



TINO

N A T U R A L S T O N E

NEGRO MARQUINA

NEGRO MARQUINA

Fine-grained fossiliferous micritic limestone. The stone has a homogeneous structure, with medium-low porosity.

The material is made up of 95% carbonate.

Greyish black colour. Its surface may be crossed by white veins of varying thickness, corresponding to calcitic zones.



2. PRODUCT APPEARANCE

Finishes	Appearance of NEGRO MARQUINA					
	Face	Edges	Vertices	Fissures	Pores	Process
POLISHED	Smooth, glossy surface. High shine.	Sharp	90°	None	None	Abrading the surface using abrasive pads with different grits of silicon carbide or corundum, normally 1000 grit.
HONED	Smooth, matt surface.	Sharp or bevelled, 1.5 mm	90°	Irregular, concealed by the process	None	Abrading the surface using abrasive pads with different grits of silicon carbide or corundum, normally 400.

	FINISHES	DIMENSIONS		
		LENGTH cm.	WIDTH cm.	THICKNESS cm.
FLOOR TILE / PAVING STONE	ALL	60	60	2
		60	40	
SKIRTING BOARD (1)		60	10	
Maxim CUT-TO-SIZE (*)		200	120	2 or 3

(1) Visible edge will always be honed, regardless of the stone texture.

(*) Orientative dimensions. Maximum dimensions recommended for each case shall be checked with the factory.

4. DIMENSIONAL TOLERANCES (EN 12058)

NOMINAL THICKNESS (mm.)	TOLERANCE
$t < 30$	$\pm 10\%$ of t
$30 < t < 80$	± 3 mm
$t \geq 80$	± 5 mm

NOMINAL LENGTH (mm.)*	TOLERANCE
$L \leq 600$	± 1 mm
$L > 600$	± 2 mm

PRODUCT	LENGTH	WIDTH
Riser	± 1 mm	± 1 mm
Stair	± 2 mm	± 3 mm
15x15, 14x14	± 0.8 mm	± 0.8 mm

* Values for thicknesses equal to or less than 5 cm.

NB: Cut-off tolerance on factory bridge cutting machines is ± 0.5 mm.

5. PHYSICAL/MECHANICAL PROPERTIES

PROPERTY	STANDARD	VALUE		NOTES
		POLISHED	HONED	
Petrographic name	EN 12407	Fossilized limestone		
Water absorption	EN 13755	0.4 %		(see next page)
Flexure strength	EN 12372	13.6 MPa		(see next page)
Water absorption coefficient by capillarity	EN 1925	0.7 g/m ² *s ^{0.5}		
Frost resistance (*)	EN 12371	Resistant		After 48 cycles
Apparent density	EN 1936	2.66 g/cm ³		
Open porosity	EN 1936	0.7 %		
Breaking load at dowel hole for ventilated façade	EN 13364			Recommended minimum value: 500N
Abrasion resistance	EN 14157	21.8 mm		
Slip resistance, dry/wet (SRV: Slip Resistant Value)	EN 14231	59 SRV 16 SRV		(see next page)

(*) This property is evaluated by measuring the flexure strength following the frost resistance test. If this value is reduced by more than 20%, the stone is considered not resistant (EN 1341).

NB: The values in the table are obtained with raw samples according to standard test.

PHYSICAL/MECHANICAL PROPERTIES

PROPERTY	COMPARATIVE VALUE							
	LOW		MEDIUM		HIGH		VERY HIGH	
	Value	Example	Value	Example	Value	Example	Value	Example
Flexure strength	<9 MPa	C. Luna: 7.1 MPa	9.1 – 14.9 MPa	T. Olivillo: 10.3 MPa N. Marquina: 13.6 MPa	15 - 25 MPa	Kafe: 19.5 MPa	> 25 MPa	Titanio: 32.7 MPa
Water absorption	< 0.3%	B. Macael: 0.1%	0.31% - 1%	A. Triana: 0.4% N. Marquina: 0.4%	1.1 % - 3%	T. Olivillo: 2.7 %	>3%	C. Nantes: 4.7%
Abrasion resistance	>26 mm	A. Triana: 26.5 mm	26-20.1 mm	T. Clásico: 23.0 mm N. Marquina: 21.8 mm	20-18 mm	B. Macael: 19.2 mm	< 18 mm	Titanio: 17.8 mm
Slip resistance, dry/wet (SRV: Slip Resistant Value)	0-24 SRV		25-35 SRV		36-64 SRV		>64 SRV	
	<p>DRY INTERIOR AREA: Class 1: Surfaces with a gradient < 6% Class 2: Surfaces with a gradient ≥ 6% and stairs</p> <p>WET INTERIOR AREA: Class 2: Surfaces with a gradient < 6% Class 3: Surfaces with a gradient ≥ 6% and stairs</p> <p>EXTERIOR AREAS. POOLS: Class 3</p> <p>NB: This classification refers solely to the floors of buildings and common areas used for sanitary, teaching, commercial, administrative, parking and public assembly purposes, excluding restricted use areas (Spanish BTC).</p>							

6. RECOMMENDED MINIMUM THICKNESS FOR OUTDOOR PAVING STONES (EN 1341)

PAVING LOCATION – SIZE IN CM.	60x60	60x40
Interior and exterior raised technical floor. PEDESTRIAN AREA EXCLUSIVELY (*)	3.3	4.0
Slabs bedded in mortar, pedestrian area only (**)	0.9	1.0
Pedestrian and cycles areas. Gardens and balconies	1.8	2.3
Occasional car, light vehicle and motorcycle. Garage entrances	2.4	3.0
Walking areas, market places occasionally used by delivery vehicles and emergency vehicles	3.0	3.6
Pedestrian areas often used by heavy lorries	3.7	4.5
Roads and streets, petrol stations	4.9	6.0

(*) Thicknesses depend on the supports used.

(**) Slabs bedded in mortar on levelled surface. Standard thicknesses for this use is 2 cm.

NB: For dimensions over 90 cm, these thicknesses are approximate values as the standard contemplates as the maximum size that legth (EN 1341).

		POLISHED	HONED
Bathroom	Floor	👍 (*) (**)	
	Facing	👍 (**)	
	Countertop	👍 (***)	
	Shower tray	👍 (****)	
Flooring	Domestic or similar use		
	High-traffic (1)	👍 (*)	
Kitchen	Floor		
	Countertop	👍 (***)	




(*) See slipperiness in Polished and Honed finishes.

(**) A hydrophobic treatment must be applied on the grout, once this is dried and cleaned. (See installation instructions)

(***) Acidic and basic substances will mar the finish causing discoloration. It is advisable to protect the surface with an anti-stain.

(****) By default, it will always come out waterproofed from factory and with the interior sandblasted (anti-slip).

(1) It is considered high-traffic locations: train stations, airports, pavements, shopping centres, etc.

		POLISHED	HONED
Swimming pools	Interior		
	Exterior		
Paving	Domestic or similar use	 (*) (**)	
	High-traffic		
	Cold climate		
	Extremely cold climate		
Façade	Installed using adhesive		
	Ventilated façade		
	Cold climate (2)		
	Extremely cold climate (2)		

(*) During installation, it is essential to waterproof the substrate beforehand and a hydrophobic treatment must be to apply on the grout, once the work is completed and the grout is dried and cleaned (See installation recommendations).

(**) For outdoor use under cover only, as required by BTC anti-slip standards.

9. INSTALLATION RECOMMENDATIONS

1. Substrate

Substrate must be mechanically strong, with a tensile strength value no less than 1 N/mm².

Surface's moisture level must be low before beginning installation of the stone. Moisture levels of less than 2.5% are recommended. (This parameter can be measured with a relative humidity detector, or hygrometer, of the type of calcium carbide based CM-GERÄT, which companies inspecting work sites usually have.)

When installing stone in basements or on ground floors, where the water table is close to the level where the stone is installed, it is advisable to waterproof the surface. The following table shows some commercially available waterproofing products:

PRODUCT NAME	MANUFACTURER	PRODUCT TYPE	TEST RESULT
Humistop	Ardex	Waterproofing mortar	Optimal
Ardex 8+9	Ardex	Waterproofing mortar	Optimal
Aplica DRY	Aplica	Waterproofing mortar	No tested (*)
Capadry	Capa	Waterproofing mortar	No tested (*)
Mapelastic	Mapei	Waterproofing mortar	No tested (*)
Idrobuild Osmocem	Kerakoll	Waterproofing mortar	No tested (*)
Ditra	Schlüter System	Polyethylene sheet	Optimal
Asphalt paint (2 coats)	There are a number of companies which market this product.		Optimal
Asphalt membrane			Optimal
Polyurethane paint (waterproofing coating for balcony)			Optimal

(*) Not to be recommended until they are tested or we have a certificate from the supplier accepting responsibility for any damage caused by the product, not performing as promised.

2. Levelling:

For very rough or sloped surfaces, it is necessary to level them by applying a layer of mortar. The surface of the levelling layer must be less than 3 mm/m. The levelling layer must be allowed to dry prior to installing the stone. As a general rule, at least 28 days should elapse before beginning installation of the stone.

3. Setting adhesive :

For the installation of natural stone slabs is strongly recommended to use a thin bed (3 mm or less in thickness) and buttering-floating technique, using an adhesive specially formulated for natural stone.

The following table shows some of the products which can be used for this purpose

MANUFACTURER	PRODUCT NAME
Kerakoll	H40 Rapid
Kerakoll	H40 Marmorex
Ardex	S16
Ardex	X32
Mapei	Keraquick
Capa	Capaplus
Capa	Capafluid
Capa	Capastone

Adhesive shall be used following all the recommendations indicated by the manufacturer, particularly those relating to the water – adhesive ratio.

The adhesive application shall be made by following these steps:

A - Apply a thin layer of adhesive with the smooth side of the trowel on placement support.

B - Apply a second layer of adhesive to the thickness required with the notched side of the trowel.

C – Do not extend more than 2 m² without flooring. This help to prevent the adhesive surface from drying out.

D - It is recommended to trowel a layer of mortar on the back of each tile (buttering-floating technique) prior to placing on the combed mortar bed in order to achieve the specific mortar-to-tile contact and so guarantee full contact. Besides, this technique reduce the risk of the appearance of efflorescence on the surface of the natural stone slabs.

E - Never use spot or blob methods.

F - The adhesive should not occupy the space for joints between pieces.

G - We recommend using gray adhesives.

4. Joints between tiles:

It is recommended to leave joints of at least 2 mm wide for indoor tiles and 5 mm wide for outdoor tiles. Never leaves joints less than 1.5 mm wide, as it will not be possible to fill in the joint properly.

It is recommended to use an adhesive specially formulated for natural stone, and if necessary specially formulated for setting moisture-sensitive natural stone. The following table lists some products which may be used for this purpose:

PRODUCT NAME	MANUFACTURE
Capacolor	Capa
Aplica Color	Aplica
Ardex FS	Ardex
Ardex WA	Ardex
Fugabella Scuba	Kerakoll
Fugabella Marmi	Kerakoll
Kerakolor FF	Mapei
Ultracolor Plus	Mapei

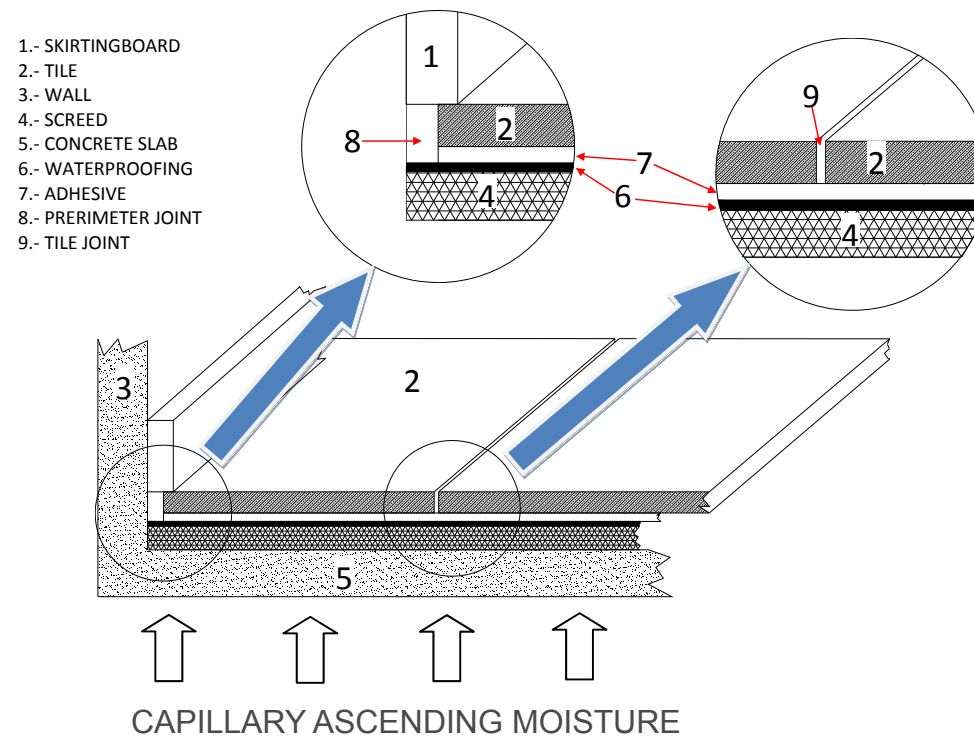
Before grouting, it is necessary to wait for the setting adhesive to harden completely. Work the mortar into the slab joints using a sealant applicator gun to avoid grout staining at the slab edge and surface, ensuring they are completely filled, with no unevenness for all finishes. **Never use the wet slurry method.** Excess grout should be removed as work proceeds and any residues left on the slab surface can be cleaned off within the working time (once the grout becomes matt) using a dry hard cellulose sponge. Any dry film remaining on the slab face after cleaning can be removed by using a lightly damp sponge once the mortar has hardened in the joints, working diagonally to the joints. **A hydrophobic treatment must be applied on the grout, once this is dried and cleaned.**

INSTALLATION RECOMMENDATIONS

In addition to the tile joints, it is necessary to respect perimeter and expansion joints, and fill in with suitable materials for this application. **It is also essential to waterproof expansion joints, unless the materials used to fill in these joints are silicone resin based, as they are hydrophobic themselves.**

After setting and grouting, we recommend to protect natural stone tiles with appropriate materials.

The following figure illustrates the installation of Negro Marquina stone:



5. Special recommendations for wall tiling:

- Use only those adhesives listed in the table above. Other adhesives will not guarantee optimal adhesion.
- Set always using the buttering-floating technique, never use spot or blob methods.
- The entire back-face of the tile should be stuck to the setting mortar, therefore it is necessary to set the tile on a wall surface with a variation in the plane of less than 3 mm/m.
- Anchors must be used from 1 meter high or when installing large pieces (60x40 cm and larger). Anchors ensure that the stone does not fall down in the event of errors during installation. At least two anchors must be installed on the upper part of the piece to secure it. Metal anchors must be corrosion resistant.

10. MAINTENANCE RECOMMENDATIONS

FLOORING

CLEANING	SEALING	FLOOR EMULSION	OTHER INFORMATION
<p>Dry whenever it is possible and use neutral cleaning products when mopping. It is recommended to use a dry mop for the daily cleaning.</p> <p>Sweep before mopping.</p> <p>Use the mop always well wrung. Change the water of the mop bucket whenever it gets cloudy.</p>	<p>Not necessary to apply.</p>	<p>It is recommended to apply a mate emulsion.</p>	<p>In high-traffic areas (restaurants, shopping centres, shops, etc.):</p> <ul style="list-style-type: none"> •Polished: It is advisable to re-buff the stone when the polish has faded. •Honed: It is advisable to thoroughly clean the surface and re-apply any protection. <p>(Request information to the after-sales department)</p>

CLADDING AND FAÇADES

HOW OFTEN TO APPLY PROTECTION
<p>Graffiti protection in low areas when protection has diminished (such as protector claro) (Request information to the after-sales department)</p>

SHOWER TRAYS, COUNTERTOPS AND BATHS

PROTECTION	HOW OFTEN TO APPLY
<p>Waterproofing (such as Protectino)</p>	<p>For shower trays, it is also advisable to waterproof the facing, floor tiles and joints surrounding the shower tray and/or bathtub. Always re-apply waterproofing when it is apparent that its properties have diminished.</p>