



TECHNICAL GUIDANCE
on tile processing

SPECIFICATION

Ceramic tile - Gruppe Bla UGL (UNI EN 14411_G)			
	Established standards	Results FONDOVALLE	Standards
Length and width	± 0,6%	± 0,9 mm	UNI EN ISO 10545-2
Thickness	± 5%	± 3%	
Straightness of the edge	± 0,5%	± 0,6 mm	
Squareness	± 0,6%	± 2 mm	
Flatness	± 0,5%	Corresponding	
Quality of surface	≥ 95%	Corresponding	
Water absorption	≤ 0,5%	≤ 0,1%	UNI EN ISO 10545-3
	-	0,1% average value	ASTM C373
Resistance to bending	Tensile strength ≥ 35 H/mm ²	≥ 45 H/mm ²	UNI EN ISO 10545-4
Frost resistance	Resistant	Frost resistant	UNI EN ISO 10545-12
Resistance to thermal shocks	Resistant	Resistant	UNI EN ISO 10545-9
Resistance to severe abrasion	≤ 175 mm ³	≤ 145 mm ³	UNI EN ISO 10545-6
Light resistance on the light effect	Resistant	Resistant	DIN 51094
Chemical resistance	Minimum UB	UA; ULA; UHA	UNI EN ISO 10545-13
Resistance to spotting	Minimum class 3	Class 3-5	UNI EN ISO 10545-14
Fire resistance	Resistant	Resistant	EN 13501 (rev. 2005)

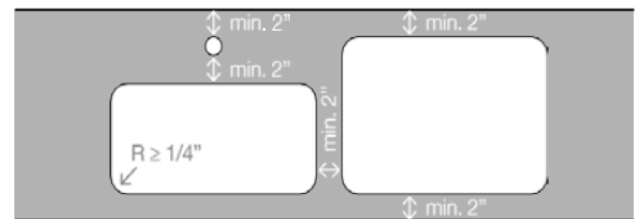
PROCESSING

Before the beginning of processing the Keralini tile shall be cleaned and visually inspected for compliance with quality requirements. Complaints regarding ready-to-assemble or already installed tiles are not accepted if the tile defects were found at the moment of delivery and receipt of the tile. We recommend preliminary testing of the tile probe before the processing in order to select the appropriate processing parameters. Keralini tiles are supplied full-sized, with unedged edges. Trim the edges around the entire perimeter of tile before starting processing.

The effective working area of the tile is 1600x3200 mm. Keralini tiles can be processed using equipment with water-cooling the cutting that is equipped with the proper tools and suitable for processing porcelain stoneware. When using a diamond blade, you need to reduce its speed by 50% at the beginning and at the end of the tile cutting. The work table shall be clean, solid, stable and perfectly flat. The suction cups of the machine shall be placed under the surface of the entire tile. Pay special attention to suction cups fixation in places next to the holes (holes for the sink and hob). The processed tile shall be handled with extreme care, in particular when there are cut-outs or internal recesses. When moving the processed tile, it is necessary not to allow it to bend or curvature.

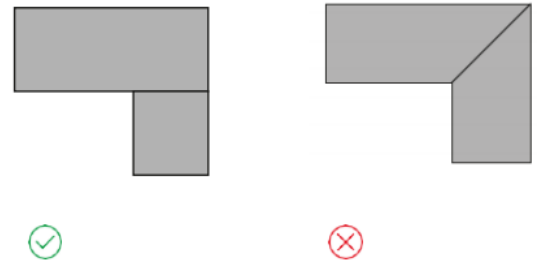
PROCESSING OF CUTS

Keep minimum distance of 50 mm from the external edge of tile to the holes, between the hole for crane and hole for sink, between grooves and adjacent orifices. All corners of cut shall have minimum diameter 6.35 mm.



HORIZONTAL JUNCTIONS

L-shaped junctions shall be made of two tiles, connected with each other in a straight line. The seam between them shall be filled with silicone or epoxy glue. Diagonal junctions are not recommended. Minimum distance from the walls shall be 3 mm. When making L-shaped junctions with use of one tile the inner corner shall have radius 6.35 mm.



STRENGTHENING FROM THE OTHER SIDE

Installation of straight-edged worktops shall be carried out together with installation of strengthening elements around the whole perimeter of worktop support places on the cabinet and around the holes for sink and hob.



All worktop front edges 45-degree connected shall be strengthened by connection of back corners with rods which are glued with flexible glue. Gaps (cuts, holes for a hop or holes for mixer) shall be strengthened with strips, which are fixed on back side of the worktop. Never use reinforcing elements with different thermal expansion (e.g. of quartz, wood or stone) that may damage the worktop and 45-degree connections.

PROJECTIONS

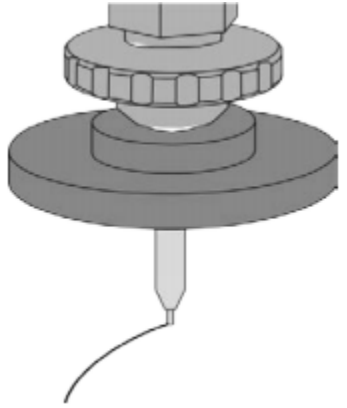
For worktops without back panel support, the recommended width of projection shall not exceed 152 mm - 203 mm. While worktops with holes installation, the width of projection shall be reduced to 76 – 101 mm. In case of installation of worktop with wider projection, it is needed to install back support and affix it to the strengthening construction.

WATERJET CUTTING

Processing parameters

Waterjet cutting	Cutting			Drilling		
	Thickness of tile	Velocity (mt/min)	Pressure (Bar)	Abrasiveness (g/min)	Pressure (Bar)	Abrasiveness (g/min)
	12 mm	0.7 – 1.0	3000 - 3500	350	90	150-200

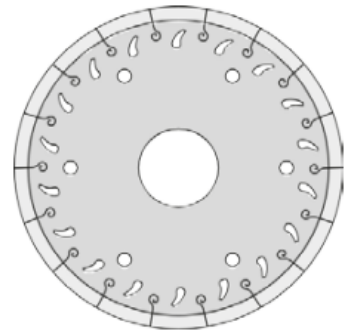
- Work table shall be flat, without bending, in working condition and clean.
- Keralini tile shall be duly fixed on the working surface.
- Processing begins from perimeter cutting 19 mm from outer edges.
- Minimum radius of all inner edges shall be 3 mm.
- Pressure and feed of abrasive shall be decreased while drilling of holes and profiles at an angle.
- While cutting of holes, first make inner hole and then make cutting along the perimeter of the planned hole.
- At the end of processing wash Keralini tiles with clean water.



CUTTING WITH BLADE

Processing parameters

Bridge saw	Straight cutter	Corner cutter	Disk diameter	Disk velocity
Tile thickness	Velocity (mt/min)	Velocity (mt/min)	mm	rpm
12 mm	1.0-1.5	0.7	300	2500
12 mm	1.0-1.5	0.7	350	2200
12 mm	1.0-1.5	0.7	400	1900



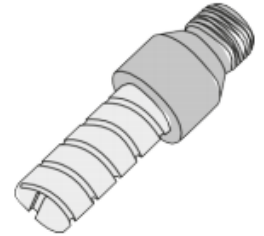
- Use diamond cutting disks for ceramic granite.
- Start the cutting process with lower speed of supply (feed) and cutting by 50%.
- To adjust the disc speed, we recommend a milling machine with a frequency variator.
- When cutting, tools must be cooled with water.
- All cutouts must have pre-drilled holes (minimum diameter 3 mm).

- When cutting at an angle of 45 degrees, you must limit vibration using the thickest diamond discs and reducing the speed by 50%. Bent top edges must be beveled.
- The rotation of the blade should always be in the same direction as the cutting.
- Making an L-shape cut, start drilling the hole at the interior angle (drill diameter 6.35 mm) then keep straight cutting.

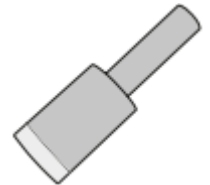
NUMERICAL CONTROL MACHINES

Processing parameters

Numerical control machine	Rpm	Velocity, mm/min
Column drill	4500 - 5500	500
Fingerlike drill	4500 - 5500	100 - 200



- Numerical control machine is mainly used for cutting holes for sinks and hobs, for finishing edge, for drilling edges and holes, and for manufacturing flush-mounted worktops.
- The machine must be equipped with a diamond tool suitable for processing ceramic granite.
- The suction cups on the worktable shall be fixed under the entire surface of tile and close to the place that will be cut during the cutting process.
- During processing, the tool must be cooled with water.
- When making cutouts, first drill the holes inside with diamond drill and then cut the perimeter with fingerlike drill, at the same time reducing the speed by 50% completing cutting. Finish the profiles processing by beveling the acute top corners and sanding the straight edge.
- All internal corners shall be processed with a minimum 12.7 mm drill.
- Never use the rocking option while using the fingerlike drill for tile processing.



EDGE PROCESSING

The processing of various types of edges (straight or cut edges) is carried out both using automatic equipment and manually. Crooked edges must be beveled with a 5-axis numerical control grinding machine. The top corners shall be always chipped by at least 3 mm.

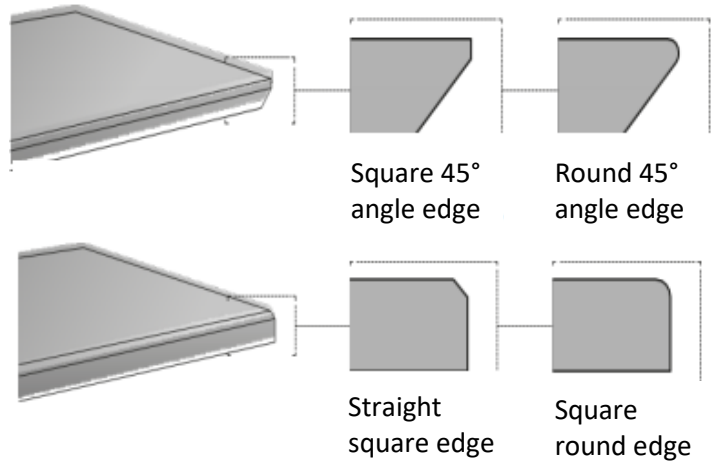
STRAIGHT EDGES

When making straight edge, the upper corners (square or rounded) must be stripped off at least for 3 mm.

Round and semicircular edges can be processed with use of numerical control machine equipped with a variety of grinding tools.

All visible edges along the kitchen countertop or sink holes can be finished with protective means.

Edge polishing can be done with sequential grinding with an abrasive diamond tool on a grinding machine or numerical control machine.



BEVELED EDGES

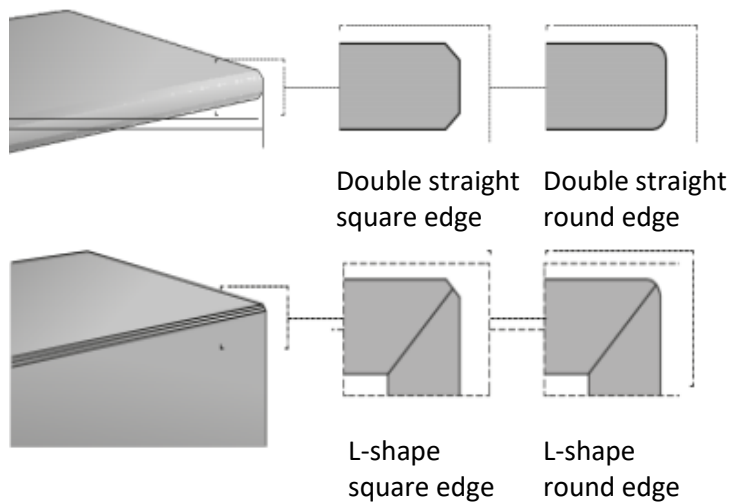
(AT 45° ANGLE)

Laminated L-shaped edges can have several uses, for example, for creating different heights partitions, recesses, continuous joints, or to create a built-in ceramic sink.

To avoid creating sharp edges, while cutting beveled edges stop the cutting process at 1 mm distance from the end surface.

The beveled edge shall be glued with epoxy two-component adhesive, taking into account the particular installation and withstanding the curing time of the adhesive.

Upon creating the edge, bevel the resulting top edge by 3 mm. All chamfered front edges should be strengthened by joining them to the back of the worktop using boards.



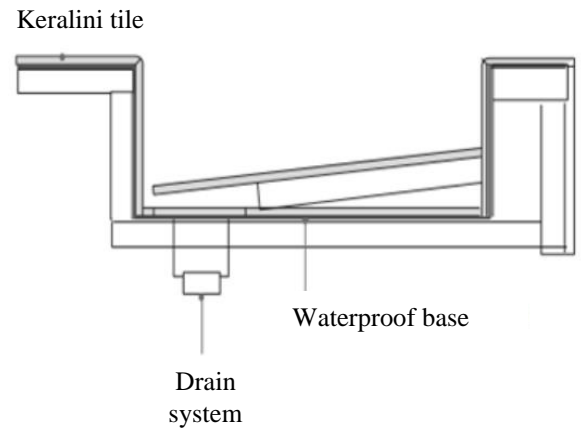
ADHERING

BUILT-IN SINK

In order to make kitchen of uniform appearance, Keralini tiles can be also used for the manufacturing of ceramic sinks.

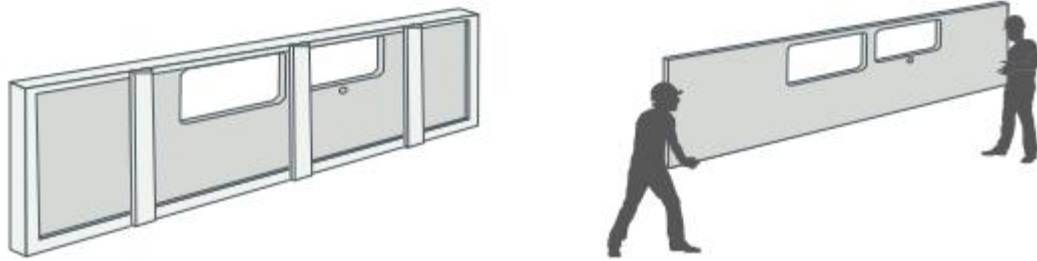
To do this, follow these steps:

1. Assemble the base of the sink using water-resistant and heat-resistant support panels that can withstand high loads. Alternatively, use an aluminum base for your sink.
2. Make a slope to drain the water.
3. Seal the base of the sink to ensure it is waterproof.
4. Cover the base of the sink with pre-cut Keralini tile strips, making sure that all inner holes are 6 mm in diameter.
5. Bevel all top edges.
6. Install and fix the drain system.



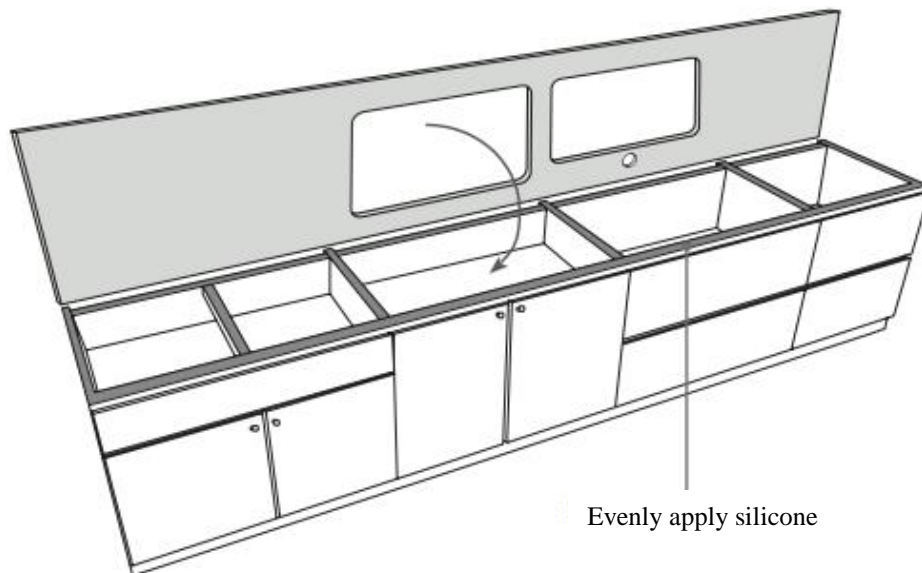
WORKTOP TRANSPORTATION AND INSTALLATION

The finished worktop must be packed in a suitable wooden frame. Special attention shall be paid to protection the cut-outs and holes for hobs and sinks. Use soft protective materials (e.g. foam or rubber) for this. When moving, the worktop should be upright. Avoid bending or curving the table top. Do not place other heavy objects on top of the product during transportation.



WORKTOP INSTALLATION

- Keralini tiles are self-supporting, so there is no support required for the back of the worktop. The installation of supports for the tile back is required only in the case of worktops with a projection of more than 149 mm.
- Cabinet base must be stable and perfectly flat.
- Tabletop must be fastened to the cabinet with silicone along the entire perimeter.
- If the worktop is made of 2 or more tiles, leave a minimum gap in the joints and fill the joint with silicone or epoxy solution.
- All upper corners shall have minimum beveling of 2 mm, as well as all edges in junction of 2 tiles (L-shaped worktop).
- Leave a minimum distance of 6 mm from the walls, which will subsequently be filled with silicone.
- Hanging sinks shall lean on support beams fixed inside of the base.



CLEANING AND MAINTAINANCE

Keralini tiles are very practical and do not require any special cleaning methods. They have excellent characteristics of resistance to staining, heat, scratches and damage from abrasive substances. Daily cleaning is carried out only with hot water or neutral cleaning supplies applied with a sponge or rag. Certain types of stains may require the use of certain cleaning supplies. For more information on these cleaning supplies, contact your manager.

It is highly important to clean the tile correctly and in a timely manner at the end of its processing, especially for tiles with a glossy surface. In particular, the hob shall be rinsed with clean water and dried.

All machining residues such as putties, mastics or silicones shall be removed from the tile surface before they are completely cured. Avoid direct use of hydrofluoric acid or its derivatives. Do not use abrasive pads on glossy surfaces.



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