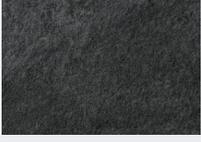
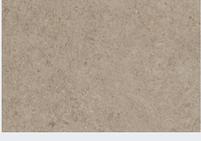


Product Data Sheet

DALLE CERAMIC TILES

1. Description	Dalle Ceramic Tiles are available in a range of effects from natural to contemporary to compliment any space. Porcelain is a strong, hard-wearing material, with very low porosity - so it won't deteriorate or stain over time.
2. Key benefits	<ul style="list-style-type: none">• Non-porous, frost-resistant material: protected from staining and fading.• Inherently non-combustible.• Minimal maintenance required.• Classified as "low risk of slip" across the range.• Manufacturing in accordance with EN ISO 10545 and CE certified.
3. Use	Dalle Ceramic Tiles are designed for use with the Force Dalle or Hyranger TS waterproofing systems on private roof terraces with pedestrian traffic. The tiles are placed on adjustable Axter Paving Slab Supports positioned on the waterproofing membrane. They can also be laid over concrete, gravel or sand.

		600x600x20	600x1200x20	1200x1200x20	300x1200x20
NATURAL STONE EFFECT					
	Saturn Beige	✓	✓		
	Jupiter Beige	✓	✓		
	Pluto Grey	✓	✓		
	Mercury Grey	✓	✓		
	Warm Beige	✓	✓	✓	
	Mid Grey	✓	✓	✓	
	Cool Anthracite	✓	✓	✓	
	Diorite Beige	✓	✓	✓	
	Shale Grey	✓	✓	✓	

		600x600x20	600x1200x20	1200x1200x20	300x1200x20
	Sand Beige	✓	✓	✓	
	Pebble Anthracite	✓	✓	✓	
	Rock Black	✓	✓	✓	
	Earth Beige	✓	✓	✓	
	Lava Grey	✓	✓	✓	
	Coal Grey	✓	✓	✓	
	Ash Beige	✓	✓	✓	
	Fossil Grey	✓	✓	✓	
	Chalk White	✓	✓	✓	

		600x600x20	600x1200x20	1200x1200x20	300x1200x20
CONCRETE EFFECT					
	Abalone Beige	✓		✓	
	Pearl Beige	✓		✓	
	Oyster Beige	✓		✓	
	Urban Grey	✓			
CONTEMPORARY EFFECT					
	Crema	✓	✓		
	Argento	✓	✓		
	Nero	✓	✓		

		600x600x20	600x1200x20	1200x1200x20	300x1200x20
MARBLE EFFECT					
	Snow White Marble		✓		
	Dusty Grey Marble		✓		
METAL EFFECT					
	Weathered Steel	✓		✓	
WOOD EFFECT					
	Lime Washed Oak				✓
	Danish Oiled Oak				✓
	Walnut Waxed Oak				✓
	Reclaimed Driftwood				✓
	Tung Oiled Oak				✓
	Tudor Waxed Oak				✓

		600x600x20	600x1200x20	1200x1200x20	300x1200x20
	Teak Oiled Oak				✓
	Clear Wax Oak				✓
	Natural Oak				✓
	Dark Hickory				✓

Weight: 44.8kg/m²

PACKING DETAILS

	Pieces X Box	Sqm X Box	Boxes X Pallet	Kg X Box	Sqm X Pallet	Kg X Pallet
60x60	2	0.72	30	33	21.6	990
300x1200	2	0.75	36 32*	33 30.6*	25.9 23.04*	118.8 980*
600x1200	1	0.72	35	33.35	25.2	1167.25
1200x1200	1	1.44	20	67.66	28.8	1353.2

*Applies to Lime Washed Oak, Danish Oiled Oak, Walnut Waxed Oak, Reclaimed Driftwood.

REGULARITY CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Length and width	ISO 10545-2	3 0.6% or 3 2mm (*)	3 0.3% / 3 1mm (*)
Thickness		3 5% / 0.5mm (**)	3 5% / 0.5mm (**)
Straightness of sides		3 0.5% / 3 1.5mm (***)	3 0.3% / 0.8mm (***)
Rectangularity (measurement only on short edges when L / l ≥3)		3 0.5% / 3 2mm (****)	3 0.3 % / 31.5mm
Surface flatness		c.c. 3 0.5% / 2mm	Not applicable to "strong" structures
	e.c. 3 0.5% / 2mm		
	w.3 0.5% / 2mm		

STRUCTURAL CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Water absorption level (in% by mass)	ISO 10545-3	E≤0,5% Individual Maximum 0.6%	≤0.1%
	ASTM C373-18	Requirement ANSI A137.1-2017 Water Absorption Max <0.5%	≤0.5%

BULK MECHANICAL CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Breaking strength	ISO 10545-4	$S \geq 1300 \text{ N}$	$S \geq 10000 \text{ N}$
Modulus of rupture		$R \geq 35 \text{ N/mm}^2$	$R \geq 45 \text{ N/mm}^2$
Bending and breaking load resistance (4) (5)	EN 1339 Annex F	-	For specific values check the table below named "Physical-mechanical features in accordance with EN 1339"
Impact resistance, as coefficient of restitution	ISO 10545-5	Declared value	≥ 0.55

SURFACE MECHANICAL CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Impact resistance, as coefficient of restitution	ISO 10545-6	$\leq 175 \text{ mm}^3$	$\leq 150 \text{ mm}^3$

THERMAL AND HYGROMETRIC CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Coefficient of linear thermal expansion	ISO 10545-8	Declared value	$\leq 7 \text{ MK}^1$
Thermal shock resistance	ISO 10545-9	Test passed in accordance with ISO 10545-1	Resistant
Moisture expansion (in mm / m)	ISO 10545-10	Declared value	$\leq 0.01\%$ (01mm/m)
Frost resistance	ISO 10545-12	Test passed in accordance with ISO 10545-1	Resistant

PHYSICAL CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Bond strength/ adhesion for improved cementitious adhesives	EN 1348	Declared value	$\geq 1.0 \text{ N/mm}^2$ (Class C2 - EN 12004)
Reaction to fire	-	Class A1 or A1fl	A1 - A1fl

CHEMICAL CHARACTERISTICS

Technical features	Norms	Required Standard	Performance Value
Resistance to household chemicals and swimming pool salts		Minimum B class	A
Resistance to low concentrations of acids and alkalis	ISO 10545-13	Declared class	LA
Resistance to high concentrations of acids and alkalis		Declared class	HA
Resistance to staining, for unglazed tiles	ISO 10545-14	Declared class	5

SAFETY CHARACTERISTICS			
Technical features	Norms	Required Standard	Performance Value
Shod ramp test	DIN EN 16165 ANNEX B (EXDIN 51130)	Declared value	R11
Barefoot ramp test	DIN EN 16165 ANNEX A (EX DIN 51097	Declared value	A+B+C
Pendulum friction test	BS EN 16165 ANNEX C (EXBS 7976)	PTV ≥ 36 classifies the surface as "low slip risk"	≥ 36 Dry ≥ 36 Wet
	AS 4586	Declared Classification of the pedestrian surface	Class P4
	UNE 41901 EX:2017	Declared value	Class C3
Coefficient of friction (COF)	B.C.R.A. Rep. CEC/81	<ul style="list-style-type: none"> Min. Dec. 236/89 of 14/06/89 $\mu > 0.40$ for a sliding leather element on a dry floor $\mu > 0.40$ for a sliding hardrubber element on a wet floor 	> 0.40 Dry (Asciutto) > 0.40 Wet (Bagnato)
Dynamic coefficient of friction (DCOF)	ANSI A 326,3		> 0.55 Wet

PHYSICAL-MECHANICAL FEATURES IN ACCORDANCE WITH EN 1339		
Technical features	EN 1339 standard	Performance Value
Water absorption	Annex E	$< 0.1\%$
Bending strength / Breaking load	Annex F	Marking $\geq T11$ 60x60 Marking $\geq U3$ 30x120 Marking $\geq U4$ 60x120
Frost resistant in presence of defrosting salts	Annex D	Resistant

(●) Anti-slip performance is guaranteed at the time of delivery of the product.

(*) The permissible deviation, in % or mm, of the average size for each tile (2 or 4 sides) from work size (W).

(**) The permissible deviation, in % or mm, of the average thickness for each tile from the work size thickness (W).

(***) The maximum permissible deviation from straightness, in % or mm, related to the corresponding work sizes (W).

(****) The maximum permissible deviation from rectangularity, in % or mm, related to the corresponding work sizes (W).

c.c. The maximum permissible deviation from centre curvature, in % or mm, related to the diagonal calculated from the work sizes (W).

e.c. The maximum permissible deviation from edge curvature, in % or mm, related to the corresponding work sizes (W).

w. The maximum permissible deviation from warpage, in % or mm, related to the diagonal calculated from the work sizes (W).

Dalle Ceramic Tiles Operation & Maintenance Manual

Storage	<ul style="list-style-type: none"> • Dalle Ceramic Tiles should be stored properly to avoid damage. • Porcelain tiles are shipped on pallets which should be laid on a level surface. • Heavy objects should not be placed on top of pallets.
Handling and Use	<ul style="list-style-type: none"> • Care should be taken handling the product. • Full risk assessment should be undertaken prior to installation. • Suitable PPE should be worn when handling and installing the products (gloves should be worn for handling and dust-masks, safety glasses and ear protection should also be worn when cutting the product). • When cutting, always use a dust-off chalk, avoid marker pens. • In the case of a breakage, porcelain shards can be very sharp. Ensure suitable cut proof gloves are worn during disposal.
Cleaning	<ul style="list-style-type: none"> • Porcelain doesn't need to be treated but periodic maintenance with mild, soapy water will keep it looking its best. Work in small manageable areas and always rinse with clean water. • If you have stubborn grease marks, a porcelain cleaner can be applied.
First Aid	<ul style="list-style-type: none"> • PPE should always be worn to limit exposure to dust. • Shower with soap and water to get rid of dust. • If dust gets into eyes, flush with sterile eye wash.
Waste Disposal	<ul style="list-style-type: none"> • Product is not considered hazardous waste. All waste products should be properly consigned in accordance with The Environmental Protection Act (1990) section 34 (Duty of Care) Special Waste Regulations 1996 and local legislation, usually treated as construction waste. • If in any doubt you should contact your local office of the Environment Agency in England or the Scottish Environmental Protection Agency in Scotland.
Standing Water	<ul style="list-style-type: none"> • Non-porous materials such as porcelain can retain standing water on the surface after rainfall or in wet conditions. When water gets to freezing point ice can form and become slippery. It is advised that standing water is removed using a 'squeedgy' to minimize the risk of ice forming. Care should be taken when walking on damp surfaces in cold weather. • NHBC Guidance: One hour after rain has stopped, areas of temporary standing water should not be deeper than 5mm or exceed 1m².

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