



CUTTING



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1. INTRODUCTION

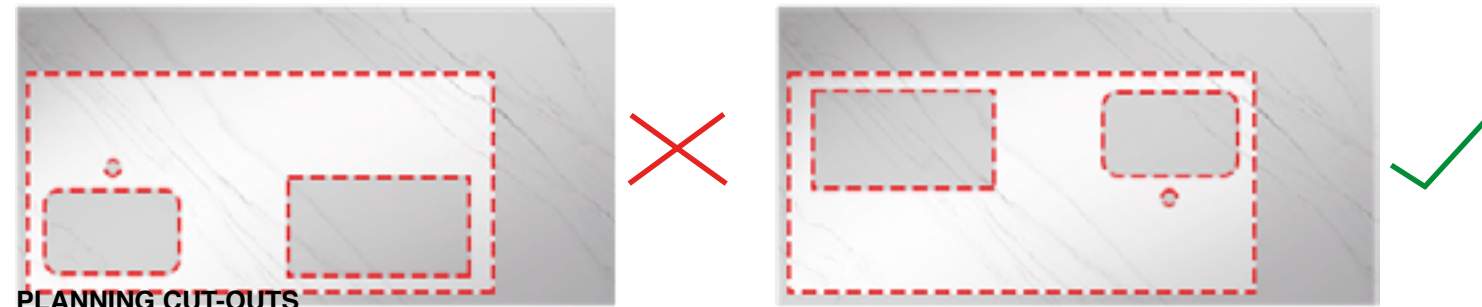
ITOP slabs are conspicuous for their outstanding technical properties. Their salient benefits include a very high resistance to scratches, impacts, high and low temperatures, staining and wear and tear. This makes them perfect for use as countertops. Because the surface is non-porous, this prevents the spread of bacteria and mould, while also ensuring food grade properties.

ITOP slabs must be cut and handled using top-quality specific tools at all times. If the right tools are not used, problems might occur and the slabs, tools or machinery might even get damaged.

For this reason, before proceeding to cut and/or handle ITOP slabs, ask for details of the right tools and equipment to use.

THE DIRECTION OF THE SLABS

Before embarking on the cutting process, plan all the cuts to be made so as to take maximum advantage of the surface of the slab. Consider which way the slab should face when cutting or making holes in it. Make sure that all cut-outs are made nearer to the middle of the slab, as shown in the illustration, since this area is more resistant to any pressure generated during the cutting process.



PLANNING CUT-OUTS



2. CUTTING WITH A DISC CUTTER

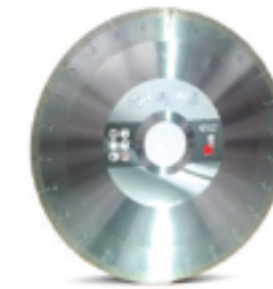
Make sure that the whole slab rests on the cutting table. This should be solid and strong, with a flat level surface and no unevenness. A rubber or wooden mat should be placed between the slab and cutting table to cushion any vibrations from the disc.

For top-quality end results when cutting the slab, the cutting disc should be at least 1.5 mm bigger than the thickness of the slab. The right disc to use will depend on the make. It should be in good condition, with no surface flaws that might affect the quality of the cuts it makes. Follow the manufacturer's recommendations at all times with regard to the right revolutions and cutting speed. Examples of makes of cutting discs:



ADI (<http://www.aditools.com>)

	300 mm Ø	350 mm Ø	400 mm Ø
Revolutions	1800 RPM	1600 RPM	1500 RPM
Cutting speed	1,2 m.l / min	1,2 m.l / min	1,2 m.l / min



FREDIMAR (<http://www.fredimar.com>)

	300 mm Ø	350 mm Ø	400 mm Ø
Revolutions	2500 RPM	2200 RPM	1900 RPM
Cutting speed	1,5 m.l / min	1,5 m.l / min	1,5 m.l / min

2. CUTTING WITH A DISC CUTTER

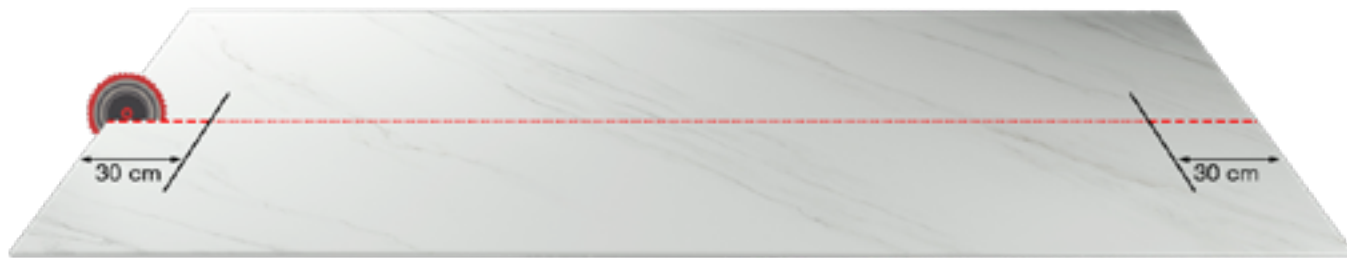
To begin, remove an approximately 3cm-wide strip from each side so as to ensure a good edge while also reducing any stress (cutting the long sides first and then the short ones). The remaining slab can be used as it is, without cutting it down any more.



Make sure that the disc is properly cooled with water as the slab is cut, because ITOP slabs are very hard and solid. The water jet should be aimed directly at the cutting point where the disc is in contact with the slab. Cut the first and last 30 cm more slowly than the recommended speed (at half the speed) to ensure a good finish.

In the case of Blanco Plus / Super Blanco coloured slabs, reduce the cutting speed by half across the whole surface.

Never lower the disc directly onto the slab without having first drilled the corners. In exceptional cases when it is lowered directly, the disc cutter should be in automatic mode, functioning as slowly as possible.

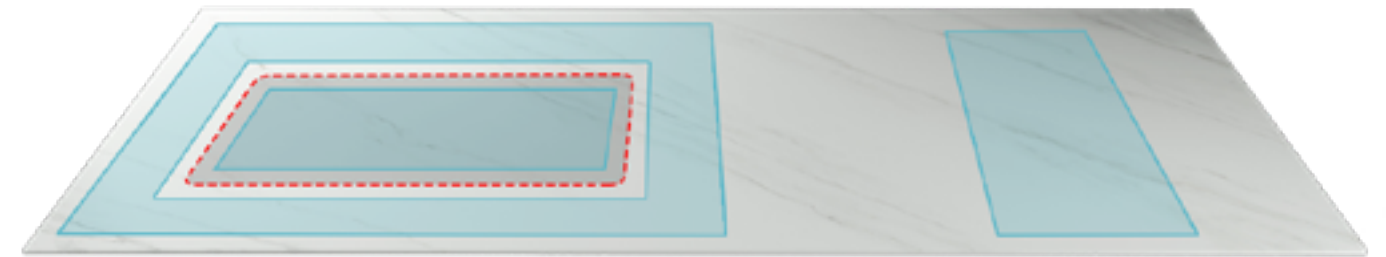


A cutting speed of 0.5m.l per minute should be used to make 45° mitred joints.

3. CUTTING CUT-OUTS

MAKING CUT-OUTS WITH A DISC CUTTER

Before starting to make a cut-out, check that the cutting table is stable, level and that the top provides sufficient support. The suction pads should be free from dirt and impurities and they should support the whole underside of the slab, particularly the area to be cut.



Area of suction cups

Always leave a minimum distance of 5 cm between the cut-out and the edge of the slab. The angles of cut-outs should have a minimum radius of 3 mm.

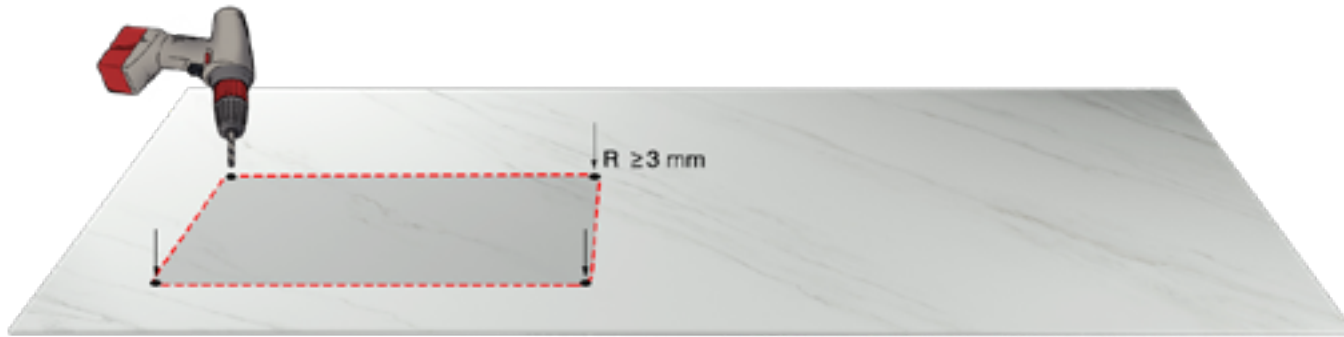


A bigger radius will ensure a higher structural resistance. In contrast, angles with no radius create a stress point on the surface. NEVER LEAVE RIGHT ANGLES.



3. CUTTING CUT-OUTS

To make the corners of cut-outs, drill them using a bit with a radius of > 3 mm.



Next, cut from one hole to the next in a straight line, using a bridge saw and working at a minimum speed to prevent the slab from breaking due to the stress to which it is subject.



TIPS WHEN USING A CNC ROUTER

Core drill bit:

Perforate the slab, working at the lowest speed, particularly at the end. Before proceeding to drill right through it, lift the drill bit up a little to relieve the pressure on the inside of the core bit.

Rabbeting router bit:

Always start by making a hole first with a core drill bit. Do not drill straight down into the surface with the rabbeting router bit. Instead, drill down in stages. The first two times, just eliminate 0.5 mm. Do not remove more than 6 mm from a 12mm-thick ITOP slab.

Cutter router bit:

Do not use the oscillation mode when cutting as the slab might splinter. Paler-coloured slabs are harder to cut due to some of the raw materials used to make them. The cutting speed should be reduced in such cases to prevent the tools from overheating.

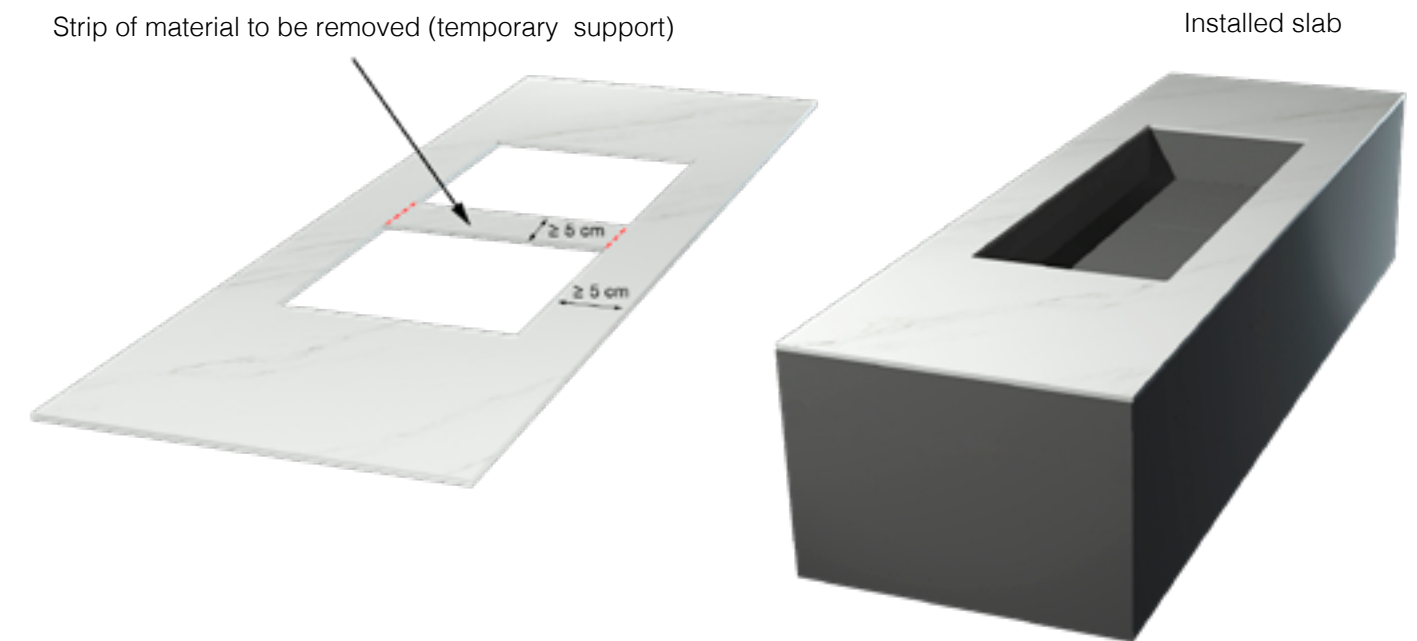
PARAMETERS FOR CNC TOOLS

Tool		RPM	Speed (mm / min)
Core bit		4500 - 5500	10
Cutter router bit	12 mm	4500 - 5500	150
Rabbeting router bit		8000 - 10000	250

3. CUTTING CUT-OUTS

PLANNING LARGE CUT-OUTS

If one or more large cut-outs have to be made (e.g. bigger than 50 x 100 cm) to fit sinks, vitro-ceramic hobs etc., leave a strip to hold the countertop in place. This can then be cut off once the countertop has been installed. In this way, the likelihood of the slab breaking when it is handled or installed will be reduced.



If the wrong type of cutting tool is used, the machine or slab might be damaged or even break. Problems might also occur if the whole weight of the slab is concentrated on one single point as it is cut, due to pressure from the cutting disc. For this reason, it should be cut by passing the cutting disc across it several times. Remember, too, that too slow a cutting speed can be counterproductive since the diamond edge might get damaged and the cutting disc have to be changed.

3. CUTTING CUT-OUTS

CUTTING WITH WATERJET EQUIPMENT

Cut a 3cm strip from each side to reduce the stress to which the slab is subject (first from the long sides and then from the short ones). A pressure of about **2800 bars** and cutting speed of **1 m / min** will be needed.

The slab should be fully supported by the cutting bed of the waterjet cutter. Finish the cut working toward the edge of the slab if the waterjet software permits this. The first and last 30 cm should be cut at a slower speed (half the recommended speed). In the case of Blanco Plus / Super Blanco coloured slabs, reduce the cutting speed by half across the whole surface. Start inside the section to be cut out and move toward the cutting line at 60% of the recommended speed to prevent the slab from splintering. Use carpenter's squares to stop the slab from moving.



PARAMETERS FOR WATERJET CUTTING EQUIPMENT

Thickness	Speed	Pressure	Abrasive flow rate
12 mm	1 m / min	2800 bars	0.4 kg / min

The figures shown above are recommended ones. The cutting speeds or abrasive flow rates can be adjusted to obtain a more specific finish.

4. CUTTING POLISHED SLABS

ITOP polished slabs should be cut with water-cooled cutting equipment.

MACHINE CUTTING

When using bridge cutting machines, waterjet equipment and CNC routers, the same conditions apply as for slabs with a natural or bush-hammered finish. Always remember that when a slab is cut with waterjet equipment, the point where you start cutting should be at a sufficient distance from the work area to avoid chipped edges.

CUTTING BY HAND

As with cut-outs in slabs with a natural or bush-hammered finish, first the corners should be drilled with a water-cooled drill.

When a cut-out is hand cut, a dry cutting disc should be used. It must be remembered that with dry cutting equipment, chipped edges are more likely.

After making the cut-out, grind down the edges to the right size, using appropriate grinding discs or cup wheels.

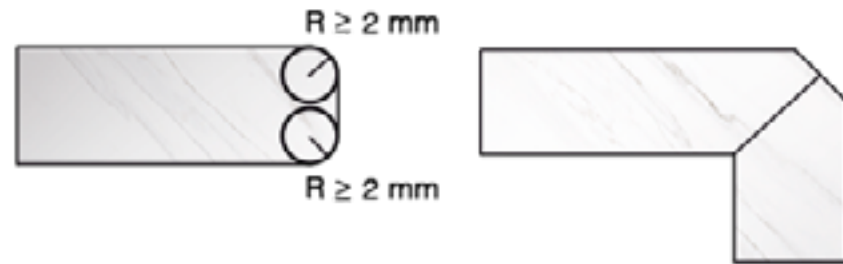
WARNING:

Due to their composition, polished slabs are more prone to sagging. To prevent this from occurring, clamp them to an aluminium bar and keep the slabs as flat as possible.



5. EDGES

CUTTING EDGES



INALCO recommends always beveling the edges in a rounded or mitered joint way. This increases the impact resistance, aesthetics and safety.

There are many types of cuts according to the marble worker manipulating the slab. It is also important to remember that the bigger the bevel, the more visible the whole edge will be.

PROTECTION AND POLISHING OF THE EDGES

Once they have been cut, the edges of ITOP Countertops must be treated with a sealant to waterproof the slab (STOPDIRT / DEEP ENHANCER). Higher intensity on the edges and better finishes are achieved using this type of products.

The edges can also be polished once cut. For this purpose, use appropriate discs, always starting with finer grit ones and increasing the grit size progressively until the required finish is achieved. The edges of ITOP slabs must be water-cooled when polished. This ensures a higher shine and reduces the likelihood of chipped edges.





INDUSTRIAS ALCORENSES CONFEDERADAS S.A.

C/San Salvador, 54

12110, Alcora, Castellón (España)

(+34) 964 368 000

www.inalco.es www.inalcotrends.com

