



Sizes	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	60x120 cm 23 3/4"x47 1/4" 20mm	60x60 cm 23 3/4"x23 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 X							
			7 cm ≤ N < 15 cm	N ≥ 15 cm		Polished rectified 6mm 120x278 cm	Polished rectified 9mm	Polished rectified 9mm 120x120 cm	Matte rectified	Outdoor rectified	Silk rectified 6mm 120x278 cm	Silk rectified 9mm	
			(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	Suitable for	Suitable for	Suitable for	
			± 0,5 (**)	± 5 (**)	± 0,5 (**)	Suitable for	Suitable for	Suitable for	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	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	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	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%	≤ 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%	≤ 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 ≥ 1000 N	S ≥ 1500 N	S ≥ 1000 N	S ≥ 1500 N	S ≥ 10000 N	S ≥ 1000 N	S ≥ 1500 N	
			R ≥ 35 N/mm²			R ≥ 40 N/mm²	R ≥ 40 N/mm²	R ≥ 40 N/mm²	R ≥ 40 N/mm²	R ≥ 45 N/mm²	R ≥ 40 N/mm²	R ≥ 40 N/mm²	
	 Bending and breaking load resistance (4)(5) Impact resistance	EN 1339 Annex F	-							≥ T11 120x120 90x90 ≥ U4 60x120			
		ISO 10545-5	Declared value			≥ 0,55	≥ 0,55	≥ 0,55	≥ 0,55	≥ 0,55	≥ 0,55	≥ 0,55	
Surface mechanical features	 Deep abrasion resistance of unglazed tiles	ISO 10545-6	≤ 175 mm³			≤ 150mm³	≤ 150mm³	≤ 150mm³	≤ 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).
 ** 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



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	Technical features	Test method	Requisites for nominal size N			Marvel X						
			7 cm ≤ N < 15 cm		N ≥ 15 cm	Polished rectified 6mm 120x278 cm	Polished rectified 9mm	Polished rectified 9mm 120x120 cm	Matte rectified	Outdoor rectified	Silk rectified 6mm 120x278 cm	Silk rectified 9mm
			(mm)	(%)	(mm)							
Thermo-igrometric features	Coefficient of linear thermal expansion	ISO 10545-8	Declared value			≤7MK ⁻¹	≤7MK ⁻¹	≤7MK ⁻¹	≤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	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)	≤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	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)	≥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}	A1 - A1 _{fl}	A1 - A1 _{fl}	A1 - A1 _{fl}
Chemical features	Resistance to household chemicals and swimming pool salts Resistance to low concentrations of acids and alkalis Resistance to high concentrations of acids and alkalis	ISO 10545-13	Minimum B class			A	A	A	A	A	A	A
			Declared class			LA	LA	LA	LA	LA	LA	LA
			Declared class						HA	HA	HA	HA
	Stain resistance	ISO 10545-14	Declared class			5	5	5	5	5	5	5
Safety characteristics (1)(2)	Booted ramp test	DIN EN 16165 ANNEX B (EX DIN 51130)	Declared class			N.C.	N.C.	N.C.	R10	R11	N.C.	N.C.
	Barefoot Ramp test	DIN EN 16165 ANNEX A (EX DIN 51097)	Declared value						A+B	A+B+C		A
	Pendulum friction Test	BS EN 16165 ANNEX C (EX BS 7976)	PTV ≥ 36 classifies the surface as "low slip risk"			≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet	≥36Dry ≥36Wet	≥36Dry ≥36Wet	≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet
		AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test						Class P3	Class P4		
		UNE 41901 EX:2017	Declared value						Class C2	Class C3		
	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	>0.40Asciutto >0.40Bagnato	>0.40Asciutto <0.40Bagnato	>0.40Asciutto <0.40Bagnato
Dynamic coefficient of friction (DCOF)	ANSI A 326.3	-			Dry DCOF ≥ 0.42	Dry DCOF ≥ 0.42	Dry DCOF ≥ 0.42	Wet DCOF ≥ 0.50	Wet DCOF ≥ 0.55	Dry DCOF ≥ 0.42	Dry DCOF ≥ 0.42	

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