



Sizes	160x320 cm 63"x126" ±6mm	160x160 cm 63"x63" ±6mm	120x278 cm 47 1/4"x109 1/2" ±6mm	120x240 cm 47 1/4"x94 1/2" ±9mm	120x120 cm 47 1/4"x47 1/4" ±9mm	75x150 cm 29 1/2"x59" ±9mm	75x75 cm 29 1/2"x29 1/2" ±9mm	60x120 cm 23 3/8"x47 1/4" ±9mm	60x60 cm 23 3/8"x23 3/8" ±9mm	45x90 cm 17 3/4"x35 3/8" ±9mm	30x60 cm 11 3/4"x23 3/8" ±9mm
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	Technical features	Test method	Requisites for nominal size N			Marvel				
			7 cm ≤ N < 15 cm	N ≥ 15 cm		Polished rectified 9mm	Polished rectified 6mm	Matte rectified 9mm	Matte rectified 6mm	
			(mm)	(%)	(mm)					
Regularity features		Length and width	ISO 10545-2	± 0,9 (*) Non-rect. ± 0,4 (*) Rect.	± 0,6 (*) Non-rect. ± 0,3 (*) Rect.	± 2,0 (*) Non-rect. ± 1,0 (*) Rect.	Suitable for	Suitable for	Suitable for	Suitable for
		Thickness		± 0,5 (**)	± 5 (**)	± 0,5 (**)	Suitable for	Suitable for	Suitable for	Suitable for
		Straightness of sides		± 0,8 (***) Non-rect. ± 0,4 (***) Rect.	± 0,5 (***) Non-rect. ± 0,3 (***) Rect.	± 1,5 (***) Non-rect. ± 0,8 (***) Rect.	Suitable for	Suitable for	Suitable for	Suitable for
		Perpendicularity (Measurement only on short edges when L/l ≥ 3)		± 0,8 (***) Non-rect. ± 0,4 (***) Rect.	± 0,5 (***) Non-rect. ± 0,3 (***) Rect.	± 2,0 (***) Non-rect. ± 1,5 (***) Rect.	Suitable for	Suitable for	Suitable for	Suitable for
	Surface flatness			c.c. ± 0,8 Non-rect. c.c. ± 0,6 Rect.	c.c. ± 0,5 Non-rect. c.c. ± 0,4 Rect.	c.c. ± 2,0 Non-rect. c.c. ± 1,8 Rect.	Suitable for	Suitable for	Suitable for	Suitable for
				e.c. ± 0,8 Non-rect. e.c. ± 0,6 Rect.	e.c. ± 0,5 Non-rect. e.c. ± 0,4 Rect.	e.c. ± 2,0 Non-rect. e.c. ± 1,8 Rect.				
Structural features		Water absorption level (in% by mass)	ISO 10545-3	E ≤ 0,5% Individual Maximum 0,6%			≤0.1%	≤0.1%	≤0.1%	≤0.1%
			ASTM C373-18	Requirement ANSI A137.1-2017 Water Absorption Max < 0,5%			≤0.5%	≤0.5%	≤0.5%	≤0.5%
Bulk mechanical features		Breaking strenght	ISO 10545-4	S ≥ 700N (for thickness < 7,5mm) S ≥ 1300N (for thickness ≥ 7,5mm)			S ≥1500 N	S ≥1000 N	S ≥1500 N	S ≥1000 N
		Bending resistance		R ≥ 35 N/mm²			R ≥40 N/mm²	R ≥40 N/mm²	R ≥40 N/mm²	R ≥40 N/mm²
	Bending and breaking load resistance (4)(5)	EN 1339 Annex F	-							
		Impact resistance	ISO 10545-5	Declared value			≥0.55	≥0.55	≥0.55	≥0.55
Surface mechanical features		Mohs hardness	EN 101	-			MOHS 5	MOHS 5	MOHS 6	MOHS 6
		Deep abrasion resistance of unglazed tiles	ISO 10545-6	≤ 175 mm³			≤150mm³	≤150mm³	≤150mm³	≤150mm³

- * Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).
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 - *** Maximum permitted straightness deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
 - **** Maximum permitted perpendicularity deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
 - **** Maximum permitted centre curvature deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).
 - e.c. Maximum permitted corner curvature deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
 - w. Maximum permitted bending deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).
- (1) Determining the slip resistance of pedestrian surfaces; not applicable to sports flooring or road traffic flooring.
 - (2) The anti-slip performance is guaranteed at the time of delivering the product.
 - (3) However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."
 - (4) For further details, please refer to the outdoor design general catalogue.
 - (5) Only for products with 20 mm thickness



Sizes	160x320 cm 63"x126" ±6mm	160x160 cm 63"x63" ±6mm	120x278 cm 47 1/4"x109 1/2" ±6mm	120x240 cm 47 1/4"x94 1/2" ±9mm	120x120 cm 47 1/4"x47 1/4" ±9mm	75x150 cm 29 1/2"x59" ±9mm	75x75 cm 29 1/2"x29 1/2" ±9mm	60x120 cm 23 3/4"x47 1/4" ±9mm	60x60 cm 23 3/4"x23 3/4" ±9mm	45x90 cm 17 3/4"x35 3/4" ±9mm	30x60 cm 11 3/4"x23 3/4" ±9mm
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	Technical features	Test method	Requisites for nominal size N			Marvel			
			7 cm ≤ N < 15 cm		N ≥ 15 cm	Polished rectified 9mm	Polished rectified 6mm	Matte rectified 9mm	Matte rectified 6mm
			(mm)	(%)	(mm)				
Thermo-igrometric features	Coefficient of linear thermal expansion	ISO 10545-8	Declared value			≤7MK ⁻¹	≤7MK ⁻¹	≤7MK ⁻¹	≤7MK ⁻¹
	Thermal shock resistance	ISO 10545-9	Test passed in accordance with ISO 10545-1			Resistant	Resistant	Resistant	Resistant
	Moisture expansion (in mm/m)	ISO 10545-10	Declared value			≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)
	Frost resistance	ISO 10545-12	Test passed in accordance with ISO 10545-1			Resistant	Resistant	Resistant	Resistant
Physical properties	Bond strenght	EN 1348	Declared value			≥1.0 N/mm ² (Class C2 - EN 12004)	≥1.0 N/mm ² (Class C2 - EN 12004)	≥1.0 N/mm ² (Class C2 - EN 12004)	≥1.0 N/mm ² (Class C2 - EN 12004)
	Reaction to fire	-	Class A1 or A1 _{fl}			A1 - A1 _{fl}	A1 - A1 _{fl}	A1 - A1 _{fl}	A1 - A1 _{fl}
Chemical features	Resistance to household chemicals and swimming pool salts	ISO 10545-13	Minimum B class			A	A	A	A
	Resistance to low concentrations of acids and alkalis		Declared class			LA	LA	LA	LA
	Resistance to high concentrations of acids and alkalis		Declared class					HA	HA
	Stain resistance	ISO 10545-14	Declared class			5	5	5	5
Safety characteristics (1)(2)	Booted ramp test	DIN 51130	Declared class			N.C.	N.C.	R9	R9
	Barefoot Ramp test	DIN 51097	Declared value					A	A
	Pendulum friction Test	BS 7976	PTV ≥ 36 classifies the surface as "low slip risk"			≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet	PTV ≥ 36 Wet on demand	PTV ≥ 36 Wet on demand
		AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test					P3 on demand	P3 on demand
	Coefficient of friction	UNE-ENV 12633 UNE 41901:2017 EX	Declared value					C2 on demand	C2 on demand
		B.C.R.A. Rep. CEC/81	Min. Dec. 236/89 of 14/06/89 μ >0.40 for a sliding leather element on a dry floor μ >0.40 for a sliding hard rubber element on a wet floor			>0.40Asciutto <0.40Bagnato	>0.40Asciutto <0.40Bagnato	>0.40Asciutto >0.40Bagnato	>0.40Asciutto >0.40Bagnato
Dynamic coefficient of friction (DCOF)	ANSI A.137.1	ANSI A.137.1-2017 Requires a minimum value of 0.42 for level interior space expected to be walked upon when wet. (3)			< 0.42 Wet	< 0.42 Wet	> 0.42 Wet	> 0.42 Wet	

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- (2) The anti-slip performance is guaranteed at the time of delivering the product.
- (3) However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."
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Sizes	50x120 cm 19 1/4"x47 1/4" ± 8.5mm	40x80 cm 15 1/4"x31 1/2" ± 8.5mm	30,5x91,5 cm 12"x36" ± 8.5mm	30,5x56 cm 12"x22" ± 8.5mm	8x31,5 cm 3 1/8"x12 1/2" ± 8.5mm
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		Technical features	Test method	Requisites for nominal size N			Marvel
				7 cm ≤ N < 15 cm (mm)	N ≥ 15 cm		Shiny rectified
					(%)	(mm)	
Regularity features		Length and width	ISO 10545-2	± 0,4 (*) Rect.	± 0,3 (*) Rect.	± 1,0 (*) Rect.	Suitable for
		Thickness		± 0,5 (**)	± 10 (**)	± 0,5 (**)	Suitable for
		Straightness of sides		± 0,4 (***) Rect.	± 0,3 (***) Rect.	± 0,8 (***) Rect.	Suitable for
		Perpendicularity		± 0,4 (***) Rect.	± 0,3 (***) Rect.	± 1,5 (***) Rect.	Suitable for
		Surface flatness		c.c. ± 0,6 Rect.	c.c. ± 0,4 Rect.	c.c. ± 1,8 Rect.	Suitable for
		e.c. ± 0,6 Rect.	e.c. ± 0,4 Rect.	e.c. ± 1,8 Rect.			
Structural features		Water absorption level (in% by mass)	ISO 10545-3	Average >10%. If this value > 20%, it must be indicated. Single value > 9%			10%<EV≤20%
Bulk mechanical features		Breaking strenght	ISO 10545-4	S ≥ 600N			S ≥600 N
		Bending resistance		R ≥ 12 N/mm²			R ≥15 N/mm²
Thermo-igrometric features		Coefficient of linear thermal expansion	ISO 10545-8	Declared value			≤7MK ⁻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			≤0.06% (0.6mm/m)
		Crazing resistance: glazed tiles	ISO 10545-11	Test passed in accordance with ISO 10545-1			Resistant
Physical properties		Bond strenght	EN 1348	Declared value			≥1.0 N/mm² (Class C2 - EN 12004)
		Reaction to fire	-	Class A1			A1
Chemical features		Resistance to household chemicals and swimming pool salts	ISO 10545-13	Minimum B class			A
		Resistance to low concentrations of acids and alkalis		Declared class			LA
		Resistance to high concentrations of acids and alkalis		Declared class			HA
		Stain resistance of glazed tiles	ISO 10545-14	Minimum Class 3			5
		Release of dangerous substances: Cadmium (in mg/dm²) and Lead (in mg/dm²)	ISO 10545-15	Declared value			≤0.01mg/dm² Cd ≤0.1mg/dm² Pb

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