



?????? Sizes	120x278 cm 47 1/4"x109 1/2" ± 6mm	120x240 cm 47 1/4"x94 1/2" ± 9mm	75x150 cm 29 1/2"x59" ± 9.5mm	120x120 cm 47 1/4"x47 1/4" ± 9mm	45x90 cm 17 3/4"x35 3/8" ± 9mm	75x75 cm 29 1/2"x29 1/2" ± 9.5mm	60x60 cm 23 5/8"x23 5/8" ± 9mm	30x60 cm 11 3/4"x23 5/8" ± 9mm	
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	Caratteristica tecnica Characteristics	Metodo di prova Test Method	Requisiti per dimensione nominale N Requirements for nominal size N			MARVEL PRO									
			7 cm ≤ N < 15 cm		N ≥ 15 cm	Polished rectified	Polished rectified ± 6mm 120x278 cm	Polished rectified ± 9mm 30x60 cm, 60x60 cm, 45x90 cm	Polished rectified ± 9.5mm 75x75 cm, 75x150 cm	Satin rectified	Satin rectified ± 9mm 60x60 cm	Matt rectified	Matt rectified ± 9mm 30x60 cm, 60x60 cm, 45x90 cm	Textured rectified	
			(mm)	(%)	(mm)										
???????? Regularity characteristics	???????? 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	± 0.3% ± 1.0mm	± 0.3% ± 1.0mm	± 0.3% ± 1.0mm	± 0.3% ± 1.0mm	± 0.3% ± 1.0mm	
	???????? Thickness		± 0,5 (**)	± 5 (**)	± 0,5 (**)	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	± 5.0% ± 0.5mm	
	Straightness of sides 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	± 0.3% ± 0.8mm	± 0.3% ± 0.8mm	± 0.3% ± 0.8mm	± 0.3% ± 0.8mm	± 0.3% ± 0.8mm	± 0.3% ± 0.8mm
	Ortogonalità (Misurazione da condurre solo sui lati corti quando L/l ≥ 3) 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	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm
	???????? Surface flatness		c.c. ± 0,75 e.c. ± 0,75 w. ± 0,75	c.c. ± 0,5 e.c. ± 0,5 w. ± 0,5	c.c. ± 2,0 e.c. ± 2,0 w. ± 2,0	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.3% ± 1.5mm	± 0.4% ± 1.8mm	± 0.4% ± 1.8mm	Not applicable
???????? Structural features	???????? (come % della massa) Water absorption level (in% by mass)	ISO 10545-3	$E_B \leq 0,5\%$ Valore massimo 0,6% - Individual Maximum 0,6%			≤ 0.1%	≤ 0.1%	≤ 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%	≤ 0.5%	≤ 0.5%	
???????? Bulk mechanical features	???????? Breaking strength	ISO 10545-4	S ≥ 700N (per spessore < 7,5mm - for thickness < 7,5mm) S ≥ 1300N (per spessore ≥ 7,5mm - for thickness ≥ 7,5mm)			S ≥ 1500 N	S ≥ 1000 N	S ≥ 1500 N	S ≥ 1500 N	S ≥ 1500 N	S ≥ 1500 N	S ≥ 1500 N	S ≥ 1500 N	S ≥ 1500 N	
	???????? Modulus of Rupture		R ≥ 35 N/mm ²			R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	R ≥ 40 N/mm ²	
	Resistenza a Flessione ed al Carico di Rottura Bending Strength and Breaking Load	EN 1339 Annex F	-			-	-	-	-	-	-	-	-	-	
	Resistenza all'impatto, espresso come coefficiente di restituzione Impact resistance, as coefficient of restitution	ISO 10545-5	Valore dichiarato Declared value			≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	≥ 0.55	
???????? Surface mechanical features	???????? Mohs hardness	EN 101	-			MOHS 5	MOHS 5	MOHS 5	MOHS 5	MOHS 5	MOHS 5	MOHS 6	MOHS 6	MOHS 7	
	Resistance to deep abrasion of unglazed tiles (removed volume) Resistance to deep abrasion of unglazed tiles (removed volume)	ISO 10545-6	≤ 175 mm ³			≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	≤ 150mm ³	
Caratteristiche Termometriche Thermometric features	???????? Coefficient of linear thermal expansion	ISO 10545-8	Valore dichiarato Declared value			≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	≤ 7 1/mk	
	???????? 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	Resiste	Resiste	Resiste	Resiste	Resiste	
	Dilatazione all'umidità (in mm/m) 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)	≤ 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 superato in accordo con ISO 10545-1 Pass according to EN ISO 10545-1			Resiste	Resiste	Resiste	Resiste	Resiste	Resiste	Resiste	Resiste	Resiste	
???????? Physical properties	???????? Bond strength/adhesion for improved cementitious adhesives	EN 1348	Valore dichiarato 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)	≥ 1.0 N/mm ² (Class C2 - EN 12004)	≥ 1.0 N/mm ² (Class C2 - EN 12004)	
	???????? Reaction to fire	-	Classe A1 oppure A1 _{fl} 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}	A1 - A1 _{fl}	A1 - A1 _{fl}	
???????? Chemical features	???????? Resistance to household chemicals and swimming pool salts	ISO 10545-13	Classe minima B Minimum Class B			A	A	A	A	A	A	A	A	A	
	???????? Resistance to low concentrations of acids and alkalis		Classe dichiarata Declared Class			LA	LA	LA	LA	LA	LA	LA	LA	LA	
	???????? Resistance to high concentrations of acids and alkalis		Classe dichiarata Declared Class			0	-	0	0	-	-	HA	HA	HA	
	Resistenza alle macchie piastrelle smaltate Resistance to staining for glazed tiles	ISO 10545-14	Classe dichiarata Declared Class			5	5	5	5	5	5	5	5	5	
???????? Safety characteristics	???????? Shod Ramp Test	DIN 51130	Classe dichiarata Declared Class			N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	R9	R9	R11	
	???????? Barefoot Ramp Test	DIN 51097	Declared value Valore dichiarato			0	0	0	0	0	0	A	A	A+B	
	???????? Pendulum Friction Test	BS 7976	PTV ≥ 36 classifies the surface as "low slip risk"			≥ 36Dry ≥ 36Wet	≥ 36Dry ≥ 36Wet	≥ 36 Dry ≤ 24 Wet	≥ 36 Dry ≤ 24 Wet	≥ 36Dry ≥ 36Wet	≥ 36 Dry ≤ 24 Wet	≥ 36Dry ≥ 36Wet	PTV ≥ 36 Wet on demand / su richiesta	≥ 36Dry ≥ 36Wet	
		AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test			-	-	-	-	-	-	P3 on demand	P3 on demand	Class P4	
		UNE-ENV 12633	Valore dichiarato Declared value			-	-	-	-	-	-	C2 on demand	C2 on demand	Class C3	
	???????? 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	> 0.40Asciutto < 0.40Bagnato	> 0.40Asciutto < 0.40Bagnato	> 0.40Asciutto < 0.40Bagnato	> 0.40Asciutto < 0.40Bagnato	> 0.40Asciutto < 0.40Bagnato	
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	< 0.42Wet	< 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.

