



Sizes	60x60 cm 23% [*] x23% [*] 9mm
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	Technical features	Test method	Requisites for nominal size N			Marvel Gems
			7 cm ≤ N < 15 cm	N ≥ 15 cm		
			(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
	Thickness		± 0,5 (**)	± 5 (**)	± 0,5 (**)	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
	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
Surface flatness	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
			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.	
			w. ± 0,8 Non-rect. w. ± 0,6 Rect.	w. ± 0,5 Non-rect. w. ± 0,4 Rect.	w. ± 2,0 Non-rect. w. ± 1,8 Rect.	
Structural features	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 features	Breaking strenght	ISO 10545-4	S ≥ 700N (for thickness < 7,5mm) S ≥ 1300N (for thickness ≥ 7,5mm)			S ≥ 1500 N
	Bending resistance		R ≥ 35 N/mm ²			R ≥ 40 N/mm ²
	Bending and breaking load resistance ⁽⁴⁾⁽⁵⁾	EN 1339 Annex F	-			
	Impact resistance	ISO 10545-5	Declared value			≥ 0.55
Surface mechanical features	Mohs hardness	EN 101	-			MOHS 6
	Deep abrasion resistance of unglazed tiles	ISO 10545-6	≤ 175 mm ³			≤ 150mm ³

* 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



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			7 cm ≤ N < 15 cm		N ≥ 15 cm	Matte rectified	
			(mm)	(%)			(mm)
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			≤0.01% (0.1mm/m)	
	Frost resistance	ISO 10545-12	Test passed in accordance with ISO 10545-1			Resistant	
Physical properties	Bond strenght	EN 1348	Declared value			≥1.0 N/mm ² (Class C2 - EN 12004)	
	Reaction to fire	-	Class A1 or A1 _{fl}			A1 - A1 _{fl}	
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	ISO 10545-14	Declared class			5	
Safety characteristics ⁽¹⁾⁽²⁾	Booted ramp test	DIN 51130	Declared class			R10	
	Barefoot Ramp test	DIN 51097	Declared value			A	
	Pendulum friction Test		BS 7976	PTV ≥ 36 classifies the surface as "low slip risk"			≥36Dry ≥36Wet
			AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test			Class P3
			UNE-ENV 12633 UNE 41901:2017 EX	Declared value			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	
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		

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