



FABRICATION TECHNICAL GUIDELINE

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QUADRA

is a sintered stone slab. Man-made stone. It is a slab with stone-like physical and mechanical properties, produced by an advanced sintering technological process of extreme heat and weight.

On a quest to elevate environmental harmony and matching prestigious settings to an elegant lifestyle, Quadra uses the most reliable European and Indonesia raw material, combining rigorous techniques of timeless tradition with the latest Italian technological machinery.

SINTERING

Sintering is the process of coalescing powdered minerals into a solid mass using heat and pressure without melting to the point of liquefaction and without the use of any artificial binders.



**HANDLING, STORAGE
& INSPECTION**

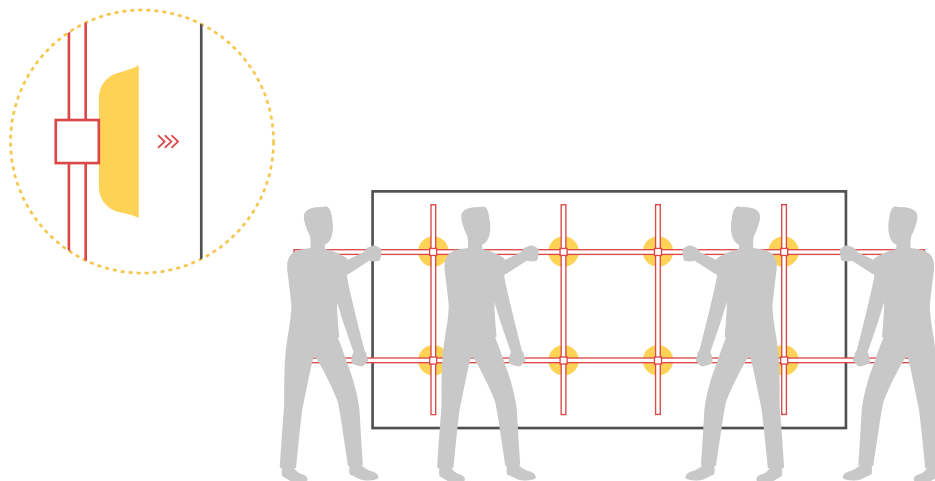


1. HANDLING

Manual (Suction Cup)

Quadra slab weighs 150 kg and must be handled and carried with appropriate care and safety to avoid damage to the material. We recommend using a frame with suction cups.

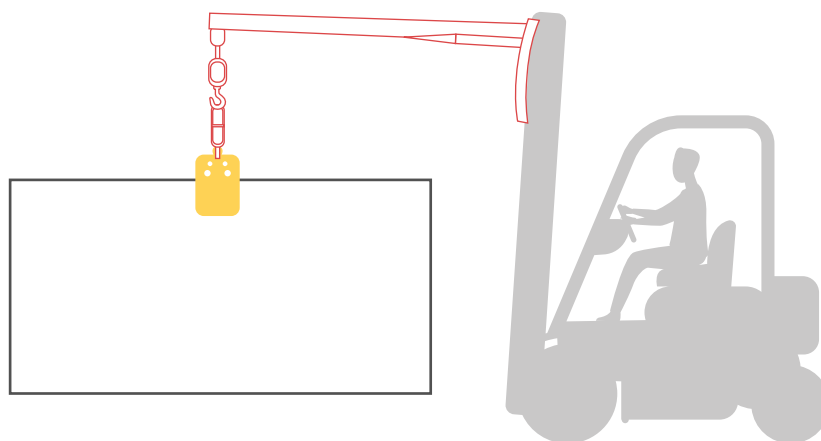
Panels should be handled by 4 or more operators. Anti-slip and anti-cut gloves are required to ensure a firm grip and protect hands.



With Equipment (Crane and Forklift Truck)

Use suitable slab clamps or stone lifters, with vulcanized rubber pads to avoid slippage or any possible damage. Remove the slabs from each side of the A-frame alternately in order to balance the weight and to prevent tipping.

It is not recommended to lift more than two slabs with a clamp a time.

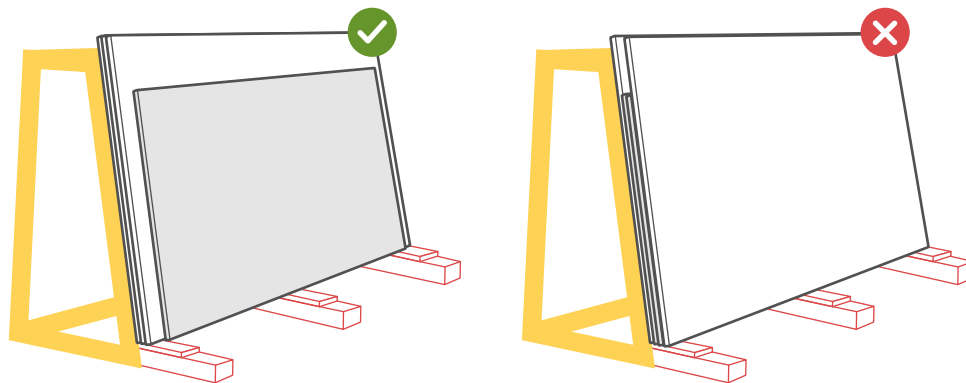


2. STORAGE

The slabs are packed on a metal A-frame. It must be handled individually with care and stacked on their side. Insert (soft) materials (e.g. wooden shim and rubber) under the slabs and the support to prevent any damages.

The slabs should always be properly supported to avoid bending and stored in areas that are not subject to accidental impacts (workplace transport or manoeuvring areas).

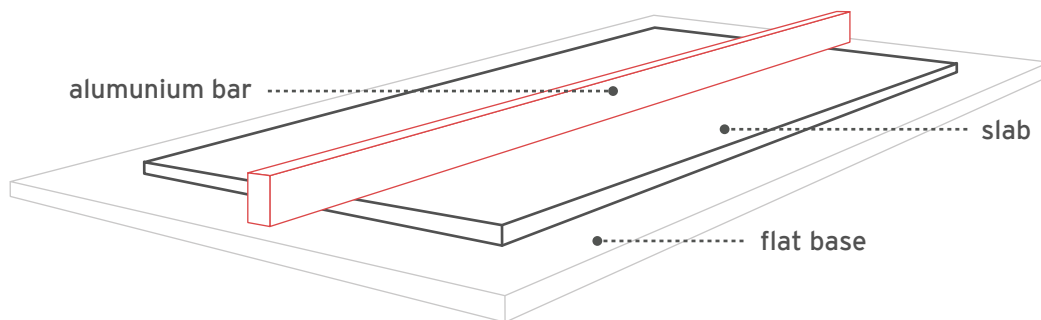
The smaller slabs should never be placed between the large panels.



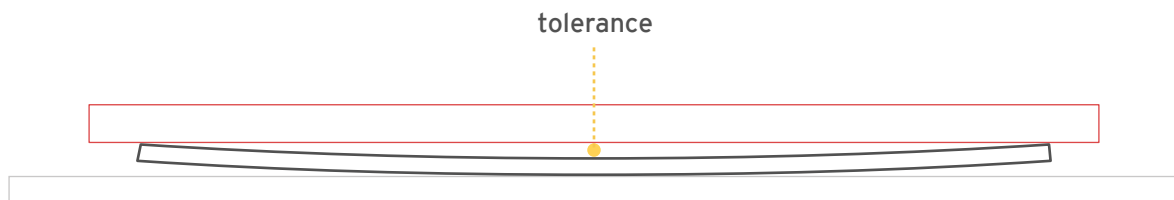
3. INSPECTION

Before carrying out any processing, it's recommended to clean the slab and check for any curvature. It's necessary to do an inspection of the slab to make sure that it meets all the quality requirements.

To check the flatness of a slab, it should be layed down horizontally on a completely clean and flat base. The flatness is measured by placing a material on the surface of the slab, covering the entire width and lenght of the slab. Avoid measuring the slab on A-frame.



* Flatness is measured using an aluminium bar and thickness measuring tools in the centre.



Maximum tolerance on width: 2 mm
Maximum tolerance on length: 3 mm

PROCESSING TYPE

There are two kinds of processing our slabs:

1. Manual processing

Performed using handy tools, usually outside the workshop or at the job site

2. Machine processing

Performed using fabrication machine, usually in the workshop





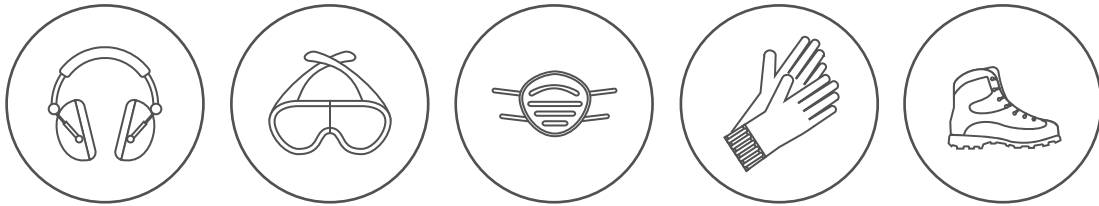
**MANUAL
PROCESSING**



4. MANUAL PROCESSING

This guideline provides technical and practical information about manual fabrication techniques, and finishing recommendations. We recommend to carefully follow the instructions using the tools recommended by Quadra.

Each worker has to wear specific PPE (Personal Protective Equipment) for the work to be performed.



* A preliminary tests for both cutting and drilling is good, in order to gain familiarity and avoid any problems.

4.1 Cutting

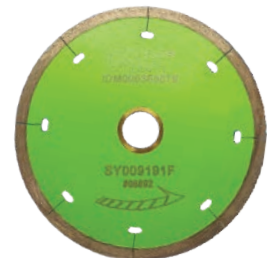
Tools recommendations for cutting on site.



Marble / Tile Cutter
1,200W RPM 13,000



Angle grinder
900W, RPM 2,800-11,000

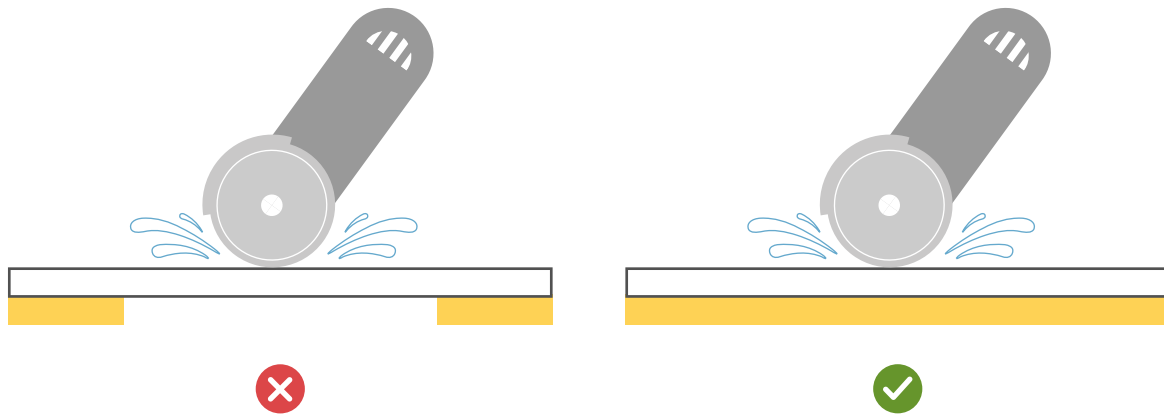


Cutting blade 4"

Process

The slab must be processed in a suitable position to avoid movements and vibrations. The area being processed should be bathed with water constantly and frequently, and the tool also, in order to guarantee proper cooling and dust suppression. Quadra does not recommend to perform dry cutting.

The slabs must be properly supported during any processing. The support should be sufficiently rigid, perfectly flat, and covering the entire bottom of slabs. A wooden support is preferable to a metal one to avoid scratches.



* Always work from the top (finished surface) towards the bottom (raw surface)
It is recommended that the upper and lower edge of the newly cut edge is lightly sanded using 60/120 grain diamond sandpaper.

4.2 Drilling

Tools recommendations for drilling on site.



Electrill drill

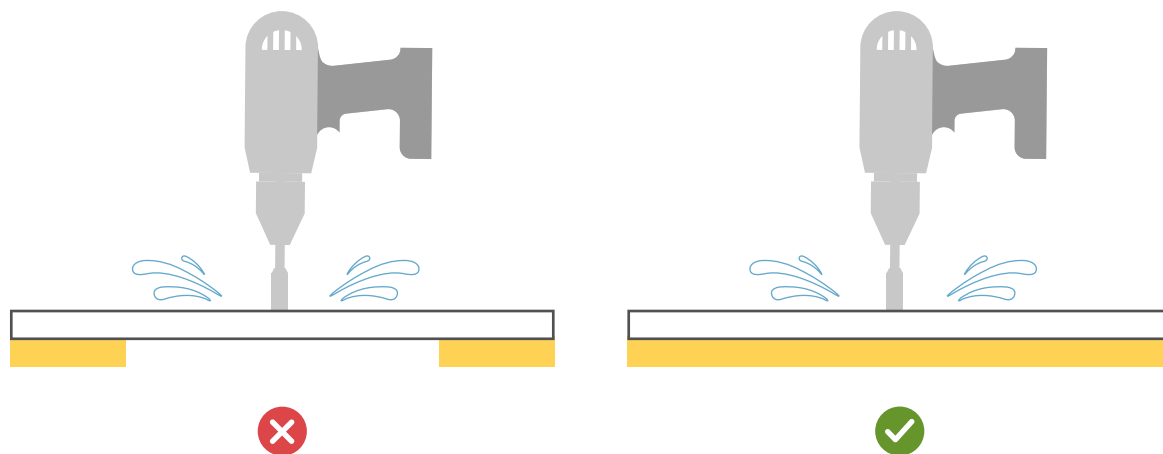


Diamond hole cutter

Process

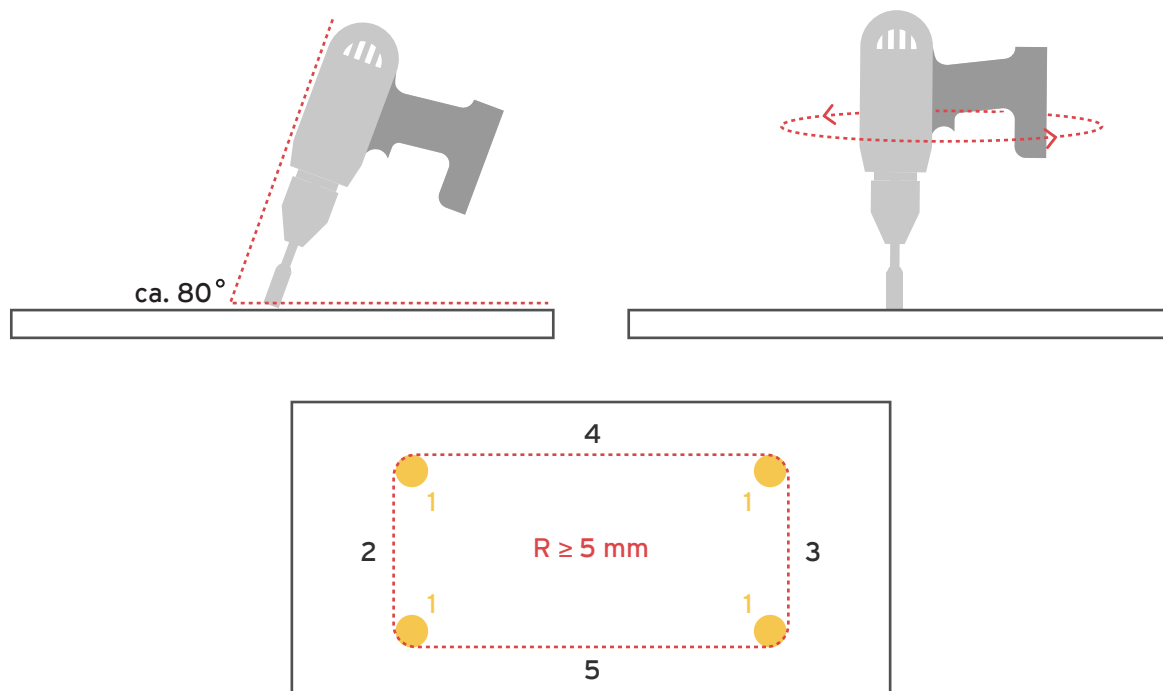
If it is required to drill holes (for piping, air vents, etc.), the slabs must be properly supported, as in the case when cutting.

The area being processed should be bathed with water constantly or frequently, and the tool also, in order to guarantee proper cooling and dust suppression. Quadra does not recommend to perform dry drilling.



* Always work from the top (finished surface) towards the bottom (raw surface)
 Avoid any hammering to avoid breakage during drilling operations.

It is necessary to perform a pre-drill with a radius of $\pm 5\text{mm}$ at all 4 corners. Then continue to cut the sink. Each drilling point scores the surface about an 80-degree angle, drilling in a gentle circular motion.



- 1 Hole drilling
- 2-3-4 Sink cut out (start with the short part then the long part)



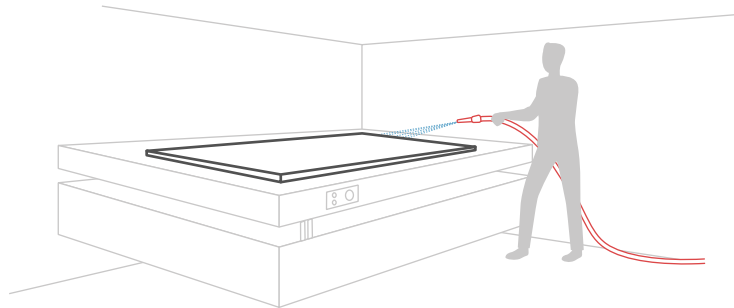
**MACHINE
PROCESSING**



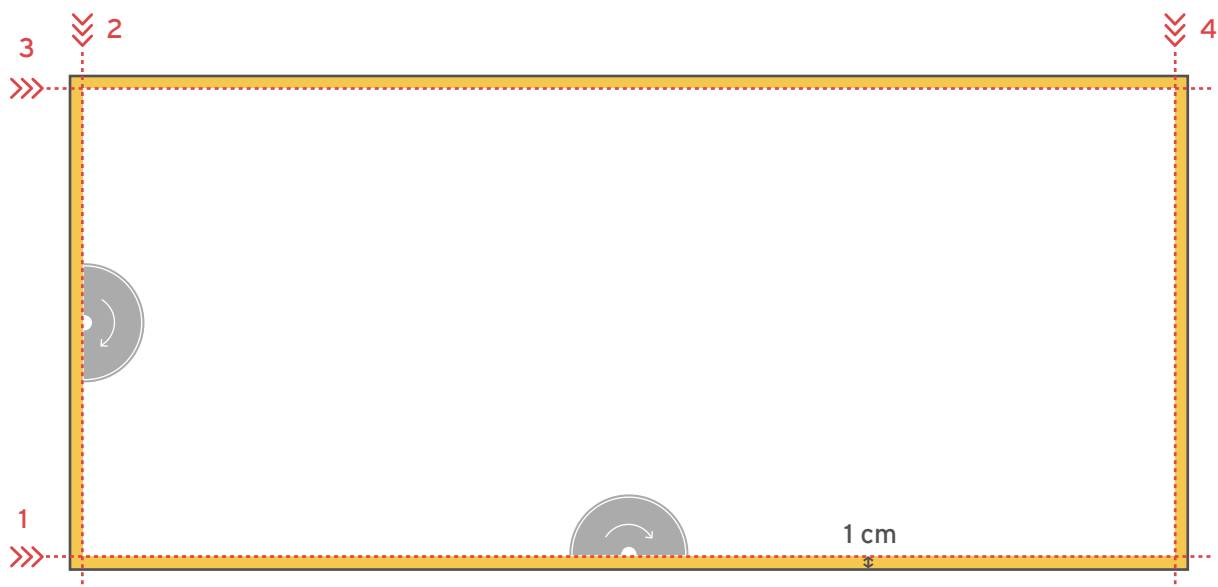
5. MACHINE PROCESSING

This guideline provides technical and practical information about machine fabrication techniques, and finishing recommendations. We recommend to carefully follow the instructions using the tools recommended by Quadra.

Before performing any processing, clean the slab properly and check for any curvature, and any non-compliances with normal quality standards.



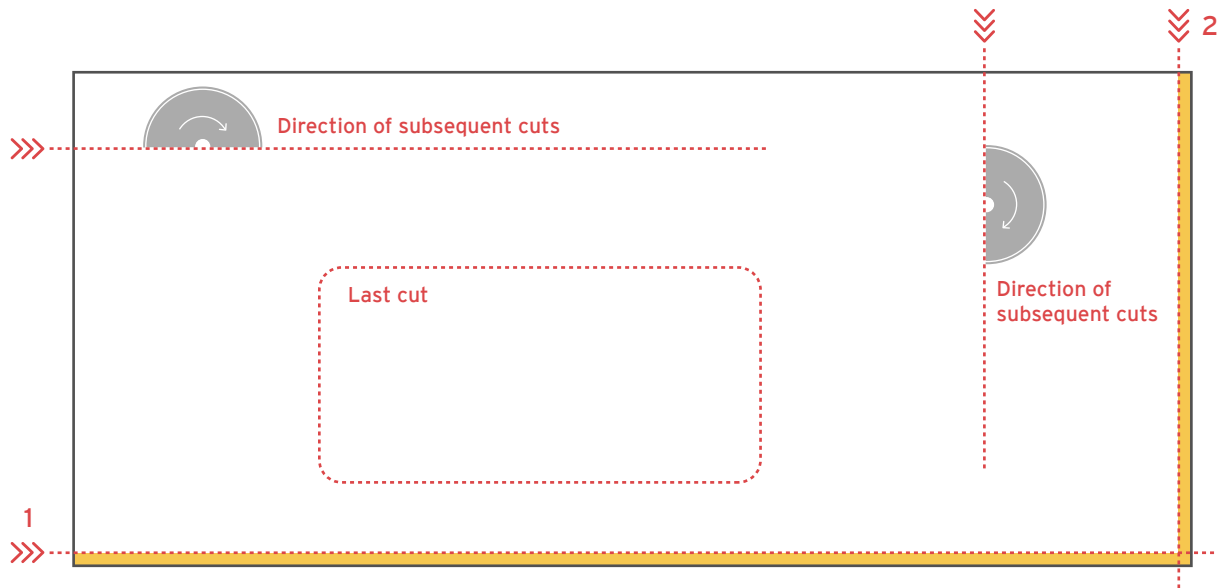
Then, the slab must be trimmed 4 sides at a minimum 1 cm away from the edge to release tension, so there will be no obstacle for the next processing step. Then continue to cut according to desired size.



* Follow the safety instructions.

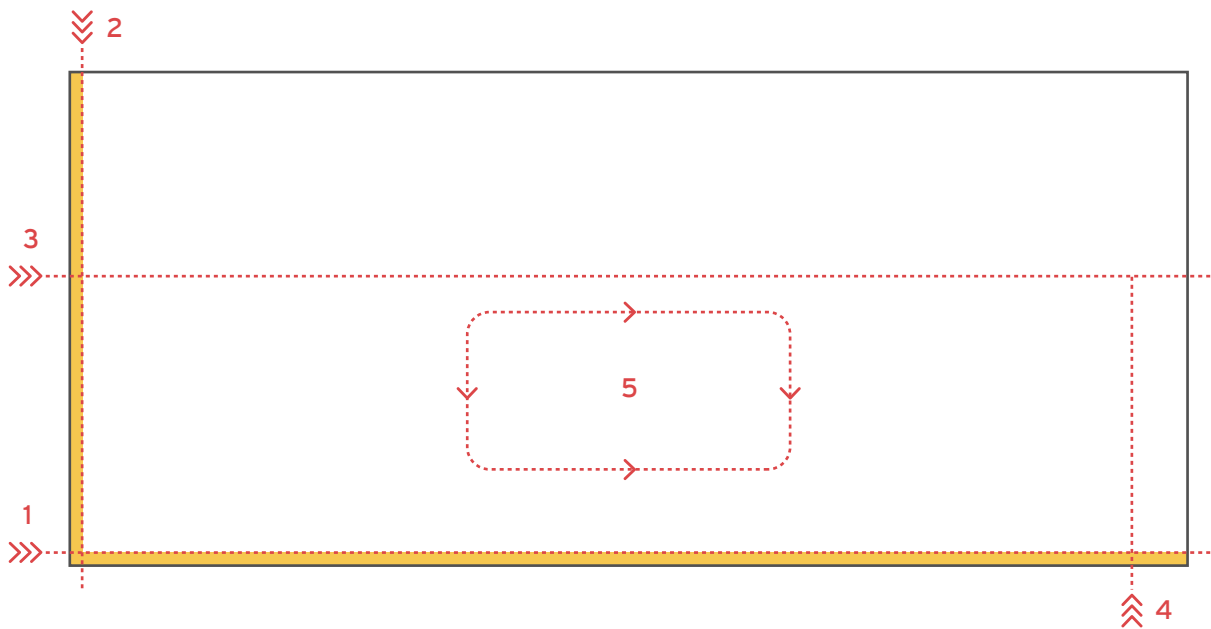
After each processing, it is advisable to rinse the surface thoroughly with clean water.

For each processing, the cutting direction must always be consistent with the rotation of the disc.



6. Processing with Bridge Saw

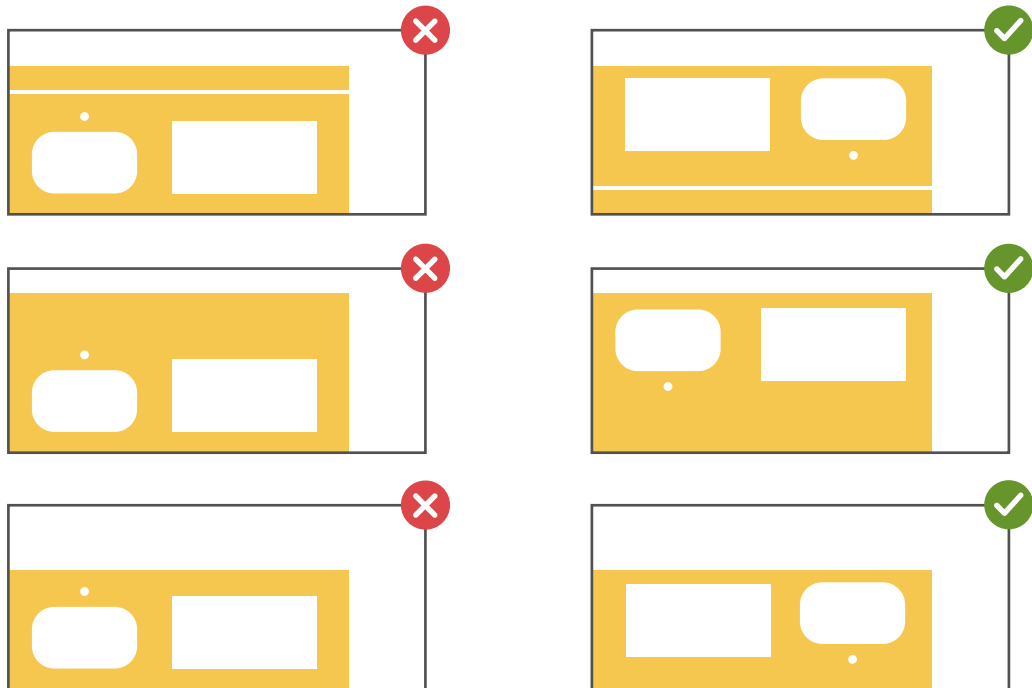
Below is Quadra's cutting recommendation using bridge saw.



- 1-2 Slab trimming
- 3-4 Countertop perimeter cuts
- 5 Sink cut-out

6.1 Workpiece Positioning

It's recommended to put holes for sinks or cooktops towards the central part of the slab.

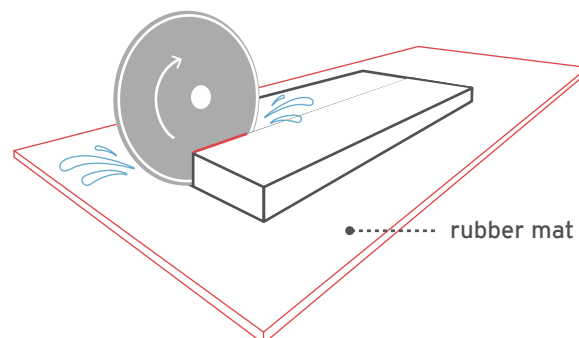


6.2 Cutting Blade

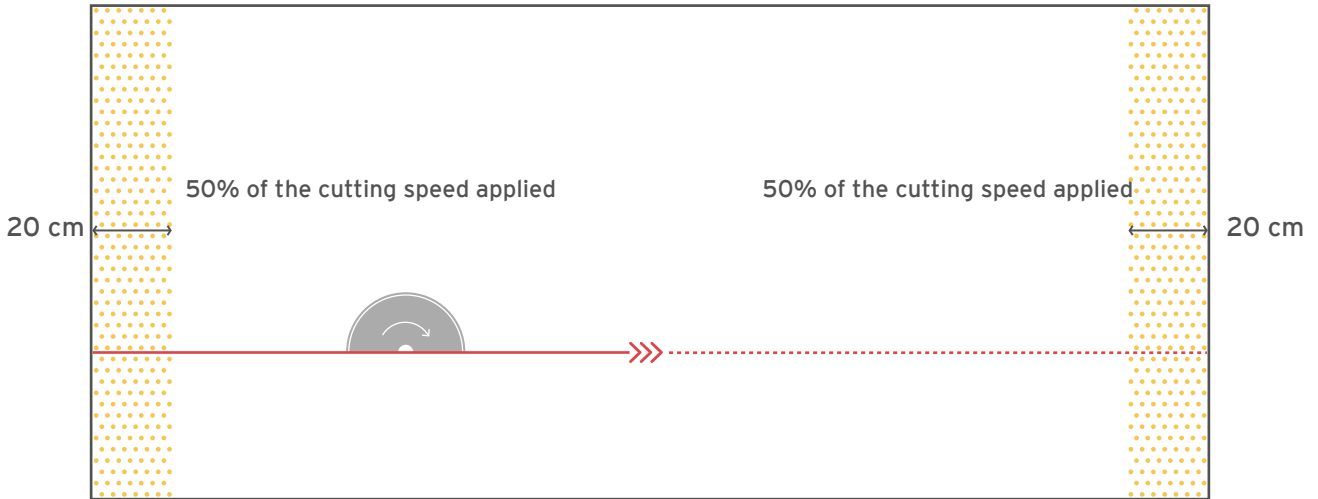
Always use plenty of water when processing. The water flow must be headed to the front and side of the disc, as close as possible to the cutting area.

* Insufficient water flow will cause the disc to overheat, it can lower the success of the operation.

Make sure that the cutting bench is in good condition and flat. It is recommended to use a high-density technical rubber mat between the slab and the cutting table to reduce vibrations and improve the cutting finish.

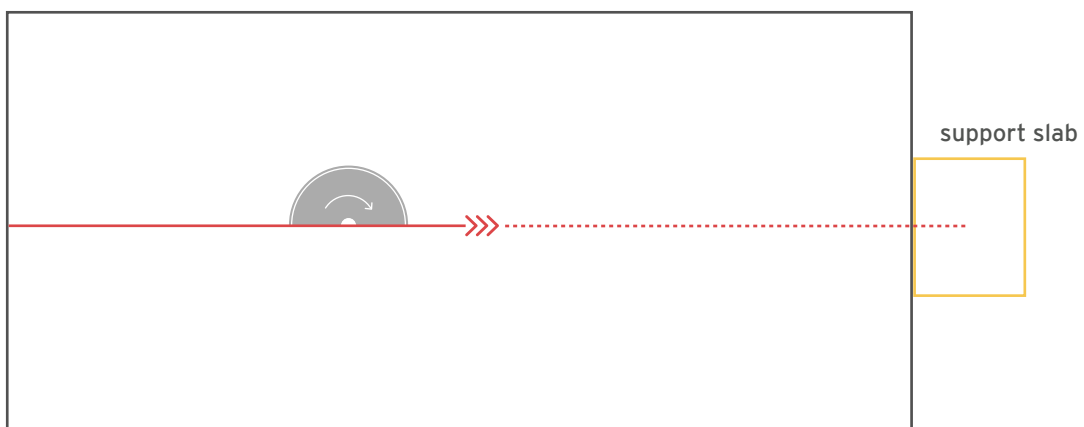


Slow the feed rate down to 50% for the first 20 cm and the last 20 cm.



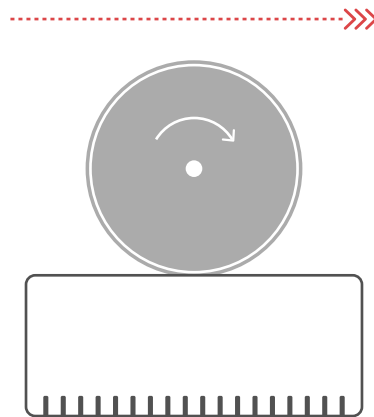
Ø Disc	Spindle revolutions rpm	Cutting Sped m/min
250 mm	3000	0,7
300 mm	2600	0,8
350 mm	2200	0,8

It is recommended to put an extra supporting material (e.g. smaller slab / waste slab) at the end of the slab cutting line, to avoid unwanted chipping. Then continue the cutting towards the support slab.



6.3 Blade Sharpening

The single most important maintenance procedure of a cutting blade is regular sharpening. Before using a new blade, it has to be sharpened first by spinning the blade through the brick's surface in order to remove the rough part of the blade.



* Blade must be in a vertical position

6.4 Step Cutting

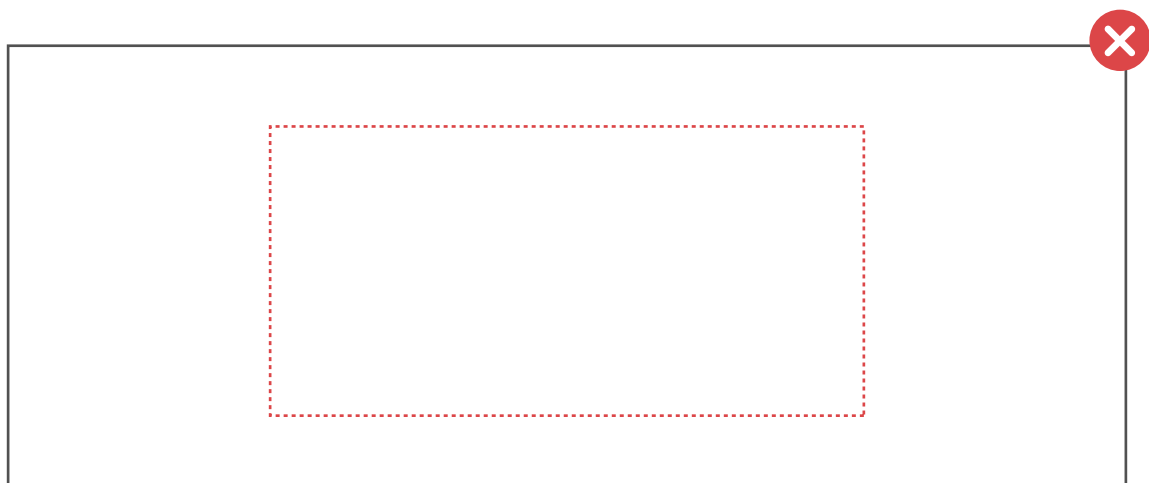
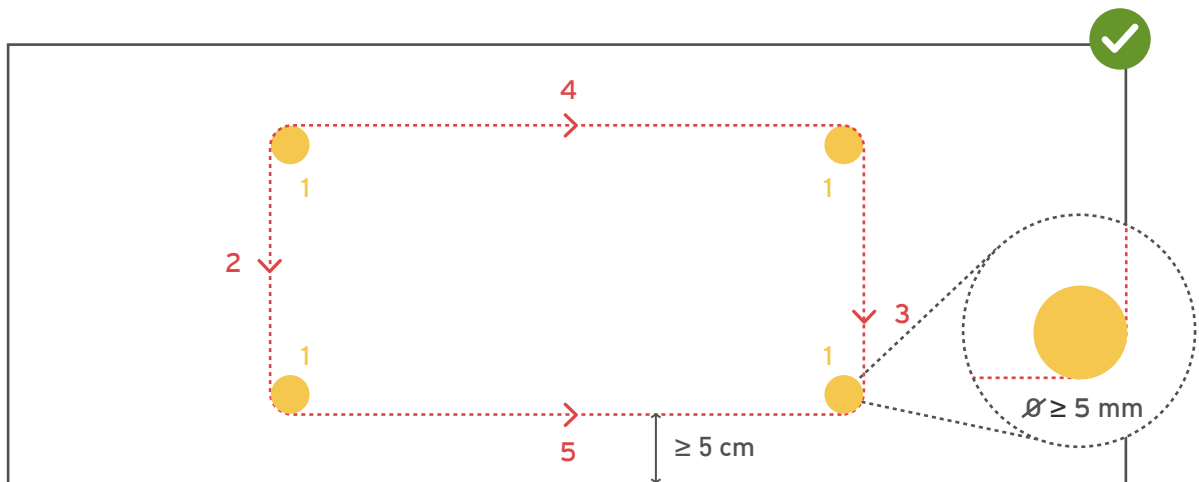
It is recommended to perform a step cutting in order to reduce the risk of breakage and chipping during cutting and to have a better edge finish.



1. Cut the slab only down to half of the thickness
2. Cut through all the way the thickness of the slab in the same direction with the 1st cut

6.5 Sink Cut-out

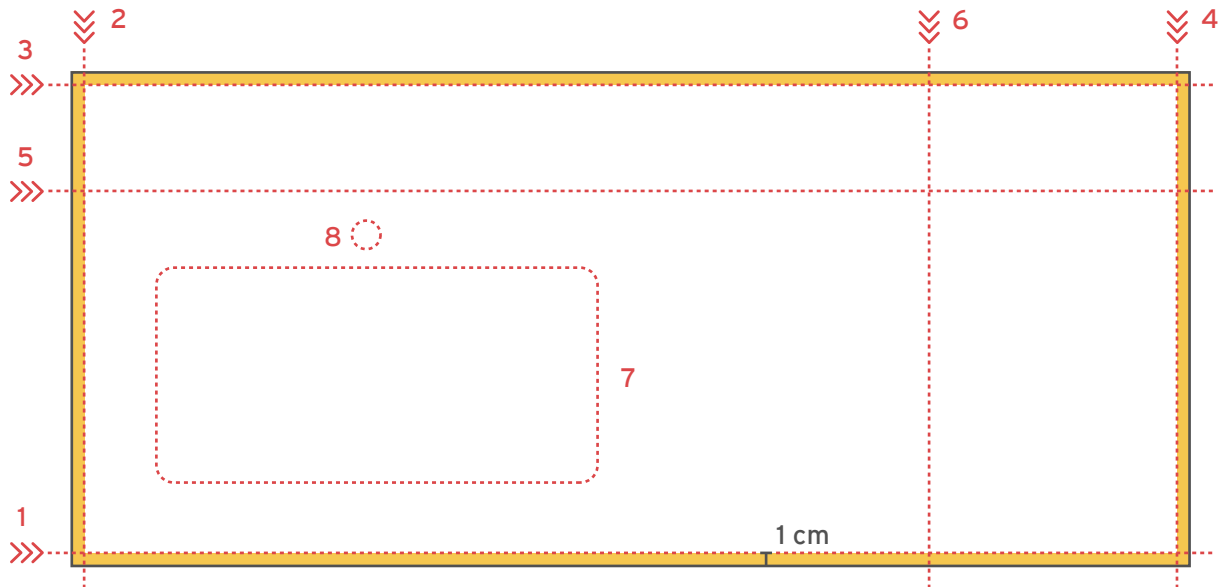
It's recommended to follow the steps below



- 1 Hole drilling
- 2-3-4-5 Interrupted cuts

7. Processing with Water Jet

Make sure that the cutting table is straight, level and free of any debris, and that there is enough support for the slab.

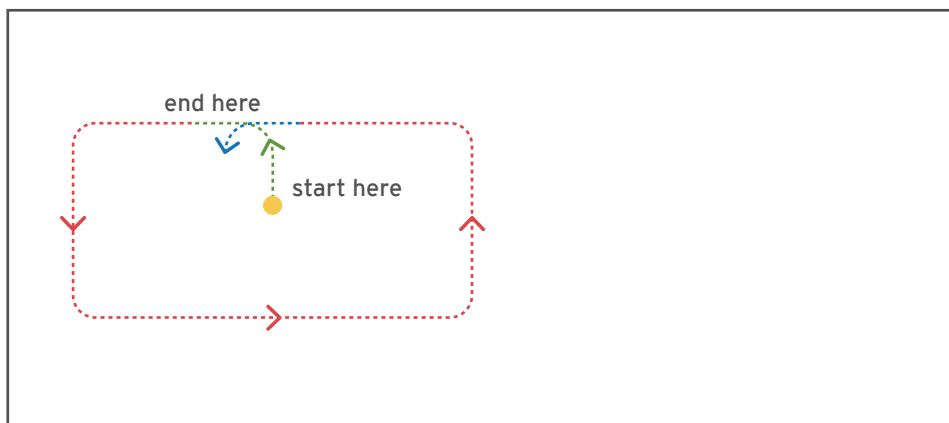


- 1-4 Slab Trimming
- 5-6 Countertop perimeter cuts
- 7 Sink cut-out
- 8 Hole drilling

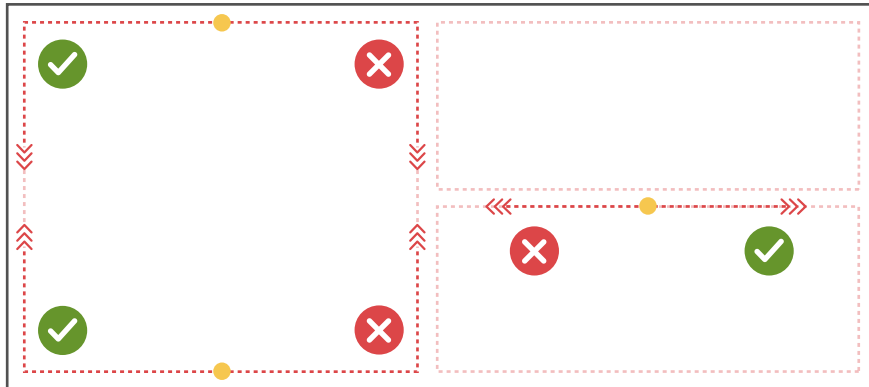
* All inner corners require a minimum radius of 5 mm

Lower pressure is recommended for drilling holes.

To do the cutouts, start the cut at an internal point in the cutout and then getting closer to the perimeter cut.



To do large cutouts or large parts, it's recommended to cut from the center of the cut-out towards the outside.



* First cutting starts from the hole to the edge of the slab and following this direction to finish the part.

Low pressure entry hole piercing parameters

Thickness	Min. pressure Bar	Min. pressure Psi	Abrasive 80 Mesh lb/min
12 mm	600	8.700	0,77 - 0,99

* Make the entry hole minimum 5 mm away from the cutting perimeter.

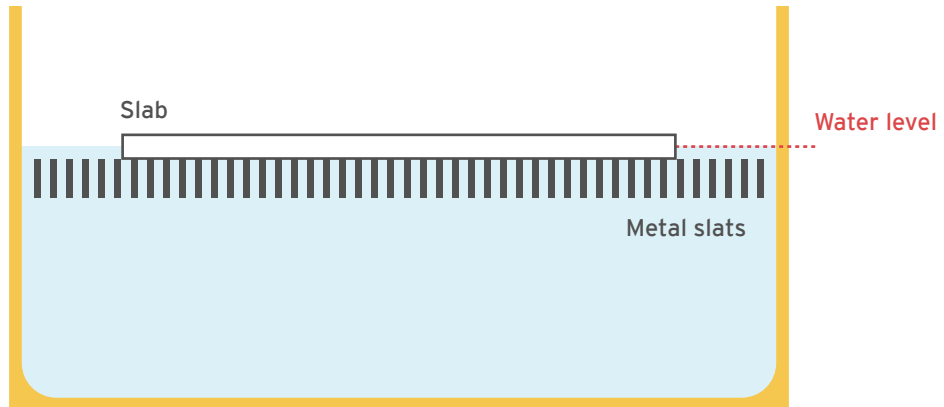
High pressure cutting parameters

Thickness	Min. pressure Bar	Min. pressure Psi	feed rate inch/min	Abrasive 80 Mesh lb/min
12 mm	3.600 - 3.800	52.200 - 55.100	19,7 - 35,5	19,7 - 35,5

* The data shown are the maximum recommended values.
 Lower the feed rate parameters to achieve a better finish.
 For angles equal to or less than 90° it is recommended to round the corner with a radius min. 5 mm.
 Remove any deep indentations using a diamond pad.

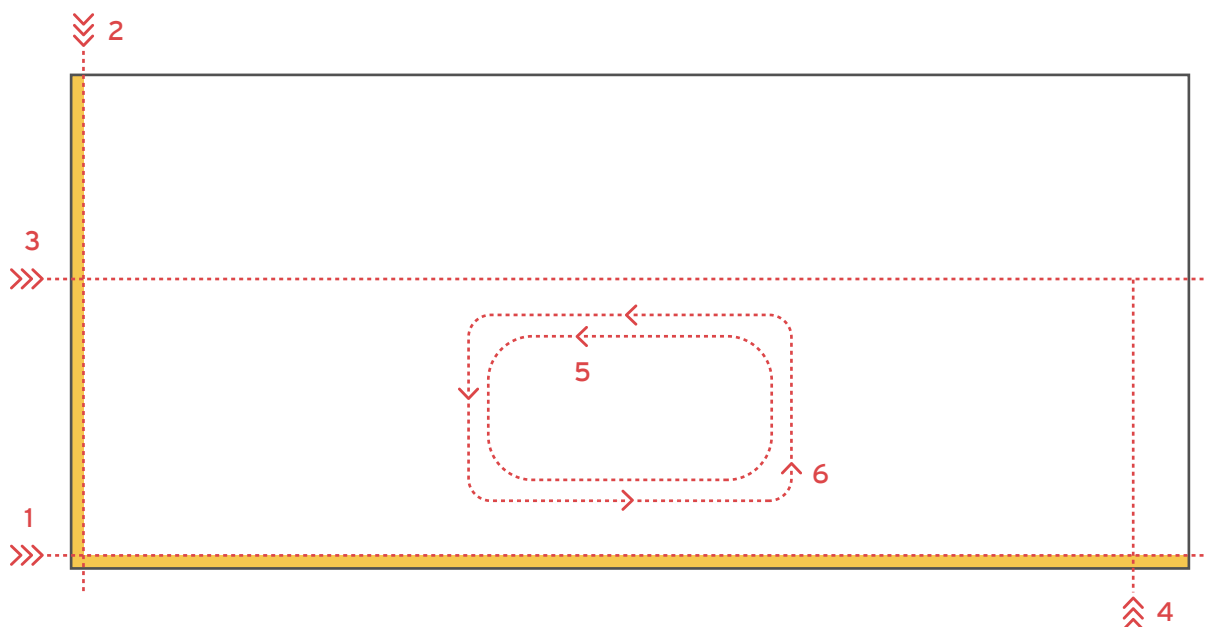
7.1 Water Level in Tank

It is recommended to keep the water level higher than or at the same level as the bench surface.



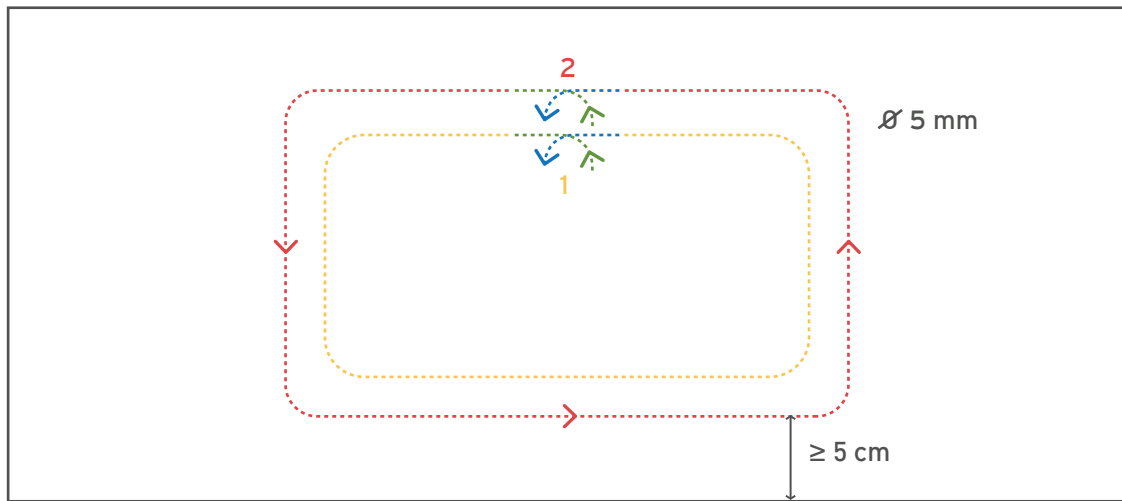
7.2 Sink Cut-out

It is recommended to perform a sink pre-cut to reduce the weight and stress of the cut-out.



- 1-2 Slab trimming
- 3-4 Countertop perimeter cuts
- 5 Sink pre-cut (recommended)
- 6 Sink cut

The sink pre-cut must begin inside the sink cut.



- 1 Sink pre-cut
- 2 Sink cut



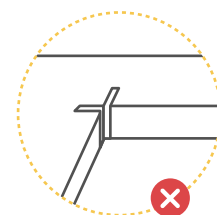
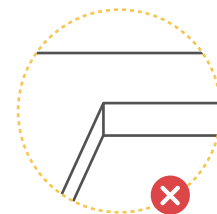
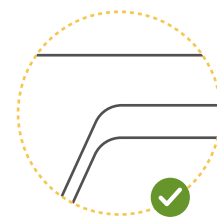
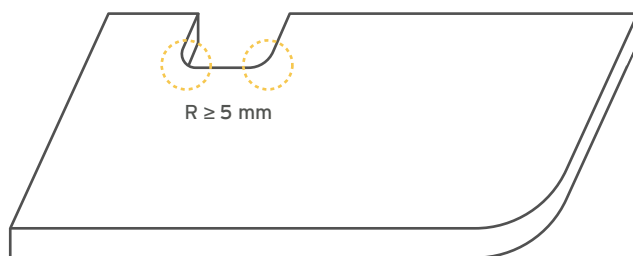
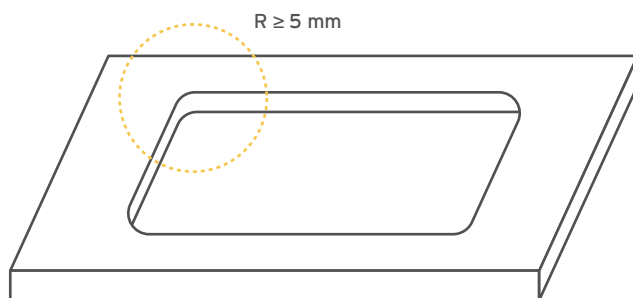
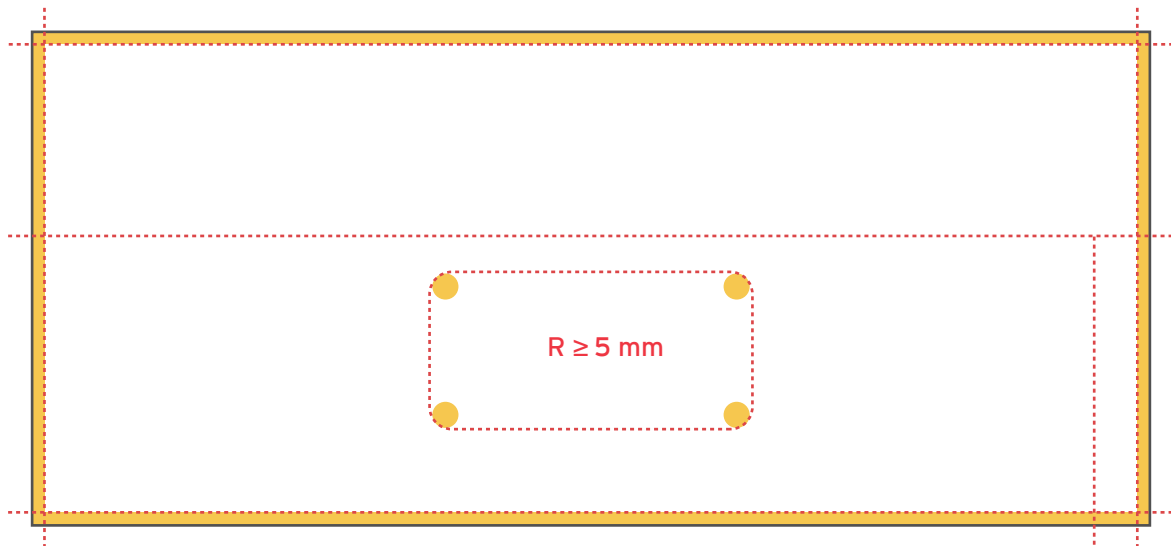
**CORNER
& EDGES**



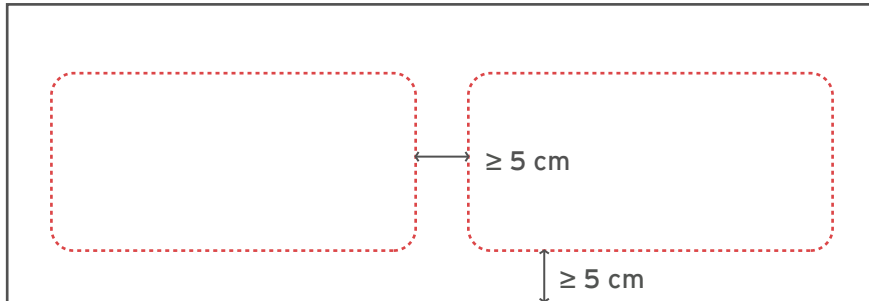
8. CORNER & EDGES

8.1 Angular Corner

There must be a min. 5 mm radius for each angular corner created. This 5 mm radius corner can be created by drilling a hole or by water jet. This is to avoid cracking resulted from the stress due to sharp corner.



The must be a 5 cm minimum distance between cut-out and cut-out and between edge and cut-out.



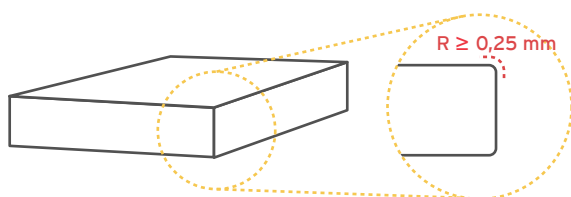
8.2 Edges

These recommendations are good balance between aesthetics and functionality for 12 mm thick slab while also guaranteeing a considerable reduction of damages with the product.

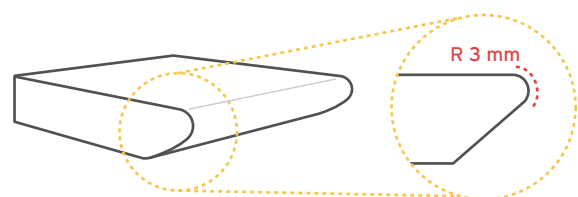
There are 4 recommended types of edges: straight edge, sharknose edge, bullnose edge, and mitered edge.

Straight, Bullnose and Sharknose Edge

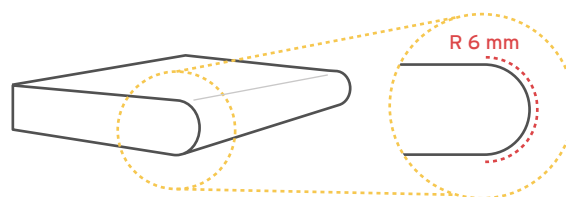
It can be fabricated by CNC machine provided with different grinders. The polishing can be done using a sequence of abrasive increasing diamond grinders, or by CNC machine.



Straight Edge



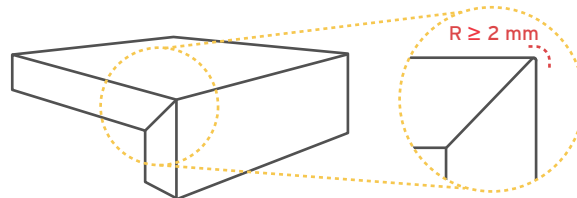
Sharknose Edge



Bullnose Edge

Mitered Edge

Mitered edge is formed by fusing together 2 pieces of 45 degree cut angles, using epoxy resin adhesive. Allow time for the resin to cure (as per resin manufacturer instruction)



AUGUST 2022

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