickness	Process	RPM	Feed rate mm/min
12mm	Initial hole	12000	600
	Cutting	12000	600
	Bevel	12000	600
	Edge Polishing	6000	600
20mm	Initial hole	12000	600
	Cutting	12000	600
	Bevel	12000	600
	Edge polishing	6000	600

Mitre joins

Thicker benchtops and end panels can be fabricated using mitre joins cut on a bridge saw, CNC, or water jet. Accurate, smooth, and clean cuts are critical

- Use slower processing speeds.
- Both surfaces must be free of irregularities.
- Clean and dry both surfaces to remove contaminants.
- Apply adhesive to both surfaces of the joint ensuring 100% coverage.
- Align joint and lightly clamp.
- Remove excess glue before it sets.

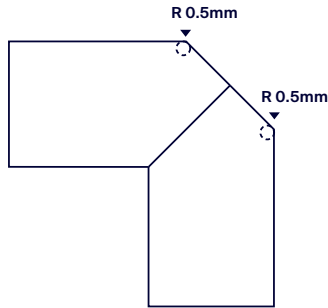
For best results use a clear or colour matched two-component adhesive specifically formulated for natural and composite stones.



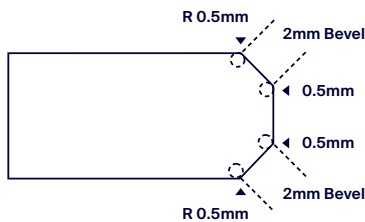
Edges

Edges can be left square or profiled using diamond grinding and polishing tools on CNC machines but must have a minimum 2mm radius on all exposed edges to minimise the risk of chipping.

Examples of common edge profiles:



Mitre Join



45° Bevel Edge (Side view)



Square Edge - 2mm Radius
(Side view)

Clean-up after processing

Important: Slurry from wet processing must be thoroughly washed off the surface before it dries. Do not store or stack cut pieces on other pieces when wet.

Failure to wash off the slurry will result in micro-particles of porcelain sticking to the surface as the water evaporates which is extremely difficult to remove.

Water runoff used in wet cutting and dust control must be collected and treated (filtered or flocced) to remove micro-particles before being reused or disposed of. Refer to Prime Porcelain Safety Data Sheet.

Contact us

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