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DECLARATION OF PERFORMANCE No. 0437

1. Unique identification code of the product-type: **GeoSteel SRP**
(GeoSteel G3300 and Geolite Gel/Epofix)
2. Intended use/es: **The SRP kit is suitable for strengthening and seismic upgrade of clay and natural stone masonry, reinforced and prestressed concrete elements and structures**
3. Manufacturer: **Kerakoll S.p.A Via dell'Artigianato, 9 - 41049 Sassuolo (MO) Italia**
4. System/s of AVCP:
System 2+
System 3 for reaction to fire
5. European Assessment Document: **EAD 340210-00-0104, November 2017**
European Technical Assessment: **ETA-18/0314 of 07/10/2024**
Technical Assessment Body: **ITC CNR**
Notified body/ies: **ITC n°0970**
6. Declared performance/s:
 - Characteristic value for tensile strength and tensile strain
 - Average value for modulus of elasticity

Essential characteristics	Performance
Reaction to fire	Class D-s2,d0
GeoSteelG3300-Geolite gel/Epofix	See Annex A

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by: **Romano Sghedoni** (legal representative)

At Sassuolo, on 20/12/2024

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Annex A – GeoSteel G3300-Geolite gel/Epofix

Essential characteristics		Performance		
Tensile strength (σ_u)	1 layer	≥ 2970 MPa		
	3 layers	≥ 2700 MPa		
Strain (ϵ_u)	1 layer	$\geq 0,015$ mm/mm		
	3 layers	$\geq 0,015$ mm/mm		
Modulus of elasticity (E)	1 layer	≥ 216000 MPa		
	3 layers	≥ 212000 MPa		
Interlaminar shear strength (τ)	No interl shear failure	$\geq 8,90$ MPa		
Lap tensile strength (σ_{lap})	Tested Overlap $l_{lap} = 200$ mm	≥ 1080 MPa		
Bond strength on substrate Concrete MC (0.40) : pull-off test Failure mode C	ambient	Pull off strength $f_{th} \geq 2$ MPa		
	water	(1000 h)	strength $f_{th} \geq 2,40$ MPa retained $f_{th,ret} 107\%$	
		(3000 h)	strength $f_{th} \geq 1,70$ MPa retained $f_{th,ret} 96\%$	
	saltwater	(1000 h)	strength $f_{th} \geq 2,80$ MPa retained $f_{th,ret} 128\%$	
		(3000 h)	strength $f_{th} \geq 2,20$ MPa retained $f_{th,ret} 112\%$	
	alkali conditioning	(1000 h)	strength $f_{th} \geq 2,5$ MPa retained $f_{th,ret} 105\%$	
		(3000 h)	strength $f_{th} \geq 2,30$ MPa retained $f_{th,ret} 103\%$	
	Bond strength on substrate Concrete MC (0.40) : single-lap shear test Failure Mode D	ambient	$P_{max} \geq 12000$ N $P_{deb} \geq 11000$ N	
		water	(1000 h)	$P_{max} \geq 17700$ N $P_{deb} \geq 14300$ N $P_{max,ret} 129\%$ $P_{deb,ret} 132\%$
			(3000 h)	$P_{max} \geq 16100$ N $P_{deb} \geq 14900$ N $P_{max,ret} 128\%$ $P_{deb,ret} 131\%$
saltwater		(1000 h)	$P_{max} \geq 10200$ N $P_{deb} \geq 8900$ N $P_{max,ret} 116\%$ $P_{deb,ret} 122\%$	
		(3000 h)	$P_{max} \geq 10080$ N $P_{deb} \geq 9700$ N $P_{max,ret} 120\%$ $P_{deb,ret} 128\%$	
alkali conditioning		(1000 h)	$P_{max} \geq 14700$ N $P_{deb} \geq 11500$ N $P_{max,ret} 122\%$ $P_{deb,ret} 122\%$	

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Essential characteristics		Performance	
		(3000 h) $P_{max} \geq 13700 \text{ N}$ $P_{deb} \geq 12200 \text{ N}$ $P_{max,ret} 129\%$ $P_{deb,ret} 129\%$	
Pull out from substrate Concrete MC (0.40) Failure Mode CS	ambient (Geolite3300/Geolite Gel)	Pull out strength $\sigma_{pull-out} \geq 1670 \text{ MPa}$ Pull out displacement $\delta_{pull-out} \geq 8,9 \text{ mm}$	
	ambient (Geolite3300/Epofix)	Pull out strength $\sigma_{pull-out} \geq 1400 \text{ MPa}$ Pull out displacement $\delta_{pull-out} \geq 2,8 \text{ mm}$	
	water (Geolite3300/Geolite Gel)	(1000 h)	strength $\sigma_{pull-out} \geq 1520 \text{ MPa}$ displacement $\delta_{pull-out} \geq 8,2 \text{ mm}$ retained $\delta_{pull-out,ret} 91\%$
		(3000 h)	strength $\sigma_{pull-out} \geq 1500 \text{ MPa}$ displacement $\delta_{pull-out} \geq 7,1 \text{ mm}$ retained $\delta_{pull-out,ret} 90\%$
	saltwater (Geolite3300/Geolite Gel)	(1000 h)	strength $\sigma_{pull-out} \geq 1880 \text{ MPa}$ displacement $\delta_{pull-out} \geq 9,3 \text{ mm}$ retained $\delta_{pull-out,ret} 113\%$
		(3000 h)	strength $\sigma_{pull-out} \geq 1480 \text{ MPa}$ displacement $\delta_{pull-out} \geq 7,1 \text{ mm}$ retained $\delta_{pull-out,ret} 89\%$
	alkali conditioning (Geolite3300/Geolite Gel)	(1000 h)	strength $\sigma_{pull-out} \geq 1530 \text{ MPa}$ displacement $\delta_{pull-out} \geq 7,8 \text{ mm}$ retained $\delta_{pull-out,ret} 92\%$
		(3000 h)	strength $\sigma_{pull-out} \geq 1400 \text{ MPa}$ displacement $\delta_{pull-out} \geq 10,7 \text{ mm}$ retained $\delta_{pull-out,ret} 84\%$
	Freezing and Thawing	Direct tension	Tensile strength $\sigma_{u,FT} \geq 2980 \text{ MPa}$ Strain $\epsilon_{u,FT} \geq 0,017 \text{ mm/mm}$ Modulus of elasticity $E_{FT} \geq 205 \text{ GPa}$ Interlaminar shear strength $\tau_{FT} \geq 9,1 \text{ MPa}$
		Retained properties	Tensile strength $\sigma_{u,FT,ret} 103\%$ Modulus of elasticity $E_{FT,ret} 97\%$ Interlaminar shear strength $\tau_{FT} 94\%$
Water resistance	Direct tension (1000 h)	Tensile strength $\sigma_{u,w} \geq 3100 \text{ MPa}$ Strain $\epsilon_{u,w} \geq 0,019 \text{ mm/mm}$ Modulus of elasticity $E_w \geq 202 \text{ GPa}$ Interlaminar shear strength $\tau_w \geq 9,9 \text{ MPa}$ Lap Tensile $\sigma_{lap,w} \geq 1540 \text{ MPa}$	
	Direct tension (3000 h)	Tensile strength $\sigma_{u,w} \geq 3170 \text{ MPa}$ Strain $\epsilon_{u,w} \geq 0,018 \text{ mm/mm}$ Modulus of elasticity $E_w \geq 208 \text{ GPa}$ Interlaminar shear strength $\tau_w \geq 10 \text{ MPa}$ Lap Tensile $\sigma_{lap,w} \geq 1370 \text{ MPa}$	
	Retained properties (1000 h)	Tensile strength $\sigma_{u,w,ret} 103\%$ Modulus of elasticity $E_{w,ret} 99\%$ Interlaminar shear strength $\tau_{w,ret} 95\%$ Lap Tensile $\sigma_{lap,w,ret} 138\%$	
	Retained properties (3000 h)	Tensile strength $\sigma_{u,w,ret} 105\%$ Modulus of elasticity $E_{w,ret} 95\%$ Interlaminar shear strength $\tau_{w,ret} 116\%$ Lap Tensile $\sigma_{lap,w,ret} 130\%$	

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Essential characteristics		Performance
Saltwater resistance	Direct tension (1000 h)	Tensile strength $\sigma_{u,sw} \geq 2940$ MPa Strain $\epsilon_{u,sw} \geq 0,015$ mm/mm Modulus of elasticity $E_{sw} \geq 205$ GPa Interlaminar shear strength $\tau_{sw} \geq 8,7$ MPa Lap Tensile $\sigma_{lap,sw} \geq 1440$ MPa
	Direct tension (3000 h)	Tensile strength $\sigma_{u,sw} \geq 2890$ MPa Strain $\epsilon_{u,sw} \geq 0,017$ mm/mm Modulus of elasticity $E_{sw} \geq 203$ GPa Interlaminar shear strength $\tau_{sw} \geq 10$ MPa Lap Tensile $\sigma_{lap,sw} \geq 1190$ MPa
	Retained properties (1000 h)	Tensile strength $\sigma_{u,sw,ret} 102\%$ Modulus of elasticity $E_{sw,ret} 97\%$ Interlaminar shear strength $\tau_{sw,ret} 102\%$ Lap Tensile $\sigma_{lap,sw,ret} 124\%$
	Retained properties (3000 h)	Tensile strength $\sigma_{u,sw,ret} 102\%$ Modulus of elasticity $E_{sw,ret} 96\%$ Interlaminar shear strength $\tau_{sw,ret} 102\%$ Lap Tensile $\sigma_{lap,sw,ret} 105\%$
Alkali resistance	Direct tension (1000 h)	Tensile strength $\sigma_{u,alk} \geq 2960$ MPa Strain $\epsilon_{u,alk} \geq 0,017$ mm/mm Modulus of elasticity $E_{alk} \geq 207$ GPa Interlaminar shear strength $\tau_{alk} \geq 8,4$ MPa Lap Tensile $\sigma_{lap,alk} \geq 1410$ MPa
	Direct tension (3000 h)	Tensile strength $\sigma_{u,alk} \geq 2850$ MPa Strain $\epsilon_{u,alk} \geq 0,015$ mm/mm Modulus of elasticity $E_{alk} \geq 205$ GPa Interlaminar shear strength $\tau_{alk} \geq 8,3$ MPa Lap Tensile $\sigma_{lap,alk} \geq 1190$ MPa
	Retained properties (1000 h)	Tensile strength $\sigma_{u,alk,ret} 103\%$ Modulus of elasticity $E_{alk,ret} 98\%$ Interlaminar shear strength $\tau_{alk,ret} 100\%$ Lap Tensile $\sigma_{lap,alk,ret} 125\%$
	Retained properties (3000 h)	Tensile strength $\sigma_{u,alk,ret} 101\%$ Modulus of elasticity $E_{alk,ret} 97\%$ Interlaminar shear strength $\tau_{alk,ret} 91\%$ Lap Tensile $\sigma_{lap,alk,ret} 105\%$

Applicazioni

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Essential characteristics		Performance
Alkali soil resistance	Direct tension (1000 h)	Tensile strength $\sigma_{u,soil} \geq 3000$ MPa Strain $\epsilon_{u,soil} \geq 0,013$ mm/mm Modulus of elasticity $E_{soil} \geq 259$ GPa
	Retained properties (1000 h)	Tensile strength $\sigma_{u,soil,ret} 101$ % Modulus of elasticity $E_{soil,ret} 120$ %
Dry heat resistance	Direct tension (1000 h)	Tensile strength $\sigma_{u,heat} \geq 2850$ MPa Strain $\epsilon_{u,heat} \geq 0,012$ mm/mm Modulus of elasticity $E_{heat} \geq 267$ GPa
	Retained properties (1000 h)	Tensile strength $\sigma_{u,heat,ret} 100$ % Modulus of elasticity $E_{heat,ret} 123$ %
	Direct tension (3000 h)	Tensile strength $\sigma_{u,heat} \geq 2970$ MPa Strain $\epsilon_{u,heat} \geq 0,014$ mm/mm Modulus of elasticity $E_{heat} \geq 238$ GPa
	Retained properties (3000 h)	Tensile strength $\sigma_{u,heat,ret} 101$ % Modulus of elasticity $E_{heat,ret} 110$ %
Fuel resistance	Direct tension	Tensile strength $\sigma_{u,fuel} \geq 3010$ MPa Strain $\epsilon_{u,fuel} \geq 0,017$ mm/mm Modulus of elasticity $E_{fuel} \geq 211$ GPa
	Retained properties	Tensile strength $\sigma_{u,fuel,ret} 101$ % Modulus of elasticity $E_{fuel,ret} 97$ %
Creep behaviour related to the adhesion on substrate Concrete MC (0.40) Failure mode D		Displacement vs time (tabular) Maximum load $P_{max,creep} \geq 13800$ N Bond capacity $P_{deb,creep} \geq 10600$ N
Tensile strength after low number of cycles (seismic behaviour)		Tensile strength $\sigma_{u,seism} \geq 2970$ MPa Strain $\epsilon_{u,seism} \geq 0,0150$ mm/mm Modulus of elasticity $E_{1,seism} \geq 208$ GPa
Tensile strength after high number of cycles (fatigue actions)		NPA
Tensile strength on bent fabric	Straight fabric	$\sigma_{u,f,straight} \geq 2910$ MPa $\sigma_{u,f,straight,sw1000} \geq 2930$ MPa $\sigma_{u,f,straight,sw3000} \geq 2790$ MPa
	Bent fabric	$\sigma_{u,f,bent} \geq 2550$ MPa $\sigma_{u,f,bent,sw1000} \geq 2380$ MPa $\sigma_{u,f,bent,sw3000} \geq 2350$ MPa
Creep rupture (creep deformation)		$t_u 10 \quad \epsilon_{u,creep} \leq 0,012$ mm/mm
		$t_u 100 \quad \epsilon_{u,creep} \leq 0,013$ mm/mm
		$t_u 1000 \quad \epsilon_{u,creep} \leq 0,018$ mm/mm
		$t_u 2000 \quad \epsilon_{u,creep} \leq 0,020$ mm/mm
		$t_u 3000 \quad \epsilon_{u,creep} \leq 0,021$ mm/mm
Void content (V)	1 layer	0.4 %
	3 layers	1.0 %
Glass Transition Temperature of resin		$T_g \geq 60^\circ\text{C}$

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