



Sizes	63"x126" 6mm	63"x63" 6mm	47 1/4"x109 1/2" 6mm	47 1/4"x94 1/2" 9mm	47 1/4"x47 1/4" 9mm	29 1/2"x59" 9mm	29 1/2"x29 1/2" 9mm	23 3/4"x47 1/4" 9mm	23 3/4"x23 3/4" 9mm	11 3/4"x23 3/4" 9mm
-------	-----------------	----------------	-------------------------	------------------------	------------------------	--------------------	------------------------	------------------------	------------------------	------------------------

	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 Thickness Straightness of sides Perpendicularity (Measurement only on short edges when L/l ≥ 3)	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
			± 0,5 (**)	± 5 (**)	± 0,5 (**)	Suitable for	Suitable for	Suitable for	Suitable for
			± 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
			± 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	ISO 10545-2	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 Bending resistance	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
			R ≥ 35 N/mm <sup>2</sup>			R ≥ 40 N/mm <sup>2</sup>	R ≥ 40 N/mm <sup>2</sup>	R ≥ 40 N/mm <sup>2</sup>	R ≥ 40 N/mm <sup>2</sup>
	 Bending and breaking load resistance (4)(5)	EN 1339 Annex F	-						
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 mm <sup>3</sup>			≤ 150mm <sup>3</sup>	≤ 150mm <sup>3</sup>	≤ 150mm <sup>3</sup>	≤ 150mm <sup>3</sup>

\* Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).  
 \*\* Permitted deviation, in % or mm, from the average thickness of each tile with respect to the cited manufacturing thickness (W).  
 \*\*\* 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	63"x126" 6mm	63"x63" 6mm	47 1/4"x109 1/2" 6mm	47 1/4"x94 1/2" 9mm	47 1/4"x47 1/4" 9mm	29 1/2"x59" 9mm	29 1/2"x29 1/2" 9mm	23 3/8"x47 1/4" 9mm	23 3/8"x23 3/8" 9mm	11 3/4"x23 3/8" 9mm
-------	-----------------	----------------	-------------------------	------------------------	------------------------	--------------------	------------------------	------------------------	------------------------	------------------------

		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 <sup>-1</sup>	≤7MK <sup>-1</sup>	≤7MK <sup>-1</sup>	≤7MK <sup>-1</sup>	
		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 <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	
		Reaction to fire	-	Class A1 or A1 <sub>fl</sub>		A1 - A1 <sub>fl</sub>	A1 - A1 <sub>fl</sub>	A1 - A1 <sub>fl</sub>	A1 - A1 <sub>fl</sub>	
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.	R10	R9	
		Barefoot Ramp test	DIN 51097	Declared value				A+B	A	
		Pendulum friction Test	BS 7976	PTV ≥ 36 classifies the surface as "low slip risk"		≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet	≥36Dry ≥36Wet	PTV ≥ 36 Wet on demand	
			AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test				Class P3	P3 on demand	
			UNE-ENV 12633 UNE 41901:2017 EX	Declared value				Class C2	C2 on demand	
		Coefficient of friction	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)		DCOF >0.42Wet on demand	DCOF >0.42Wet on demand	Wet DCOF ≥ 0.42	Wet DCOF ≥ 0.42			

- \* Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).
- \*\* Permitted deviation, in % or mm, from the average thickness of each tile with respect to the cited manufacturing thickness (W).
- \*\*\* 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