



Sizes	120x278 cm	120x240 cm	75x150 cm	120x120 cm	45x90 cm	75x75 cm	60x60 cm	30x60 cm	
Sizes	47 1/4"x109 1/2"	47 1/4"x94 1/2"	29 1/2"x59"	47 1/4"x47 1/4"	17 3/4"x35 3/8"	29 1/2"x29 1/2"	23 5/8"x23 5/8"	11 3/4"x23 5/8"	
	± 6mm	± 9mm	± 9.5mm	± 9mm	± 9mm	± 9.5mm	± 9mm	± 9mm	

	Caratteristica tecnica Characteristics	Metodo di prova Test Method	Requisiti per dimensione nominale N Requirements for nominal size N			MARVEL			
			7 cm ≤ N < 15 cm		N ≥ 15 cm	Polished rectified	Polished rectified ± 6mm 120x278 cm	Matt rectified	Matt rectified ± 6mm 120x278 cm
			(mm)	(%)	(mm)				
<b>Regularity features</b> Regularity characteristics	<b>Length and width</b> Length and width	ISO 10545-2	± 0,9 (*)	± 0,6 (*)	± 2,0 (*)	±0.3% ±1.0mm	±0.3% ±1.0mm	±0.3% ±1.0mm	±0.3% ±1.0mm
	<b>Thickness</b> Thickness		± 0,5 (**)	± 5 (**)	± 0,5 (**)	±5.0% ±0.5mm	±5.0% ±0.5mm	±5.0% ±0.5mm	±5.0% ±0.5mm
	<b>Straightness of sides</b> Straightness of sides		± 0,75 (***)	± 0,5 (***)	± 1,5 (***)	±0.3% ±0.8mm	±0.3% ±0.8mm	±0.3% ±0.8mm	±0.3% ±0.8mm
	<b>Ortogonalità (Misurazione da condurre solo sui lati corti quando L/l ≥ 3)</b> Rectangularity (Measurement only on short edges when L/l ≥ 3)		± 0,75 (****)	± 0,5 (****)	± 2,0 (****)	±0.3% ±1.5mm	±0.3% ±1.5mm	±0.3% ±1.5mm	±0.3% ±1.5mm
	<b>Surface flatness</b> Surface flatness		c.c. ± 0,75	c.c. ± 0,5	c.c. ± 2,0	±0.3% ±1.5mm	±0.3% ±1.5mm	±0.4% ±1.8mm	±0.4% ±1.8mm
	e.c. ± 0,75	e.c. ± 0,5	e.c. ± 2,0						
	w. ± 0,75	w. ± 0,5	w. ± 2,0						
<b>Structural features</b> Structural features	<b>Water absorption level (come % della massa)</b> Water absorption level (in% by mass)	ISO 10545-3	$F_B \leq 0,5\%$ Valore massimo 0,6% - 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%
<b>Bulk mechanical features</b> Bulk mechanical features	<b>Breaking strength</b> Breaking strength	ISO 10545-4	$S \geq 700N$ (per spessore < 7,5mm - for thickness < 7,5mm) $S \geq 1300N$ (per spessore ≥ 7,5mm - for thickness ≥ 7,5mm)			S ≥ 1500 N	S ≥ 1000 N	S ≥ 1500 N	S ≥ 1000 N
	<b>Modulus of Rupture</b> Modulus of Rupture		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>
	<b>Resistenza a Flessione ed al Carico di Rottura</b> Bending Strength and Breaking Load	EN 1339 Annex F	-			-	-	-	-
	<b>Resistenza all'impatto, espresso come coefficiente di restituzione</b> Impact resistance, as coefficient of restitution	ISO 10545-5	Valore dichiarato Declared value			≥0.55	≥0.55	≥0.55	≥0.55
<b>Surface mechanical features</b> Surface mechanical features	<b>Mohs hardness</b> Mohs hardness	EN 101	-			MOHS 5	MOHS 5	MOHS 6	MOHS 6
	<b>Resistance to deep abrasion of unglazed tiles (removed volume)</b> Resistance to deep abrasion of unglazed tiles (removed volume)	ISO 10545-6	≤ 175 mm <sup>3</sup>			≤150mm <sup>3</sup>	≤150mm <sup>3</sup>	≤150mm <sup>3</sup>	≤150mm <sup>3</sup>
<b>Caratteristiche Termogrometriche</b> Thermo-igrometric features	<b>Linear Thermal Expansion Coefficient</b> Coefficient of linear thermal expansion	ISO 10545-8	Valore dichiarato Declared value			≤7 1/mk	≤7 1/mk	≤7 1/mk	≤7 1/mk
	<b>Thermal shock resistance</b> Thermal shock resistance	ISO 10545-9	Test superato in accordo con ISO 10545-1 Pass according to EN ISO 10545-1			Resiste	Resiste	Resiste	Resiste
	<b>Dilatazione all'umidità (in mm/m)</b> Moisture expansion (in mm/m)	ISO 10545-10	Valore dichiarato Declared value			≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)
	<b>Frost resistance</b> Frost resistance	ISO 10545-12	Test superato in accordo con ISO 10545-1 Pass according to EN ISO 10545-1			Resiste	Resiste	Resiste	Resiste
<b>Physical properties</b> Physical properties	<b>Bond Strength</b> Bond strength/adhesion for improved cementitious adhesives	EN 1348	Valore dichiarato 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)
	<b>Reaction to fire</b> Reaction to fire	-	Classe A1 oppure A1 <sub>fl</sub> 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>
<b>Chemical features</b> Chemical features	<b>Resistance to household chemicals and swimming pool salts</b> Resistance to household chemicals and swimming pool salts	ISO 10545-13	Classe minima B Minimum Class B			A	A	A	A
	<b>Resistance to low concentrations of acids and alkalis</b> Resistance to low concentrations of acids and alkalis		Classe dichiarata Declared Class			LA	LA	LA	LA
	<b>Resistance to high concentrations of acids and alkalis</b> Resistance to high concentrations of acids and alkalis		Classe dichiarata Declared Class			0	-	HA	HA
	<b>Resistenza alle macchie piastrelle smaltate</b> Resistance to staining for glazed tiles	ISO 10545-14	Classe dichiarata Declared Class			5	5	5	5
<b>Safety features</b> Safety characteristics	<b>Shod Ramp Test</b> Shod Ramp Test	DIN 51130	Classe dichiarata Declared Class			N.C.	N.C.	R9	R9
	<b>Barefoot Ramp Test</b> Barefoot Ramp Test	DIN 51097	Declared value Valore dichiarato			0	0	A	A
	<b>Pendulum Friction Test</b> 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 / su richiesta	PTV ≥ 36 Wet on demand / su richiesta
		AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test			-	-	P3 on demand	P3 on demand
		UNE-ENV 12633	Valore dichiarato Declared value			-	-	C2 on demand	C2 on demand
	<b>Coefficiente di attrito</b> Coefficient of friction (COF)	B.C.R.A. Rep. CEC/81	D. M. 236/89 del 14/06/89 μ >0,40 per elemento scivolante cuoio su pavimentazione asciutta μ >0,40 per elemento scivolante gomma dura su pavimentazione bagnata			>0.40Asciutto <0.40Bagnato	>0.40Asciutto <0.40Bagnato	>0.40Asciutto >0.40Bagnato	>0.40Asciutto >0.40Bagnato
<b>Dynamic Coefficient of Friction</b> 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)			<0.42Wet	<0.42Wet	>0.42Wet	>0.42Wet	

- \* Deviazione ammissibile, in % oppure mm, della dimensione media di ogni piastrella (2 oppure 4 lati) dalla dimensione di fabbricazione (W).  
The permissible deviation, in % or mm, of the average size for each tile (2 or 4 sides) from work size (W).
- \*\* Deviazione ammissibile, in % oppure mm, dello spessore medio di ogni piastrella dallo spessore riportato nella dimensione di fabbricazione (W).  
The permissible deviation, in % or mm, of the average thickness for each tile from the work size thickness (W).
- \*\*\* Deviazione massima ammissibile di rettilineità, in % oppure mm, in rapporto alle dimensioni di fabbricazione (W) corrispondenti.  
The maximum permissible deviation from straightness, in % or mm, related to the corresponding work sizes (W).
- \*\*\*\* Deviazione massima ammissibile di ortogonalità, in % oppure mm, in rapporto alle dimensioni di fabbricazione (W) corrispondenti.  
The maximum permissible deviation from rectangularity, in % or mm, related to the corresponding work sizes (W).
- c.c. Deviazione massima ammissibile della curvatura del centro, in % oppure mm, in rapporto alla diagonale calcolata secondo le dimensioni di fabbricazione (W).  
The maximum permissible deviation from centre curvatures, in % or mm, related to diagonal calculated from the work sizes (W).
- e.c. Deviazione massima ammissibile della curvatura dello spigolo, in % oppure mm, in rapporto alle dimensioni di fabbricazione (W) corrispondenti.  
The maximum permissible deviation from edge curvatures, in % or mm, related to the corresponding work sizes (W).

- w. Deviazione massima ammissibile dello svergolamento, in % oppure mm, in rapporto alla diagonale calcolata secondo le dimensioni di fabbricazione (W).  
The maximum permissible deviation from warpage, in % or mm, related to diagonal calculated from the work sizes (W).
- Determinazione della resistenza allo scivolamento delle superfici pedonabili; non si applica alle pavimentazioni sportive ed alle pavimentazioni stradali veicolari.
- (1) Determination of slip resistance of pedestrian surfaces; it does not cover sports surfaces and road surfaces for vehicles (skid resistance).
- (2) Le prestazioni anti-slip vengono garantite al momento della consegna del prodotto.  
Anti-slip performance is guaranteed at the time of delivery of the product.  
However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects.
- (3) 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 outdoor design general catalogue.
- (5) Only for products with 20 mm thickness.

