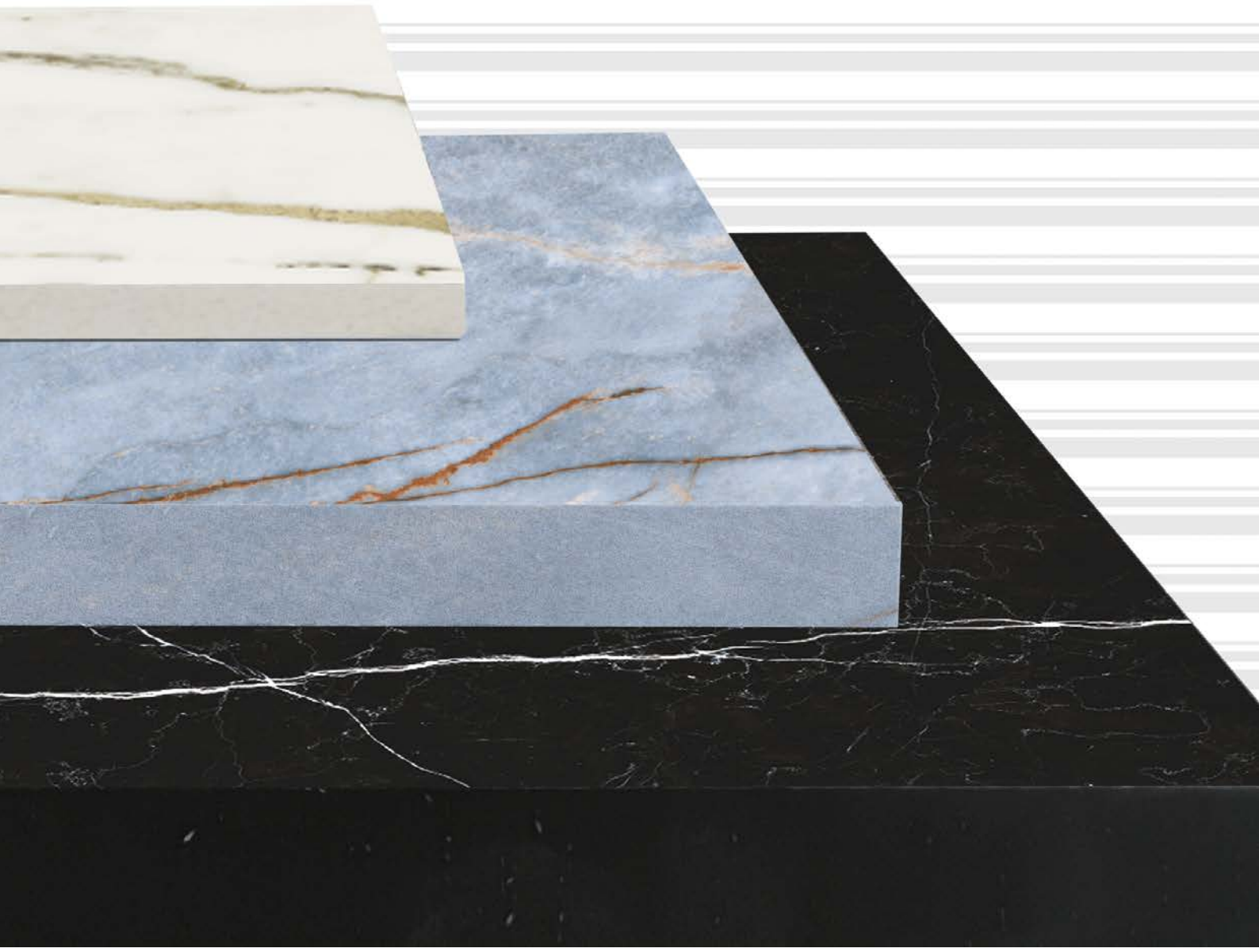
# FLORIM
## stone 6 12 20

EN



# Technical Manual

Edited 09/2024

FLORIM

Certified B Corporation

“Guardiamo al business come una forza positiva in grado di generare profitto e allo stesso tempo creare un impatto virtuoso sulle persone e sull’ambiente. Da sempre.

Le nostre scelte, giorno dopo giorno, ci hanno portato a migliorare il nostro modo di fare impresa.”

*“We conceive the business as a positive force able to generate profits and at the same time create a virtuous impact on people and the environment. Since forever.*

*Our choices, day after day, have led us to improve our way of doing business.”*


Ci siamo misurati con **alti standard di performance sociale e ambientale** e dopo un lungo e rigoroso processo di verifica **siamo diventati B Corp.**

*We vied with **high social and environmental performance standards**, and after a long and scrupulous verification process, we became a B Corp certified company.*

Le B Corp costituiscono un movimento globale di ‘Purpose Driven Businesses’ che ha l’obiettivo di diffondere un **nuovo paradigma economico**, che vede le imprese come protagoniste nella diffusione di modelli di business per un’economia più equa e inclusiva.

*B Corps constitute a global movement of ‘Purpose Driven Businesses’ with the goal of spreading a **new economic paradigm**, where companies play a leading role in promoting business models for a fairer and more inclusive economy.*

**Scopri di più:**
*Find out more:*

Siamo orgogliosi di far parte di un **cambiamento culturale epocale** e rientrare tra il 3% delle imprese che sono riuscite a raggiungere la certificazione.

*We are proud to be part of an **epochal cultural change** and to belong to the 3% of companies that have successfully achieved certification.*

Il nostro risultato non è altro che la conseguenza di molteplici attività compiute negli anni passati: dal 2008 redigiamo il **Bilancio di Sostenibilità** e il 19 marzo 2020 siamo diventati **Società Benefit**, formalizzando il nostro impegno a migliorare l’impatto positivo sulla società e sull’ambiente.

*Our result is nothing more than the consequence of multiple activities carried out in past years: since 2008, we have prepared the **Sustainability Report**, and on March 19, 2020, we became a **Benefit Corporation**, formalizing our commitment to improving our positive impact on society and the environment.*

CARBON ZERO

Sono le superfici
Carbon Neutral di Florim
che **compensano tutta la $CO_2$**
emessa durante il loro ciclo di vita.

*Florim's Carbon Neutral surfaces*
***offset all the $CO_2$** emitted during*
*their lifecycle.*


**Misuriamo** l'impatto ambientale delle nostre superfici, dalle materie prime allo smaltimento.

***We measure** the environmental impact of our surfaces, from raw materials to disposal.*

**Riduciamo** l'uso di risorse naturali e abbattiamo le nostre emissioni grazie a un processo produttivo più sostenibile: fino al 100% in termini di acqua, energia elettrica e recupero degli scarti crudi.

***We reduce** the use of natural resources and lower our emissions through a manufacturing process that is more sustainabile: up to 100% in terms of water, electricity, and raw waste recovery.*

**Compensiamo** tutta la $CO_2$ emessa durante il ciclo di vita, creando collezioni Carbon Neutral.

***We offset** all the $CO_2$ emitted during the lifecycle creating Carbon Neutral collections.*

**Scopri di più:**
*Find out more:*

## INTRODUCTION

This manual provides technical and practical information for the correct use of **FLORIM stone** slabs, including technical specifications, fabrication techniques and packaging, handling, storage and maintenance guidelines.
These instructions, combined with the experience and skill of the fabricator, will enable you to get the most out of the product.

# FLORIM
stone 6 12 **20**

## PRODUCT

When **nature** meets **technical innovation**, the result is **FLORIM stone**, a porcelain stoneware surface developed to fulfil a wide range of applications.

A brand that seeks to combine the **functionality** and performance of the material while allowing maximum scope for **customisation**. **FLORIM stone** is available in a single large size (320x160 cm) and a choice of **four thicknesses 6, 6*, 12*** and **20 mm**.

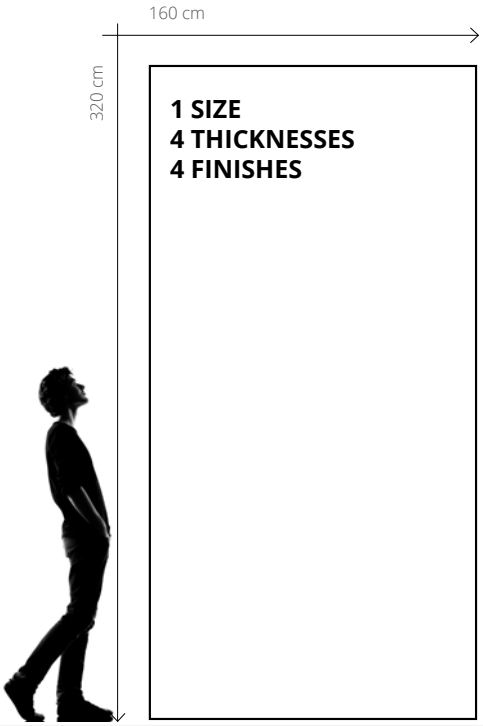
Slabs with a **thickness of 6 mm** are also available, in 4 continuous patterns**. These are supplied rectified and non-mesh mounted only, with nominal dimensions of 320x160 cm.

The numerous texture and colour options proposed by the brand are available in several finishes, allowing interior designers to offer creative flexibility and excellent technical and aesthetic performance. Architectural solutions for exteriors and interiors on both horizontal and vertical surfaces, including kitchen worktops, their accessories, basins, bathrooms, doors and fittings, can at last be customised in style and design without half measures.

**FLORIM stone** opens the door to exceptional creative versatility in aesthetics and colour: a range of surfaces with various designs to suit the most varied of styles. The quality of the material, the attention to detail and the ease of transformation are the distinctive elements of the Florim product, guaranteed by over fifty years of experience and technological and aesthetic research. **FLORIM stone** surfaces are crafted from a natural blend of select ceramic clays and mineral-based colours. These surfaces combine the timeless qualities of porcelain stoneware with the aesthetic appeal of natural stone, concrete and oxidised metals.

* glass fibre reinforced material. The actual thickness of the material and its mesh is 6.7 mm and 12.7 mm, respectively.

** The drawing is indicative. As with natural material, graphics may show vein discontinuities in the transition from one slab to another. For this reason, differences of up to 1.5 cm must be considered as a product characteristic. The sequence of the faces is not guaranteed when placing the order.




| | |
|---|---|
| | **Resistant to low concentrations of acids and alkalis**<br>**Resistant to household chemicals** |
| | **Easy to clean**<br>**Stain resistant** |
| | **Abrasion resistant**<br>**Wear resistant** |
| | **Waterproof** |
| | **Resistant to high temperatures** |
| | **Cut-to-size service available** |
| | **High flexural strength** |
| | **Hygienic**<br>**Resistant to fungi and bacteria** |

## Logistics and Handling / **Shipping and storage**


### A-frames, Picking Composition and Handling

The manufactured slabs are placed on properly labelled A-frames suitable for transport and storage.

EMPTY A-FRAME IN GALVANISED SHEET METAL

EMPTY A-FRAME WEIGHT: 339x75x185.7H cm 130 kg

## METAL A-FRAME PICKING PREPARATION

MANUAL PICKING

## METAL A-FRAME IN-LINE PREPARATION

AUTOMATIC

## A-FRAME PACKAGING AND LABELLING

Identification labels showing the customer's name, material contained on the A-frame and the standards that regulate the export formalities are automatically applied to the outside of the package.

COMPLETE A-FRAME READY FOR SHIPMENT

## A-FRAME HANDLING

FLORIM stone slabs must be handled (for loading and unloading) and transported using an appropriate forklift, crane or any other handling device. Always take great care to balance the load during handling and transportation.

- Spread the forklift forks as wide as possible for higher stability of the A-frame during movement.

- Insert the forks under the A-frame, bringing it as close as possible to the forklift mast for higher load stability and to avoid oscillations.
  Maintain a low speed and, since movement will be in reverse, always check for obstacles.

**N.B.** Unless otherwise agreed, products are always sold ex-works **FLORIM Ceramiche S.p.A. SB.**
The goods travel at the Buyer's own risk and peril. Our liability ceases once the goods are delivered to the carrier. Any claims by the Buyer following the necessary inspections should be directed to the carrier. International sea or road shipments are made based on conditions agreed upon on a case by case basis, following the "Incoterms" rules approved by the International Chamber of Commerce.

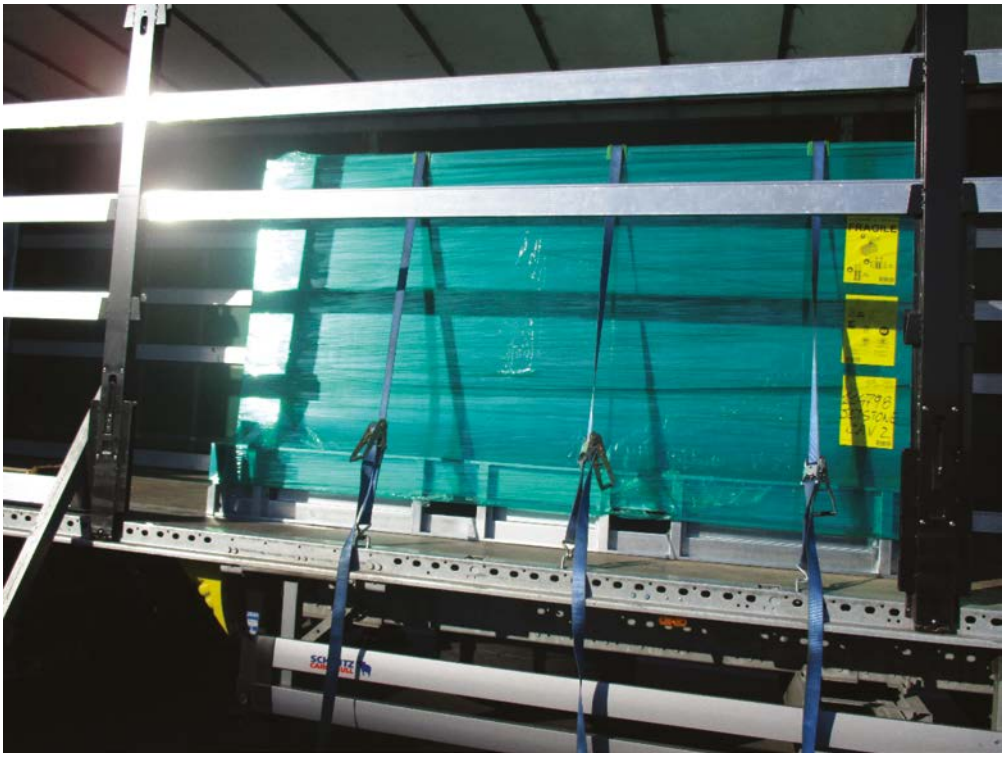
## TRUCK LOADING AT FLORIM

Use a forklift with a capacity of at least 4,000 kg.

Arrange the A-frame so that the weight is evenly distributed on the vehicle, also following the instructions given by the driver. Place an airbag between one A-frame and the other if necessary.

## MAKING THE TRUCK CARGO SAFE

Once loaded, check to ensure that the hauler secures the A-frames to the truck bed with straps.



## CONTAINER LOADING AT FLORIM


Use a forklift with a capacity of at least 6,000 kg and equipped with 2.7-metre forks.

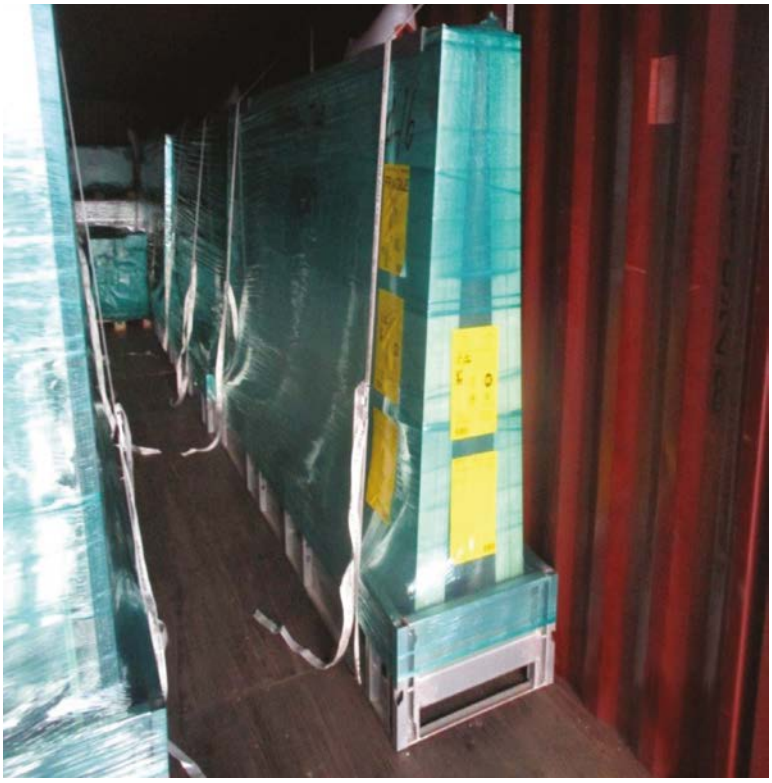
The forks should be inserted from the short side, arranging the A-frame on the container in accordance with the certified loading diagram.

## MAKING THE CONTAINER CARGO SAFE

20’ CONTAINER LOAD

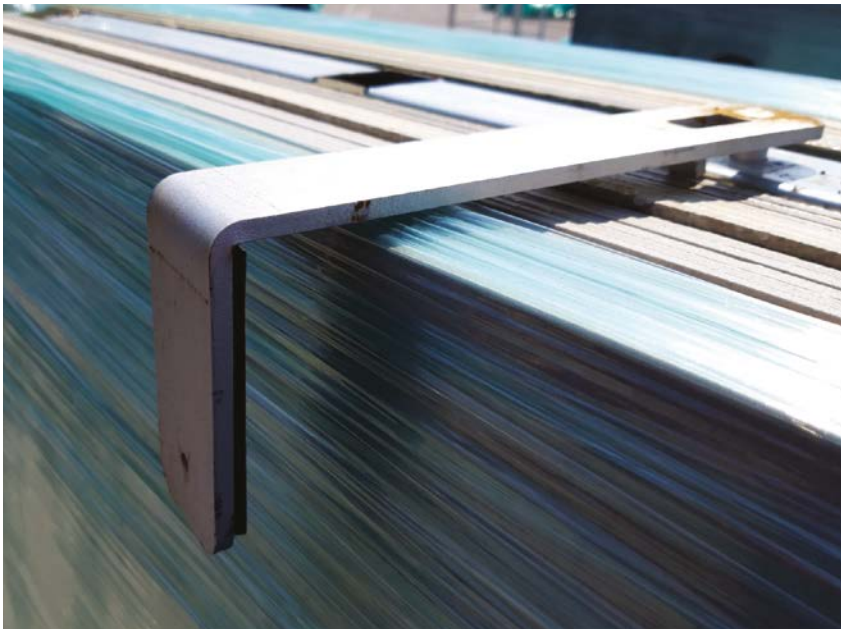
A-frames adjacent to the walls are secured to the container using appropriate straps.

The central A-frame is secured in position with air bags.



40’ CONTAINER LOAD

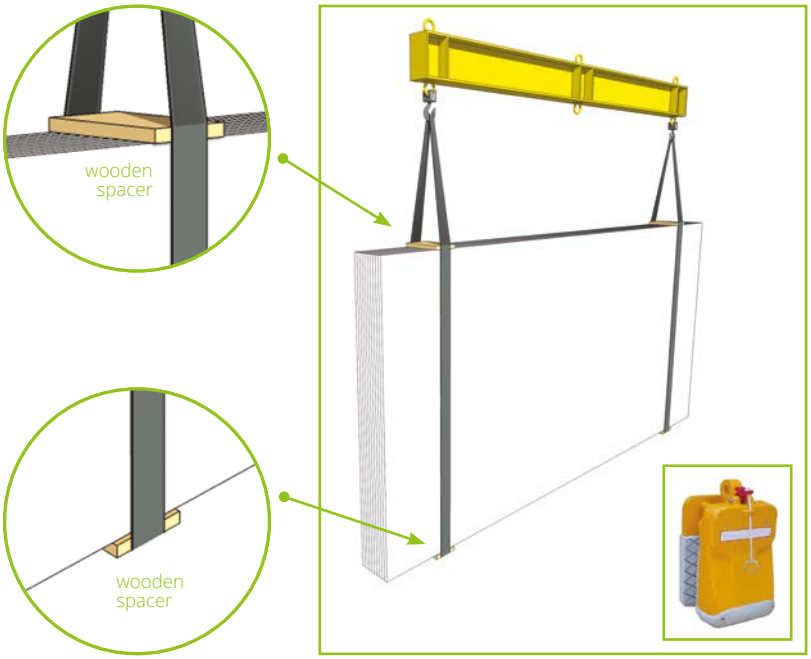
## OPENING THE PACKAGING



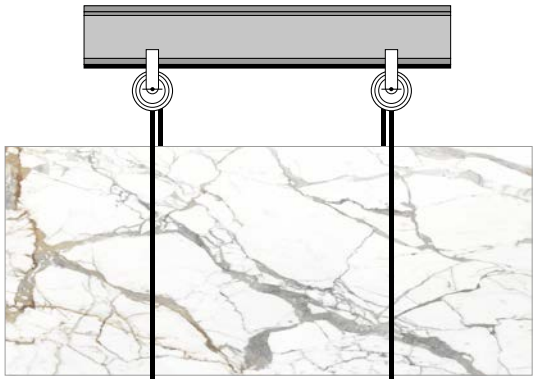
Extract the safety hook and turn it 90° (one per side) to secure the slab pack. Then, cut the wrap on the narrow side before proceeding with the removal of the slabs.

## HANDLING THE SLABS

Any major blows and bumps could cause the material to break. Do not place any other material on top of the slabs. Always use caution during handling to prevent impacts or bumps that could cause the slabs to chip or break. Individual slabs should also be picked up with caution, positioning the gripper in the middle and strictly within the weight limits specified for your equipment. To pick up multiple slabs a lifting beam is essential. Use canvas straps coated with cut-resistant rubber, properly spaced taking all the suitable safety measures. It is advisable to place a wooden spacer larger than the slab thickness pack both at the bottom and on the top, in order to decrease the weight and pressure applied to the slabs. Do not use steel cables or chains as these could damage the slab's surface and edges.



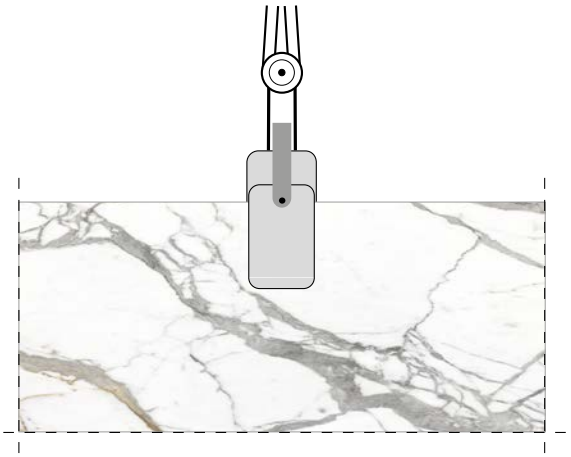

Note:
If storing slabs on an A-frame not supplied by us, we recommend using a continuous and rigid resting base (possibly made of wood).
If storing outdoors, we recommend covering the slabs with a waterproof tarpaulin.



Cut pieces may be sharp on their sides and corners. Wear safety gear and handle with extreme care.

Individual elements (even without holes) must always be lifted by their edges. Fabricated material must be packed in crates with bumpers, corner protectors and padded panels of appropriate thickness around the perimeter to protect against blows.

Inadequate packaging can lead to product damage.



## HANDLING AND PACKAGING

FLORIM stone slabs must be loaded, unloaded and transported using an appropriate forklift, crane or any other handling equipment. Always be sure to balance the load when handling and transporting it.

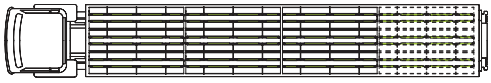
| Information | U.M. | **THICKNESS 6 mm** Values | **THICKNESS 6 mm w/MESH** Values | **THICKNESS 12 mm w/MESH** Values | **THICKNESS 20 mm** Values |
|---|---|---|---|---|---|
| Slab surface area | m² | - | 5.28 | 5.28 | 5.28 |
| Slab surface - U.S | m² | - | 5.12 | 5.12 | 5.12 |
| Slab surface - R | m² | 5.12 | - | - | - |
| Slab weight | kg | 65 | 71.2 | 152.91 | 254.84 |
| Weight per m² | kg | 12.70 | 13.49 | 28.96 | 48.27 |
| Slabs per A-frame | no. | 44 | 44 | 22 | 12 |
| m² per A-frame U.S./R | m² | 225.28 | 225.28 | 112.64 | 61.44 |
| A-frame weight | kg | 135 | 135 | 135 | 135 |
| Complete A-frame weight | kg | 3,000 | 3,268 | 3,500 | 3,194 |
| A-frame dimensions | mm | 3,390x750x1,857 | 3,390x750x1,857 | 3,390x750x1,857 | 3,390x750x1,857 |

The number of slabs per A-frame varies depending on the thickness of the selected material.

The carrier is responsible for safely securing the material during loading.

## TRUCK

**Capacity:** 14,000 kg



| Technical Information | U.M. | **THICKNESS 6 mm** Values | **THICKNESS 6 mm w/MESH** Values | **THICKNESS 12 mm w/MESH** Values | **THICKNESS 20 mm** Values |
|---|---|---|---|---|---|
| Total A-frames that may be loaded* | no. | max 3 | max 3 | max 3 | max 3 |
| Total gross weight | kg | max 9,000 | max 9,900 | max 10,500 | max 9,600 |
| total m² | m² | - | 696.96 | 348.48 | 190.08 |
| total m² U.S./R | m² | 675.84 | 675.84 | 337.92 | 184.32 |

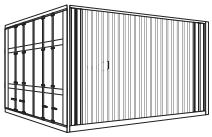
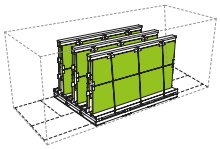
*The displayed data varies based on the size of the tractor truck

## SEMI-TRAILER

**Capacity:** 24,000 kg

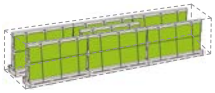
| Technical Information | U.M. | **THICKNESS 6 mm** Values | **THICKNESS 6 mm w/MESH** Values | **THICKNESS 12 mm w/MESH** Values | **THICKNESS 20 mm** Values |
|---|---|---|---|---|---|
| Total A-frames that may be loaded | no. | max 6 | max 6 | max 6 | max 6 |
| Total gross weight | kg | max 18,000 | max 19,610 | max 21,000 | max 19,200 |
| total m² | m² | - | 1,393.92 | 696.96 | 380.16 |
| total m² U.S./R | m² | 1,351.68 | 1,351.68 | 675.84 | 368.64 |

## 20' BOX CONTAINER**

| Technical Information | U.M. | THICKNESS 6 mm Values | THICKNESS 6 mm w/MESH Values | THICKNESS 12 mm w/MESH Values | THICKNESS 20 mm Values |
|---|---|---|---|---|---|
| Total A-frames that may be loaded | no. | max 3 | max 3 | max 3 | max 3 |
| Total slabs per container | no. | max 132 | max 132 | max 66 | max 36 |
| Total gross weight | kg | max 9,000 | max 9,800 | max 10,500 | max 9,600 |
| total $m^2$ | $m^2$ | - | 696.96 | 348.48 | 190.08 |
| total $m^2$ U.S./R | $m^2$ | 675.84 | 675.84 | 337.92 | 184.32 |

## 40' BOX CONTAINER**

| Technical Information | U.M. | THICKNESS 6 mm Values | THICKNESS 6 mm w/MESH Values | THICKNESS 12 mm w/MESH Values | THICKNESS 20 mm Values |
|---|---|---|---|---|---|
| Total A-frames that may be loaded | no. | max 7 | max 7 | max 7 | max 7 |
| Total slabs per container | no. | 308 | 308 | 154 | 84 |
| Total gross weight | kg | max 21,000 | max 23,000 | max 24,500 | max 22,400 |
| total $m^2$ | $m^2$ | - | 1626.24 | 813.12 | 443.52 |
| total $m^2$ U.S./R | $m^2$ | 1576.96 | 1576.96 | 788.48 | 430.08 |

U.S.: Usable Surface - Material is supplied not rectified, with approximate dimensions of 163x324 cm (64⅛"x127⅝") A Usable Surface of 160x320 cm (63"x126") is guaranteed after rectification.

**While handling a container load, the weight limits imposed by any port of entry must be duly respected.

The information contained in the above tables is as accurate as possible, but should not be considered legally binding.
Florim Ceramiche S.p.A. reserves the right to change and update the packaging (A-frame type, size, number of slabs, etc.) at any time without prior notification.

## ACCESSORY DETAILS

### A-frame

FLORIM stone A-frame made of shaped and welded galvanised sheet metal, with vertical rubber resting surface for the slabs.

Detail: resting surface for the slabs.

## ACCESSORY DETAILS

### Additional characteristics

The FLORIM stone A-frames are easily stackable, letting you save space when storing empties.

They have a hooking point to facilitate container unloading operations.

Note: The hooks are solely designed for dragging the A-frame and cannot be used for lifting.

Detail of **closed** hooks for dragging the galvanised A-frame

Detail of **open** hooks for dragging the galvanised A-frame

## ACCESSORY DETAILS

### Safety features

FLORIM Stone **A-frames** feature a slab pack containment system consisting of two mechanical clips per unit.

Always secure the slabs when opening the A-frame.

### Safety of the cargo in the container

Storage of the A-frames in the containers requires the following:


**a.** Securing the two external A-frames with high-resistance straps and buckles to the specific hooks.

**b.** Inserting air bags between the A-frames and between the container walls and the A-frames.

## GOODS RECEIVING AND QUALITY CONTROL

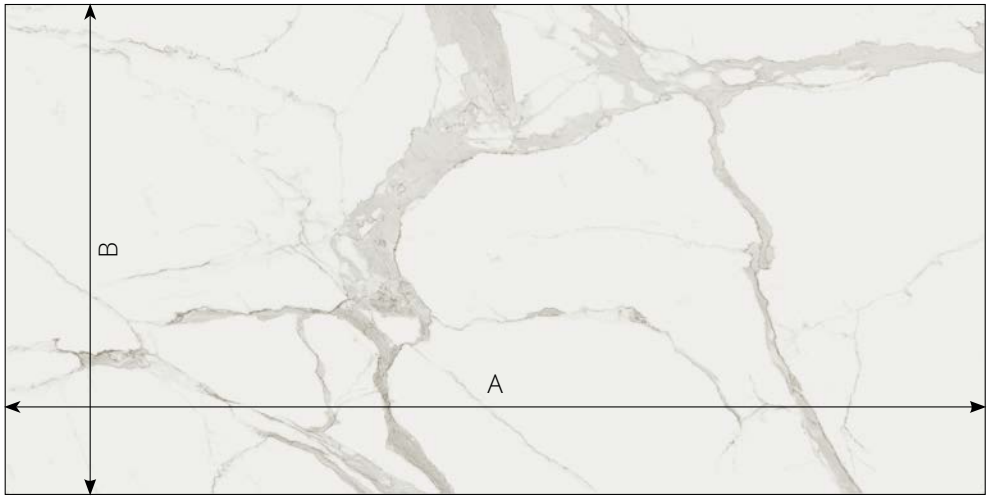
### GOODS RECEIVING

• Check that the shipping documents, order and goods received match.

• Check the external integrity of the packaging (absence of visible impacts or deterioration).

• Open the packaging, checking at least the first slab for shade, appearance and overall material condition (see handling manual).

### DIMENSIONS




| Dimensions | | | | |
|---|---|---|---|---|
| | Rectified | | Not rectified (approximate measurement) Working size 3200x1600 mm | |
| Slab thickness (mm) | A (mm) | B (mm) | A (mm) | B (mm) |
| 6 | 3197 | 1597 | 3240 | 1630 |
| 12 | | | 3240 | 1630 |
| **20** | | | 3240 | 1630 |

### THICKNESS

| Nominal thickness | **Tolerance mm** |
|---|---|
| 6,0 mm w/out mesh | +/- 0.3 |
| 6.7 mm mesh | +/- 0.3 |
| 12.7 mm mesh | +/- 0.5 |
| **20 mm** | +/- 0.5 |

## GOODS RECEIVING AND QUALITY CONTROL

### SURFACE APPEARANCE

Before fabrication

• Check every single slab. **FLORIM stone** slabs are obtained by processing raw materials of natural origin. Examine the slabs in natural light from a distance of 60 cm and perpendicular to the surface.
Small imperfections are considered to be acceptable with the following limitations:

• Contamination (points of colour other than the graphics in strong contrast with the background colour): up to 1 mm

• Holes: up to 1 mm

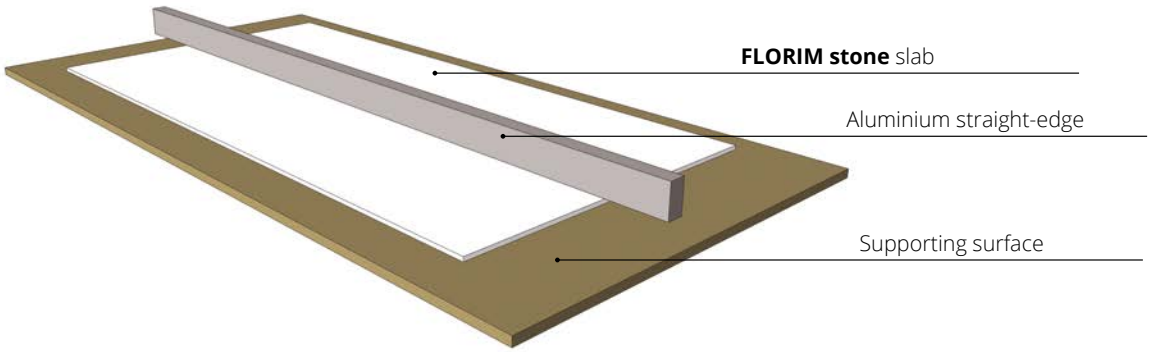
• Raised bumps (low contrasting colour with the background): up to 3 mm in diameter and 1 mm thick in relation to the background

• For the PURE WHITE colour only, black points up to 1 mm in diameter are allowed. The concentration of points in a contrasting colour smaller than one mm in diameter is limited to 6 per square decimetre.

### FLATNESS

• The flatness of the slab should be checked as follows:

- Rest the slab on a perfectly horizontal and stable surface.
- Using an aluminium straight-edge, check the shifts in the central point of the slab and/or at the ends.
- Criteria for acceptance: see the technical data sheets for each product series, available on the website



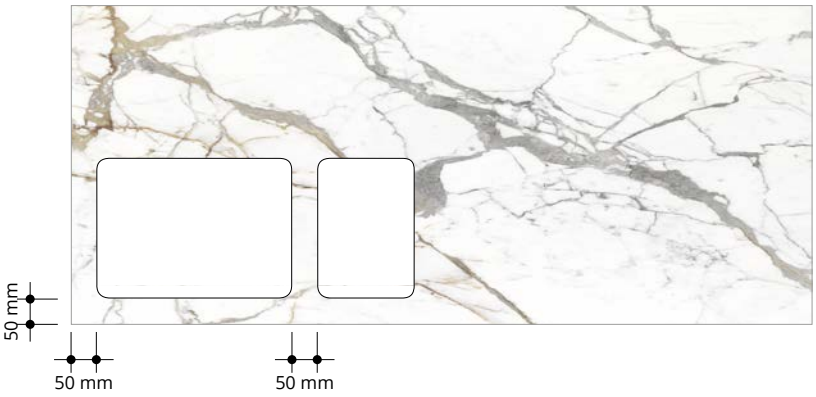

### IDENTIFICATION LABEL


Every single slab is stamped on both sides with: code, article and identification colour of the lot.

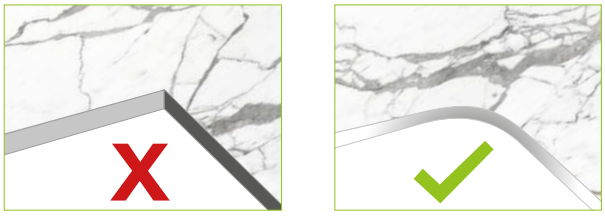
## DESIGN

In the design drawing, which may include the cutting of one or more slabs, the following must be taken into consideration:

- The design distances must be confirmed by measurements at the job site.
- The minimum distance permitted between holes or cut-outs and/or from the edge of the slab is 5 cm (we recommend leaving 8 cm of space between cooking surface and backsplash for gas cooking surfaces).



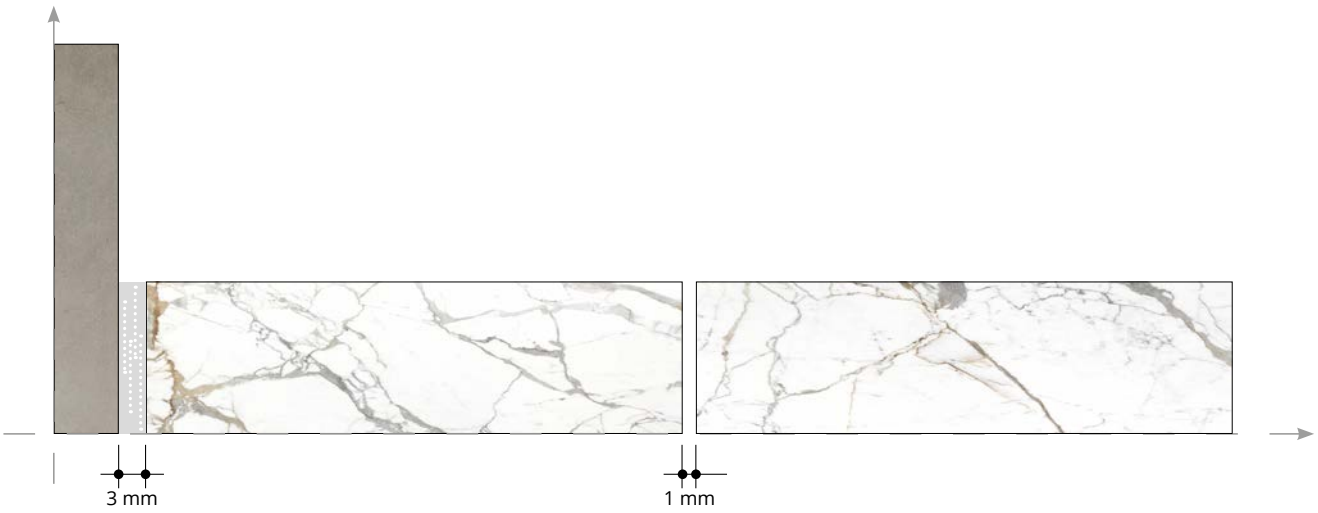

- All the internal corners of holes and cut-outs must have a constant radius, equal to at least 3/16" (5 mm).



- If the project includes the use of multiple slabs, assess the direction of the material's graphic.
- Creating complex shapes (such as "L" or "C" configurations) from a single slab (monolithic top) results in a covering element that will be more fragile during handling and installation. Additionally, it will be more vulnerable to stress from the underlying structure. Evaluate the option of subdividing the surface into multiple elements.
- "When processing multiple slabs to achieve graphic continuity (e.g. book matching), exercise caution when cutting the portions that need to be paired. As with natural stones, this type of processing, even when executed to the highest trade standards, may result in minor graphic shifts. Florim will not accept claims for this."
- Some product series feature continuous patterns. Check the catalogue or our website page https://www.florim.com/en/florimstone/collections/ for the specific characteristics and unique features of the product series of interest to you.

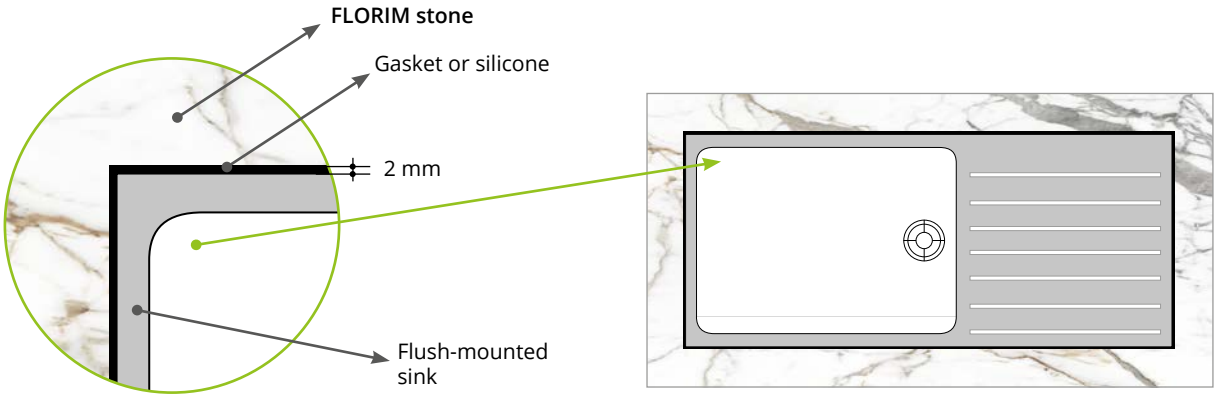
## DESIGN

• Ensure there is a minimum 3 mm gap serving as an expansion joint between the product and the wall; for seaming, a 1 mm gap between slabs is recommended.




Sealing side view

• Flush-mount housing and cut-outs for the elements to be flush-mounted (sinks, cook tops, etc.) must provide an additional perimeter space of about 2 mm serving as an expansion joint.

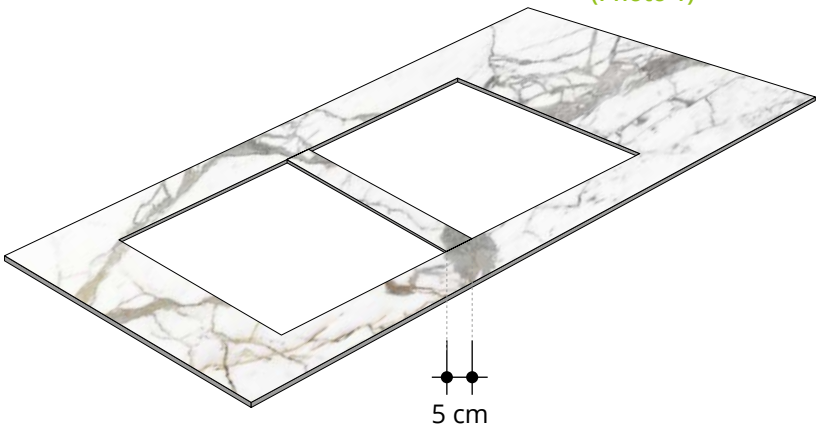


## DESIGN

• When dealing with large openings on the surface (exceeding 70 cm), we recommend creating a pre-incised strip about 5 cm wide at the centre of the opening along the shorter side. This strip can be removed after installation and helps facilitate handling and installation, making the process less critical. **(Photo 1)**

• When a large opening requires polishing during the fabrication process, we recommend the use of a "sink hole saver edge bar" for transportation. **(Photo 2)**

**(Photo 1)**




**(Photo 2)**

## DESIGN

### SUBSTRUCTURE

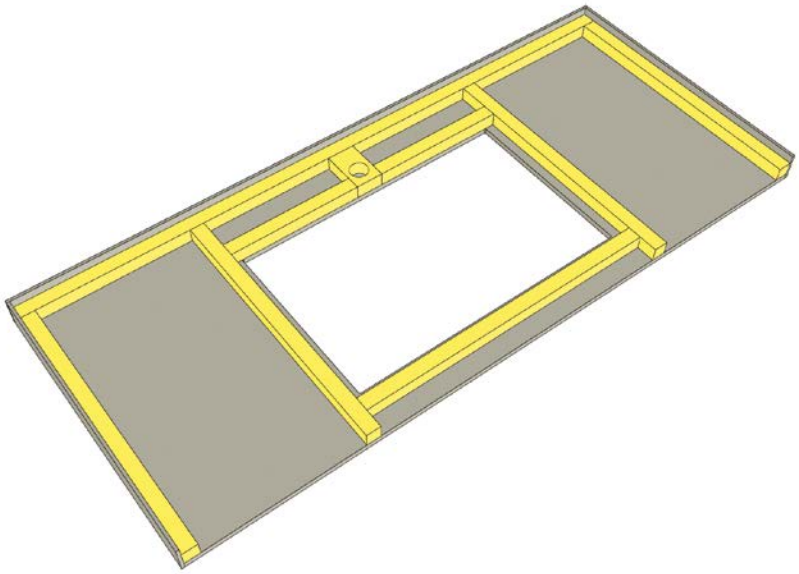
FLORIM stone slabs with a 12 mm thickness (with mesh) or a 20 mm thickness do not require gluing to a continuous substrate. Slabs with a thickness of 6 mm, whether with or without mesh, should always be affixed to a continuous and suitable structure.

The substrate material must be rigid, dimensionally stable in the conditions of use and with a thermal expansion coefficient similar to that of FLORIM stone. For both indoor and outdoor applications, do not use supports in wood, composite materials (i.e. engineered stone) or any materials with a significantly different thermal expansion coefficient than that of ceramic material (6/7 M°K-1).

Material with a 12 mm thickness including mesh must be glued to latticed substrate
(perfectly aligned cabinet bases or substrate), 60x60 cm.

Material with a 20 mm thickness must be glued to latticed substrate.
(perfectly aligned cabinet bases or substrate), 90x90 cm
Gluing to the structure must be carried out with a continuous bead of silicone or another elastic adhesive.

### ACCESSORY ELEMENTS



For sink cut-outs and cook tops made with 12 mm slabs with mesh, position reinforcements along the internal perimeter. Arrange them to distribute the additional weight onto the cabinet structure.

Large sinks or sinks mounted below the countertop surface must be provided with extra support. Arrange support bars for the bottom of the sink connected to the cabinet structure.

For example, use strips approximately 10 cm wide made of granite, porcelain stoneware or high-density polyurethane on the back of the countertop using silicone, installing them at about every 60 cm of length.

These strips enhance rigidity, which proves beneficial during both transport and installation.

Flush-mount housing cannot be used for 6 mm thick FLORIM stone slabs.

## DESIGN

### OVERHANG INDICATIONS

FLORIM stone slabs with a thickness of 6 mm are not suitable for overhangs, even when supported.
FLORIM stone slabs with thicknesses of 12 mm and 20 mm are suitable for overhang design.

Important: When there are holes or openings on the slab positioned less than 15 cm from the edge of the cabinet, creating an overhang is not recommended. However, if the holes or openings are between 15 and 60 cm from the edge, the depth of the overhang should be reduced by 50% compared to the guidelines provided below.

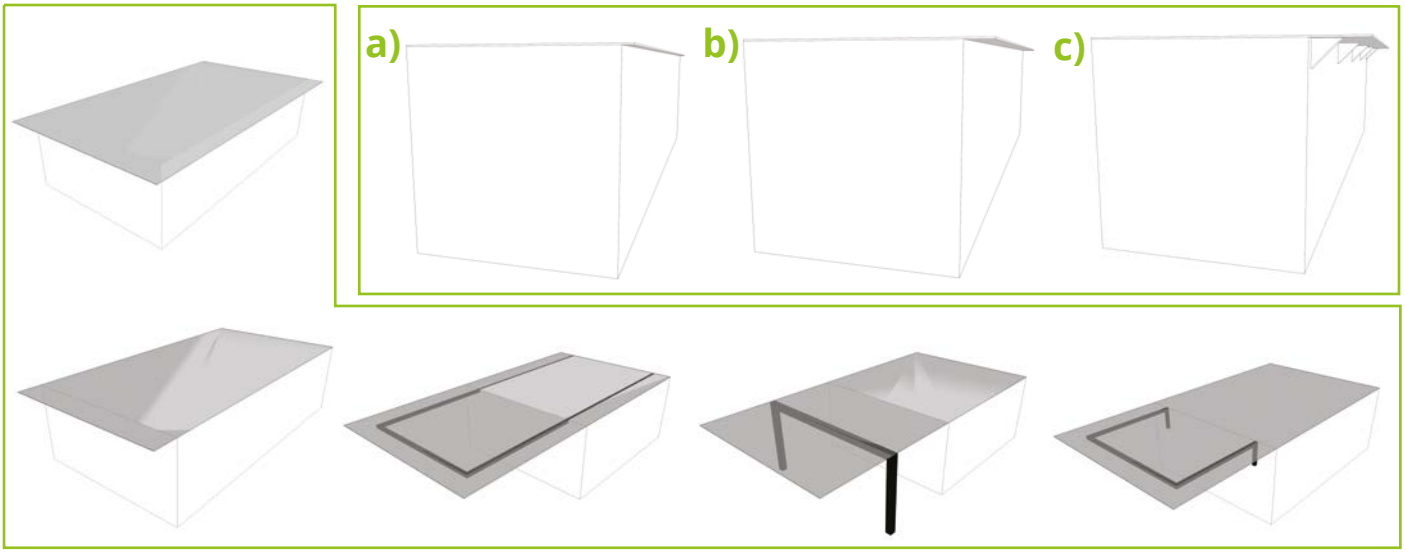
FLORIM recommends:
a. Overhang up to 15 cm without support for slabs with a thickness of 12 mm including mesh and up to 30 cm for slabs with a thickness of 20 mm*.
b. Overhang from 15 cm to 30 cm for slabs with a thickness of 12 mm including mesh and from 30 to 45 cm for slabs with a thickness of 20 mm only with supports connected to the cabinets' load-bearing structure*.
c. To create wider overhangs, rigid support structures must be prepared.

*in the described configuration, FLORIM stone withstands loads as per the table:

| Overhang / Thickness | 12 mm | 20 mm |
|---|---|---|
| 15 cm | 500 kg | 1400 kg |
| 30 cm | - | 700 kg |
| 30 cm with 3 equally-spaced 20 cm-long brackets | 500 kg | 1000 kg |
| 45 cm with 3 equally-spaced 30 cm-long brackets | - | 650 kg |

**Notes:** The data in the table are based on mathematical calculations and should be considered approximate. The load calculated refers to the static load—distributed evenly along the span between the brackets—of a slab overhang with a length of 60 cm and a depth equal to the indicated overhang.

Bear in mind in the design phase:
• possible overloads due to dynamic loads
• impacts (see technical table for impact resistance data)
• safety: when creating an overhang for tables or countertops, it is common to fully or partially remove the mesh from the 12 mm thick material. This reduces the slab's ability to withstand impact.



## SURFACE

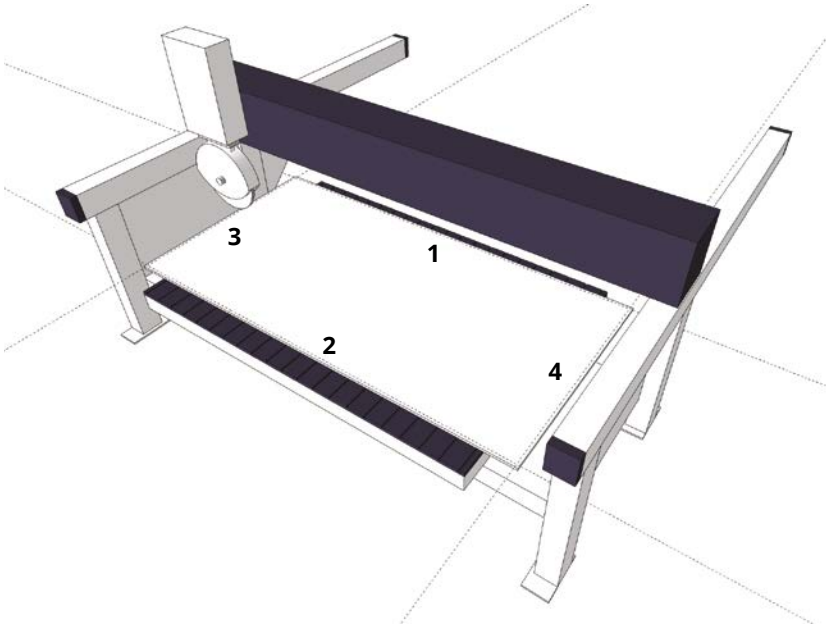
### 1. Disc cutting: Key specifications and adjustments

The following are the parameters to keep in mind for disc cutting:

- Disc thickness and diameter: during cutting, the disc experiences vibrations that resonate through the ceramic material. It is advisable to use flanges to increase rigidity.
- Vibrations, in their turn, can impact cut elements if they are of smaller dimensions.
- Rotation speed: select it within the recommended working range for the specific tool.
- Feed rate: as the feed rate increases, the finish tends to deteriorate.
- Disc's state of wear.

### CUTTING

Before any fabrication begins, the entire perimeter of the slab must be trimmed by at least 1.5 cm.
We recommend using a bridge saw after ensuring that the workbench is clean, free from debris, in a good condition and flat.
The trimming sequence is:
The entire length of both horizontal sides (**1-2**)
The entire height of both vertical sides (**3-4**)



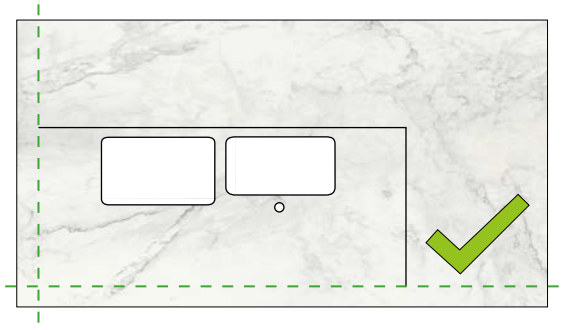
## SURFACE

### Remember the following:

- Slab handling and positioning: ceramic is inherently fragile; exercise care during handling, avoiding impacts that could lead to breakage later on.
- The disc must be properly cooled; make sure that the nozzles deliver the right water flow and that the jets are pointed in the right direction.
- The disc must pierce through the thickness of the slab by 1 mm;
- Revive the tool on a regular basis (generally when the ammeter reading increases by 2 to 3 points) using abrasive sticker, quartz or other sharpening stone.
- Reduce the input and output cutting speed by approximately 50% for the initial and final 40 cm;
- If the cut is a straight cut, we recommend maintaining a continuous operation, without stopping, until completion.
- When creating complex shapes or cut-outs, first drill at the connection points using core drill tools (minimum diam. 35 mm) or a hollow cutter, making sure to cut through the slab's entire thickness.
- For cut-outs, the holes can be connected with a bridge saw. The disc's lowering speed must not exert mechanical force on the slab.

### Cut design and sequence

We suggest obtaining the backsplashes, strips and other straight portions from the outermost parts of the slab.
As much as it is viable, cut-outs should be positioned towards the centre of the slab.
Always allow a minimum of 5 cm between the hole and the edge of the slab.
Ensure that cut-outs are not at a straight angle but rather curvilinear, with a minimum radius of 5 mm.



## SURFACE

### Bridge saw specifications (approximate)

The following two tables contain approximate data for conventional discs (which have reduced rpm and lower cutting speed) and high-performance discs (with higher rotation and cutting speeds).

| MATERIAL THICKNESS | BLADE DIAMETER | RPM | FEED RATE STRAIGHT CUT M/MIN | FEED RATE MITRE CUT 45° M/MIN | DISC LOWERING SPEED FOR CUT-OUTS MM/MIN |
|---|---|---|---|---|---|
| 6 - 12 MM | 350 | 1800 - 2000 | 1.0 - 1.4 | -50% | 15-25 |
| | 400 | 1600 - 1800 | 1.0 - 1.4 | | |
| **20 MM** | 350 | 1800 - 2000 | 0.8 - 1.0 | -50% | 15-25 |
| | 400 | 1600 - 1800 | 0.8 - 1.0 | | |

| MATERIAL THICKNESS | BLADE DIAMETER | RPM | FEED RATE STRAIGHT CUT M/MIN | FEED RATE MITRE CUT 45° M/MIN | DISC LOWERING SPEED FOR CUT-OUTS MM/MIN |
|---|---|---|---|---|---|
| 6 - 12 MM | 300 | 3100 - 3300 | 1.8 - 2.2 | -50% | 15-25 |
| | 350 | 2800 - 3000 | 1.8 - 2.2 | | |
| | 400 | 2500 - 2700 | 1.8 - 2.2 | | |
| **20 MM** | 300 | 3000 - 3600 | 1.2 - 1.6 | -50% | 15-25 |
| | 350 | 2600 - 3200 | 1.2 - 1.6 | | |
| | 400 | 2250 - 2800 | 1.2 - 1.6 | | |

**N.B.: These specifications are approximate; refer to the technical data sheets for your specific tools**

### Slab handling

## 2. WATERJET CUTTING

Before any fabrication begins, check the machine's condition as follows:

- The table must be level and the fins must be in a good condition.
- Verify the water level and abrasive flow.

To prevent any movement that could affect the cut, we recommend securing the slab on two sides. While machine manufacturers typically provide standard fabrication specifications, these serve as approximate information; it is essential for the operator to verify and adapt these specifications to each specific material.

**FLORIM stone** slabs are not rectified. Before proceeding with any fabrication work, we recommend trimming the entire perimeter by at least 1.5 cm.

**Remember the following:**

- Slab handling and positioning: ceramic is inherently fragile; exercise care during handling, avoiding impacts that could lead to breakage later on.
- Whenever possible, start cutting from the outer edge of the slab.
- If the cut is a straight cut, it is recommended to maintain a continuous operation without stopping until completion.
- When doing 45° cuts, reduce the feed rate by 50%.
- When creating smaller elements, make sure these can be secured mechanically to prevent vibration or movement that could lead to chipping—both in the elements themselves and adjacent pieces.
- If possible, maintain a gap of approximately 3 cm between strips.

### Cut design and sequence

We suggest obtaining the backsplashes, strips and other straight portions from the outermost parts of the slab.

As much as it is viable, cut-outs should be positioned towards the centre of the slab.

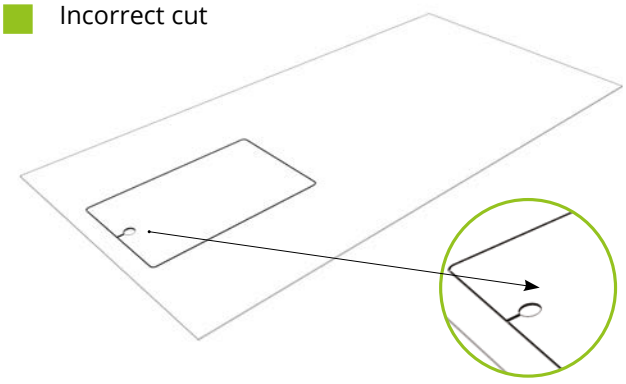
Always allow a minimum of 5 cm between the hole and the edge of the slab.

Ensure that cut-outs are not at a straight angle but rather curvilinear, with a minimum radius of 5 mm.

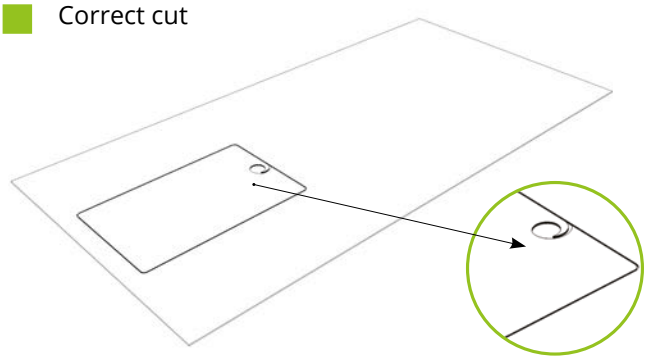
To achieve better cut-out results, consider drilling holes near the four corners of the shape before making the cut.

## SURFACE

Incorrect cut



Correct cut

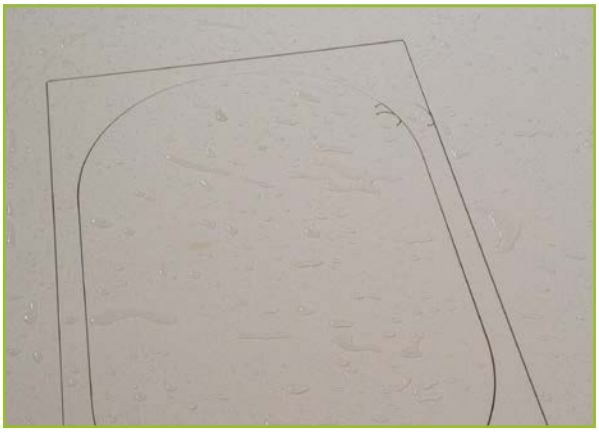


Start cutting at the part farthest from the edge of the surface.
Exit at the point of entry.

To make openings or holes, perform the “piercing” inside the intended opening, connecting to the side with a slight curvature.

Start the cut from the innermost side of the cut-out relative to the slab. When creating corners, ensure a minimum curve radius of 5 mm to avoid sharp edges.

## SURFACE

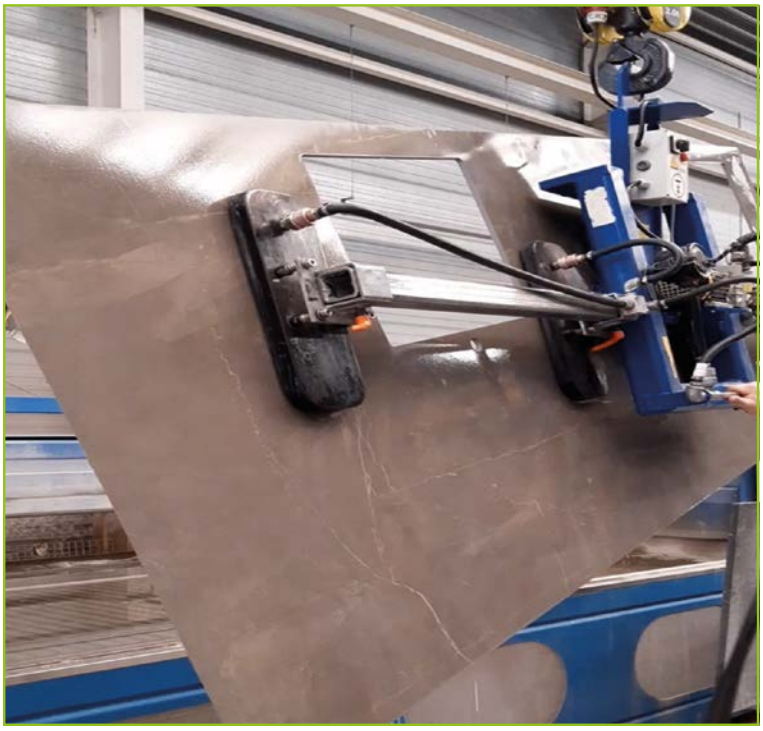


The opening must be at a minimum distance of 5 cm from the edge of the slab.

For large cut-outs (exceeding 500x600 mm), consider first creating a smaller cut-out that is geometrically inscribed within the intended shape, allowing for wide-radius corners.

### Waterjet cutting specifications (approximate)

| MATERIAL THICKNESS | FEED RATE M/MIN | PRESSURE (BAR) | ABRASIVE RATE KG/MIN | INPUT CUTTING PRESSURE (BAR) |
|---|---|---|---|---|
| 6 MM | 1.0 - 1.2 | 3500-3700 | MESH 80: 0.35 - 0.45 | 1200 - 1300 |
| 12 MM | 1.0 - 1.2 | 3500-3700 | MESH 80: 0.35 - 0.45 | 1200 - 1300 |
| **20 MM** | 0.6 - 0.8 | 3500-3700 | MESH 80: 0.35 - 0.45 | 1200 - 1300 |



### Handling the cut piece

For large pieces, use suction cups for secure handling.

Arrange the suction cups to prevent twisting or bending of the piece.

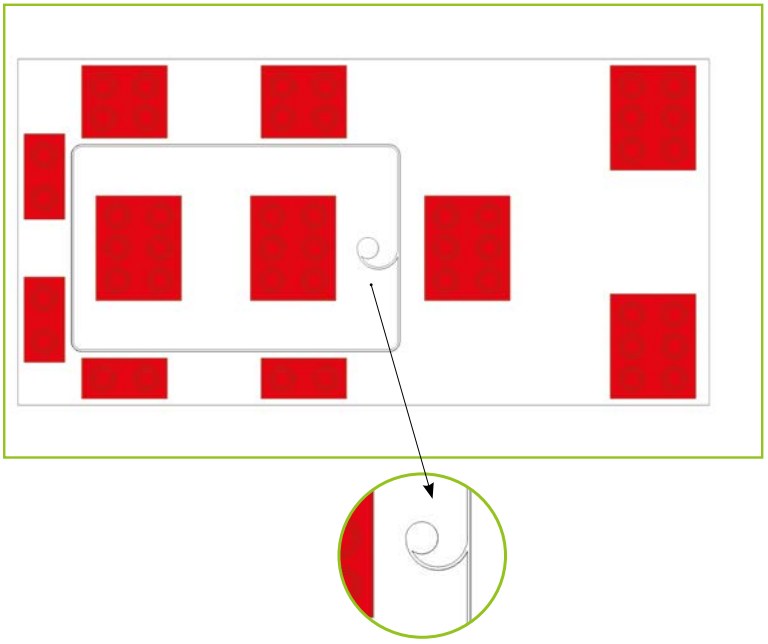
Handle the pieces vertically.

## 3. COMPUTER NUMERICAL CONTROL (CNC) MACHINES

CNC is often used on pre-shaped portions of the slab to create cut-outs, edge finishing, flush mount housing and holes.

Before any fabrication begins, check the machine's condition as follows:

- Place a sufficient number of suction cups to create a stable resting surface for the countertop. Arrange the supports strategically to prevent the cut pieces from falling.
- Ensure that the tools are appropriate for machining porcelain stoneware and are in good condition.



While machine and tool manufacturers typically provide standard fabrication specifications, these serve as approximate information; it is essential for the operator to verify and adapt these specifications to each specific material.

**Remember the following:**

- Slab handling and positioning: ceramic is inherently fragile; exercise care during handling, avoiding impacts that could lead to breakage later on.
- For optimal results, use ample water, directing the jet precisely to the point where the tool is in contact with the material.
- To carry out openings on the slab, drill a first hole in the area inside to be cut using a core bit and perform the cut using the appropriate finger bit, connecting to the side with a slight curvature.
- Start the cut from the innermost side of the cut-out relative to the slab.
- The tool must exceed the thickness of the slab by at least 1 mm.

SURFACE

## FLUSH-MOUNT MACHINING (only for 12 mm- and 20 mm-thick slabs)

It is advisable to create the cut-out before machining for a flush installation.
The material thickness can be reduced by a maximum of 30%.
This reduction is not possible on slabs with a thickness of 6 mm.

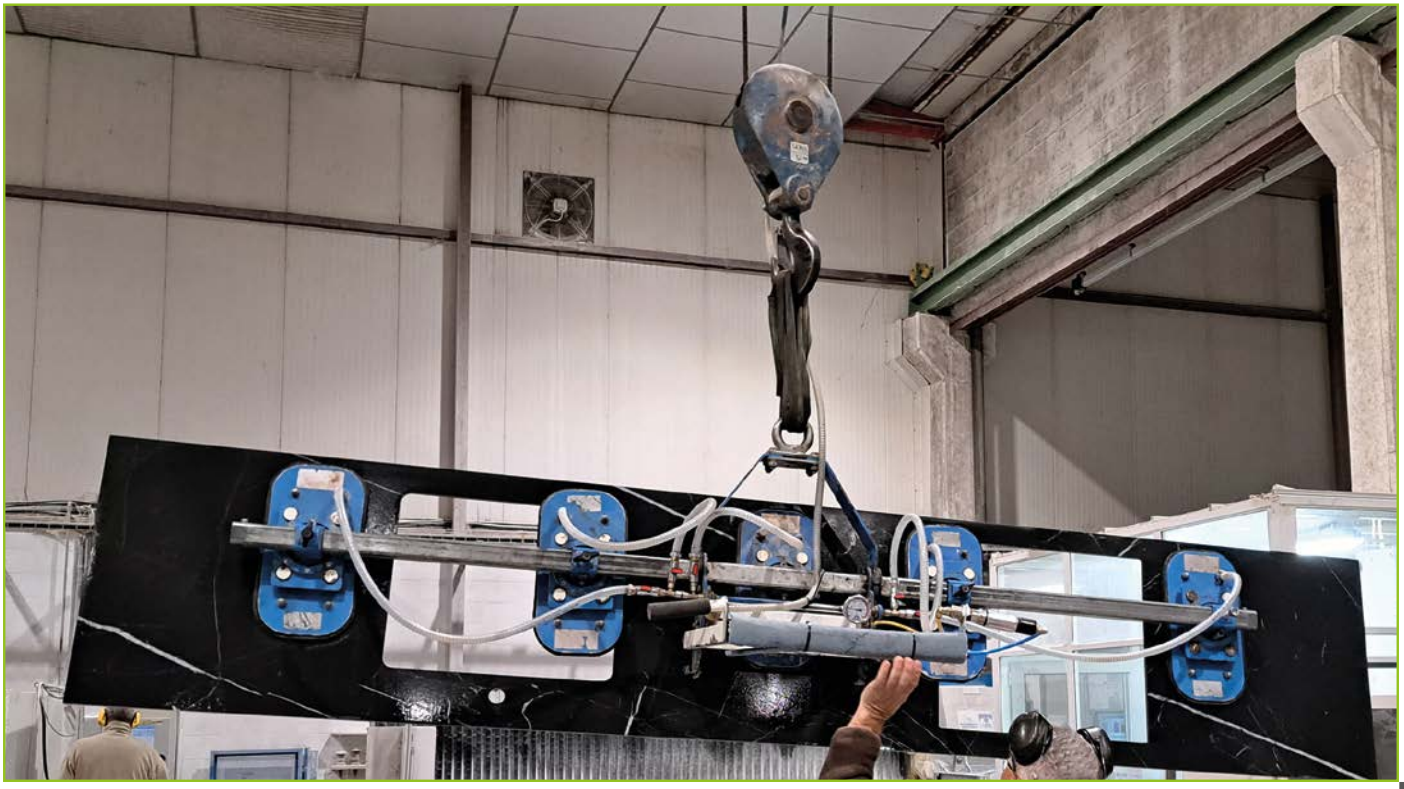
## Approximate specifications for CNC machining with thicknesses of 6 mm, 12 mm and 20 mm:

| THICKNESS | | FEED RATE MM/MIN | SPINDLE REVS RPM | MAXIMUM REMOVAL |
|---|---|---|---|---|
| 6, 12 and **20** MM | 35 mm core drill tool | 20 MM/MIN | 2000 - 3000 | - |
| | Cutting tool (finger bit) inclined single cut Ø19-23 mm | 150 - 200 MM/MIN | 4800 - 6500 | Plunge cut |
| | Flush countertop tool Ø15 mm | 150 - 200 MM/MIN | 5000 - 7000 | Up to 2 MM (recommended 0.5 MM) |

**N.B.: These specifications are approximate; refer to the technical data sheets for your specific tools**

## Handling the cut piece

For large pieces, use suction cups for secure handling.
Arrange the suction cups to prevent twisting or bending of the piece.
Handle the pieces vertically.



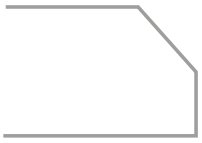
## SURFACE

### Finishing of the edges and exposed chamfers

The exposed edges should be rounded in order to obtain a chamfer with an approximate width of 3 mm, whether monolithic execution (12 mm and 20 mm) or a surface with mitred edge. Exposed edges (12 mm and 20 mm) can be polished using decreasing-grit diamond tools.
Remember to treat the exposed surface of the edge with oil- and water-repellent products after execution.
Products suitable for this use are sold, for example, by Tenax, Faber Chimica or Fila.

### Worked edges

Bevelling 1/2" deep

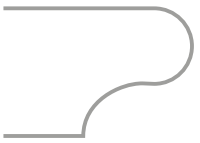


Half bullnose

Rounded 1/4"

Groove 1

Groove 1 Bullnose 2



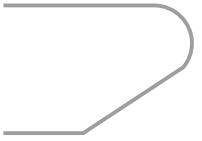
Slight 1/4" bevelling

Surface bullnose

1/4" rounded right angle

Groove 2

Platner

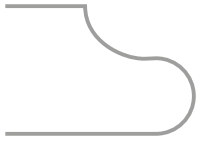


Slight 1/4" bevelling double

Bullnose

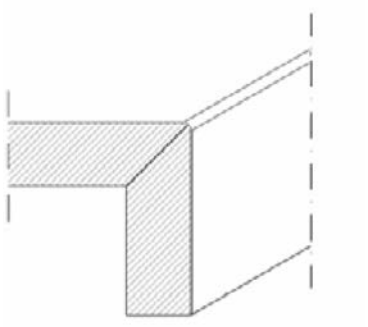
Slightly rounded

Groove Bullnose 1



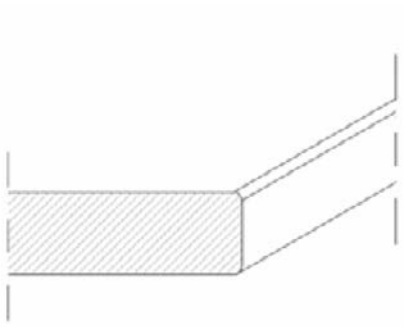
Waterfall

45-DEGREE MITRED EDGE



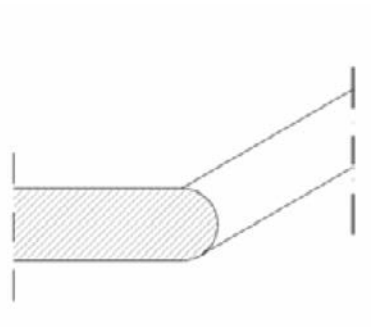
1. Cut the edges of both pieces at an angle
2. Clean all the edges
3. Use epoxy resin to glue the two pieces together
4. The resin must be the same colour as the slab
5. Remove any excess resin

BEVELLED EDGE



A bevelled edge enhances the resistance of the slab edge against strong impacts
1. Use sandpaper appropriate for porcelain stoneware
2.Use abrasives in the correct order to obtain the desired finish

BULLNOSE EDGE



A bullnose edge, too, enhances the edge's resistance against strong impacts
1. Use sandpaper appropriate for porcelain stoneware
2.Use abrasives in the correct order to obtain the desired finish

## SURFACE

Use abrasives in the correct order to obtain the desired finish.

**Specifications (approximate):**
Abrasive: Satin finish 120-220-500
Abrasive: Glossy finish 100-200-500-1000-2000
Brush Sequence: 36-46-80-120-(220-400)
Speed: 90/120 cm/min
Remember to make the edge with at least a 2 mm bevel—round or diagonal—to prevent the chipping of the edge.

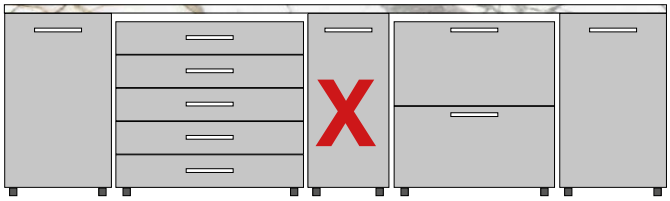
## EDGE POLISHING

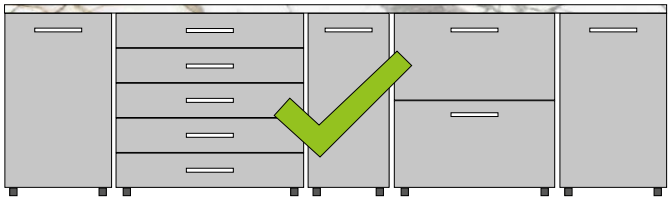
Recommended abrasive sequence for edge finishing
(Both for machining with edge polisher – feed rate 60-80 cm/min, and for manual machining)

| | grit |
|---|---|
| Glossy surface | 1. GR 50 |
| | 2. GR 100 |
| | 3. GR 200 |
| | 4. GR 500 |
| | 5. GR 1000 |
| | 6. GR 2000 |
| Matte surface | 1. GR 120 |
| | 2. GR 220 |
| | 3. GR 500 |

## INSTALLATION

Arrange the structure of the cabinets being covered so that it is level, stable, clean and suitable to receive the weight of the countertop.



For the 12 mm material, transverse stiffening joists should be provided at a maximum spacing of 60 cm, while for the 20 mm material, the maximum spacing should be 90 cm.
The countertop must rest, without bending, on each joist and on lateral structures.
When transporting the countertop, make sure to use appropriate packaging (crate) and arrange the countertop vertically.
On the job site, the slabs must be handled vertically in order to avoid bending.
Secure the countertop to the structure using a continuous bead of silicone.

**Note:** Periodically check the furniture structure and levelness, compensating for any misalignments.

## TOOLS / MATERIALS

### Products for structural gluing

To join ceramic elements (e.g. straight edge) use two-component epoxy or polyurethane resins that match the material's colour. Be careful to prevent any gaps from forming. After the pairing and before the resin sets, eliminate any trace of excess resin. Grind the edge to obtain a chamfer at least 2 mm wide.

To glue the countertop to the structure and/or to seam 2 pieces (countertop consisting of two slab sections or more), we recommend using an elastic and transparent adhesive (e.g. silicone).

To fill the coupling joints between the flush-mount element and slab (when applicable), use an elastic and transparent adhesive
(e.g. silicone) or plastic gaskets supplied by the manufacturer of the appliance/sink.

## CARE AND MAINTENANCE

**Care and maintenance information are available at the following link:**
https://florim-cdn.thron.com/static/ARW0PF_FLORIM_stone_Cleaning_and_maintenance_ZZQJSH.pdf?xseo=&response-content-disposition=inline%3Bfilename%3D%22FLORIM+stone+Cleaning+and+maintenance.pdf%22

## GOOD WORKING PRACTICES

Currently, there is increasing awareness of health considerations and the need to minimise potential risks associated with work activities.
In both the construction field and the natural and synthetic stone processing industry, there is a specific focus on reducing lung diseases. The presence of breathable free crystalline silica is recognised as potentially hazardous to personnel in the work environment.

Silica serves as the primary ingredient in ceramic bodies. Additionally, it constitutes approximately half the weight of the earth's crust, as it is present in sand, granite and many other minerals.

The fraction that poses potential health risks to humans is only free crystalline silica in its breathable form, characterised by a precise grain size.

For the most up-to-date information, we recommend referring to dedicated websites on occupational safety typically managed by government agencies (https://www.nepsi.eu/), as well as to our page https://www.florim.com/en/basic-information-on-crystalline-silica/

## DISCLAIMER

This technical manual contains practical knowledge and recommendations for the fabrication of Florim slabs. Its sole purpose is to offer suggestions, which should be complemented by the specialised expertise of the professionals and experts involved in the various stages of the process. As a result, we disclaim any liability if damage occurs during the stages covered by this manual. Florim reserves the right to make technical and formal adjustments to the data in this manual. Please note that all legal provisions must be followed during each machining stage. Any applicable legal requirement takes precedence over the instructions provided in this manual.

# TECHNICAL FEATURES

Explore the technical data sheets on our website for the product that interests you
**www.florim.com**

FLORIM
stone 6 12 20

First printing September 2016 - © by marketing Florim - 09/2024

**Florim Ceramiche S.p.A. SB**
Via Canaletto, 24 /41042 Fiorano Modenese (MO) - Italy / T. +39 0536 840111 / F. +39 0536 844750 / florim.com