EARP BROS

SURFACE EVOLUTION

XTONE

FABRICATION GUIDE

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TECHNICAL GUIDE ADVANTAGES XTONE SURFACES

Below we provide technical information that may be useful when designing, manipulating, and transforming the materials chosen for your project. It is especially advisable to read the installation instructions section carefully to handle the product correctly. If you should have any questions after following these instructions, check with our Earp Bros team.

DISCLAIMER This manual bas been prepared to provide informative recommendations for the design and installation of Xtone slabs. The provided information is only informative and the client shall verify it first. For questions or clarifications please refer to your Earp Bros consultant.

TEST	NORM	ISO 13006 UNE-EN 14411	XTONE VALUES
Length and width		Dimensional deviations ±0.6% Max. ±2mm	**±0.15%**
Thickness		Dimensional deviations ±0.5% Max. ±0.5mm	**0.5mm**
Straightness of sides	UNE-EN ISO 10545-2	Dimensional deviations ±0.5% Max. ±2mm	**<0.15%**
Squareness		Dimensional deviations ±0.5% Max. ±2mm	**<0.15%**
Surface flatness side curvature-central curvature-warpage		Dimensional deviations ±0.5% Max. ±2mm	**<0.15%**
Water absorption	UNE-EN ISO 10545-3	Med. ≤ 0.5%	**<0.1%**
Bending strength	UNE-EN ISO 10545-4	Min ≥ 35 N/mm²	**>45N/mm2**
Breaking strength		Thickness ≥ 7.5mm ≥ 1300N	**>4000N**
Resistance to abrasion	UNE-EN ISO 10545-6	Max. ≤ 175mm²	**<135mm2**
Thermal shock resistance	UNE-EN ISO 10545-9	Demanded	**Complies with the standards**
Frost resistance	UNE-EN ISO 10454-12	Demanded	**Complies with the standards**
Chemical resistance	UNE-EN ISO 10545-15	Class Min B	Class **UA/ UHA/ ULA**
Resistance to staining	UNE-EN ISO 10545-14	Class Min 3	Class **5**

QUALITY

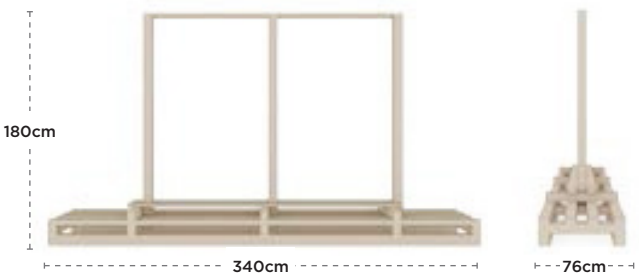
COUNTERTOP FEATURES

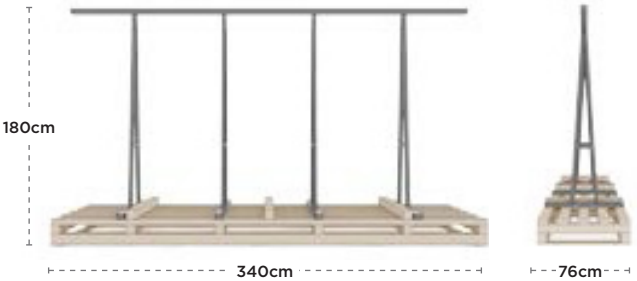
TEST	NORM	NORM VALUES	XTONE POLISHED	XTONE NATURE
Resistance to cold food products	UNE EN 56875:14 V2	No degradation	**No degradation**	**No degradation**
Resistance to hot food products	UNE EN 56875:14 V2	No degradation	**No degradation**	**No degradation**
Resistance to cleaning products	UNE EN 56875:14 V2	No degradation	**No degradation**	**No degradation**
	UNE EN 56867:02	Polished ≥ 3 Nature ≥ 4	**5**	**5**
Resistance to typical bathroom products	UNE 56867:02	No change or damage	**No change or damage**	**No change or damage**
Appearance	UNE EN 56867:02	No defects	**No defects**	**No defects**
Resistance to water vapor	UNE NE 438-4:16 UNE NE 438-6:16	Polished ≥ 3 Nature ≥ 4	**5**	**5**
	UNE EN 56875:14 V2	Polished ≥ 4 Nature ≥ 4	**5**	**5**
	UNE EN 56867:02	Polished ≥ 4 Nature ≥ 4	**5**	**5**
Scratch resistance	UNE NE 438-4:16 UNE NE 438-6:16	Smooth ≥ 2 Textured ≥ 3	**5**	**5**
	UNE EN 56875:14 V2	≥ 3	**5**	**5**
Resistance to ball drop impact (h=30mm)	UNE EN 56867:02	≤ 1	**0**	**0**
Resistance to ball drop impact (h=40mm)	UNE EN 56875:14 V2	Without cracking	**Without cracking**	**Without cracking**
Resistance to spring impact (N)	UNE NE 438-4:16 UNE NE 438-6:16	-	**27**	**>50**
Resistance to staining	UNE NE 438-4:16 UNE NE 438-6:16	No change or damage	**No change or damage**	**No change or damage**
Hygiene. Resistance to bacteria	ASTM G22	No bacteria growth	**No bacteria growth**	**No bacteria growth**
Colourfastness to scrubbing (greyscale rating)• Dry (100 cycles) Wet (200 cycles)	UNE NE 438-4:16 UNE NE 438-6:16	No change or damage	**No change or damage**	**No change or damage**
Resistance to cigarette burns	UNE NE 438-4:16 UNE NE 438-6:16	No change or damage	**No change or damage**	**No change or damage**
Dimensional stability at high temperature (%)•	UNE NE 438-4:16 UNE NE 438-6:16	Longitudinal Transversal	**0.0**	**0.0**
Climate shock test Initial bending (N/mm^2) Final bending (N/mm) Resistance Index Appearance (grade)	UNE NE 438-4:16 UNE NE 438-6:16	- - ≥ 0.8 Appearance (degree) no deterioration	**51.6 N/mm^2** **46.1 N/mm^2** **0.89** **5 Complies with the standards**	**51.8 N/mm^2** **51.4 N/mm^2** **0.99** **5 Complies with the standards**

HANDLING

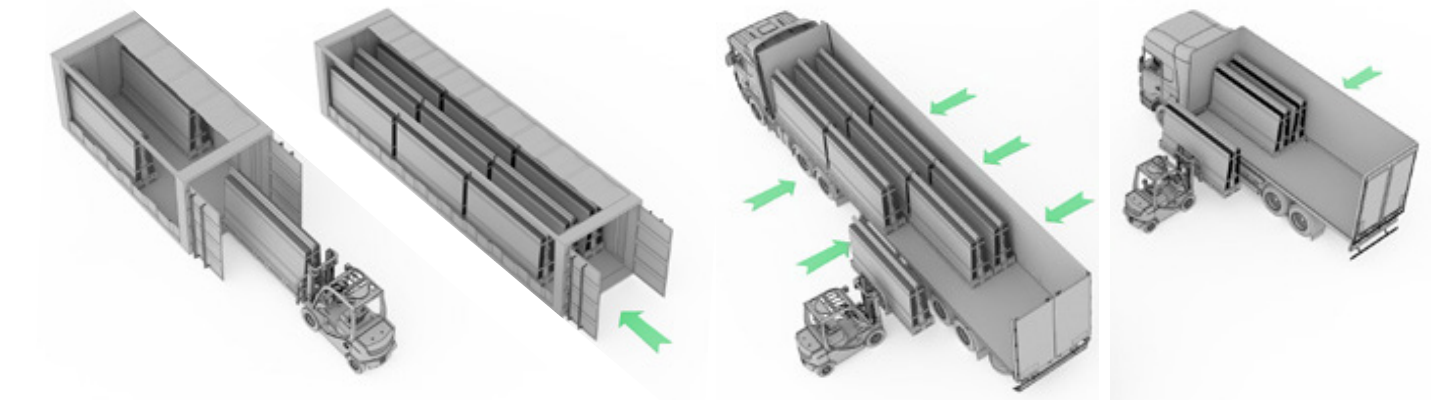
PACKING, TRANSPORT & HANDLING OF A-FRAMES

These diagrams demonstrate the handling and transportation of the slab support frames, which should be moved only one frame at a time.



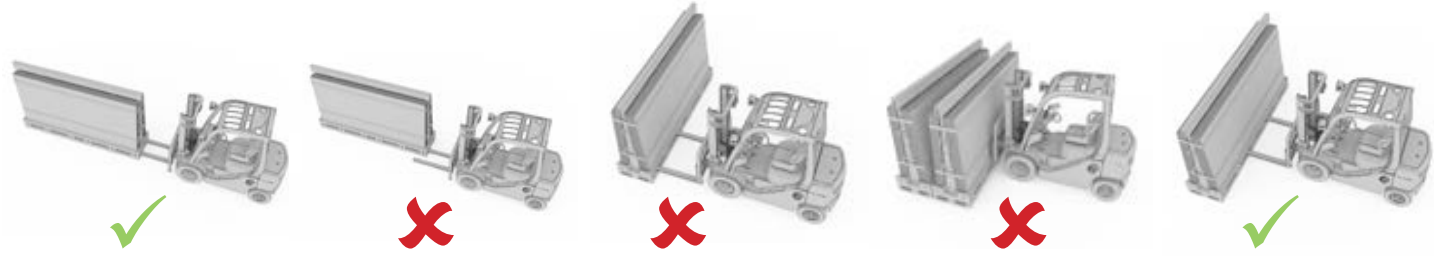


All relevant weight, volume and size load restrictions must be adhered to during transport of the material.



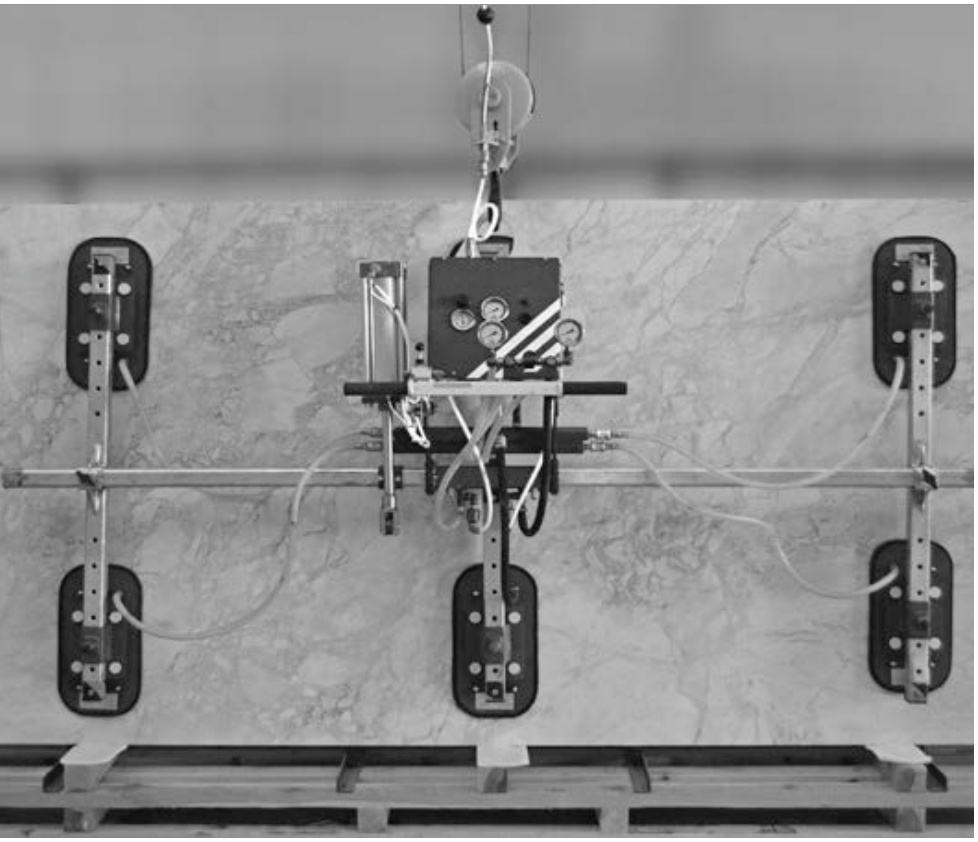
	PIECE			PALLET			CONTAINER ISO 20”			CONTAINER ISO 40”		
FORMAT	PIECE	M²	KG	PIECE	M²	KG	A-FRAME	M²	KG	A-FRAME	M²	KG
154 X 328 CM	1	5.05	136.4	22	111.13	3190	3	333.38	9570	7	777.7	22330
	“	“	“	4	20.21	650	3	60.6	1950	-	-	-

The support frame must always be carried in a symmetrical way, and only one at a time.
All relevant laws and regulations pertaining to safe handling of heavy goods must be followed.

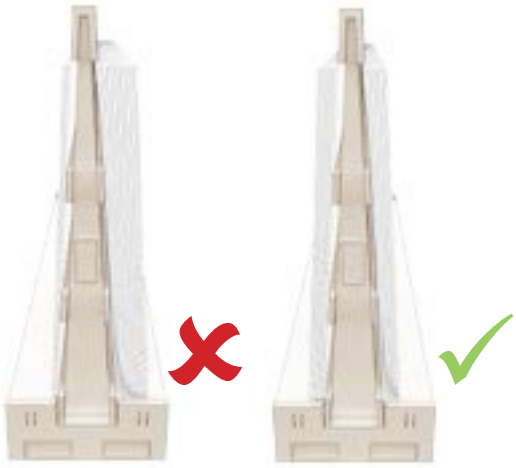


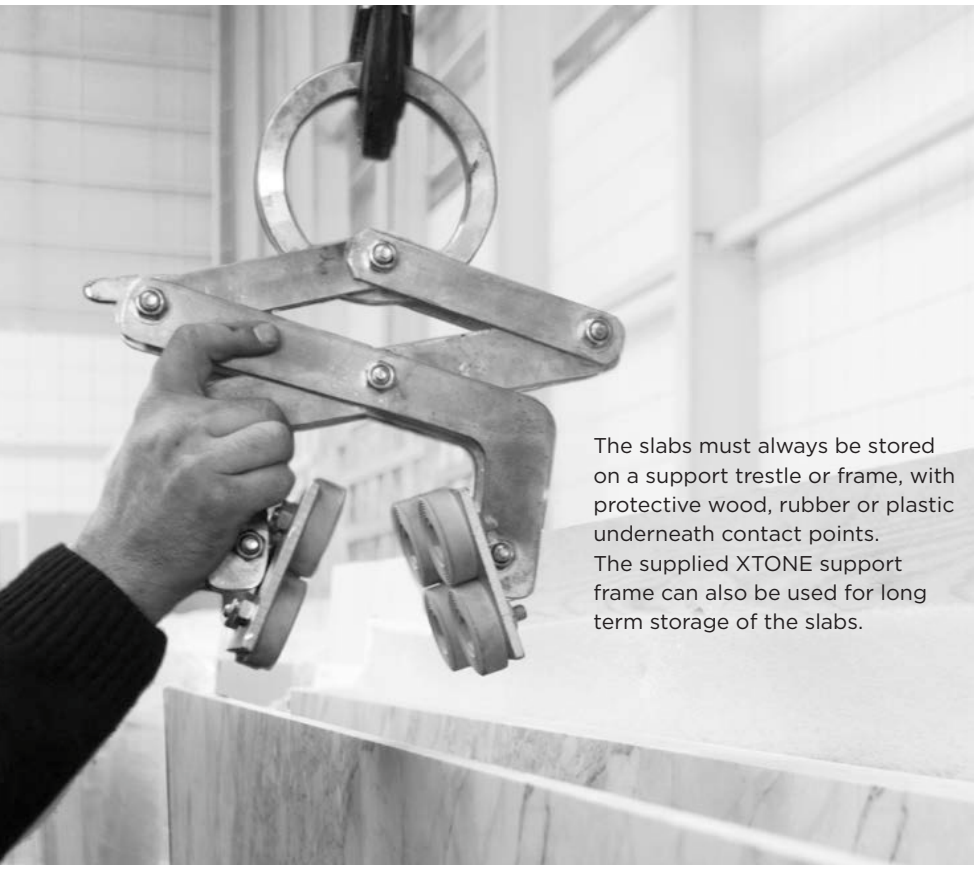
HANDLING

HANDLING AND STORAGE



There are several methods for unloading XTONE slabs, such as using a swivel clamp or hoist with suction cups; with both, we recommend unloading the pieces from the support frame one at a time and always alternating sides to maintain stability during unloading.

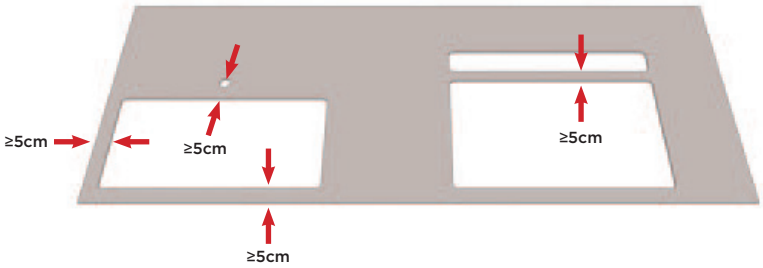




The slabs must always be stored on a support trestle or frame, with protective wood, rubber or plastic underneath contact points.
The supplied XTONE support frame can also be used for long term storage of the slabs.

DESIGN FACTORS

When designing the countertop, there are a number of factors that should be considered to avoid issues during install or use of the countertop. The following recommendations will result in a more resistant and durable countertop.



It is advisable to leave a minimum distance of 5cm to outer edges and between gaps.

A joint of at least 2mm is recommended between the countertop and any adjoining walls. We recommend this section be filled with silicone once installed to protect the surface of the piece, and then a trim or wall covering be installed to cover the joint.

Inner corner gaps shall have a minimum radius of 5mm, with a recommended radius of 10mm. We do not recommend inner corners of 90° as these types of cuts can result in breakage due to the generation of internal tensions within the slab. We do not recommend making sinks with the same material cutting all four sides in a miter, as the recommended joint radii are not observed.

INSTALLATION

SINKS AND INDUCTION COOKTOPS

When installing large format sinks, we recommend using a sink setter or support rail system to reduce the risk of delamination or breakage.

We recommend leaving at least 2mm between the fixture and the edge of the cut-out. If using over-mount installation, water tightness must be achieved. We recommend sealing the joints correctly with silicone. Do not undercut the edges by more than 4mm.

FLUSH

OVERLOCK

UNDERLAY

OVERLOCK

FLUSH

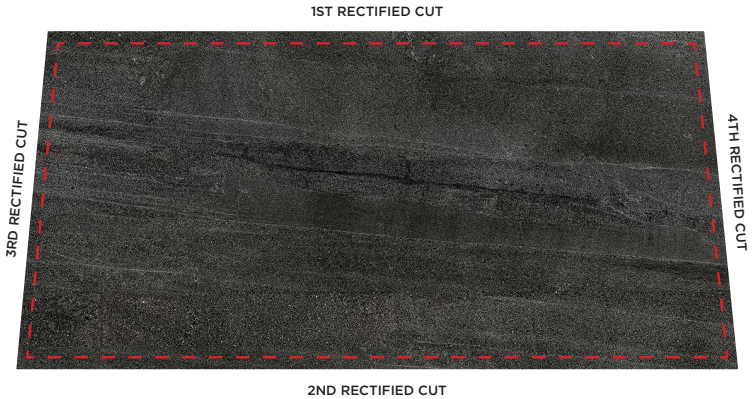
FABRICATION

The same machinery used by masons for cutting stone can be used to machine porcelain slabs. It is important the work table is sturdy and durable, in good condition and clean of debris. It must be perfectly flat and level.

Tools, bits and cutting discs must be suitable for porcelain tiles and in perfect condition. The operating parameters of the tools (circular saw blades/crowns) shall be those recommended by the tool manufacturer. In saying this, we recommend carrying out cutting tests to verify these parameters are adequate for use with your machinery.

The supplied porcelain slabs are not rectified, so it is advisable to rectify them by cutting at least 20mm on each side of the piece, which will also benefit the detensioning of the slab.

Special care must be taken when handling the piece once it has been machined to avoid any torsion which may result in breakage.



FABRICATION

MANUAL MACHINING

Some stonemasons or countertop fabricators use traditional hand working techniques - cutting, drilling or polishing manually. It is important if using these techniques to always use wet operation with suitable tools for porcelain tiles, which must always be in good condition.

When cutting rectangular spaces from the slab, we shall first drill holes at each of the four corners ensuring to observe the recommended cut radii, and then making straight cuts to join the four drill holes.

BRIDGE SAW MACHINING

For making straight cuts with a bridge saw, we recommend using diamond cutting blades suitable for porcelain tiles (eg; Italdiamant, Luna Abrasive, etc.), ensuring they are always in good condition and always following the manufacturers recommendations. The water flow shall be at its maximum while cutting to ensure optimal cooling of the blade.

To avoid chipping, cut an extra 4mm through the slab. Place a 3mm MDF sheet under the slab prior to cutting to avoid deep cuts to the cutting bed.

To avoid overheating in white or light coloured slabs (which usually have a higher density and thus hardness), we recommend decreasing the speed of the blade by half.

To prevent breakage when the blade enters or exits the cut, the speed recommended by the manufacturer should be halved on the initial 25cm of the cut and final 25cm of the cut.

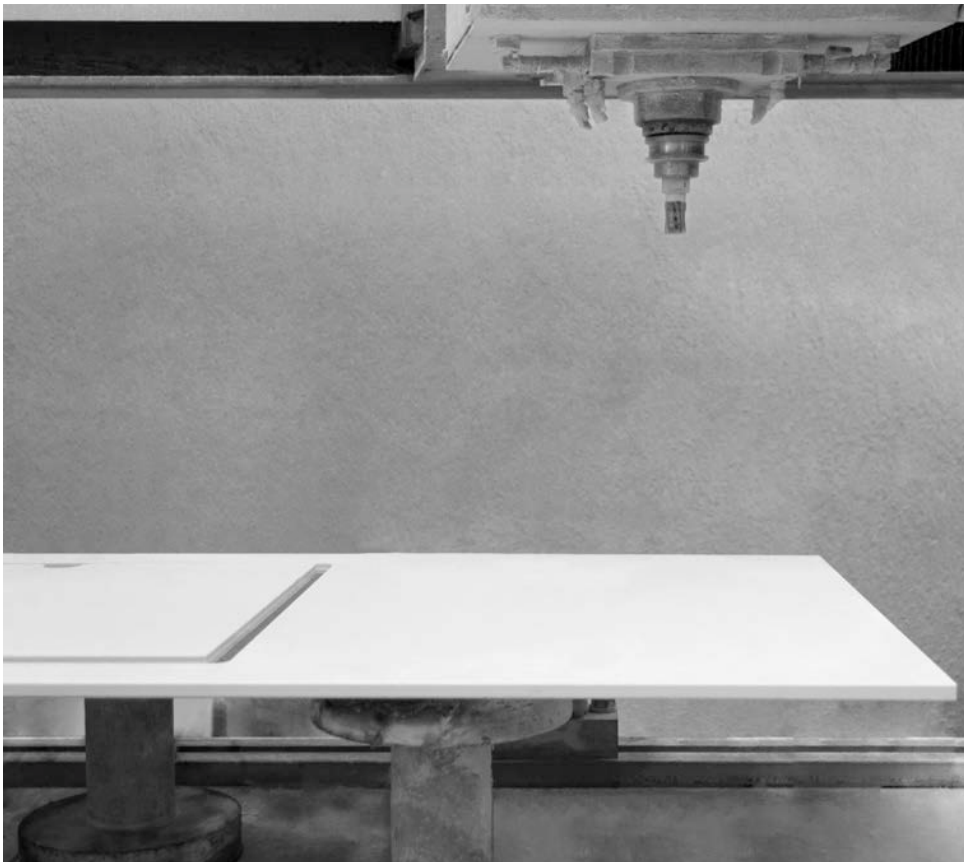
DIAMETER	RPM APPROX	SPEED
300mm	2100-2800	WHITE **0.5 m/min**
350mm	1900-2500	
400mm	1700-2300	OTHER COLOURS **1 m/min**
450mm	1400-2000	
500mm	1200-1600	

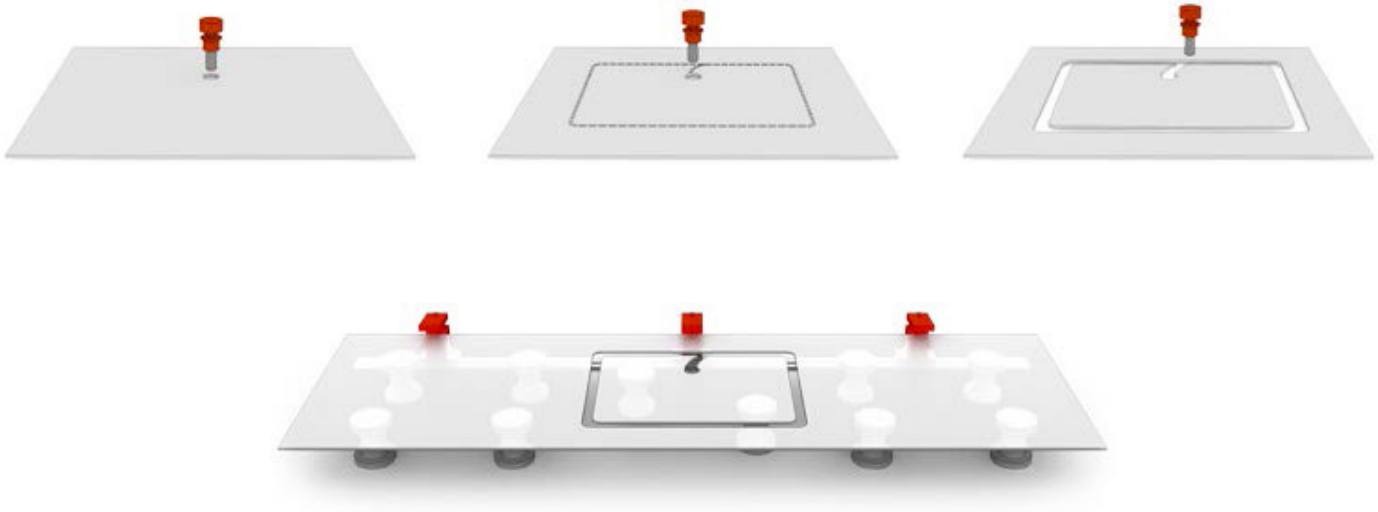
FABRICATION

CNC MACHINING

It is possible to machine holes and inner openings with a computerised numerical control (CNC) machine and adequate tools and bits (crown, diamond coated drill bit, etc.). To do this, we shall always start with an initial drill inside the opening space, located preferably at the farthest point from the edge of the slab. From here we shall cut along the cutting perimeter, reaching the perimeter in a curved movement. We recommend reducing the speed as the tool comes out.
To prevent breakage of the slab during the machining process, suction cups must be evenly distributed and at least a couple of them shall be placed so that the scrap piece is prevented from rotating when cutting is completed. Please never use clamps to secure the piece in place.

	DIAMETER	RPM APPROX	SPEED
DRILL	23mm	3700-4100	0.2m/min
CROWN	15mm	3900-4000	0.15m/min
	20-22-23mm	3500-4000	
	25mm	3000-4000	
	30-35mm	3000-3500	
	68-70-75-105mm	1000-1500	





FABRICATION

WATERJET MACHINING

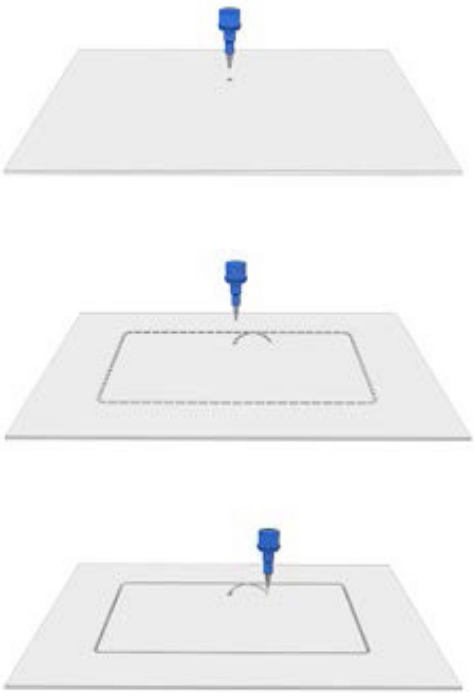
The use of a water jet cutting machine allows for any type of cut or drill to a highly precise level. The quality of the cut finish will depend on the correct combination of parameters as outlined on the following table. This combination can be slightly different depending on the available machinery.

As with the CNC machine, we shall always start with an initial drill inside the opening space, located preferably at the farthest point from the edge of the slab when cutting an inner opening. From this point, a curved cut should be made to reach the perimeter of the desired cut.

If the finished edge needs to be polished, we recommend reducing to half speed for ease of working and a smoother finish.

INITIAL PRESSURE	MAXIMUM PRESSURE
700-800BA	3500-3800BA

ABRASIVE	RPM APPROX
300-380g/min	White 0.4m/min
	Other Colours 0.6m/min



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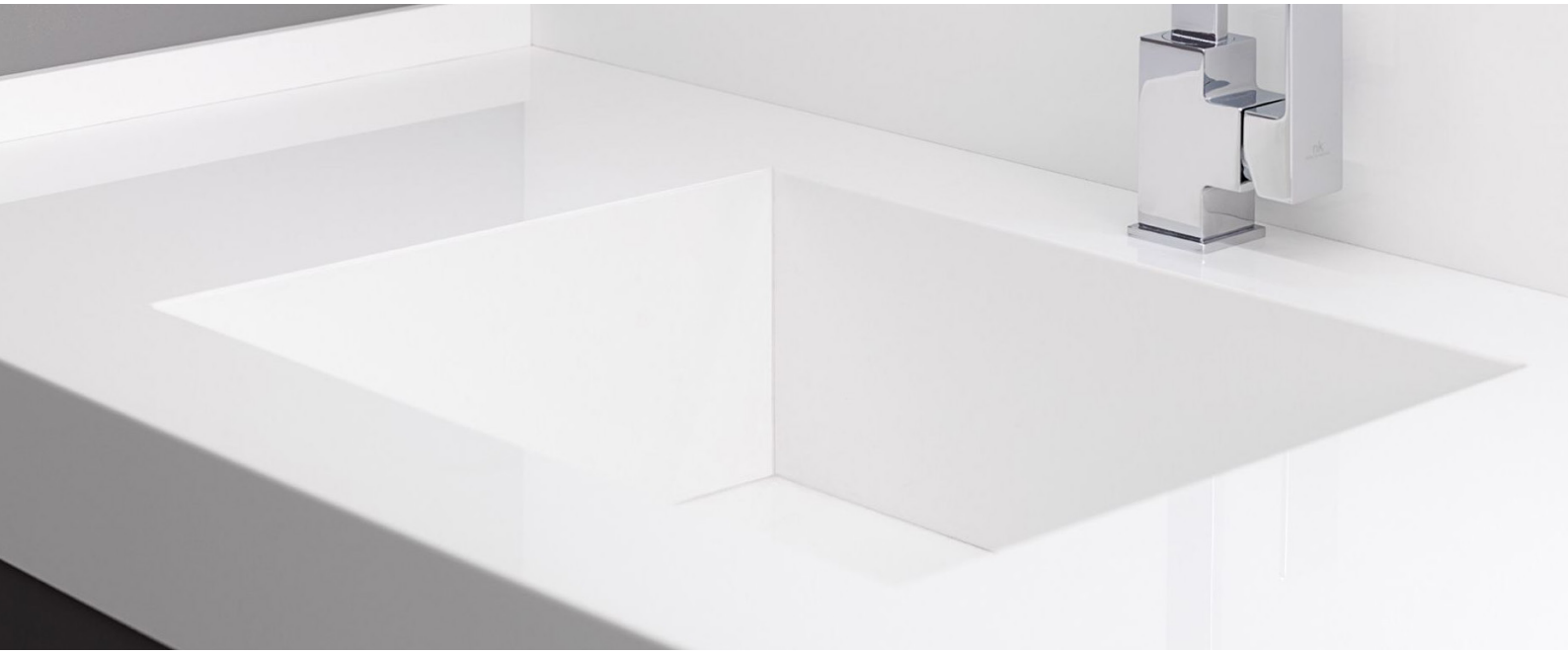
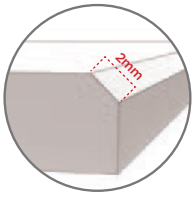
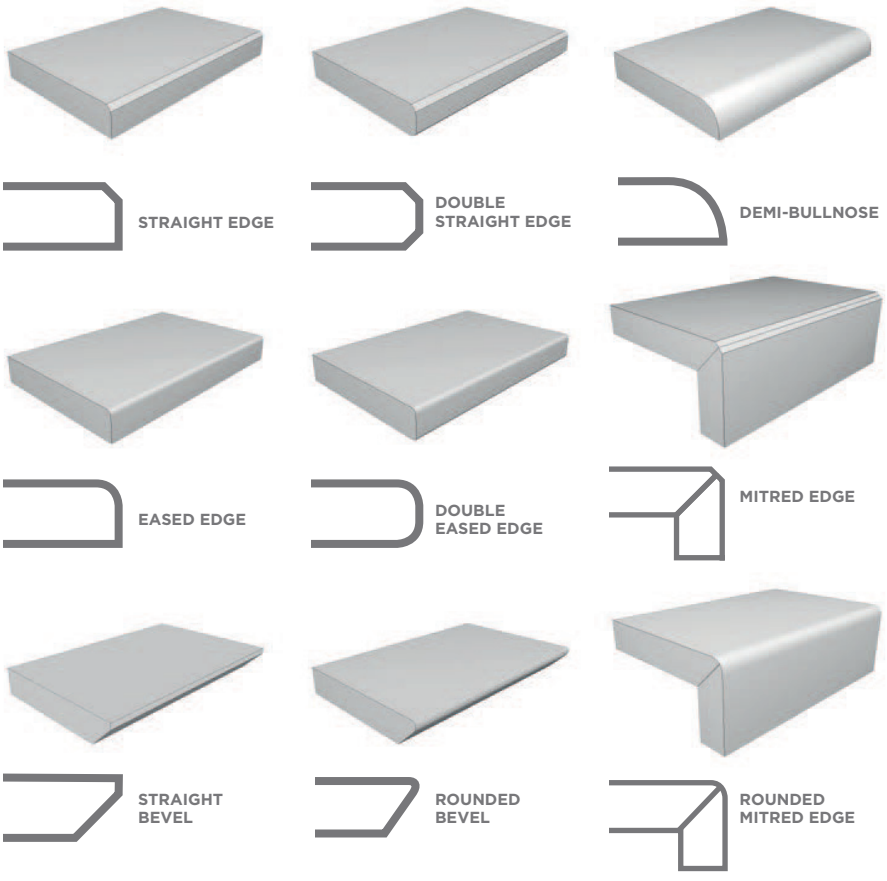


FINISHES/MITERS

XTONE porcelain slabs enable us to produce a wide variety of edge finishes, whether with **automatic edge polishing machines** and appropriate tools, or manually with skilled hands. An appropriate combination of circular saw blades can provide high quality polished finishes. It is of utmost importance when finishing that the piece be worked wet.

Cutting the pieces can alter the surface properties of the edge, so we recommend **applying an edge protection liquid** (Akemi or similar) to improve performance against stains or chemical agents. To improve performance of the countertop and avoid any sharp edges we recommend **making bevels** (straight or rounded) on all edges that will be exposed and that may receive impacts. We recommend a **2-3mm bevel**. To avoid chipping during the miter cutting process, we recommend reducing the cutting speed.





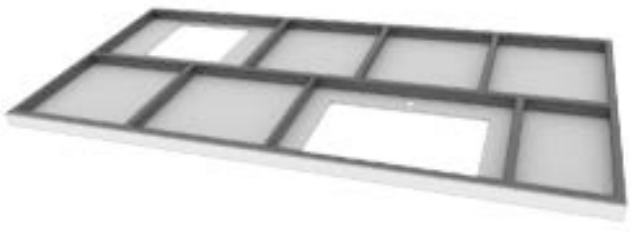
FABRICATION

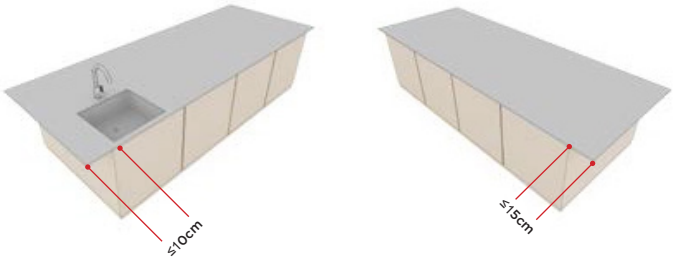
INSTALLATION

Once the countertop has been fabricated, it must be installed on a completely flat, level and resistant surface in such a way as to ensure it is supported entirely and correctly. Including a plywood board that is at least 20mm thick can ensure such support. We recommend gluing with adhesives that are sufficiently elastic, which allow for the expansion and contraction between both materials.

The reinforcements and their location shall depend on the shape and design of each specific countertop. We recommend placing reinforcements in areas close to opening, ensuring the supports are configured in such a way as there is never an unsupported span of 60cm or more. These reinforcements should be made from strips of the same material so that the countertop and reinforcements expand and contract equally.

If the countertop is made of more than one piece, ensure the pieces do not contact each other during installation and adjustment; use wedges or suction cups for this, which make it easier to bring them together without resulting in damage.





In the case of a cantilevered design, we recommend that the overhang be no greater than 150mm to prevent potential breaks due to excessive bending during service. If the piece has had any openings cut out for a sink or cooktop, the overhang shall not exceed 100mm. If larger overhangs are required, inner reinforcements must be placed every 600mm, or the required structure should be engineered as appropriate.

During transport and handling of the fabricated countertop all potential bending of the piece; for that purpose, we recommend moving it in an upright position with any drilled holes always on top. Special care should be taken to avoid knocks, blows or impacts especially on the edges.

FABRICATION

GLUING

After machining the pieces, it may be necessary to glue the different pieces together; we recommend the use of two-part epoxy adhesives (Akemi type or similar). For a correct finishing of the joint, we recommend using adhesives that are coloured in a tone similar to the design and body of the slab.

For bonding the pieces to other materials, we recommend epoxy, polyurethane or MS polymer-based adhesives, always following the manufacturers technical specifications. The adhesive residue remaining on the material should be removed with acetone or solvents.

CLEANING

After the countertop has been installed, it must be protected to prevent damage until all onsite work as been completed. Before proceeding to clean the surface, we recommend waiting approximately 24 hours so that all grouting material can set properly. In the case of polished pieces, we recommend they be cleaned with a damp sponge before the grout can harden.

A neutral or alkaline detergent (Acid Net or similar) should be used to clean cement and grout residues from the surface. If epoxy-based grouts are used, clean away the residue as soon as the joints have been grouted, using a sponge and plenty of clean water. Then clean the surface thoroughly with an alkaline detergent, following the manufacturer's instructions.

For ongoing care and periodic cleaning of the surface use an alkaline detergent, for the joints use a product specifically designed for grout type used.

GENERAL MAINTENANCE

To remove everyday dirt, clean with a lint-free mop, water and a neutral cleaner in the dilution recommended by the cleaner manufacturer. Afterwards, clean the surface with a dry cloth with no wax additives.

Polished porcelain requires greater care than un-polished finishes, particularly plain or pale-coloured porcelain (the polishing process slightly alters the porosity of the sheets). As a result, a moist well-rinsed cloth should be used for general cleaning.

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