





talian historical trademark of nationa interest approved by the Ministry of Enterprises and Made in Italy

A recognition obtained thanks to the visionary foresight of our founder **Luigi Granieri**, who as early as 1974 coined and patented the terms TERMOPARETI and TERMOCOPERTURE. Due to their originality, clarity, and strong identity, these names have since become iconic-universally recognized today as defining every type of insulated panel manufactured around the world.

87

# Our brand makes history \*\* \*\* as Italy honors it \*\* \*\* with national recognition

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TERMOPARETI® HIDDEN FIXING HIDDEN FIXING OPTIONS VISIBLE FIXING FLAT BUBBLE RUGBY CAOS EPICO NEW AEFFE ATHOS AEFFE ATHOS TERMOFONISOL	pag.	09 10 12 13 14 18 22 26 32 40 41
TERMOCOPERTURE ® TCP/C - RP/ST 4G ZOOTEC ZOOTEC EAT FLEX SLIM RP/ST MANTO ARCO AEFFE OLYMPOS AEFFE OLYMPOS TERMOFONISOL	pag.	45 46 48 49 50 51 52 54 56 57
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**Classification Reports** 





TERMOPARETI® and TERMOCOPERTURE®, conceived and patented in 1974 by Elcom System, are today globally recognized terms used to identify any type of insulated panel. Their widespread presence in the market is a direct result of the company's innovation



# Afantastic entrepreneurial history started in 1920 by Mariano Granieri



It was the year 1920 when Mariano
Granieri, born in 1885, founded a small
carpentry workshop to build farm carts.
This marked the beginning of an
entrepreneurial tradition that has
endured to this day—and now celebrates
105 years. An Italian story shaped by
sacrifice, determination, and hard work.
Proudly made in Umbria.



In the early fifties Luigi Granieri (Mariano's son) founds ILFE Serramenti



OVER A CENTURY OF ACHIEVEMENTS
THAT, FOR THE GRANIERI FAMILY,
REPRESENT BOTH A SOURCE
OF INSPIRATION TO KEEP GROWING
AND A CHALLENGE TO SHAPE THE FUTURE.

One family, one Tradition, one Responsibility.



**1920**: Mariano Granieri starts a small carpentry workshop to build farm carts



# Elcom System S.p.A. celebrated its 60th anniversary of activity





# Our Identity... Our Goals

With over 60 years of history and solid experience, **Elcom System** continually invests in both experimental and applied research to develop cutting-edge design solutions that provide a concrete response to the modern world promoting with increasing priority the synergy between research, technology, production, and safety. The goal is to create unique products that harmoniously reconcile with the identity of their surroundings, enhancing both architectural and landscape contexts.

The **TERMOPARETI** ® and **TERMOCOPERTURE** ® (registered trade names), insulated panels, produced by the Company, are open, flexible, and continuously evolving systems, designed and patented to effectively and durably respond to the challenges of contemporary architecture and the needs of increasingly sustainable projects.



A young Luigi Granieri that makes ILFE Serramenti SpA a nationwide important industrial reality



The new ILFE Serramenti plant in 1964



In 1968 Luigi Granieri (Knight of Labour) receives the "Gold Mercury Award" for ILFE Serramenti



The european "Gold Mercury" awarded to Luigi Granieri



1974: Luigi Granieri's entrepreneurial genius conceives the well-known TERMOPARETI® and TERMOCOPERTURE® 1984: The vibrating platform invented by Luigi Granieri to test the buildings' stability during earthquakes



Luigi Granieri, a 26 year old blacksmith, in his artisan workshop dealing with the construction of the first metal window frames, after having worked on farm carts



Luigi Granieri, Commander of the order of Merit of the Italian Republic, founder of Elcom System (1927 - 2008)





# the added value to your creations, offering innovative and contemporary architectural solutions

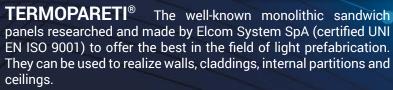
Elcom System Spa strongly believes in the development and strengthening of the synergy between research and production to create innovative and successful products, based on expertise, integrity and strategic vision.



# elcom system is...



ISO 9001 UNI EN ISO 9001:2015 New Edition



**TERMOCOPERTURE**<sup>®</sup> The monolithic sandwich panels researched and made by Elcom System SpA (certified UNI EN ISO 9001) to offer the best in the field of light prefabrication. They can be used to realize roofings and ceilings.

**SERBOND**<sup>®</sup> The Serbond cladding concept has been developed to offer to the designers the possibility to create tailor-made projects, having not to refer to rigid standars or defined geometric rules. It is a particular versatile system, suitable for all type of structures.

**TRAPEZOIDAL SHEETS** The trapezoidal sheets have been studied to realize roofings, walls and floors. The possibility of particular ways of shaping, such as cambering and drawing allows for their use in every kind of building



Over 60 years of consolidated experience, of reliable and versatile solutions to respond to the ever changing needs of architects, designers technicians and professionals.

Elcom System SpA has its seat in the heart of "green Umbria", near the beautiful medieval town of Todi. The company site spans 85.000m<sup>2</sup>, 27.000m2 of which accommodate the high-tech production facilities where modular coordinate elements for the prefabrication sector are made. The well-known TERMOPARETI® and TERMOCOPERTURE® (patented), wall architectural calddings. trapezoidal sheets for roofs and walls, steel floors, special systems and components with thermic cut, profiles, spherical connections, finishings and fixing accessories are all produced here.







# GEOMETRE













elcom system

# NEW

# TERMOPARETI® BUBBLE

Studied to be used in industrial, commercial, residential building and public utilities and to create an original architectural design.

# TERMOPARETI® RUGBY

They have been studied to create original architectural facades with an extraordinary and unusual innovative design almost ignored in the field of thermoinsulating panels in the past.

# TERMOPARETI® FLAT

Monolithic panels developed to offer the best in the light prefabrication field.

The panels can be used for walls, claddings, internal partitions and ceilings.

# TERMOPARETI® CAOS

An ambitious project with a revolutionary concept, both aesthetic and architectural, being brand new in inspiration and design.

# TERMOPARETI® EPICO

The 3D architectural panel. A revolutionary idea that goes beyond the traditional concept of "panel": an innovative product able to redefine aesthetics and architecture.

# SCHIEGES ARCHIECUES ARCHIECUES



# TERMOPARETI® TERMOCOPERTURE®

® registered trade names



Via s.s. Ex Tiberina 3 bis. 218 06059 - PANTALLA di TODI - PG

# 25 EN 14509

Metal faced insulating panel for use in building Reference: TERMOPARETI® & TERMOCOPERTURE®

Insulation: PUR / PIR

Support facings: STEEL, ALUMINIUM, COPPER,

STAINLESS STEEL, COR-TEN USE: ROOF and WALLS

Thermal transmittance

### Mechanical resistance

- Tensile strength
- Shear strength
- Reduced long-term shear strength
- Shear modulus (core)
- Compressive strength (core)

Creep coefficient

### Bending strength: span

- Positive bending
- Positive bending, high temperatures
- Negative bending
- Negative bending, high temperatures

### Bending strength: internal support

- positive bending
- positive bending, high temperatures
- negative bending
- negative bending, high temperatures

Wrinkling stress (external face)

- in span
- in span, high temperatures
- with central support
- with central support, high temperatures

### Wrinkling stress (internal face)

- in span
- with central support

Reaction to fire

Fire resistance

Behaviour to external fire

Water permeability

Air permeability

Steam permeability

Airborne sound insulation

Sound absorption

Durability

The insulating metal panels called TERMOPARETI®-TERMOCOPERTURE® (® registered trade names), are the well-known monolithic panels researched and made by ELCOM SYSTEM S.p.A. (Certified UNI EN ISO 9001) to offer the best in the field of light prefabrication.

With the panels TERMOPARETI®-TERMOCOPERTURE® it's possible to realize roofings, walls, claddings, internal partitions, false-ceiling, shelters, canopies etc., and a wide range of little, medium and big prefabricated buildings in the industrial, commercial, residential, social, agricultural and zoothecnical field.

THE COMPANY PRODUCES ALSO THE PANELS CALLED BUBBLE WITH PRESSED SPHERICAL IMPRINTS, **RUGBY WITH PRESSED ELLIPTIC IMPRINTS AND THE** NEW CAOS AND EPICO, RESEARCHED FOR FAÇADES WITH ORIGINAL ARCHITECTURAL IMPACT.

For tailor-made projects the company produces particular joints and special components such as spherical, right and curved connections with thermic cut, to be used with our products to reach a high and extraordinary architectural standard.

### **TECHNICAL CHARACTERISTICS**

External steel supports: they are obtained from cold profiling of coils of different material: carbon steel coated with zinc S 250GD according to UNI EN 10346 norms with mechanical characteristics as foreseen in the D.M. of 14.01.2008 and tolerances as UNI EN 10143 norm; aluminium according to UNI EN 1396 norm, with

a minimum breaking load of 150 MPa; copper according to UNI EN 1172; and stainless steel according to EN 10088-1 norms; COR-TEN.

The finishing of steel and aluminium supports consists of an organic coat obtained from a cycle of hot standard polyester prepainting, according to UNI EN 10169 norms. On request, different coatings such as PVC alimentary EAT or PVDF can be fournished.

It's possible to manufacture TERMOCOPERTURE® panels with bitumized feltpaper and/or centesimal aluminium on the internal side. Special roof panels for zootechny, called ZOOTEC, are manufactured with the internal support in fibreglass (opaline white). They are indicated for spaces with biological exhalations being resistant to bacteriums, urea and ammonia.

The colours (as per enclosed colour chart) of the panels Termocoperture® and Termopareti®, are obtained with pigments whose stability has been tested.

Insulation: expanded polyurethane (PUR), CFC free, according to UNI EN 13165 norm. On request foams with characteristics of fire-reaction class E can also be fournished. In case of particular needs, foams with a superior fire-reaction (PIR), can be produced. These panels with class Bs2d0 UNI EN 13501-1 have better performances as far as concerns fire reaction/ The main characteristics of the foams are:

- Density: ~ 40 kg/m3.
- compressive strenght: 140 -150 KPa
- impermeability: 98% closed cells, (nonhygroscopic material)

### Tolerances (according to the enclosed D UNI EN 14509):

- Thickness of panels (respective to the declared value):  $D \le 100 \text{ mm} \pm 2 \text{ mm}$ 

 $D > 100 \text{ mm} \pm 2\%$ 

- Length of panels  $\leq$  3000 mm  $\pm$  5 mm / > 3000 mm  $\pm$  10 mm  $L = 200 \text{ mm } I \le 0.6 \text{ mm}$ 
  - L = 400 mm l ≤ 1 mm

 $L > 700 \text{ mm } I \le 1,5 \text{ mm}$ 

(L = distance between the points of measurment)

- Out of square on cut  $s \le 0.6\%$  of the useful width
  - Rib span: ± 2 mm

- Flatness:

Permissible Loads: The values shown in the tables, are indicative, calculated according to the ECCS and AIPPEG recommendations, and confirmed by experiments. For dimensions and test refer to the UNI EN 14509 norm, enclosed E.

Peculiar Characteristics: The panels TERMOPARETI® are equipped, in the female joint, with a special continuous PVC fixed-in profile, to increase the overall fixing stability of the panel and to avoid detachments of the supports from the insulation either during their handling or in the working phase (excluded panels with visible fixings thicknesses 25-30-100-120-150-180 mm).



The panels TERMOPARETI® and TERMOCOPERTURE® made by ELCOM SYSTEM with polyisocianurate foam (PIR) have been certified with a fire reaction Bs2 d0 according to the european norm EN13501-1 and a fire resistance EI20, EI30 and REI20 according to the EN13501-2 Norm.

The PIR foam (polyisocianurate) has the same insulation characteristics of the standard polyurethane, but has better performances as far as concerns fire reaction and fire resistance. PIR foam is the result of the reaction of polyol and a high proportion of isocyanate. This last reacts with itself to form a thermoset plastic; this reaction is called trimerization

These PIR compounds that are typically cyclic, lend to the foam better performances as far as concerns fire reaction and fire resistance than the traditional PUR foam, in fact, when burning, there is less smoke production as shows also the classification assigned to the panels. i.e. B-s2 d0.

As soon as the CE marking and the new european classification according to the EUROCLASSES as per EN13501-1 came into force, an evolution in the performances of fire reaction has been necessary.



















# TERMOPARETI®

® registered trade name

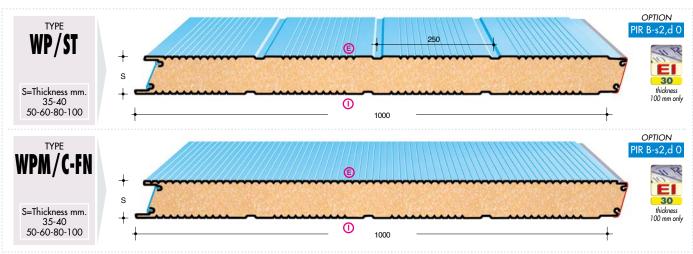


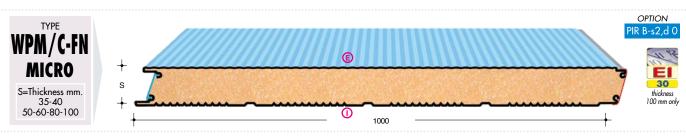
Surprising Solutions creating Architecture



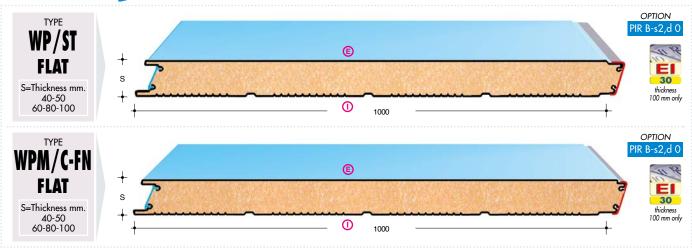
# TERMOPARETI® HIDDEN FIXING

® registered trade name

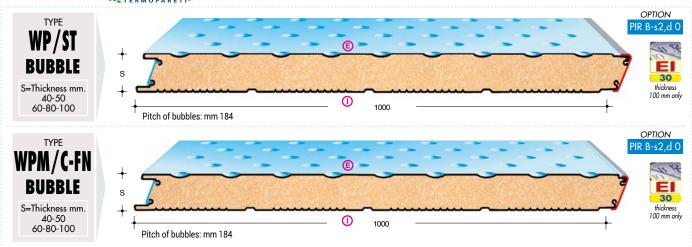






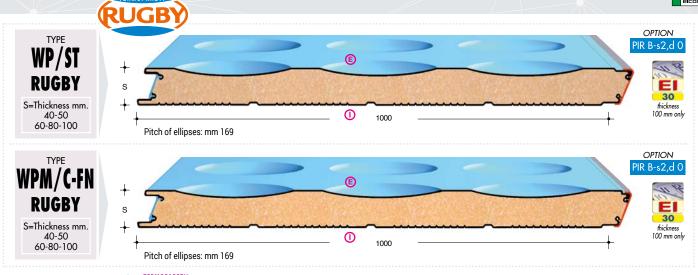


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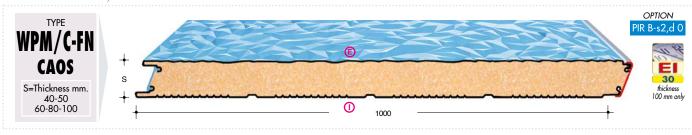


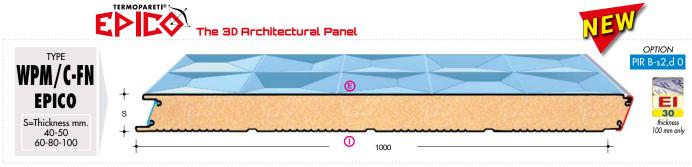


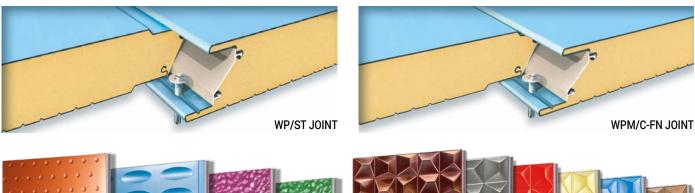


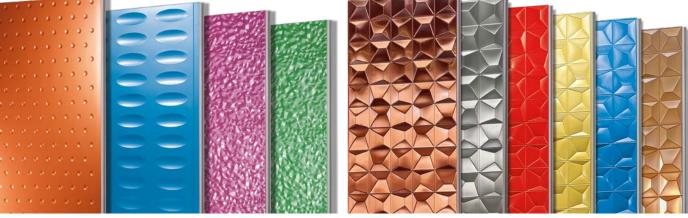














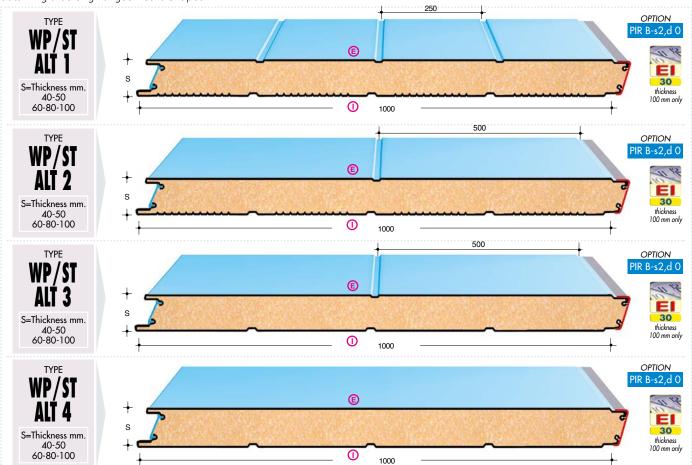


# TERMOPARETI® HIDDEN FIXING

® registered trade name

# **WP/ST ALTERNATIVE 1-2-3-4**

The panels type WP/ST ALTERNATIVE 1-2-3-4 create visually a module of 250 and 500 mm width, both horizontally and vertically, obtaining thus original geometric shapes.





7	THERMIC IN	NSULATION				SUP	PORT CONE	DITIONS - U	seful loads u	uniformely o	listributed i	n Kg/m² – K	N/m²	
S	R	Ü	weight	U.M.					SPAN II	N mℓ				
thickness mm	m² K W	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
25	1,209	0,827	9,58	Kg/m² KN/m²	<b>125</b> 1,23	<b>85</b> 0,83	<b>60</b> 0,59	<b>50</b> 0,49	<b>40</b> 0,39	130 1,27	<b>95</b> 0,93	<b>70</b> 0,68	<b>60</b> 0,59	<b>50</b> 0,49
30	1,435	0,697	9,77	Kg/m <sup>2</sup> KN/m <sup>2</sup>	<b>140</b> 1,37	<b>95</b> 0,94	<b>70</b> 0,69	<b>55</b> 0,54	<b>45</b> 0,44	<b>145</b> 1,42	<b>105</b> 1,03	<b>80</b> 0,78	<b>65</b> 0,64	<b>55</b> 0,54
35	1,647	0,607	9,96	Kg/m² KN/m²	<b>145</b> 1,42	<b>100</b> 0,98	<b>80</b> 0,78	<b>60</b> 0,59	<b>50</b> 0,49	<b>155</b> 1,52	<b>115</b> 1,12	<b>90</b> 0,88	<b>70</b> 0,68	<b>60</b> 0,58
40	1,866	0,536	10,15	Kg/m² KN/m²	<b>166</b> 1,63	<b>125</b> 1,22	<b>90</b> 0,88	<b>70</b> 0,68	<b>55</b> 0,54	<b>178</b> 1,74	<b>140</b> 1,37	<b>108</b> 1,05	<b>85</b> 0,83	<b>70</b> 0,68
50	2,309	0,433	10,53	Kg/m² KN/m²	<b>225</b> 2,21	<b>160</b> 1,57	<b>120</b> 1,18	<b>90</b> 0,88	<b>70</b> 0,68	<b>245</b> 2,41	<b>182</b> 1,78	<b>140</b> 1,37	115 1,13	<b>90</b> 0,88
60	2,747	0,364	10,91	Kg/m² KN/m²	<b>289</b> 2,83	<b>216</b> 2,12	<b>142</b> 1,39	115 1,13	<b>85</b> 0,83	<b>321</b> 3,15	<b>237</b> 2,32	<b>181</b> 1,77	<b>141</b> 1,38	<b>115</b> 1,13
80	3,623	0,276	11,67	Kg/m² KN/m²	<b>455</b> 4,46	<b>316</b> 3,09	<b>227</b> 2,22	160 1,57	120 1,18	<b>500</b> 4,91	<b>365</b> 3,58	<b>280</b> 2,74	<b>215</b> 2,11	<b>145</b> 1,42
100	4,504	0,222	12,63	Kg/m² KN/m²	<b>470</b> 4,60	<b>345</b> 3,38	<b>260</b> 2,55	<b>200</b> 1,96	<b>160</b> 1,57	<b>510</b> 4,99	<b>390</b> 3,82	<b>285</b> 2,79	<b>225</b> 2,20	<b>180</b> 1,76
120	5,376	0,186	13,43	Kg/m² KN/m²	<b>510</b> 4,99	<b>435</b> 4,26	<b>290</b> 2,84	<b>260</b> 2,55	<b>200</b> 1,96	<b>535</b> 5,24	<b>445</b> 4,36	<b>320</b> 3,13	<b>290</b> 2,84	<b>210</b> 2,06

LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,5 mm.
For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.

	THERMIC II	NSULATION				SUPI	PORT COND	ITIONS - Us	seful loads u	iniformely d	istributed in	n Kg/m² – K	N/m²	
S	R	Ü	weight	U.M.					SPAN II	√ mℓ				
thickness mm	<u>m² K</u> W	W m² K	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m² KN/m²	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m² KN/m²	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98
120	5,376	0,186	8,36	Kg/m² KN/m²	<b>315</b> 3,09	<b>270</b> 2,64	<b>210</b> 2,06	<b>185</b> 1,81	<b>110</b> 1,08	<b>340</b> 3,33	<b>295</b> 2,89	<b>240</b> 2,35	<b>195</b> 1,91	<b>135</b> 1,32

LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of ALUMINIUM supports 0,6+0,6 mm.
For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.

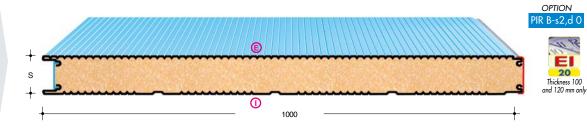


# TERMOPARETI® VISIBLE FIXING



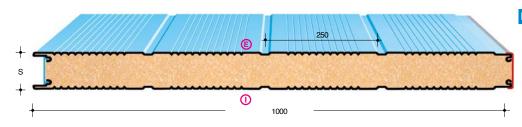
# TYPE WPM/C

S Thickness mm. 25-30-35-40 50-80-100-120



# TYPE TPG/C-ST

S Thickness mm. 25-30-35-40 50-80-100-120

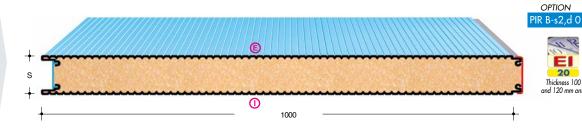






# TYPE TPM/C-ST

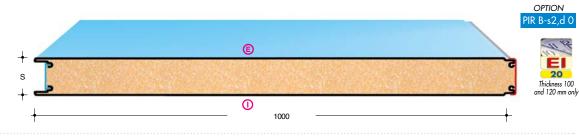
S Thickness mm. 25-30-35-40 50-80-100-120



## 11/18 EI 20 Thickness 100 and 120 mm only

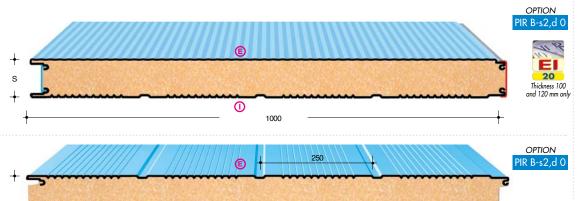
# TYPE TPL/C-ST

Thickness mm. 30-35-40-50 80-100-120



# TYPE WPM/C **MICRO**

Thickness mm. 25-30-35-40 50-80-100-120



# TYPE TPG/C-LAB

S Thickness mm. 150-180

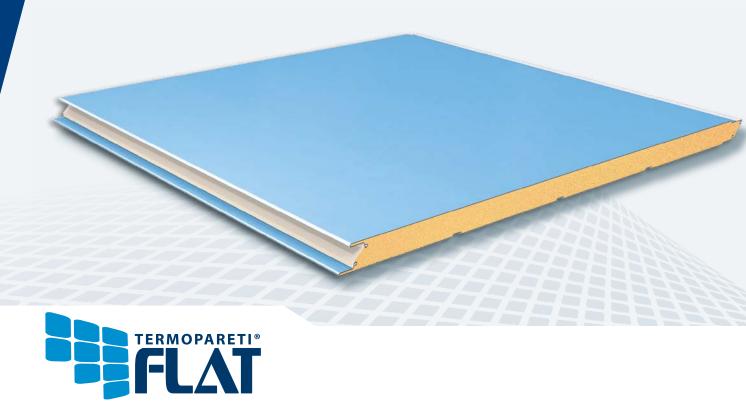




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Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172

COR-TEN

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The panels TERMOPARETI® FLAT are available in different types and the have been studied to be used in industrial, commercial, residential building and public utilities for new buildings and renovations. The panels can be used for continuous and/or discontinuous external walls, internal partitions and ceilings. The product, thanks to its characteristics, can be widely employed and architects and designers have freedom of choice in a wide range of materials and colours. The panels can be used on any type of structure such as metallic, concrete and wood, and their installation can be vertical, horizontal or inclined. The panels are connected to each other by a joint and they are fixed with specific accessories. Elements with thermic cut such as rounded and right corners, edges and spherical connections are used to complete the TERMOPARETI® FLAT and reach a high aesthetic standard.

	THERMIC II	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads ι	uniformely dis	stributed in K	g/m² – KN/m²		
S	R	U	weight	U.M.					SPAN II	N mℓ		ΔιΔιΔιΔ		
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	10,15	Kg/m <sup>2</sup> KN/m <sup>2</sup>	166 1,63	<b>125</b> 1,22	<b>90</b> 0,88	<b>70</b> 0,68	<b>55</b> 0,54	<b>178</b> 1,74	<b>140</b> 1,37	<b>108</b> 1,05	<b>85</b> 0,83	<b>70</b> 0,68
50	2,309	0,433	10,53	Kg/m² KN/m²	<b>225</b> 2,21	<b>160</b> 1,57	<b>120</b> 1,18	<b>90</b> 0,88	<b>70</b> 0,68	<b>245</b> 2,41	<b>182</b> 1,78	<b>140</b> 1,37	<b>115</b> 1,13	<b>90</b> 0,88
60	2,747	0,364	10,91	Kg/m² KN/m²	<b>289</b> 2,83	<b>216</b> 2,12	<b>142</b> 1,39	<b>115</b> 1,13	<b>85</b> 0,83	<b>321</b> 3,15	<b>237</b> 2,32	<b>181</b> 1,77	<b>141</b> 1,38	<b>115</b> 1,13
80	3,623	0,276	11,67	Kg/m² KN/m²	<b>455</b> 4.46	<b>316</b> 3,09	<b>227</b> 2,22	<b>160</b> 1,57	<b>120</b> 1,18	<b>500</b> 4,91	<b>365</b> 3,58	<b>280</b> 2,74	<b>215</b> 2,11	<b>145</b> 1,42
100	4,504	0,222	12,63	Kg/m² KN/m²	<b>470</b> 4,60	<b>345</b> 3,38	<b>260</b> 2,55	<b>200</b> 1,96	<b>160</b> 1,57	<b>510</b> 4,99	<b>390</b> 3,82	<b>285</b> 2,79	<b>225</b> 2,20	<b>180</b> 1,76

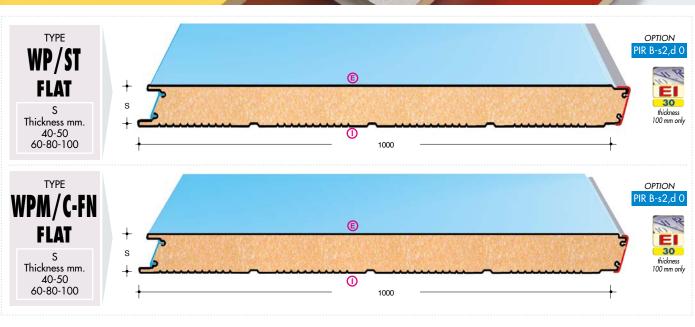
LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0.5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the Œ certification. The letter 0 ⑤ shows the required painted side.

	THERMIC IN	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads u	iniformely dis	stributed in K	g/m² – KN/m²		
S	R	Ü	weight	U.M.					SPAN II	N mℓ				
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m <sup>2</sup> KN/m <sup>2</sup>	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m <sup>2</sup> KN/m <sup>2</sup>	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98

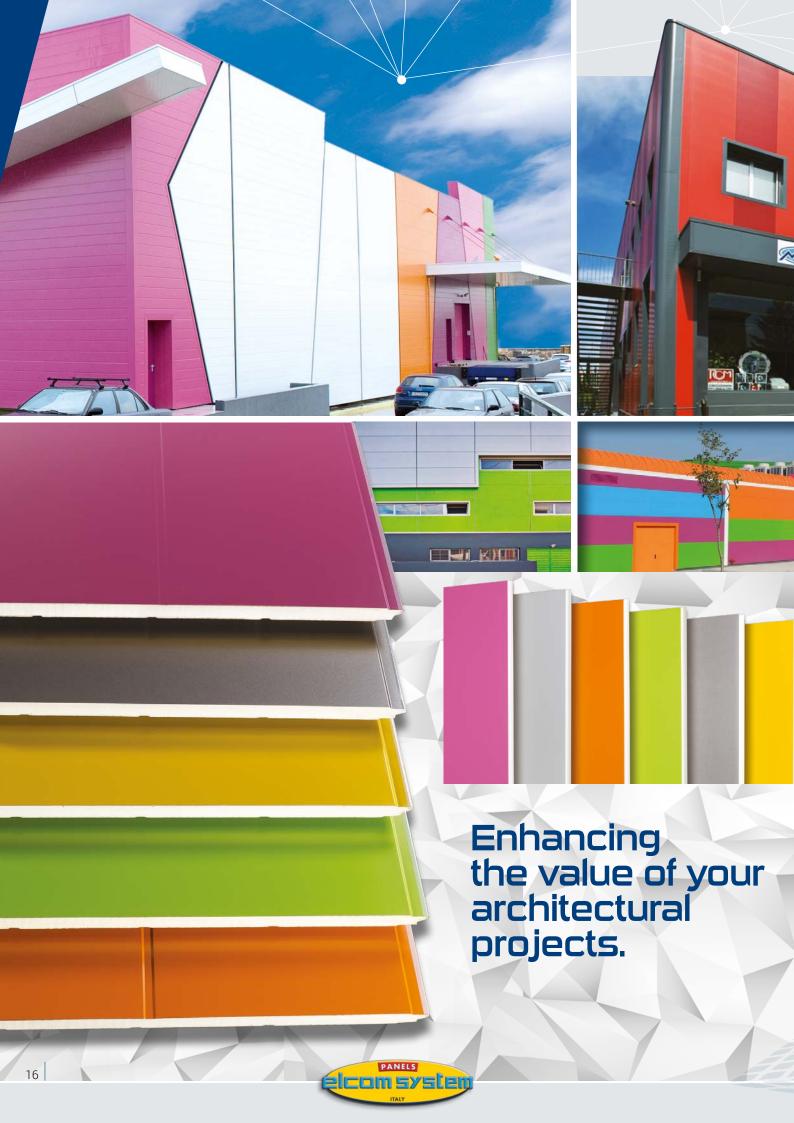
LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of **ALUMINIUM** supports 0,6+0,6 mm.
For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.









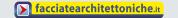


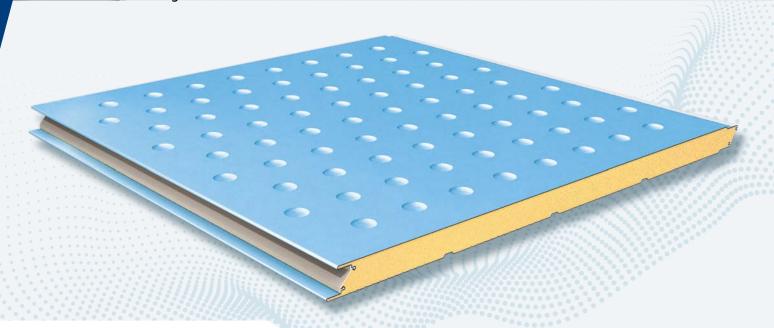














Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172 COR-TEN

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The panels TERMOPARETI® BUBBLE (patented) are available in different types and are unlike the traditional panels. In fact they have been studied to create original architectural impressions and they can be used in industrial, commercial, residential building and public utilities, for new buildings and renovations. The panels can be used for continuous and/ or discontinuous external walls, internal partitions and ceilings. The product, thanks to its characteristics, can be widely employed and architects, designers and end users have freedom of choice in a wide range of materials and colours. The panels can be used on any type of structure such as metallic, concrete and wood, and their application can be vertical, horizontal or inclined. They are fixed with specific accessories.

The peculiarity of the **BUBBLE** panels is on the external surface: pressed spherical imprints on the steel that give an impressive architectural effect to the building. The imprints are negative respective the external side of the support and they can be realized on different materials such as galvanized and/or prepainted steel, aluminium, stainless steel and copper. Elements with thermic cut such as rounded and right corners, edges and spherical connections are used to complete the TERMOPARETI® BUBBLE and reach a high aesthetic standard

	THERMIC II	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads (	uniformely dis	tributed in K	g/m² – KN/m²		
S	R	U	weight	U.M.					SPAN I	N mℓ		ΔιΔιΔιΔ		
thickness mm	$\frac{m^2 K}{W}$	W m² K	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	10,15	Kg/m <sup>2</sup> KN/m <sup>2</sup>	166 1.63	<b>125</b> 1,22	<b>90</b> 0,88	<b>70</b> 0,68	<b>55</b> 0,54	<b>178</b> 1,74	140 1,37	108 1,05	<b>85</b> 0,83	<b>70</b> 0,68
50	2,309	0,433	10 F0	Kg/m²	225	160	120	90	70	245	182	140	115	90
30	2,309	0,433	10,53	KN/m²	2,21	1,57	1,18	0,88	0,68	2,41	1,78	1,37	1,13	0,88
60	2,747	0,364	10,91	Kg/m² KN/m²	<b>289</b> 2,83	<b>216</b> 2,12	<b>142</b> 1,39	<b>115</b> 1,13	<b>85</b> 0,83	<b>321</b> 3,15	<b>237</b> 2,32	<b>181</b> 1,77	<b>141</b> 1,38	<b>115</b> 1,13
80	3,623	0,276	11,67	Kg/m² KN/m²	<b>455</b> 4.46	<b>316</b> 3,09	<b>227</b> 2,22	<b>160</b> 1,57	<b>120</b> 1,18	<b>500</b> 4,91	<b>365</b> 3,58	<b>280</b> 2,74	<b>215</b> 2,11	<b>145</b> 1,42
100	4,504	0,222	12,63	Kg/m² KN/m²	<b>470</b> 4,60	<b>345</b> 3,38	<b>260</b> 2,55	<b>200</b> 1,96	<b>160</b> 1,57	<b>510</b> 4,99	<b>390</b> 3,82	<b>285</b> 2,79	<b>225</b> 2,20	<b>180</b> 1,76

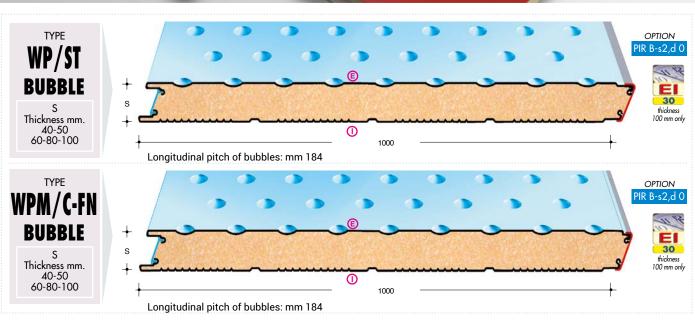
LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0.5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the Œ certification. The letter 0 ⑤ shows the required painted side.

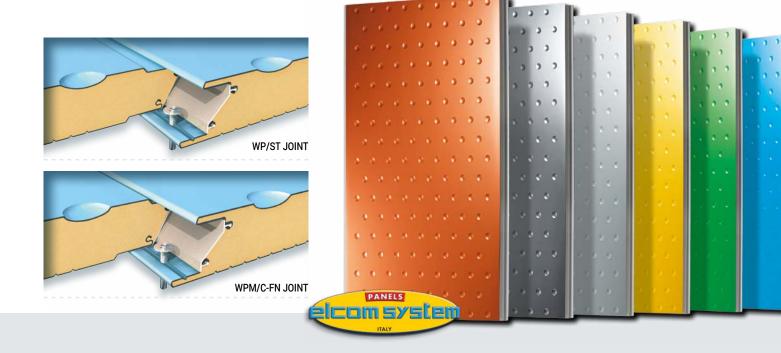
	THERMIC II	NSULATION					SUPPORT CO	NDITIONS -	Useful loads u	uniformely dis	stributed in Ko	J/m² – KN/m²		
S	R	U	weight	U.M.					SPAN I	N mℓ				
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m² KN/m²	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m² KN/m²	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98

LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of **ALUMINIUM** supports 0,6+0,6 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter 0 ⑤ shows the required painted side.



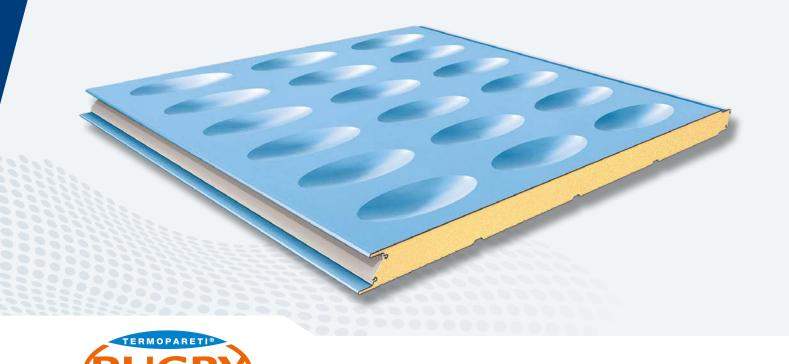












Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The panels TERMOPARETI® RUGBY (patented) have been studied to create original architectural facades with an extraordinary and unusual innovative design that was considered unimportant in the field of thermoinsulating panels in the past. The panels are available in different thicknesses and colours and they can be used in industrial, commercial, residential building and public utilities, for new buildings and renovations. Their special feature is on the external surface: important and significant elliptic imprints pressed on the steel that are negative respective the external side of the support and can be realized on all materials normally used for profiling such as prepainted steel, aluminium, stainless steel and copper. Elements with thermic cut such as rounded and right corners, edges and spherical connections finish and increase the value of the TERMOPARETI® RUGBY.

	THERMIC II	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads ι	uniformely dis	stributed in K	g/m² – KN/m²		
S	R	U	weight	U.M.					SPAN II	N mℓ		ΔιΔιΔιΔ		
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	10,15	Kg/m <sup>2</sup> KN/m <sup>2</sup>	166 1,63	<b>125</b> 1,22	<b>90</b> 0,88	<b>70</b> 0,68	<b>55</b> 0,54	<b>178</b> 1,74	<b>140</b> 1,37	<b>108</b> 1,05	<b>85</b> 0,83	<b>70</b> 0,68
50	2,309	0,433	10,53	Kg/m² KN/m²	<b>225</b> 2,21	<b>160</b> 1,57	<b>120</b> 1,18	<b>90</b> 0,88	<b>70</b> 0,68	<b>245</b> 2,41	<b>182</b> 1,78	<b>140</b> 1,37	<b>115</b> 1,13	<b>90</b> 0,88
60	2,747	0,364	10,91	Kg/m² KN/m²	<b>289</b> 2,83	<b>216</b> 2,12	<b>142</b> 1,39	<b>115</b> 1,13	<b>85</b> 0,83	<b>321</b> 3,15	<b>237</b> 2,32	<b>181</b> 1,77	<b>141</b> 1,38	<b>115</b> 1,13
80	3,623	0,276	11,67	Kg/m² KN/m²	<b>455</b> 4.46	<b>316</b> 3,09	<b>227</b> 2,22	<b>160</b> 1,57	<b>120</b> 1,18	<b>500</b> 4,91	<b>365</b> 3,58	<b>280</b> 2,74	<b>215</b> 2,11	<b>145</b> 1,42
100	4,504	0,222	12,63	Kg/m² KN/m²	<b>470</b> 4,60	<b>345</b> 3,38	<b>260</b> 2,55	<b>200</b> 1,96	<b>160</b> 1,57	<b>510</b> 4,99	<b>390</b> 3,82	<b>285</b> 2,79	<b>225</b> 2,20	<b>180</b> 1,76

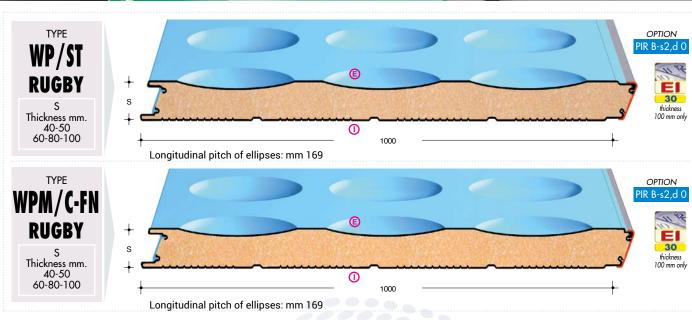
LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0.5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the Œ certification. The letter 0 ⑤ shows the required painted side.

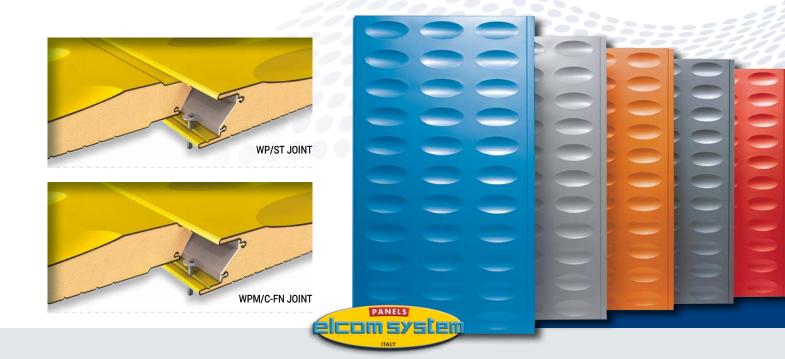
	THERMIC II	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads u	iniformely dis	tributed in Ko	J/m² – KN/m²		
S	R	Ü	weight	U.M.					SPAN II	N mℓ				
thickness mm	$\frac{m^2 K}{W}$	W m² K	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m² KN/m²	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m² KN/m²	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98

LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of **ALUMINIUM** supports 0,6+0,6 mm.
For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.



















Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172 COR-TEN

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The panels TERMOPARETI® CAOS (patented) have been studied to create original architectural impressions and can be used in industrial, commercial, residential building and public utilities, for new buildings and renovations. The CAOS panel can be used for continuous and/or discontinuous external walls, internal partitions and ceilings. Thanks to its characteristics, it can be widely employed where a high aesthatic standard is required and architects, designers and end users have freedom of choice in a wide range of materials and colours. The **CAOS** panels can be used on any type of structure such as metallic, concrete and wood, and their installation can be vertical, horizontal or inclined and they are fixed with specific accessories.

The peculiarity of the CAOS panels is on the external side: particular and different geometric shapes obtained from an innovative and unique system specifically developed by ELCOM SYSTEM S.p.A. to form the external surface, reaching an extremely dynamic effect never seen before on the market of metallic insulated panels. The imprints are positive respective the external side of the support and they can be realised on different materials such as galvanized and/or prepainted steel, aluminium, stainless steel and copper. Elements with thermic cut such as rounded and right corners, edges and spherical connections are used to complete and improve more and more the TERMOPARETI® CAOS.

	THERMIC II	NSULATION					SUPPORT CO	ONDITIONS -	Useful loads ι	ıniformely dis	tributed in Ko	g/m² – KN/m²		
S	R	U	weight	U.M.					SPAN II	N mℓ				
thickness mm	$\frac{m^2 K}{W}$	W m² K	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0.536	10.15	Kg/m²	166	125	90	70	55	178	140	108	85	70
40	1,000	0,556	10,15	KN/m <sup>2</sup>	1,63	1,22	0,88	0,68	0,54	1,74	1,37	1,05	0,83	0,68
50	2,309	0.433	10,53	Kg/m²	225	160	120	90	70	245	182	140	115	90
30	2,503	0,433	10,55	KN/m <sup>2</sup>	2,21	1,57	1,18	0,88	0,68	2,41	1,78	1,37	1,13	0,88
60	2,747	0.364	10,91	Kg/m <sup>2</sup> KN/m <sup>2</sup>	289	216	142	115	85	321	237	181	141	115
00	2,777	0,304	10,91	KIN/III-	2,83	2,12	1,39	1,13	0,83	3,15	2,32	1,77	1,38	1,13
80	3.623	0.276	11,67	Kg/m²	455	316	227	160	120	500	365	280	215	145
00	0,020	0,270	11,07	KN/m <sup>2</sup>	4.46	3,09	2,22	1,57	1,18	4,91	3,58	2,74	2,11	1,42
100	4,504	0.222	12,63	Kg/m²	470	345	260	200	160	510	390	285	225	180
	.,	0,	12,00	KN/m <sup>2</sup>	4,60	3,38	2,55	1,96	1,57	4,99	3,82	2,79	2,20	1,76

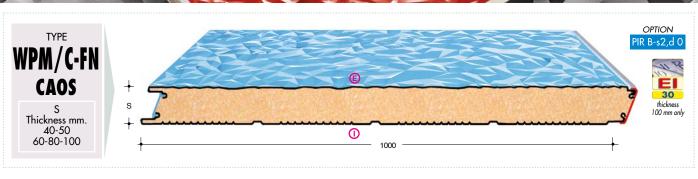
LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0.5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the Œ certification. The letter 0 ⑤ shows the required painted side.

	THERMIC II	NSULATION					SUPPORT CO	NDITIONS -	Useful loads u	uniformely dis	stributed in Ko	J/m² – KN/m²		
S	R	U	weight	U.M.					SPAN I	N mℓ				
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m² KN/m²	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m² KN/m²	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98

LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of **ALUMINIUM** supports 0,6+0,6 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter 0 ⑤ shows the required painted side.

















® registered trade name



















### The 3D Architectural Panel

### Technical characteristics and performances:

Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172 COR-TEN

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The panels TERMOPARETI® EPICO (patented) have been studied to be used in industrial, commercial, residential building and public utilities, where special architectural effects are required. It's strong visual impact is enhanced thanks to shape and colour that create an envelope in continuous motion. EPICO applies to any project, for new buildings and renovations, and is able to turn an anonymous building into a work of art that captures attention and evokes emotions. The EPICO panel can be used for continuous and/or discontinuous external walls, internal partitions, interior settings and ceilings. Thanks to its characteristics, it can be widely employed where a high aesthatic standard is required and architects, designers and end users have freedom of choice in a wide range of materials and colours. The **EPICO** panels can be used on any type of structure such as metallic, concrete and wood, and their installation can be vertical, horizontal or inclined and they are fixed with specific accessories

The main feature of the **TERMOPARETI® EPICO**, is the special pressing on the external side: particular and different geometric shapes across the surface are obtained through an innovative and unique system specifically developed by **ELCOM SYSTEM S.p.A.** reaching thus an extremely dynamic effect never seen before on the market of metallic insulated panels. The imprints are negative respective the external side of the support and can be realised on all materials normally used for profiling such as prepainted steel, aluminium, stainless steel and copper. Finishing elements with thermic cut such as rounded and right corners, edges and spherical connections enhance the TERMOPARETI® EPICO.

THERMIC INSULATION					SUPPORT CONDITIONS - Useful loads uniformely distributed in Kg/m² - KN/m²										
S R		U	weight	U.M.					SPAN I	IN mℓ A ℓ A ℓ A ℓ A					
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00	
40	1,866	0,536	10,15	Kg/m²	166	125	90	70	55	178	140	108	85	70	
	1,000			KN/m <sup>2</sup>	1,63	1,22	0,88	0,68	0,54	1,74	1,37	1,05	0,83	0,68	
50	2,309	0,433	10,53	Kg/m²	225	160	120	90	70	245	182	140	115	90	
				KN/m <sup>2</sup>	2,21	1,57	1,18	0,88	0,68	2,41	1,78	1,37	1,13	0,88	
60	2,747	0,364	10,91	Kg/m² KN/m²	289 2.83	<b>216</b> 2,12	<b>142</b> 1.39	<b>115</b> 1.13	<b>85</b> 0.83	<b>321</b> 3,15	<b>237</b> 2,32	<b>181</b> 1.77	<b>141</b> 1,38	<b>115</b> 1,13	
				Kg/m²	455	016	227	, .	. ,		365	280	215	145	
80	3,623	0,276	11,67	KN/m²	4.46	<b>316</b> 3,09	2,22	<b>160</b> 1,57	<b>120</b> 1,18	<b>500</b> 4,91	3,58	2,74	2,11	1,42	
100	4,504	0,222	12,63	Kg/m² KN/m²	<b>470</b> 4,60	<b>345</b> 3,38	<b>260</b> 2,55	<b>200</b> 1,96	<b>160</b> 1,57	<b>510</b> 4,99	<b>390</b> 3,82	<b>285</b> 2,79	<b>225</b> 2,20	<b>180</b> 1,76	

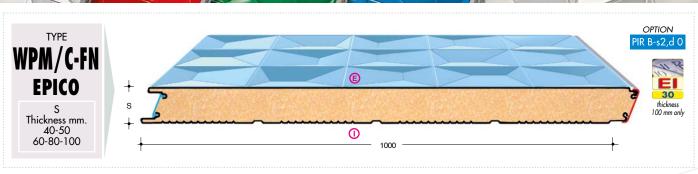
LOAD CONDITIONS WITH STEEL SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0.5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the Œ certification. The letter 0 ⑤ shows the required painted side.

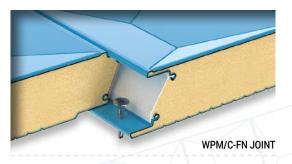
THERMIC INSULATION					SUPPORT CONDITIONS - Useful loads uniformely distributed in Kg/m² - KN/m²									
S	R	U	weight	U.M.					SPAN IN mℓ			A / A / A / A		
thickness mm	$\frac{m^2 K}{W}$	$\frac{K}{m^2}$ $\frac{W}{m^2}$ $K$	Kg/m²		2,00	2,50	3,00	3,50	4,00	2,00	2,50	3,00	3,50	4,00
40	1,866	0,536	5,16	Kg/m² KN/m²	<b>108</b> 1,06	<b>64</b> 0,62	<b>41</b> 0,40	<b>27</b> 0,26	<b>19</b> 0,18	<b>149</b> 1,46	<b>95</b> 0,93	<b>64</b> 0,63	<b>44</b> 0,43	<b>32</b> 0,31
50	2,309	0,433	5,56	Kg/m² KN/m²	<b>150</b> 1,47	<b>92</b> 0,90	<b>60</b> 0,58	<b>41</b> 0,40	<b>29</b> 0,28	<b>194</b> 1,90	<b>129</b> 1,26	<b>89</b> 0,87	<b>63</b> 0,61	<b>46</b> 0,45
60	2,747	0,364	5,96	Kg/m² KN/m²	<b>191</b> 1,87	<b>121</b> 1,18	<b>81</b> 0,79	<b>56</b> 0,55	<b>40</b> 0,39	<b>237</b> 2,32	<b>162</b> 1,59	<b>114</b> 1,11	<b>83</b> 0,81	<b>62</b> 0,61
80	3,623	0,276	6,76	Kg/m² KN/m²	<b>272</b> 2,67	<b>180</b> 1,76	<b>125</b> 1,22	<b>89</b> 0,87	<b>65</b> 0,63	<b>317</b> 3,11	<b>225</b> 2,20	<b>165</b> 1,62	<b>124</b> 1,21	<b>95</b> 0,93
100	4,504	0,222	7,56	Kg/m² KN/m²	<b>290</b> 2,84	<b>235</b> 2,30	<b>180</b> 1,76	<b>110</b> 1,08	<b>90</b> 0,88	<b>310</b> 2,94	<b>255</b> 2,49	<b>190</b> 1,86	<b>135</b> 1,32	<b>100</b> 0,98

LOAD CONDITIONS WITH ALUMINIUM SUPPORTS:
The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of **ALUMINIUM** supports 0,6+0,6 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter 0 ⑤ shows the required painted side.









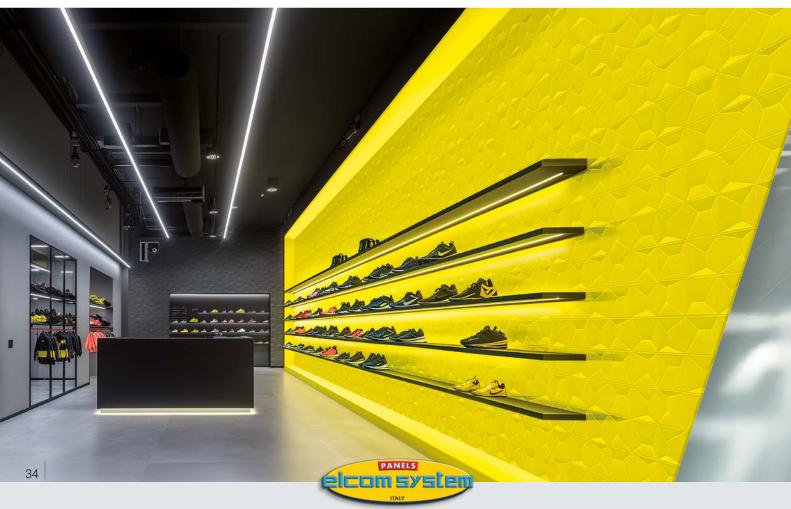


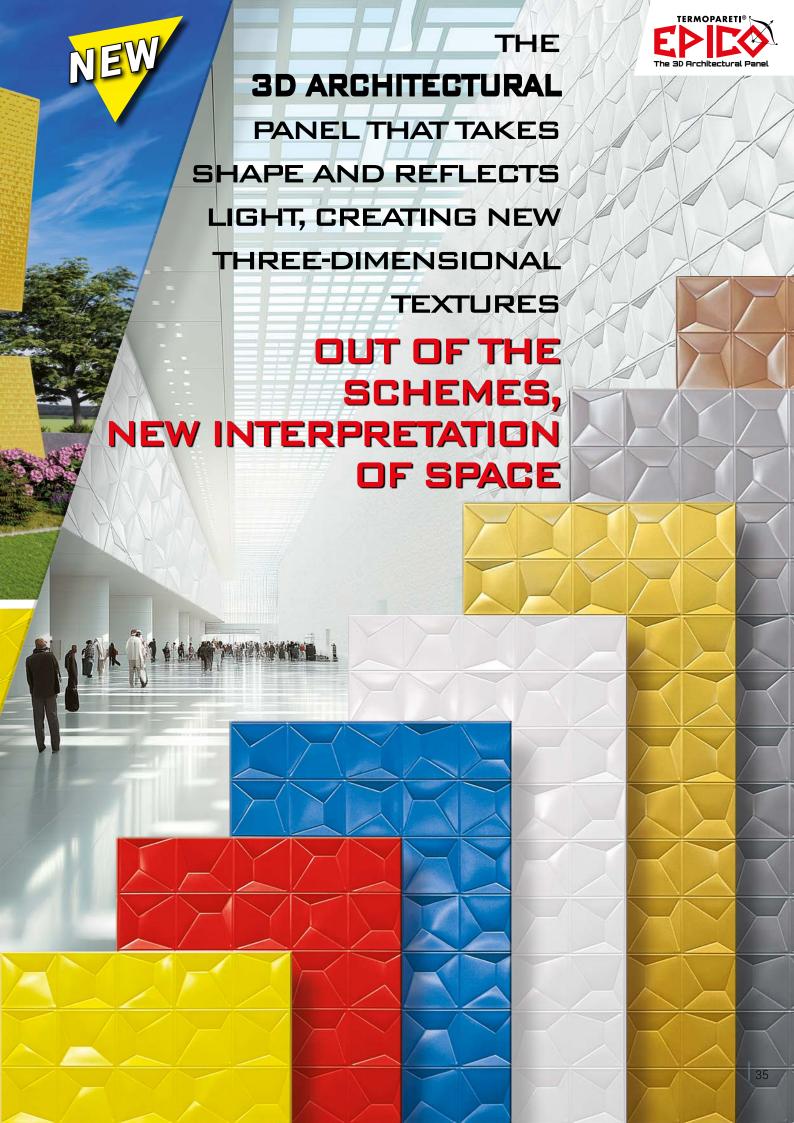


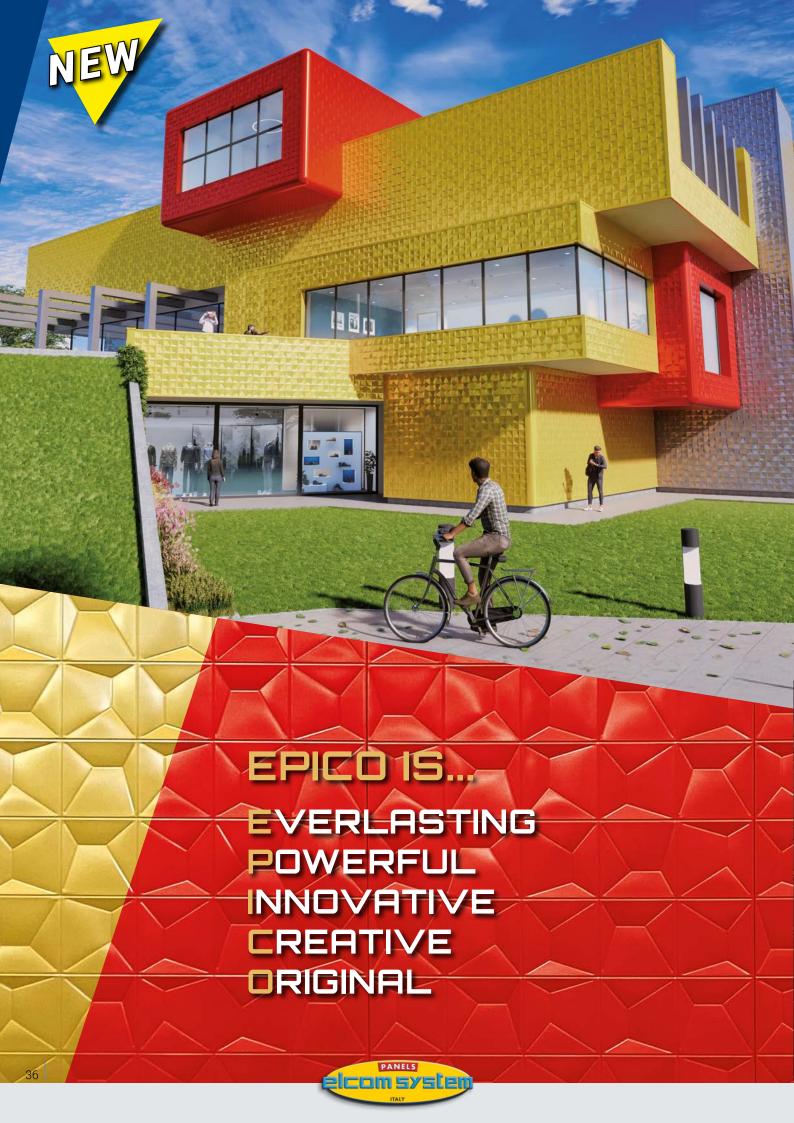


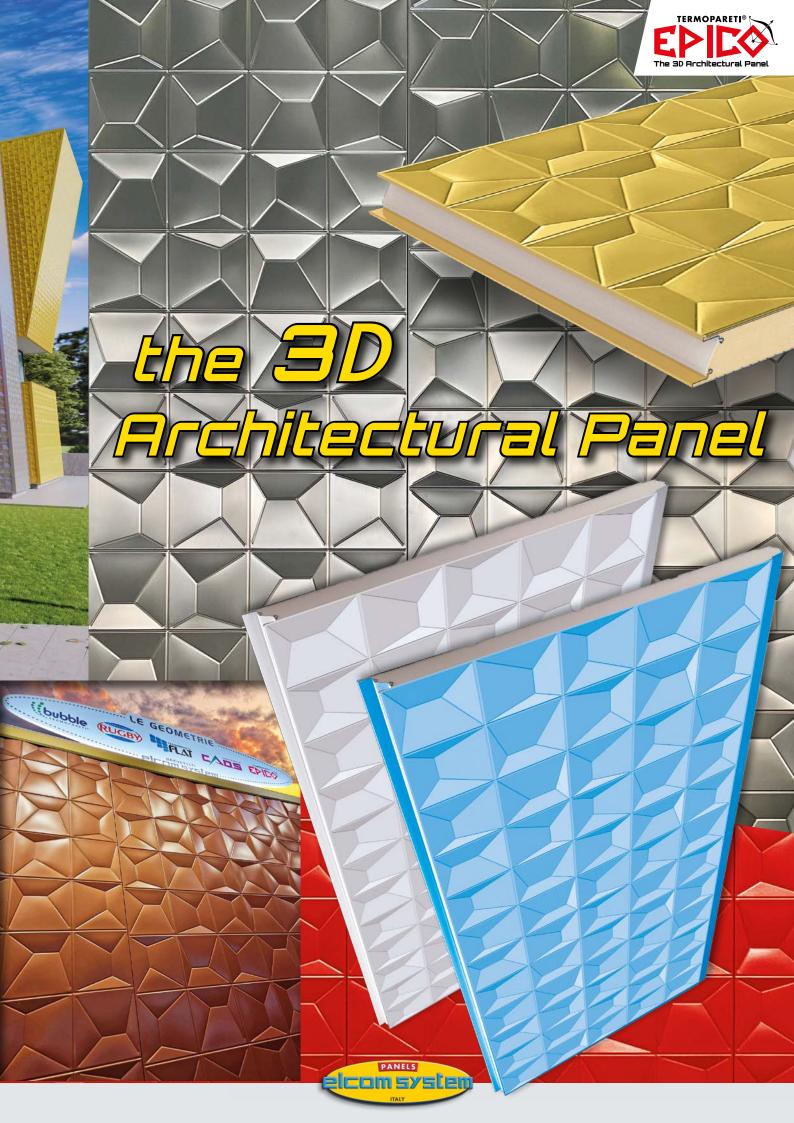


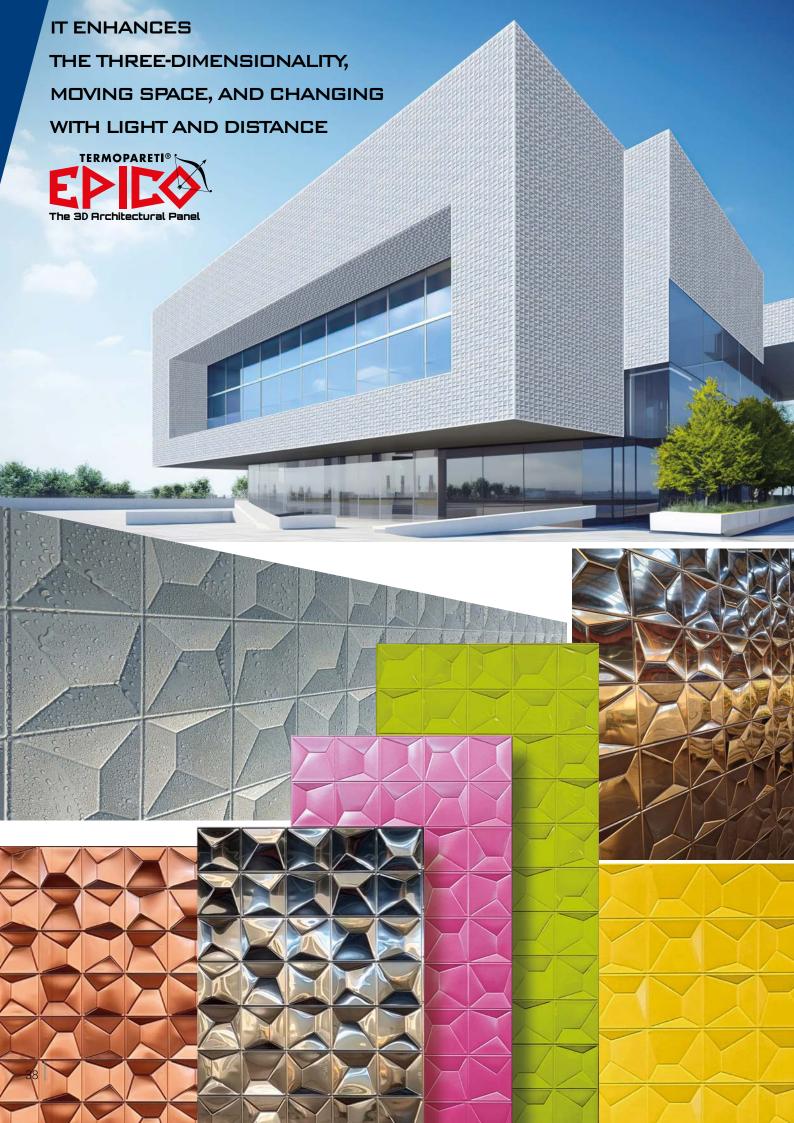












# **TERMOPARETI** ® registered trade name







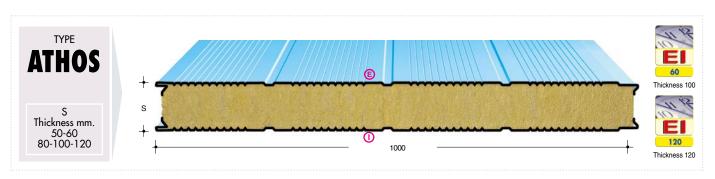








## **REFFE** ATHOS



	THERMIC II	NSULATION	I				SU	PPORT CO	NDITIONS -	Useful loads	uniformely	distributed i	n Kg/m² – K	N/m²		
S thickness	R m² K	U W	weight	U.M.			l 2	7		SPAN	IN mℓ			Δ <i>l</i>	ΔιΔ	ι Δ
mm		$\frac{W}{m^2 K}$	Kg/m²		1,50	2,00	2,50	3,00	3,50	4,00	1,50	2,00	2,50	3,00	3,50	4,00
50	1,333	0,75	14,00	Kg/m² KN/m²	145 1,42	117 1,15	<b>95</b> 0,93	<b>73</b> 0,72	<b>60</b> 0,59	<b>49</b> 0,48	130 1,28	103 1,01	<b>82</b> 0,80	<b>62</b> 0,61	<b>52</b> 0,51	<b>45</b> 0,44
60	1,562	0,64	14,90	Kg/m² KN/m²	182 1,79	1 <b>46</b> 1,43	117 1,15	<b>95</b> 0,93	<b>73</b> 0,72	<b>60</b> 0,59	1 <b>68</b> 1,65	133 1,30	1 <b>04</b> 1,02	<b>84</b> 0,82	<b>65</b> 0,64	<b>57</b> 0,56
80	2,041	0,49	16,70	Kg/m² KN/m²	230 2,26	1 <b>83</b> 1,80	152 1,49	1 <b>25</b> 1,23	100 0,98	<b>82</b> 0,80	<b>216</b> 2,12	1 <b>70</b> 1,67	1 <b>39</b> 1,36	114 1,12	<b>93</b> 0,91	<b>77</b> 0,76
100	2,500	0,40	18,50	Kg/m² KN/m²	<b>310</b> 3,04	253 2,48	<b>207</b> 2,03	1 <b>65</b> 1,62	1 <b>34</b> 1,32	1 <b>04</b> 1,02	<b>296</b> 2,90	<b>240</b> 2,35	1 <b>94</b> 1,90	1 <b>54</b> 1,51	1 <b>25</b> 1,23	100 0,98
120	2,857	0,35	20,40	Kg/m² KN/m²	<b>340</b> 3,33	280 2,74	215 2,11	180 1,76	150 1,47	110 1,08	<b>325</b> 3,19	265 2,60	195 1,91	1 <b>67</b> 1,64	1 <b>37</b> 1,34	106 1,04

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span *t* (m) for panels with thickness of **STEEL** supports 0,5+0,6 mm. The letter ① ⑤ shows the required painted side. **Average density of rockwool:** 100 Kg/m³ - minimum guaranteed values obtained from tests carried out by the **University of Studies of Perugia**, Faculty of Engineering, Industrial Engineering Department (experimental tests institute).

**The product.** The panels AEFFE, type ATHOS are obtained by sticking in continuous two metallic supports with a rock wool layer. Their use is necessary when a high soundproofing and a good heat insulation, together with incombustibility and a high fire resistance, are requested. **External Supports.** They are generally obtained from hot-dip galvanized steel coils S 250GD according to UNI EN 10346 norms and/or with an organic coating having characteristics according to UNI EN 10169 cold profiling.

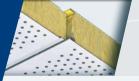
On request can also be fournished stainless steel supports according to EN 10088-1 norms or in aluminium according to UNI EN 1396 norm. **Insulation.** The core consists of an orientated rock wool layer (100 kg/m³) positioned perpendicularly to the supports. This gives a higher stability to the panel and improves its mechanical performances. Thermal conductivity coefficient of rock wool:  $\lambda$ = 0,041  $\div$  0,045 W/ mK. The use of orientated rock wool gives to the panel excellent characteristics of acoustic insulation on a wide frequency spectrum, in particular if

The use of orientated rock wool gives to the panel excellent characteristics of acoustic insulation on a wide frequency spectrum, in particular a microdrilled support is placed towards the source of the noise.

Mechanical performances. The values indicated in the tables have been calculated according to CNR 10022/87 and ECCS instructions and are supported by several tests about uniformly distributed loads carried out by the Faculty of Engineering of the University of Perugia, Industrial Engineering Department (Experimental Tests Institute).

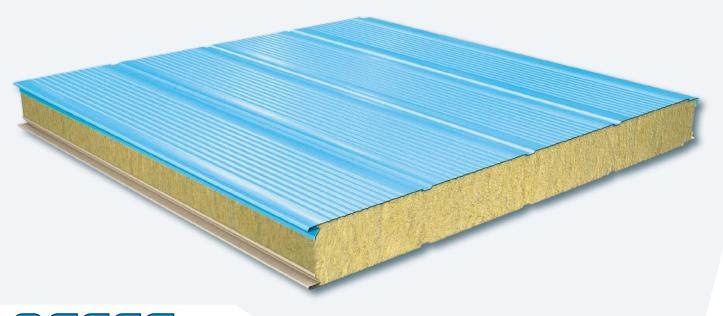






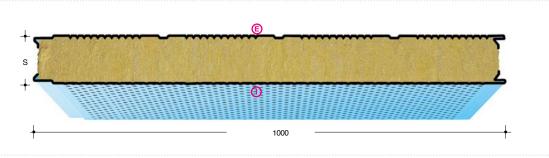
## TERMOPARETI® REFFE ATHOS TERMOFONISOL

® registered trade name

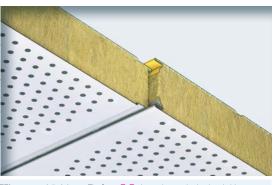


## **AEFFE** ATHOS TERMOFONISOL





	THERMIC I	NSULATION				CONDITIONS		
\$ thickness	R m² K	U W	weight	U.M.	uniformely	SPAN IN		
mm	W	$\frac{VV}{m^2 K}$	Kg/m²		1,50	2,00	2,50	3,00
50	1,333	0,75	12,10	Kg/m² KN/m²	<b>90</b> 0,88	<b>63</b> 0,62	<b>38</b> 0,37	<b>22</b> 0,22
60	1,562	0,64	13,00	Kg/m² KN/m²	113 1,11	<b>78</b> 0,76	<b>47</b> 0,46	<b>28</b> 0,27
80	2,041	0,49	14,80	Kg/m² KN/m²	143 1,40	<b>99</b> 0,97	<b>61</b> 0,60	<b>38</b> 0,37
100	2,500	0,40	16,60	Kg/m² KN/m²	160 1,57	115 1,13	<b>75</b> 0,74	<b>48</b> 0,47
120	2,857	0,35	18,50	Kg/m² KN/m²	1 <b>75</b> 1,72	130 1,27	<b>90</b> 0,88	<b>60</b> 0,59



The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,6 mm. The letter ① ⑤ shows the required painted side.

Average density of rockwool: 100 Kg/m³ - minimum guaranteed values obtained from tests carried out by the University of Studies of Perugia, Faculty of Engineering, Industrial Engineering Department (experimental tests institute).











































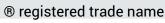
# TERMOCOPERTURE®

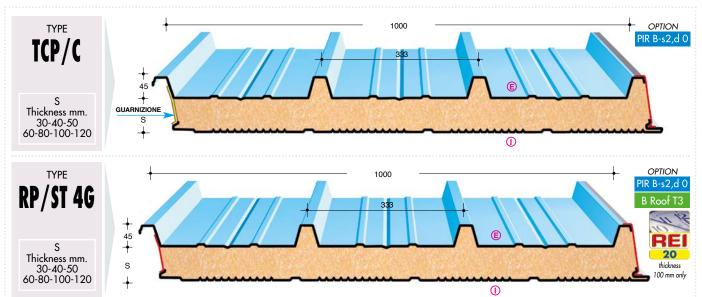




## TERMOCOPERTURE®

MISTORICAL TRADEMINE





TCPIC										
TCPIC PIST	4 <b>G</b>	THERMIC II	NSULATION			SUPPOR	T CONDITIONS - Use	eful loads uniformely	distributed in Kg/m	<sup>2</sup> – KN/m <sup>2</sup>
	S	R	Ü	weight	U.M.		SIM	IGLE SPAN IN mℓ	Δ	
	thickness mm	m² K W	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00
	30	1,435	0,697	7,93	Kg/m² KN/m²	<b>211</b> 2,08	<b>121</b> 1,19	<b>75</b> 0,74	<b>48</b> 0,47	<b>32</b> 0,31
	40	1,866	0,536	8,31	Kg/m² KN/m²	<b>257</b> 2,53	<b>154</b> 1,51	<b>98</b> 0,97	<b>65</b> 0,65	<b>45</b> 0,44
	50	2,309	0,433	8,68	Kg/m² KN/m²	<b>305</b> 3,00	<b>189</b> 1,85	<b>124</b> 1,22	<b>85</b> 0,84	<b>60</b> 0,59
	60	2,747	0,364	9,06	Kg/m² KN/m²	<b>355</b> 3,49	<b>225</b> 2,21	<b>152</b> 1,49	<b>106</b> 1,04	<b>76</b> 0,75
	80	3,623	0,276	9,82	Kg/m² KN/m²	<b>457</b> 4,49	<b>302</b> 2,96	<b>210</b> 2,07	<b>152</b> 1,49	<b>112</b> 1,10
	100	4,504	0,222	10,57	Kg/m² KN/m²	<b>562</b> 5,52	<b>382</b> 3,75	<b>273</b> 2,68	<b>201</b> 1,98	<b>151</b> 1,49
	120	5,376	0,186	11,33	Kg/m² KN/m²	<b>669</b> 6,56	<b>463</b> 4,55	<b>337</b> 3,31	<b>253</b> 2,49	<b>194</b> 1,90

#### LOAD CONDITIONS WITH STEEL SUPPORTS:

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span \( \ell \) (m) for panels with thickness of **STEEL** supports 0,4+0,4 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the CC certification. The letter () (a) shows the required painted side.

TCP	C									
TCP/ P/ST	4G	THERMIC IN	ISULATION			SUPPOR	T CONDITIONS - Use	ful loads uniformely	distributed in Kg/m2	- KN/m <sup>2</sup>
	S	<b>R</b>	U	weight	U.M.		SIN	GLE SPAN IN mℓ	<u></u>	<u></u>
	thickness mm	<u>m² K</u>	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00
	00	1 405	0.607	10.70	Kg/m²	278	160	99	65	43
	30	1,435	0,697	10,76	KN/m²	2,73	1,58	0,98	0,64	0,42
	40	1,866	0,536	11,13	Kg/m²	333	200	129	87	60
	40	1,000	0,536	11,13	KN/m²	3,27	1,96	1,27	0,86	0,59
	50	2,309	0,433	11,51	Kg/m²	390	242	161	111	79
	50	2,303	0,433	11,51	KN/m <sup>2</sup>	3,83	2,38	1,58	1,09	0,78
	60	2,747	0,364	11,89	Kg/m²	448	285	194	137	99
	00	2,747	0,004	11,09	KN/m²	4,40	2,80	1,91	1,35	0,98
	80	3,623	0,276	12,64	Kg/m²	567	376	265	193	144
	00	0,020	0,270	12,04	KN/m²	5,57	3,69	2,60	1,90	1,42
	100	4,504	0,222	13,40	Kg/m²	688	469	339	253	193
	.00	1,504	J,	10,40	KN/m <sup>2</sup>	6,76	4,61	3,33	2,49	1,90
	120	5,376	0,186	14,15	Kg/m²	811	565	415	315	244
	120	3,370	3,100	14,13	KN/m <sup>2</sup>	7,96	5,54	4,08	3,09	2,40

#### LOAD CONDITIONS WITH STEEL SUPPORTS:

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,5 mm.

For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.



MINIUM)	THERMIC IN	ISULATION					SUPPORT	CONDITIO	NS - Useful I	loads uniform	nely distrib	uted in Kg/ı	m² – KN/m²		
S	R	U	weight	U.M.			, , ,			SPAN IN mℓ					
thickness mm	m² K W	$\frac{W}{m^2 K}$	Kg/m²		1,50	2,00	2,50	3,00	3,50	weight Kg/m <sup>2</sup>	1,50	2,00	2,50	3,00	3,50
30	1,435	0,697	7,5	Kg/m² KN/m²	<b>285</b> 2,81	<b>185</b> 1,81	<b>120</b> 1,18	<b>70</b> 0,69	<b>40</b> 0,39	5,0	<b>265</b> 2,60	<b>165</b> 1,62	<b>101</b> 1,00	<b>58</b> 0,57	<b>30</b> 0,30
40	1,866	0,536	7,9	Kg/m² KN/m²	<b>355</b> 3,50	<b>230</b> 2,25	<b>160</b> 1,57	<b>96</b> 0,94	<b>60</b> 0,59	5,4	<b>315</b> 3,10	<b>203</b> 2,00	<b>132</b> 1,30	<b>76</b> 0,75	<b>48</b> 0,48
50	2,309	0,433	8,3	Kg/m² KN/m²	<b>417</b> 4,10	<b>278</b> 2,72	<b>197</b> 1,93	<b>125</b> 1,22	<b>80</b> 0,78	5,8	<b>365</b> 3,60	<b>244</b> 2,40	<b>168</b> 1,65	<b>101</b> 1,00	<b>63</b> 0,62
60	2,747	0,364	8,7	Kg/m² KN/m²	<b>468</b> 4,60	<b>325</b> 3,18	<b>237</b> 2,32	<b>157</b> 1,54	<b>104</b> 1,02	6,2	<b>428</b> 4,20	<b>285</b> 2,80	<b>203</b> 2,00	<b>127</b> 1,25	<b>83</b> 0,82
80	3,623	0,276	9,5	Kg/m² KN/m²	<b>509</b> 5,00	<b>430</b> 4,21	<b>315</b> 3,09	<b>225</b> 2,20	<b>155</b> 1,52	7,0	<b>489</b> 4,80	<b>387</b> 3,80	<b>275</b> 2,70	<b>183</b> 1,80	<b>117</b> 1,15
100	4,504	0,222	10,3	Kg/m² KN/m²	<b>565</b> 5,53	<b>452</b> 4,43	<b>342</b> 3,35	<b>286</b> 2,80	<b>215</b> 2,11	7,8	<b>540</b> 5,29	<b>431</b> 4,23	<b>316</b> 3,01	<b>262</b> 2,57	<b>195</b> 1,91
120	5,376	0,186	11,0	Kg/m² KN/m²	<b>635</b> 6,23	<b>525</b> 5,15	<b>415</b> 4,02	<b>330</b> 3,24	<b>260</b> 2,55	8,6	<b>612</b> 6,01	<b>510</b> 5,01	<b>398</b> 3,90	<b>306</b> 3,03	<b>238</b> 2,33
LOAD CO	NDITIONS:		WITH (E) A	LUMINIUM	SUPPORT	0,6 mm 🕕	STEEL 0,5 r	nm		WITH 🖲 A	LUMINIUN	I SUPPORT	Г 0,6 mm <u>()</u>	ALUMINIUI	√l 0,6 mm

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m). For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.







### **ZOOTEC**

#### Technical characteristics:

External metallic supports: they are obtained from cold profiling of coils of different materials: carbon steel coated with hot dip zinc; aluminium; copper; stainless steel. The finishing of steel and aluminium supports consists of an organic coat obtained from a cycle of hot standard polyester prepainting. On request different coats as PVC alimentary or PVDF can be fournished. Internal support: fibreglass sheet (polyester resins reinforced with fibreglass

opaline white)
Insulation: expanded polyurethane (PUR), CFC free.

Main characteristics:

- compressive strength: 140-150 Kpa
- impermeability: 98% closed cells (non hygroscopic material)

Permissible Loads: the values shown in the tables have been calculated according to the ECCS and AIPPEG recommendations and supported by experimental tests

#### THE IDEAL PANELS FOR ANIMAL HUSBANDRY

THERMAL with high insulating capacity and special polyurethane foams

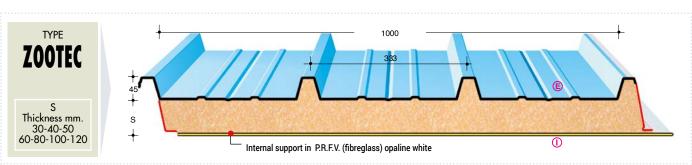
LONG-LASTING time leaves no sign

RESISTANT in facilities with biological exhalations, (bacteriums, urea and ammonia).

LIGHTWEIGHT with only 8,00 kg/m<sup>2</sup>

**VERSATILE** suitable for any type of new or existing structure





THE	RMIC INSULA	TION					CUDE	ODT CO	NIDITION	C Heat	ul loads ur	- id l	بة. بما إسفيدا ل			·2		
S	R	U	STEEL thickness	U.M.				-ONI CO		13 - USEII	SPAN IN		JISHIDUH	m	/ A / A /	п		
thickness mm	m² K W	$\frac{W}{m^2 K}$	mm		1,00	1,50	2,00	2,50	3,00	3,50	4,00	1,00	1,50	2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	0,5	Kg/m² KN/m²	<b>431</b> 4,23	<b>187</b> 1,83	<b>101</b> 0,99	<b>62</b> 0,61	-	-	-	<b>510</b> 5,00	<b>222</b> 2,17	<b>121</b> 1,18	<b>75</b> 0,73	<b>49</b> 0,45	-	<del>-</del> -
40	1,866	0,536	0,6	Kg/m² KN/m²	<b>526</b> 5,16	<b>229</b> 2,25	<b>125</b> 1,23	<b>76</b> 0,75	<b>41</b> 0,40	<del>-</del> -	-	<b>620</b> 6,08	<b>270</b> 2,64	<b>148</b> 1,45	<b>91</b> 0,89	<b>61</b> 0,59	<b>42</b> 0,41	<del>-</del> -
50	2,309	0,433	0,8	Kg/m² KN/m²	<b>702</b> 6,89	<b>306</b> 3,00	<b>167</b> 1,64	<b>103</b> 1,01	<b>56</b> 0,55	-	-	<b>843</b> 8,26	<b>368</b> 3,61	<b>202</b> 1,98	1 <b>25</b> 1,22	<b>84</b> 0,82	<b>58</b> 0,56	<b>42</b> 0,41
60	2,747	0,364	1,0	Kg/m² KN/m²	<b>878</b> 8,61	<b>383</b> 3,76	<b>210</b> 2,06	<b>129</b> 1,27	<b>71</b> 0,70	<b>40</b> 0,39	-	<b>1067</b> 10,46	<b>467</b> 4,58	<b>257</b> 2,52	1 <b>60</b> 1,57	<b>107</b> 1,05	<b>75</b> 0,74	<b>54</b> 0,53
80	3,623	0,276				-		F 41	STATE OF THE PERSON								wat the	Mer
100	4,504	0,222												T				hip
120	5,376	0,186			Thursday.	-	-	0		1						-	11	
LOAD C	ONDITIONS:																	

The values shown in the tables are referred to a deflection f≤1/200 of the span ℓ (m). The letter ⊚ shows the required painted side.

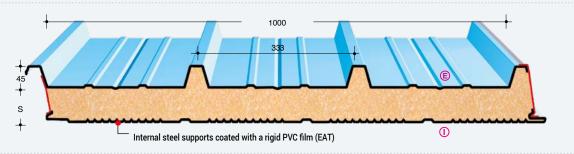




## TERMOCOPERTURE® ZOOTEC EAT

® registered trade name





Flat surface - Internal side Microribbed surface - Internal side

## **ZOOTEC EAT**

#### THE EVOLUTION OF PANEL TECHNOLOGY FOR ANIMAL HUSBANDRY

The panel ZOOTEC EAT, with an internal side cladded with a 120 micron PVC film, has been studied to offer TERMOCOPERTURE® able to grant high mechanical performances and an excellent resistance in facilities with aggressive biological exhalations and chemical products used for cleaning.



	THERMIC IN	ISULATION			SUPPOR	T CONDITIONS - Use	eful loads uniformely	distributed in Kg/m	<sup>2</sup> – KN/m <sup>2</sup>
S	R	U	weight	U.M.		SIN	IGLE SPAN IN mℓ	<u>, , , , , , , , , , , , , , , , , , , </u>	mm <sup>*</sup>
thickness mm	<u>m² K</u> W	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	7,93	Kg/m² KN/m²	<b>211</b> 2,08	<b>121</b> 1,19	<b>75</b> 0,74	<b>48</b> 0,47	<b>32</b> 0,31
40	1,866	0,536	8,31	Kg/m² KN/m²	<b>257</b> 2,53	<b>154</b> 1,51	<b>98</b> 0,97	<b>65</b> 0,65	<b>45</b> 0,44
50	2,309	0,433	8,68	Kg/m² KN/m²	<b>305</b> 3,00	<b>189</b> 1,85	<b>124</b> 1,22	<b>85</b> 0,84	<b>60</b> 0,59
60	2,747	0,364	9,06	Kg/m² KN/m²	<b>355</b> 3,49	<b>225</b> 2,21	<b>152</b> 1,49	<b>106</b> 1,04	<b>76</b> 0,75
80	3,623	0,276	9,82	Kg/m² KN/m²	<b>457</b> 4,49	<b>302</b> 2,96	<b>210</b> 2,07	<b>152</b> 1,49	<b>112</b> 1,10
100	4,504	0,222	10,57	Kg/m² KN/m²	<b>562</b> 5,52	<b>382</b> 3,75	<b>273</b> 2,68	<b>201</b> 1,98	<b>151</b> 1,49
120	5,376	0,186	11,33	Kg/m² KN/m²	<b>669</b> 6,56	<b>463</b> , 4,55	<b>337</b> 3,31	<b>253</b> 2,49	<b>194</b> 1,90

#### LOAD CONDITIONS WITH STEEL SUPPORTS:

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span \( \ell \) (m) for panels with thickness of STEEL supports 0,4+0,4 mm.

For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter () (a) shows the required painted side.

_	ŭ						·		
	THERMIC IN	ISULATION			SUPPOR	T CONDITIONS - Use	eful loads uniformely	distributed in Kg/m	<sup>2</sup> – KN/m <sup>2</sup>
S	R	U	weight	U.M.		SIN	IGLE SPAN IN mℓ	<u></u>	<b></b>
thickness mm	<u>m² K</u> W	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	10,76	Kg/m²	278	160	99	65	43
30	1,400	0,097	10,76	KN/m²	2,73	1,58	0,98	0,64	0,42
40	1,866	0,536	11,13	Kg/m²	333	200	129	87	60
40	1,000	0,536	11,13	KN/m²	3,27	1,96	1,27	0,86	0,59
50	2,309	0,433	11,51	Kg/m²	390	242	161	111	79
50	2,000	0,433	11,51	KN/m²	3,83	2,38	1,58	1,09	0,78
60	2,747	0,364	11,89	Kg/m²	448	285	194	137	99
80	2,747	0,304	11,09	KN/m <sup>2</sup>	4,40	2,80	1,91	1,35	0,98
80	3,623	0,276	12,64	Kg/m²	567	376	265	193	144
80	0,020	0,270	12,04	KN/m <sup>2</sup>	5,57	3,69	2,60	1,90	1,42
100	4,504	0,222	13,40	Kg/m²	688	469	339	253	193
100	1,504	0,222	15,40	KN/m²	6,76	4,61	3,33	2,49	1,90
120	5,376	0,186	14,15	Kg/m²	811	565	415	315	244
120	3,370	0,100	14,15	KN/m <sup>2</sup>	7,96	5,54	4,08	3,09	2,40

#### LOAD CONDITIONS WITH STEEL SUPPORTS:

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,5 mm. For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the CC certification. The letter (1) (6) shows the required painted side.





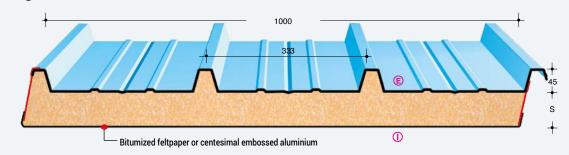
## TERMOCOPERTURE® FLEX

® registered trade name

### TYPE FLEX-AC/CB

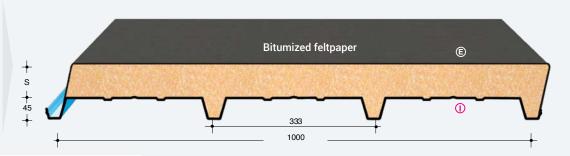
AC = Centesimal aluminium
CB = Bitumized feltpaper

S=Thickness mm. 30-40-50 60-80-100-120



#### TYPE RP/ST **FLEX-DECK**

S Thickness mm. 30-40-50 60-80-100-120





THE	RMIC INSULA	ATION	OTEE				SUPI	PORT CO	NDITION	IS - Usefi	ul loads u	niformely	distribut	ed in Kg/	m² – KN/	m²		
S	R	U	STEEL thickness	U.M.			<u>"</u>	,	<u>ų</u>		SPAN IN	Imℓ		<u></u>	, <u> </u>	<u>,</u>		
thickness mm	m² K W	$\frac{W}{m^2 K}$	mm		1,00	1,50	2,00	2,50	3,00	3,50	4,00	1,00	1,50	2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	0,5	Kg/m² KN/m²	<b>431</b> 4,23	<b>187</b> 1,83	<b>101</b> 0,99	<b>62</b> 0,61	-	-	-	<b>510</b> 5,00	<b>222</b> 2,17	<b>121</b> 1,18	<b>75</b> 0,73	<b>49</b> 0,45	-	-
40	1,866	0,536	0,6	Kg/m² KN/m²	<b>526</b> 5,16	<b>229</b> 2,25	<b>125</b> 1,23	<b>76</b> 0,75	<b>41</b> 0,40	-	-	<b>620</b> 6,08	<b>270</b> 2,64	<b>148</b> 1,45	<b>91</b> 0,89	<b>61</b> 0,59	<b>42</b> 0,41	-
50	2,309	0,433	0,8	Kg/m² KN/m²	<b>702</b> 6,89	<b>306</b> 3,00	<b>167</b> 1,64	<b>103</b> 1,01	<b>56</b> 0,55	-	-	<b>843</b> 8,26	<b>368</b> 3,61	<b>202</b> 1,98	<b>125</b> 1,22	<b>84</b> 0,82	<b>58</b> 0,56	<b>42</b> 0,41
60	2,747	0,364	1,0	Kg/m² KN/m²	<b>878</b> 8,61	<b>383</b> 3,76	<b>210</b> 2,06	<b>129</b> 1,27	<b>71</b> 0,70	<b>40</b> 0,39	-	<b>1067</b> 10,46	<b>467</b> 4,58	<b>257</b> 2,52	<b>160</b> 1,57	<b>107</b> 1,05	<b>75</b> 0,74	<b>54</b> 0,53
80	3,623	0,276																

**LOAD CONDITIONS (RP/ST FLEX AC/CB):**The values shown in the tables are referred to a deflection f≤1/200 of the span ℓ (m). The letter ⑤ shows the required painted side.

THE	RMIC INSULA	TION					SUPF	ORT CO	NDITION	S - Usefu	ul loads u	iniformely o	distribute	ed in Ka/	m² – KN/	m²		
s	R m² K	U	STEEL thickness	U.M.				,			SPAN II			m	(	1		
thickness mm	m² K W	W m² K	mm		1,00	1,50	2,00	2,50	3,00	3,50	4,00	1,00	1,50	2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	0,5	Kg/m² KN/m²	<b>407</b> 3,99	<b>176</b> 1,73	<b>95</b> 0,93	<b>56</b> 0,55	-	-	-	<b>541</b> 5,31	<b>236</b> 2,31	<b>129</b> 1,26	<b>80</b> 0,78	<b>53</b> 0,52	<b>36</b> 0,35	-
40	1,866	0,536	0,6	Kg/m² KN/m²	<b>494</b> 4,85	<b>215</b> 2,11	<b>117</b> 1,15	<b>71</b> 0,70	<b>37</b> 0,36	-	-	<b>660</b> 6,47	<b>288</b> 2,83	<b>158</b> 1,55	<b>98</b> 0,96	<b>65</b> 0,64	<b>45</b> 0,44	-
50	2,309	0,433	0,8	Kg/m² KN/m²	<b>672</b> 6,59	<b>292</b> 2,86	<b>160</b> 1,57	<b>98</b> 0,96	<b>54</b> 0,53	-	-	<b>881</b> 8,64	<b>385</b> 3,78	<b>212</b> 2,08	<b>131</b> 1,28	<b>88</b> 0,86	<b>62</b> 0,61	<b>41</b> 0,40
60	2,747	0,364	1,0	Kg/m² KN/m²	<b>851</b> 8,35	<b>371</b> 3,64	<b>203</b> 1,99	<b>125</b> 1,23	<b>70</b> 0,69	<b>39</b> 0,38	-	<b>1101</b> 10,80	<b>482</b> 4,73	<b>265</b> 2,60	<b>165</b> 1,62	<b>111</b> 1,09	<b>78</b> 0,76	<b>53</b> 0,52
80	3,623	0,276																
100	4,504	0,222		ONDITIONS ( es shown in th				flection	f≤1/200 o	of the spa	n ℓ (m). Th	ne letter 🏮 :	shows th	e required	d painted	side.		
120	5,376	0,186																



100

120

4,504

5,376

0,222

0,186



## **SLIM**

#### Technical characteristics:

External metallic supports: they are obtained from cold profiling of coils of different materials: carbon steel coated with hot dip zinc; aluminium, copper, stainless steel. The finishing of steel and aluminium supports consists of an organic coat obtained from a cycle of hot standard polyester prepainting. On request different coatings can be fournished.

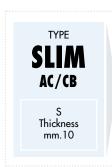
Internal supports: centesimal embossed aluminium or bitumized feltpaper Insulation: PUR foam (the two ribs in the center are without foam). Main characteristics:

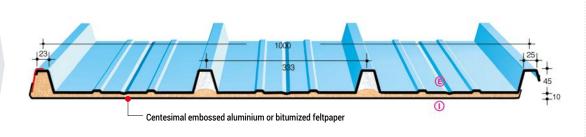
- Density: 60 kg/m<sup>3</sup>
- Compressive strength: 140-150 Kpa
- Impermeability: 98% closed cells (non hygroscopic material)

Permissible loads: the values shown in the tables, comparable to the ones of the trapezoidal sheets, are calculated according to the ECCS and AIPPEG recommendations and confirmed by tests.

# THERMAL - LONGLASTING AVOIDS CONDENSATION PHENOMENON REDUCES THE NOISE OF WEATHER EVENTS LIGHTWEIGHT - VERSATILE







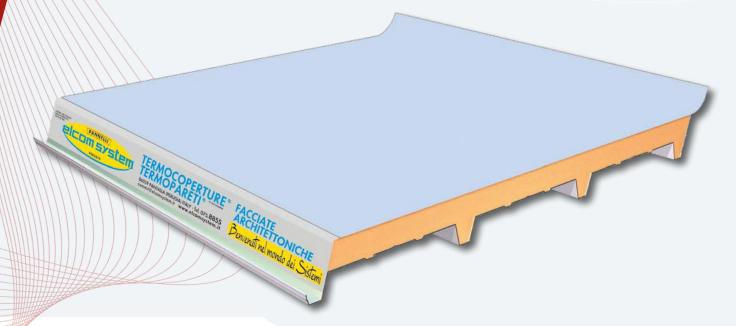
THE	RMIC INSULA	TION	STEEL				SUPI	PORT CO	NDITION	NS - Usef	ul loads u	niformely	distribut	ed in Kg	/m² – KN/	m²		
S	R	U	thickness	U.M.			μ.	, , , , , , , , , , , , , , , , , , ,	Ą.		SPAN IN	Imℓ			ι Δ ι Δ <i>ι</i>			
thickness mm	m² K W	$\frac{W}{m^2 K}$	mm		1,00	1,50	2,00	2,50	3,00	3,50	4,00	1,00	1,50	2,00	2,50	3,00	3,50	4,00
10	0,526	1,90	0,5	Kg/m²	431	187	101	62	-	-	-	510	222	121	75	49	-	-
. •	0,020	.,00	-,-	KN/m <sup>2</sup>	4,23	1,83	0,99	0,61	-	-	-	5,00	2,17	1,18	0,73	0,45	-	-
-		-	0.6	Kg/m²	526	229	125	76	41	-	-	620	270	148	91	61	42	-
	-		0,0	KN/m <sup>2</sup>	5,16	2,25	1,23	0,75	0,40	-	-	6,08	2,64	1,45	0,89	0,59	0,41	-
		TO .	8,0	Kg/m²	702	306	167	103	56	-	-	843	368	202	125	84	58	42
		THE REAL PROPERTY AND ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY AND ADDRESS OF THE PERTY ADDR	0,8	KN/m <sup>2</sup>	6,89	3,00	1,64	1,01	0,55	-	-	8,26	3,61	1,98	1,22	0,82	0,56	0,41



#### LOAD CONDITIONS (SLIM AC/CB):

The values shown in the tables are referred to a deflection f≤1/200 of the span ℓ (m). The letter ⑤ shows the required painted side.





## **RP/ST MANTO**

The TERMOCOPERTURE® RP/ST MANTO, with single or double steel sheets, having externally a polyolefin (TPO) membrane, are used for flat or low slope roof, offering numerous advantages compared to the bitumen membranes or other traditional techniques.



#### **Technical characteristics**

External metallic supports: the internal metallic supports (RP/ST MANTO single sheet) and external/internal (RP/ST MANTO double sheets) are obtained from cold profiling of carbon steel coils coated with hot dip zinc type S250GD according UNI EN 10346 with mechanical characteristics as foreseen in the D.M. of 14.01.2008 and tolerances as per UNI EN 10143 norm.

The finishing of the steel supports (side "I" and side "E") consists of an organic coat obtained from a cycle of hot standard polyester prepainting according to EN 10169.

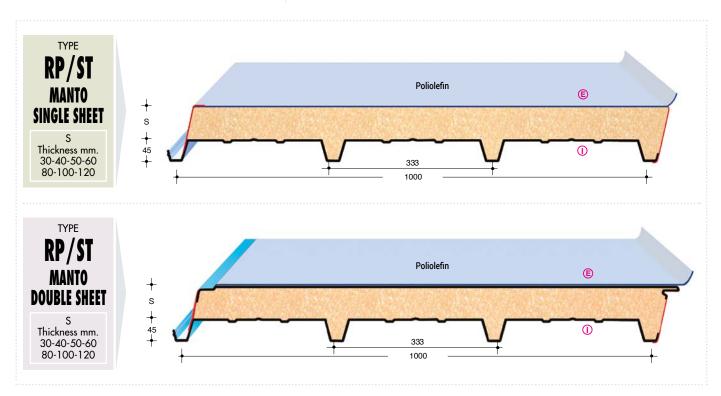
Thermal Insulation: expanded polyurethane CFC free, according to UNI EN 13165 norm.

Main characteristics:

- Density: 40 kg/m<sup>3</sup>
- Compressive strength: 140-150 Kpa
- Impermeability: 98% closed cells (non hygroscopic material)

#### Poliolefin waterproofing membrane 1,5 mm thick

Synthetic waterproofing membrane (polyolefin) produced by coextruding a uniform UV resistant elastomerized (TPO/FPA) thermoplastic olefin and polypropylene alloy, coupled to a non woven polyester material on the internal surface. On the RP/ST Manto double sheet, the membrane is applied in continuous on the steel support side E and sticked with special resins to ensure a perfect adhesion and flatness. The panel joint of the polyolefin membrane is made on site with a hot-air gun without using any adhesive or other materials.





THEI	RMIC INSULA	TION	07551				SUPP	ORT CO	NDITIONS	S - Usefu	I loads ur	niformely	distribute	ed in Kg/	m² – KN/	m²		
S	R m² K	U	STEEL thickness	U.M.			<u></u>	ι			SPAN IN	$m\ell$		<u></u>	,	l		
thickness mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	mm		1,00	1,50	2,00	2,50	3,00	3,50	4,00	1,00	1,50	2,00	2,50	3,00	3,50	4,00
30	1,435	0,697	0,5	Kg/m² KN/m²	<b>407</b> 3,99	<b>176</b> 1,73	<b>95</b> 0,93	<b>56</b> 0,55	-	<del>-</del> -	-	<b>541</b> 5,31	<b>236</b> 2,31	<b>129</b> 1,26	<b>80</b> 0,78	<b>53</b> 0,52	<b>36</b> 0,35	-
40	1,866	0,536	0,6	Kg/m² KN/m²	<b>494</b> 4,85	<b>215</b> 2,11	<b>117</b> 1,15	<b>71</b> 0,70	<b>37</b> 0,36	-	-	<b>660</b> 6,47	<b>288</b> 2,83	<b>158</b> 1,55	<b>98</b> 0,96	<b>65</b> 0,64	<b>45</b> 0,44	-
50	2,309	0,433	0,8	Kg/m² KN/m²	<b>672</b> 6,59	<b>292</b> 2,86	<b>160</b> 1,57	<b>98</b> 0,96	<b>54</b> 0,53	<del>-</del> -	-	<b>881</b> 8,64	<b>385</b> 3,78	<b>212</b> 2,08	131 1,28	<b>88</b> 0,86	<b>62</b> 0,61	<b>41</b> 0,40
60	2,747	0,364	1,0	Kg/m² KN/m²	<b>851</b> 8,35	<b>371</b> 3,64	<b>203</b> 1,99	<b>125</b> 1,23	<b>70</b> 0,69	<b>39</b> 0,38	-	<b>1101</b> 10,80	<b>482</b> 4,73	<b>265</b> 2,60	1 <b>65</b> 1,62	<b>111</b> 1,09	<b>78</b> 0,76	<b>53</b> 0,52
80	3,623	0,276																
100	4,504	0,222		NDITIONS (R shown in the					/200 of th	ne span ℓ	(m). The le	etter (1) (E) s	shows the	e required	painted	side.		
120	5,376	0,186																

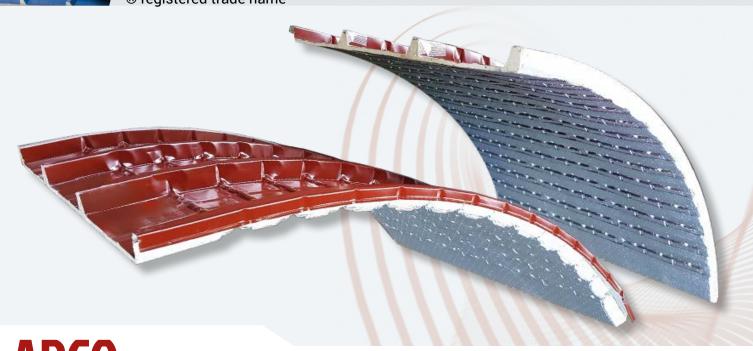
		SUPPORT CONDITIONS - Useful loads uniformely distributed in Kg/m² – KN/m²											
S	R	U	weight	U.M.				SINGLE S	<b>PAN IN</b> mℓ		Δ ι		
thickness mm	m² K W	$\frac{W}{m^2 K}$	Kg/m²		2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00
30	1,435	0,697	10,76	Kg/m² KN/m²	<b>278</b> 2,73	<b>160</b> 1,58	<b>99</b> 0,98	<b>65</b> 0,64	<b>43</b> 0,42	<b>29</b> 0,29	<b>19</b> 0,19	<b>12</b> 0,12	<b>7</b> 0,08
40	1,866	0,536	11,13	Kg/m² KN/m²	<b>333</b> 3,27	<b>200</b> 1,96	<b>129</b> 1,27	<b>87</b> 0,86	<b>60</b> 0,59	<b>42</b> 0,41	<b>29</b> 0,29	<b>20</b> 0,20	<b>14</b> 0,14
50	2,309	0,433	11,51	Kg/m² KN/m²	<b>390</b> 3,83	<b>242</b> 2,38	<b>161</b> 1,58	<b>111</b> 1,09	<b>79</b> 0,78	<b>57</b> 0,56	<b>41</b> 0,41	<b>30</b> 0,30	<b>22</b> 0,22
60	2,747	0,364	11,89	Kg/m² KN/m²	<b>448</b> 4,40	<b>285</b> 2,80	<b>194</b> 1,91	<b>137</b> 1,35	<b>99</b> 0,98	<b>73</b> 0,72	<b>54</b> 0,54	<b>41</b> 0,40	<b>30</b> 0,30
80	3,623	0,276	12,64	Kg/m² KN/m²	<b>567</b> 5,57	<b>376</b> 3,69	<b>265</b> 2,60	<b>193</b> 1,90	<b>144</b> 1,42	<b>109</b> 1,08	<b>84</b> 0,83	<b>65</b> 0,64	<b>50</b> 0,50
100	4,504	0,222	13,40	Kg/m² KN/m²	<b>688</b> 6,76	<b>469</b> 4,61	<b>339</b> 3,33	<b>253</b> 2,49	<b>193</b> 1,90	<b>149</b> 1,47	<b>117</b> 1,15	<b>92</b> 0,91	<b>73</b> 0,72
120	5,376	0,186	14,15	Kg/m² KN/m²	<b>811</b> 7,96	<b>565</b> 5,54	<b>415</b> 4,08	<b>315</b> 3,09	<b>244</b> 2,40	<b>192</b> 1,89	<b>153</b> 1,50	<b>122</b> 1,20	<b>99</b> 0,97

LOAD CONDITIONS WITH STEEL SUPPORTS (MANTO DOUBLE SHEETS):

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,5 mm.

For sizing and checking refer to the enclosed E of the UNI EN 14509 Norm and to the values shown in the C€ certification. The letter ① ⑤ shows the required painted side.





## **ARCO**

#### **Technical Characteristics:**

External metallic support: is obtained from cold profiling of coil strips of different materials: carbon steel coated with hot dip zinc; aluminium; copper; stainless steel. The finishing of steel and aluminium supports consists of an organic coat obtained from a cycle of hot standard polyester prepainting. On request different coats can be fournished.

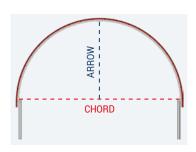
Internal support: Embossed centesimal aluminium

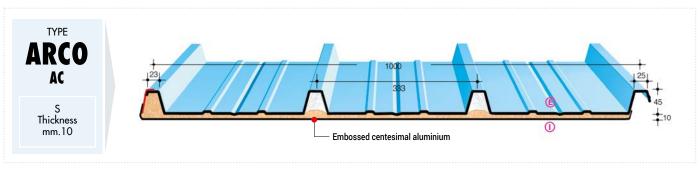
**Insulation**: polyurethane foam (PUR), (the two internal ribs are not foamed) Main characteristics:

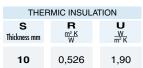
- Foam desity: 60 kg/m³
- Compressive strength: 140-150 Kpa
- Impermeability: 98% closed cells (non hygroscopic material)

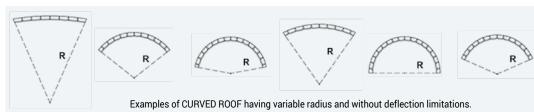
#### CURVED TERMOCOPERTURA®: CHOOSE THE CURVE YOU WANT.

WITHOUT LENGTH LIMITATIONS,
WITH A PERFECT VARIABLE
RADIUS CURVATURE,
ELIMINATES CONDESATION,
REDUCES NOISES DERIVING
FROM ATMOSPHERIC EVENTS.











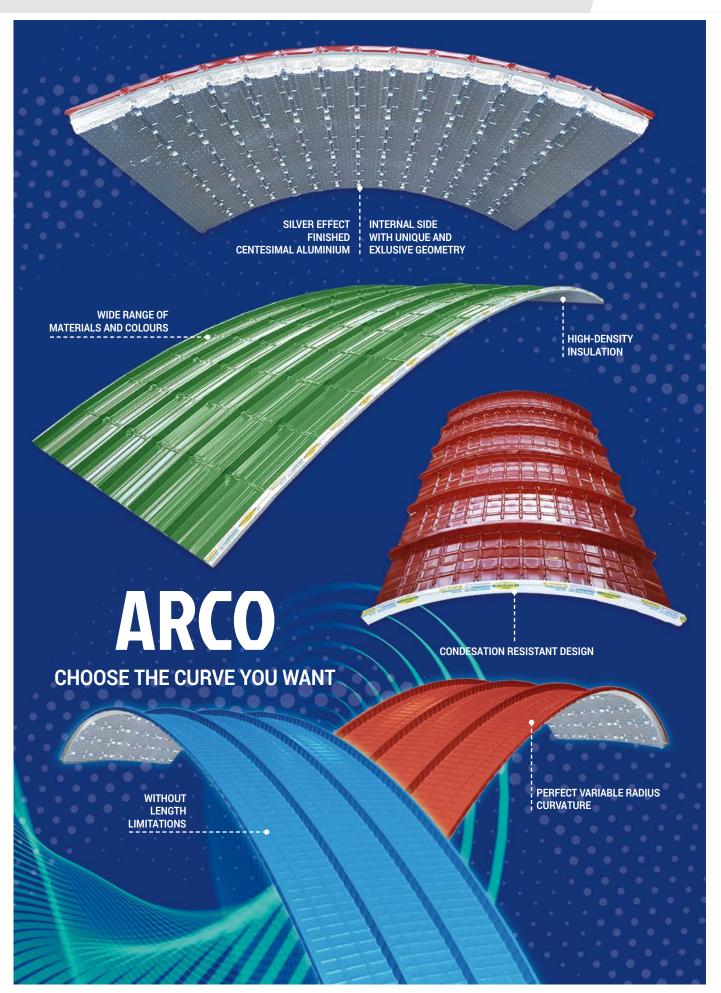








## **ARCO**

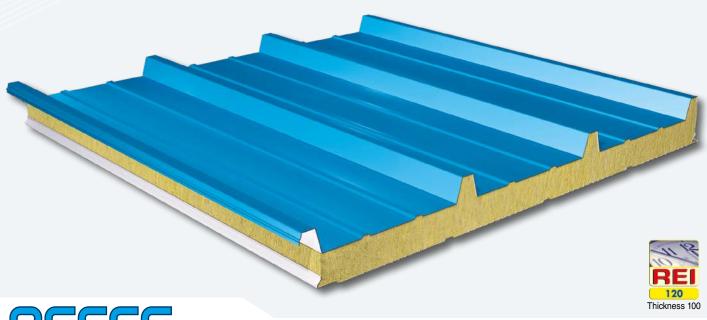




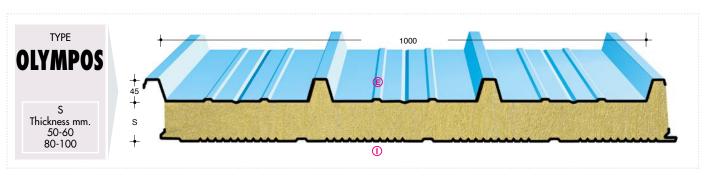


### TERMOCOPERTURE® REFFE OLYMPOS

® registered trade name



## AEFFE OLYMPOS



		SUPPORT CONDITIONS - Useful loads uniformely distributed in Kg/m² – KN/m²															
S	R	U	weight	U.M.		SPAN IN mℓ									$\Delta$ / $\Delta$		
thickness mm	$\frac{\text{m}^2 \text{ K}}{\text{W}}$	$\frac{W}{m^2 K}$	Kg/m²		1,50	2,00	2,50	3,00	3,50	4,00	1,50	2,00	2,50	3,00	3,50	4,00	
50	1,408	0,71	15,21	Kg/m² KN/m²	185 1,82	1 <b>54</b> 1,51	127 1,25	1 <b>02</b> 1,00	<b>85</b> 0,84	<b>70</b> 0,69	1 <b>67</b> 1,64	136 1,33	106 1,04	<b>88</b> 0,86	<b>57</b> 0,56	61 0,60	
60	1,639	0,61	16,21	Kg/m² KN/m²	235 2,30	1 <b>92</b> 1,88	158 1,55	131 1,29	1 <b>05</b> 1,03	<b>88</b> 0,86	215 2,11	1 <b>73</b> 1,70	138 1,35	116 1,14	<b>94</b> 0,92	<b>82</b> 0,80	
80	2,127	0,47	18,21	Kg/m² KN/m²	<b>296</b> 2,90	<b>241</b> 2,36	211 2,07	1 <b>74</b> 1,71	1 <b>43</b> 1,40	118 1,16	<b>276</b> 2,71	<b>222</b> 2,18	1 <b>82</b> 1,78	159 1,56	1 <b>33</b> 1,30	112 1,10	
100	2,564	0,39	20,21	Kg/m² KN/m²	<b>397</b> 3,89	<b>333</b> 3,26	<b>279</b> 2,74	<b>229</b> 2,25	1 <b>92</b> 1,88	151 1,48	<b>378</b> 3,71	<b>314</b> 3,08	<b>254</b> 2,49	<b>214</b> 2,10	<b>204</b> 2,00	1 <b>43</b> 1,40	

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,6 mm. The letter ① ⑤ shows the required painted side.

Average density of rockwool: 100 Kg/m³ - minimum guaranteed values obtained from tests carried out by the University of Studies of Perugia, Faculty of Engineering, Industrial Engineering Department (experimental tests institute).

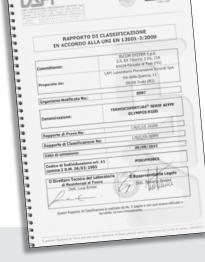
The product. The panels AEFFE, type OLYMPOS, are obtained by sticking in continuous two metallic supports with a rock wool layer. Their use is necessary when a high soundproofing and a good heat insulation, together with incombustibility and a high fire resistance, are requested for roofs.

External supports. They are generally obtained from hot-dip galvanized steel coils S250GD according to UNI EN 10346 norms and/or with an organic coating having characteristics according to UNI EN 10169 cold profiling. On request can also be fournished steel supports in stainless steel according to EN 10088-1 norms or in aluminium according to UNI EN 1396. Insulation. The core consists of an orientated rock wool layer (100 kg/m³) put perpendicularly to the supports in order to give

a higher stability to the panel and improve its mechanical performances. Thermal conductivity coefficient of rock wool:  $\lambda$ = 0,041 ÷ 0,045 W/mK.

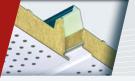
The use of orientated rock wool gives to the panel excellent characteristics of acoustic insulation on a wide frequency spectrum, in particular if a microdrilled support is placed towards the source of the noise. In fact the noise produced, for instance, by the rain and the hail on the roof will be reduced considerably.

Mechanical performances. The values indicated in the tables have been calculated according to CNR 10022/87 and ECCS instructions and are supported by several tests about uniformly distributed loads executed by the Faculty of Engineering of the University of Perugia, Industrial Engineering Department (Experimental Tests Institute).



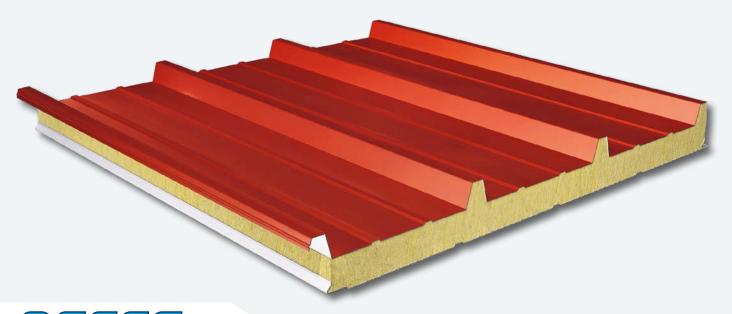
ACCREDIA 5



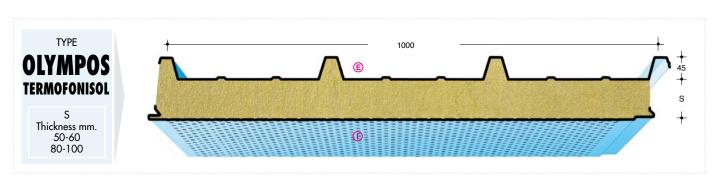


## TERMOCOPERTURE® REFFE OLYMPOS TERMOFONISOL

® registered trade name



## **PEFFE** OLYMPOS TERMOFONISOL



S thickness	R	NSULATION U W	weight	U.M.		CONDITIONS distributed i	n Kg/m² – Ki	N/m²
mm	$\frac{m^2 K}{W}$	$\frac{W}{m^2 K}$	Kg/m²		1,50	2,00	2,50	3,00
50	1,408	0,71	13,55	Kg/m² KN/m²	116 1,14	<b>86</b> 0,84		
60	1,639	0,61	14,55	Kg/m² KN/m²	<b>147</b> 1,44	106 1,04	<b>77</b> 0,76	<b>58</b> 0,57
80	2,127	0,47	16,55	Kg/m² KN/m²	1 <b>84</b> 1,81	133 1,31	1 <b>04</b> 1,02	<b>76</b> 0,75
100	2,564	0,39	18,55	Kg/m² KN/m²	191 1,87	141 1,38	112 1,10	<b>85</b> 0,83

The values shown in the tables are indicative and referred to a deflection f≤1/200 of the span ℓ (m) for panels with thickness of STEEL supports 0,5+0,6 mm. The letter () ⑤ shows the required painted side.

Average density of rockwool: 100 Kg/m³ - minimum guaranteed values obtained from tests carried out by the University of Studies of Perugia, Faculty of Engineering, Industrial Engineering Department (experimental tests institute).







## ARCHITECTURAL FACADES

Surprising Solutions creating Architecture



#### **CLADDINGS FOR ARCHITECTURAL** RENOVATIONS AND ENERGY-UPGRADING

#### Technical characteristics and performances:

Supports: STEEL - S 250 GD according UNI EN 10346 norm, mechanical characteristics as D.M. of 14/01/2008 and tolerances according UNI EN 10143 Norm

ALUMINIUM - UNI EN 1396 with minimum yielding limit 150 MPa

COPPER - UNI EN 1172

COR-TEN

STAINLESS STEEL - according UNI EN 10088-1 Norm

Insulation: PUR or PIR density ~ 40 Kg/m<sup>3</sup> Thickness: mm. 40-50-60-80-100 Standard panel: Width mm. 1000

The flexibility of the system gives the possibility to realize panels with

different developments

#### COORDINATED SYSTEMS FOR MODULAR CLADDINGS

The concept of the SERBOND® cladding has been developed to offer to the designers the possibility to create tailor-made projects, having not to refer to rigid standards or defined geometric rules. This particular cladding is mainly directed towards commercial, residential building and public utilities. It can be used both for new buildings and for renovations. The different types of accessories work with different types of structures such as concrete, traditional masonry, steel and wood. The installation of the panels, supported by our technical assistance during the planning phase, is easy and doesn't require the use of special site vehicles / equipments.

The system includes FLAT, BUBBLE, RUGBY, CAOS and the new EPICO panels and many adaptable elements in a wide range of developments and colours that enhance the original architectural standard. The **SERBOND**® is made of a light substructure in galvanized steel, anchored to the bearing structure of the building. The monolithic sandwich panels with stabilized flatness, with thermic cut joint and hidden fixing are planned to be finished with special profiles in extruded aluminium; the panels can have both a vertical and a horizontal development. The system offers a particularly rich range of components and elements with thermic cut such as: rounded and right corners, edges, thresholds, windowposts, and also connections with special development and tailor-made joints.



#### TENDER SPECIFICATIONS

The architectural wall called SERBOND® is made of a light substructure in galvanized steel, fixed to the bearing structure of the building. The monolithic sandwich panels with stabilized flatness, with thermic cut joint and hidden fixing are finished with an extruded aluminium profile. They can have both a vertical and a horizontal development. The system offers a wide range of finishing elements with thermic cut: rounded and right corners, edges, thresholds, windowposts and also panels with special development and tailor-made joints.

The SERBOND® System consists of:

- Substructure
- Blind panels with thermic cut
- Extruded aluminium profile
   Finishing elements with thermic cut

#### SUBSTRUCTURE

The substructure is made of vertical tubular profiles in galv. steel ....×..... mm thick, anchored to the main structure by means of a suitable fixing system.

#### PANELS WITH THERMIC CUT AND HIDDEN FIXING TYPE TERMOPARETI® WP/STFlat or WPM/C-FNFlat

- External supports in cold shaped galvanized steel / aluminium / stainless steel / corten
- The finishing of the galvanized steel supports and of the aluminium supports consists of an organic coat obtained from a cycle of hot standard polyester prepainting according to EN10169
- PVC profile, located in the longitudinal female joint

of the panels between the two external supports to increase the overall fixing stability of the panel and to avoid detachments of the supports from the insulation either during their handling or during the working phase.

- Polyurethane insulation, CFC free, according to UNI EN 13165 Norm.

#### CHARACTERISTICS OF THE PANEL

- Thickness of panel : mm 40-50-60-80-100
- Thickness of external supports: mm 0,6 side (E)
- + 0,5 side (I)
- Prepainting of external supports: our standard side (E) + ES73 White Grey side (I)
- Width of the panel: mm 1000
- Density of insulation: approx. 40 kg/m³
- Fixing: hidden fixing on the female joint

#### **EXTRUDED ALUMINIUM PROFILE**

Special profiles in extruded aluminium are used as architectural joint elements to panels or to other components

#### FINISHING ELEMENTS WITH THERMIC CUT

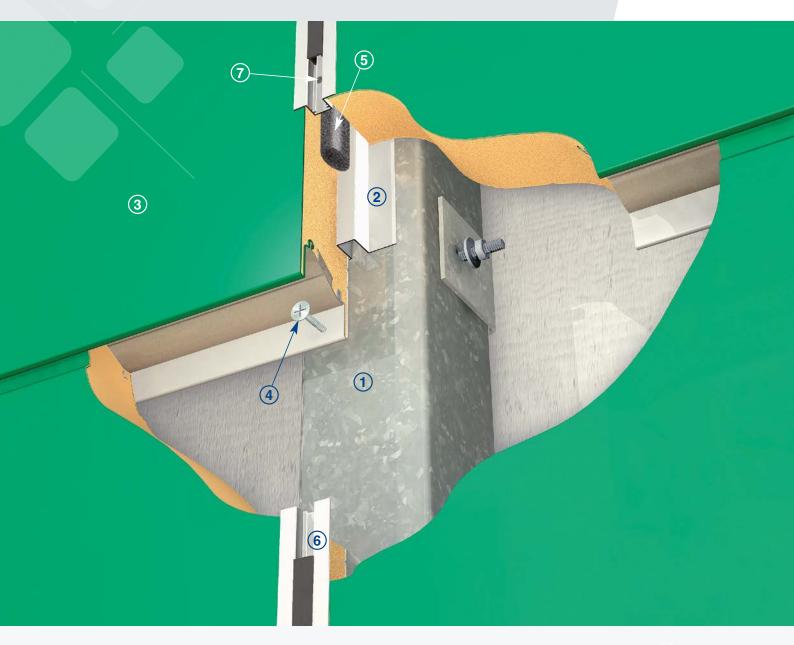
Special components with thermic cut are used to finish the panels and as connection to other elements

#### ASSEMBLING SYSTEM

The tubular profiles ....x... of the substructure are anchored to the bearing structure of the building, then the panels and the special components with thermic cut are being installed.







#### **DETAILS OF THE SERBOND® SYSTEM**

- 1) SUBSTRUCTURE IN GALVANIZED STEEL
- 2 FLASHING TO FIX ALUMINIUM PROFILE
- .....
- (3) TERMOPARETI® WITH HIDDEN FIXING
- 4 SCREWS WITH LARGE FLATHEAD TO FIX TERMOPARETI®

- (5) "LEM CORD" GASKET DIAMETER 20 mm
- 6 ALUMINIUM PROFILE PAINTED IN DIFFERENT COLOURS WITH BLACK EPDM RUBBER
- 7 "DRILLEX" SCREWS TO FIX ALUMINIUM PROFILE

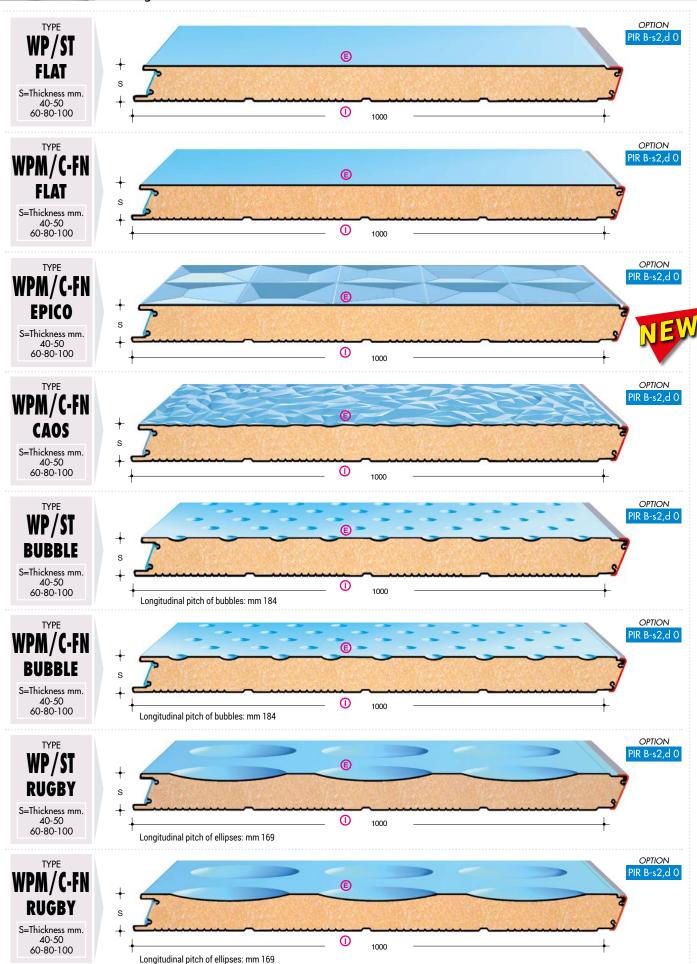




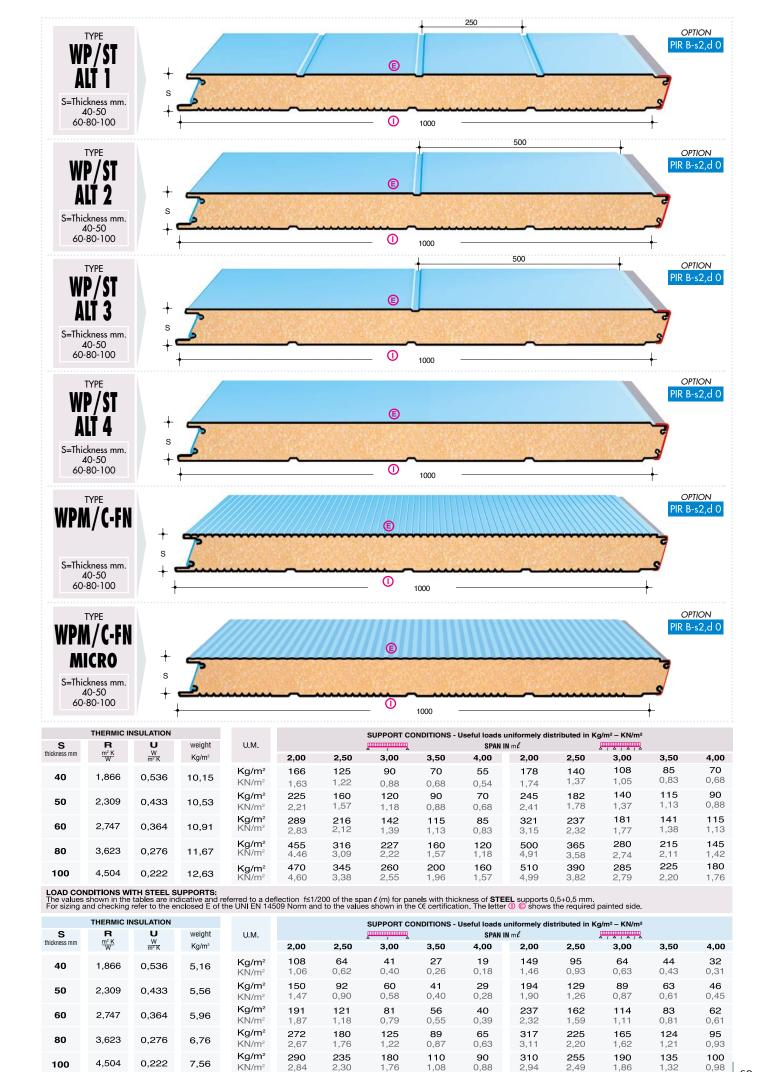


# TERMOPARE ® registered trade name

### TERMOPARETI® SERBOND®

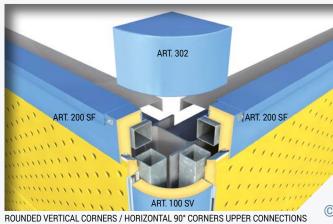


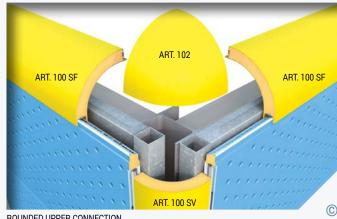












ROUNDED UPPER CONNECTION

© Copyright ELCOM SYSTEM









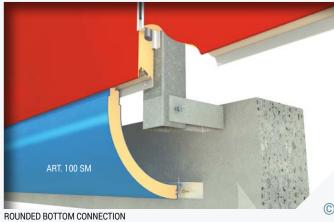
65







FOAMED 90° BOTTOM CONNECTION



FOAMED 90'
LUPPER
CONNECTION

ART. 200 SF

COPyright ELCOM SYSTEM

COPyright ELCOM SYSTEM





#### **ENERGY-UPGRADING AND ARCHITECTURAL RENOVATION**





















PROJECTS







#### **ENERGY-UPGRADING AND ARCHITECTURAL RENOVATION**























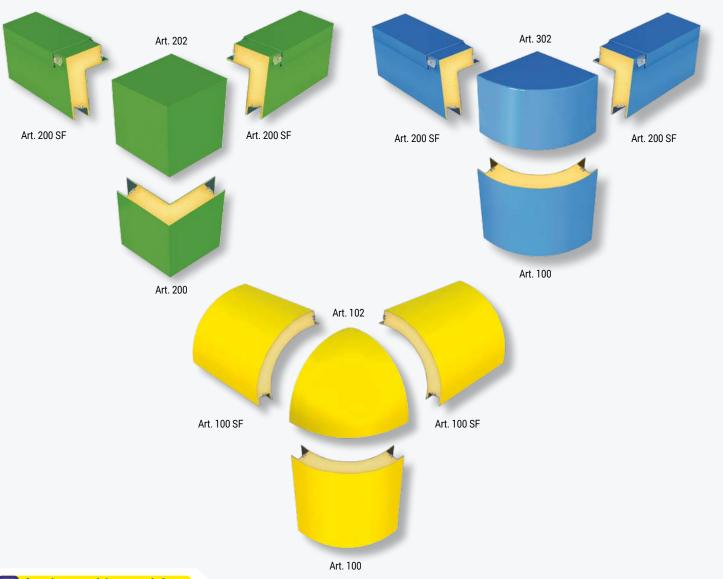




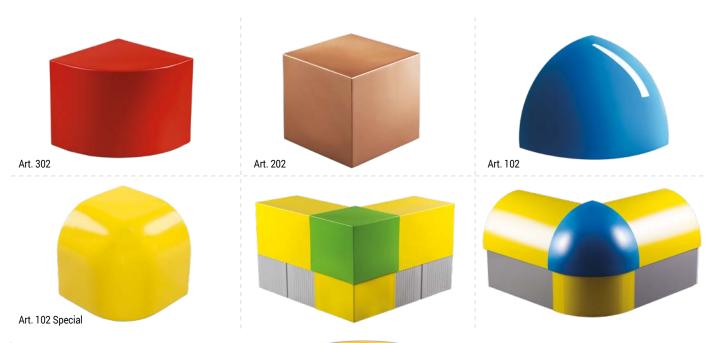


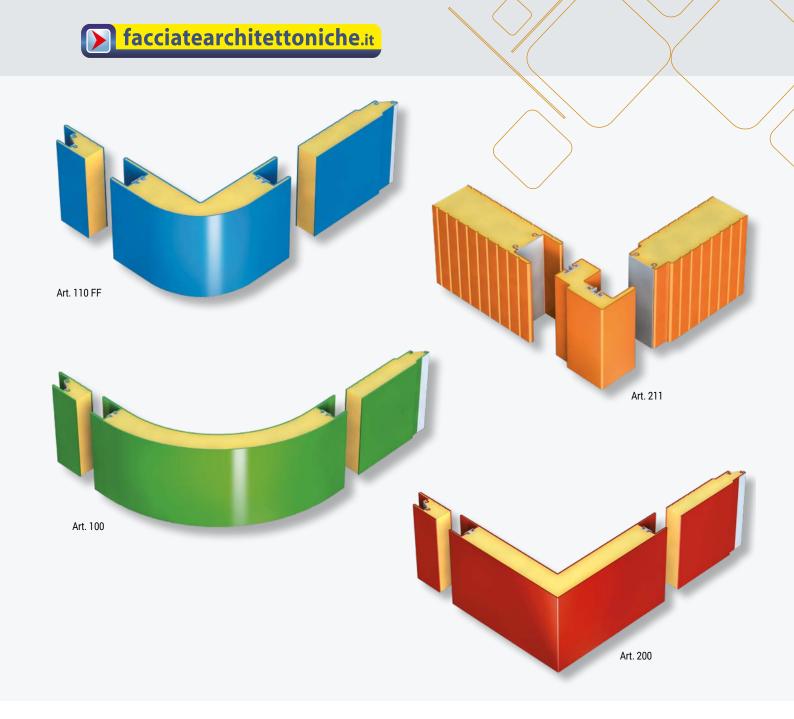


# Systems for architectural wall cladding Special components with thermic cut





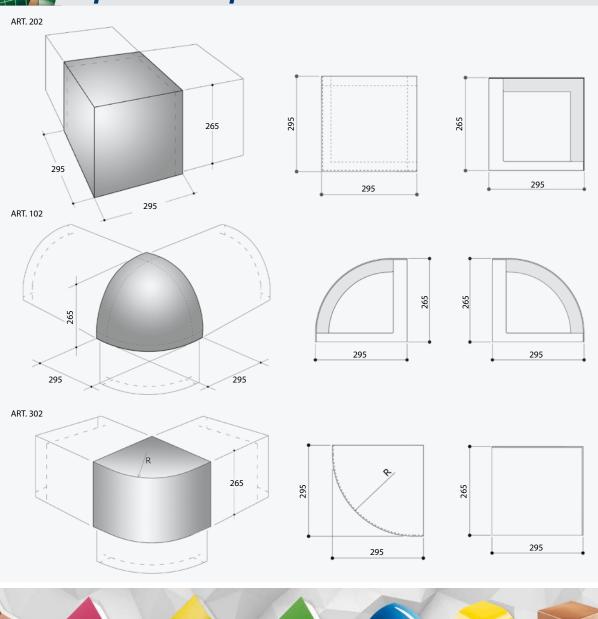








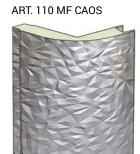
# Systems for architectural wall cladding Special components with thermic cut









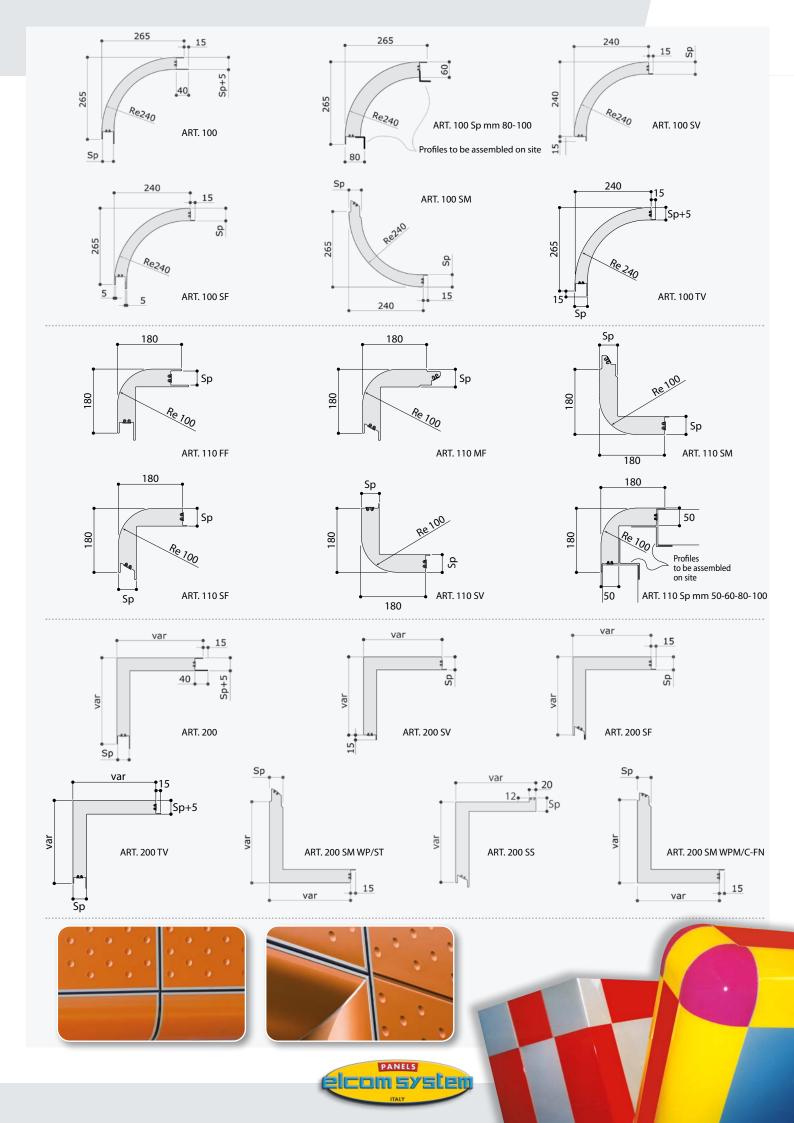






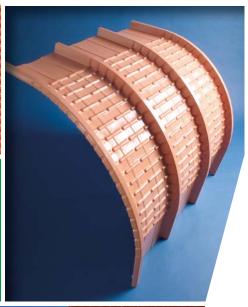






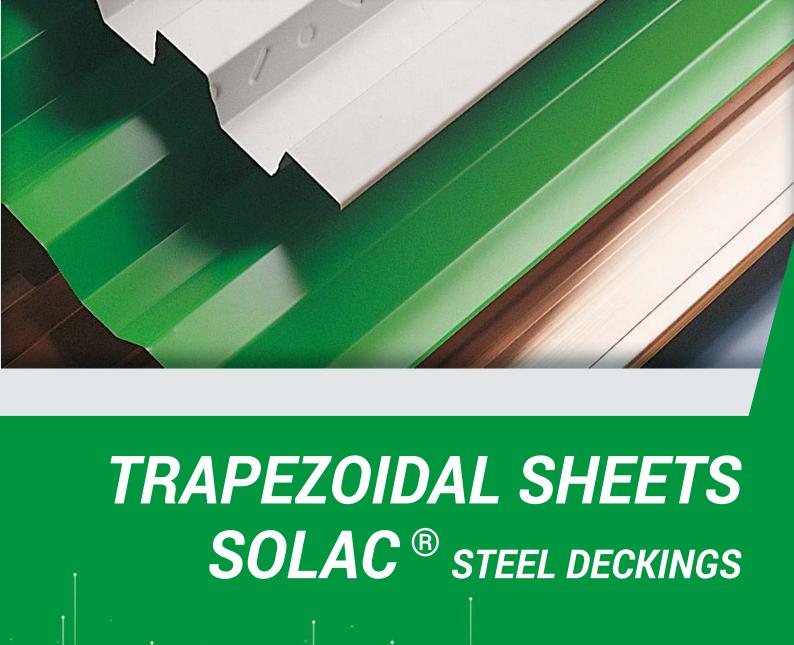


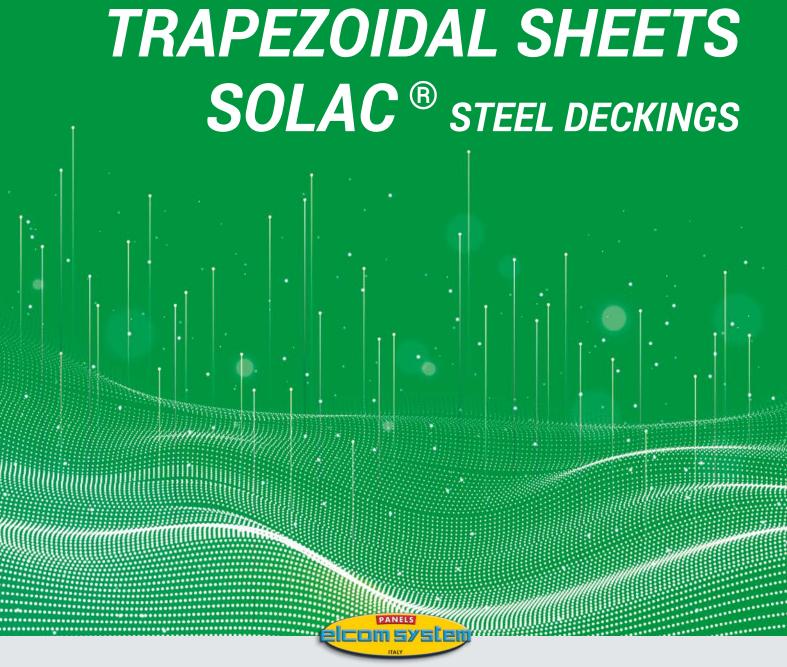






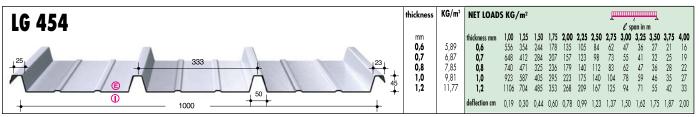


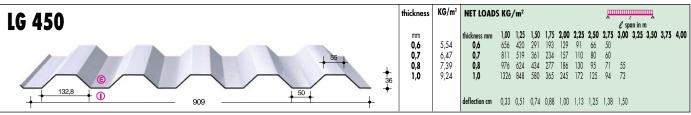


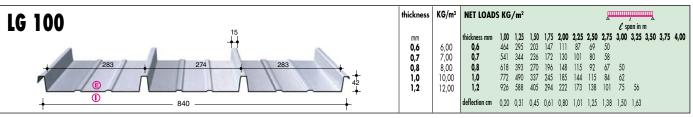




# LG 454 LG 450 LG 100







The TRAPEZOIDAL SHEETS of ELCOM SYSTEM s.p.A. (company with UNI EN ISO 9001:2000 certification) have been researched to be used in roofing and wall. The possibilities of particular ways of shaping such as cambering and drawing allows for their use in every kind of building.

#### **Technical Characteristics**

Materials. The Trapezoidal Sheets are obtained by cold profiling of coils of following materials:

- Carbon steel coated with zinc applied in a continuos hot dip according to UNI EN 10346 norm with mechanical characteristics as foreseen in the D.M. of 14/01/2008.
- Stainless steel whose characteristics are fixed by EN10088-1 norms;
- Aluminium with a minimum yielding limit 150 MPa according to UNI EN 1396 norm.
- Copper with mechanical characteristic and physical properties defined by UNI EN 1172 norm.

**Finishing.** All materials, except copper, can be fournished with an organic hot dip coat applied in continuous, with characteristics according to the UNI EN 10169 norm. The surfaces of the coils are degreased and pretreated according to their nature. Next is the application with rollers of a priming coat on both sides having a thickness of 5 microns; after baking at 220/250°C approx., a finishing coat will be applied. The standard

paint coat is Polyester whose thickness is 25 microns. On request other coatings can be fournished. The corrugated sheets obtained from prepainted coils are more resistant to the wear and tear of time and the different colours give an effect of a high finishing. The guarantee for the prepainting depends on the resins applied, on the environmental conditions and on the use of the products.

**Tolerances.** The maximum dimensional and forme tolerances are according the UNI EN 508-1-2-3 norms.

#### Definition of static characteristics and live loads. Conditions:

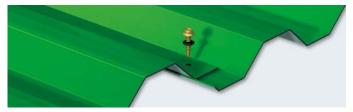
- 1 O<sub>amm</sub> = 165 N/mm<sup>2</sup> (Fe S250GD UNI EN 10326)
- 2 load "P" uniformly distribuited
- 3 "ℓ" span between supports
- 4 Deflection f ≤ 1/200 "ℓ"

Modulos of steel elasticity E = 210000 N/mm<sup>2</sup>

#### Description of the method adopted to determine the static parameters

It is made reference to the CNR 10022-84 norms, about the instructions for the construction of cold profiles and to the AIPPEG (Italian Association for Panels and Corrugated sheets manufacturers) recommendations





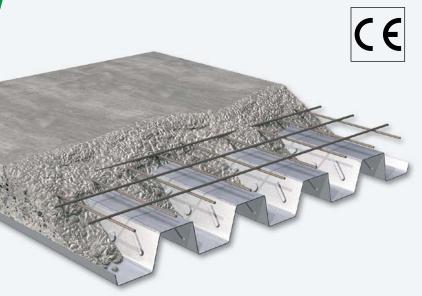


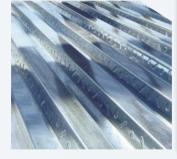
#### **STAMPED SHEETS**



com systen

# SOLAC® STEEL DECKINGS







Thickness	S	mm	0,6	0,7	0,8	1,0	1,2
Weight	P	kg/m²	7,85	9,16	10,47	13,08	15,70
Section modulus	W	cm <sup>3</sup> /m	11,69	14,46	1 <i>7</i> ,40	23,69	30,38
	Wr	cm <sup>3</sup> /m	13,71	16,97	20,44	26,66	33,35
Moment of inertia	J	cm4/m	40,95	49,85	59,07	78,15	97,52

NET LOADS Kg/m<sup>2</sup>

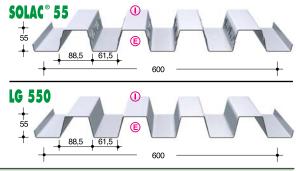
									€ spuii	III III			
ickness mm	1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00
0,6	1302	830	574	420	319	251	202	151	114	88	69	55	
0,7	1610	1027	711	520	396	311	248	184	140	108	85	67	54
0,8		1237			477	374			166	128	101	80	64
1,0 1,2	2640	1685	1166	853	650	511	390	290	220	170	134	106	85
1,2	3387	2162	1497	1095	835	657	488	362	276	213	168	133	107

**deflection cm** 0,20 0,32 0,46 0,63 0,82 1,04 1,25 1,37 1,50 1,62 1,75 1,87 2,00

# **SOLAC® 55 - LG 550**







Geometric and static properties												
SS		SLAB -	3,5 cm. H	IT = 9 cm.								
thickness	X cm	J cm <sup>4</sup> /m	W cm <sup>3</sup> /m	<b>Me</b> kg cm/m								
0,6	5,81	227	39,04	54649								
0,7	5,66	253	44,67	62536								
0,8	5,52	277	50,16	70223								
1,0	5,29	321	60,78	85098								
1.2	5 10	362	71.02	99429								

Net loads in	Net loads in Kg/m²													
loading	height	thickness	weight								$\ell$ span in	m		
conditions	cm	mm	Kg/m²	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00
		0,6	162	1781	1266	931	702	538	416	324	252	195	149	111
	cm.	0,7	163	2060	1470	1088	825	637	498	393	310	245	193	150
	<b>SLA</b> 5°,5°,=	0,8	164	2332	1670	1240	945	734	578	460	367	294	235	184
\ \triangle \( \triangle \)	o, °, ±	1,0	167	2859	2056	1535	1178	922	733	590	478	389	317	238
		1,2	169	3246	2428	1819	1402	1103	882	714	584	480	384	287
		0,28	0,39	0,50	0,64	0,79	0,95	1,13	1,33	1,54	1,77	2,00		

Geometric and static properties												
SS	!	SLAB -	4,5 cm. H	T = 10 cm.								
thickness	X cm	J cm <sup>4</sup> /m	W cm³/m	<b>Me</b> kg cm/m								
0,6	6,50	300	46,11	64553								
0,7	6,32	334	52,77	73875								
0,8	6,16	365	59,25	82952								
1,0	5,90	423	71,76	100470								
1.2	5.68	476	83.76	117261								

	Net loads in Kg/m²														
	landina	height	thickness	!								$\ell$ span in	m		
	loading conditions	cm	mm	weight Kg/m²	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00
ľ		ci.	0,6	187	2108	1499	1104	833	639	496	387	302	235	180	136
		<b>AB</b> cm. 0 cm	0,7	188	2438	1742	1289	979	757	593	468	371	294	232	181
		<b>SLAE</b> ,5 cr = 10	0,8	189	2760	1977	1470	1121	872	688	548	439	352	282	225
	Δ <i>l</i> Δ	4	1,0	192	3328	2433	1818	1396	1094	871	701	569	464	380	310
		主	1,2	194	3458	2869	2151	1659	1307	1046	848	694	571	473	392
			deflection cm		0,25	0,34	0,45	0,57	0,70	0,85	1,01	1,19	1,38	1,58	1,80

Geometric and static properties												
ss	:	SLAB -	5,5 cm. H	T = 11 cm.								
thickness	X cm	J cm <sup>4</sup> /m	W cm <sup>3</sup> /m	<b>Me</b> kg cm/m								
0,6	7,21	387	53,63	75085								
0,7	7,01	430	61,41	85971								
0,8	6,83	471	68,98	96574								
1,0	6,53	546	83,60	117040								
1,2	6,28	613	97,61	136651								

Net loads in	Net loads in Kg/m²														
LP	height	424									$\ell$ span in	m			
loading conditions	cm	thickness mm	weight Kg/m²	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00	
	-ċ	0,6	212	2458	1749	1290	975	749	582	455	357	278	215	163	
	<b>AB</b> Gm. J cm	0,7	213	2844	2033	1506	1145	887	696	551	438	348	276	217	
	<b>SLA</b> 5.5°° =	0,8	214	3219	2308	1717	1312	1022	807	644	517	416	335	268	
	40	1,0	217	3605	2840	2124	1633	1281	1021	823	670	547	449	368	
	士	1,2	219	3730	3166	2514	1940	1530	1226	995	816	673	558	464	
		deflection cm		0,23	0,31	0,41	0,51	0,64	0,77	0,92	1,07	1,25	1,43	1,63	

SOLAC® STEEL DECKINGS - The use of the trapezoidal steel sheets in the construction of floors has impacted an innovation of great importance; the elasticity of the system allows easy use in every condition. The particular marks on the sides of the ribs permit the anchoring of the concrete thus avoiding horizontal slide or vertical detachment. The steel deckings Solac®55 and Solac®75 have achieved the UNI EN 1090-1:2009+A1:2011 Certification referred to the Execution of Structural Steel Components - EXECUTION CLASS UP TO EXC3.

#### Technical norms for trapezoidal sheets and deckings

- D.M. 09/01/96 - CNR UNI 10011-88
- CNR 10022-84 - CNR 10016-72

- UNI EN 1090-1

- EUROCODE 3 - PART 1.3



# SGGS Orlanda Suph. Orlanda Suph.





Thickness	<b>S</b> mm	0,6	0,7	0,8	1,0	1,2
Weight	P kg/m²	8,26	9,64	11,02	13,77	16,53
Section modulus	W cm <sup>3</sup> /m	19,52	23,07	26,65	33,87	40,37
	Wr cm <sup>3</sup> /m	18,77	22,80	26,93	34,62	41,47
Moment of inertia	J cm <sup>4</sup> /m	82,13	99,84	117,99	152,16	184,49

NET LOADS Kg/m<sup>2</sup>

 thicknessmm
 1,00
 1,25
 1,50
 1,75
 2,00
 2,25
 2,50
 2,75
 3,00
 3,25
 3,50
 3,75
 4,00

 0,6
 2178
 1391
 963
 706
 538
 424
 341
 281
 235
 185
 146
 117
 95

 0,7
 2574
 1644
 1139
 834
 636
 501
 404
 332
 277
 225
 178
 143
 116
 138

 1,0
 3779
 2414
 1672
 1225
 934
 735
 593
 48
 302
 216
 11
 169
 138

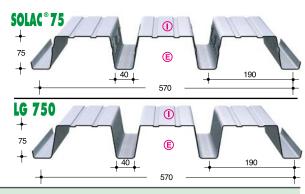
 1,2
 4505
 2877
 1993
 140
 1114
 877
 707
 581
 486
 412
 330
 266
 216

 deflection cm
 0,16
 0,25
 0,35
 0,48
 0,63
 0,79
 0,98
 1,19
 1,41
 1,63
 1,75
 1,88
 2,00

# **SOLAC®75 - LG 750**







Geo	metri	c and s	static p	roperties
ess		SLAB -	4,5 cm. H	T = 12 cm.
thickness	X cm	J cm <sup>4</sup> /m	W cm³/m	<b>Me</b> kg cm/m
0,6	8,41	359	42,66	59728
0,7	8,23	401	48,77	68284
0,8	8,07	442	54,73	76616
1,0	7,80	516	66,22	92712
1,2	7,58	585	77,27	108173

Ner loads in											/i-			
loading conditions	height cm	thickness mm	weight Kg/m²	1,50	1,75	2,00	2,25	2,50	2,75	3,00	€ span in 3,25	m 3,50	3,75	4,00
	-	0,6	170	1953	1390	1024	774	594	462	361	282	220	170	128
	Z cm.	0,7	171	2256	1612	1194	908	703	551	435	346	274	217	170
	<b>SLA</b> ,5 cl	0,8	173	2551	1829	1360	1038	808	638	508	408	328	263	210
Δ ι Δ	4 "	1,0	175	3121	2246	1679	1290	1011	805	649	527	430	352	288
	士	1,2	178	3668	2648	1986	1531	1027	966	784	641	528	437	363
	deflection cm				0,26	0,34	0,44	0,54	0,65	0,77	0,91	1,05	1,21	1,38

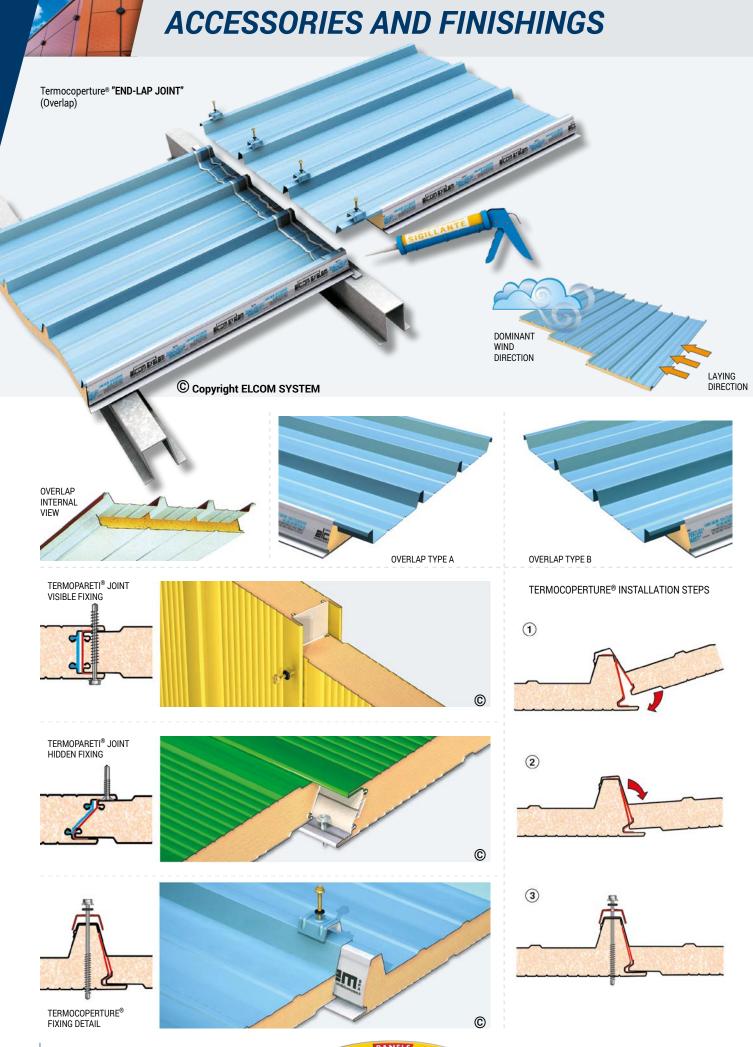
Geo	metri	and s	static p	roperties
SS		SLAB -	5,5 cm. H	T = 13 cm.
thickness	X cm	J cm <sup>4</sup> /m	W cm³/m	<b>Me</b> kg cm/m
0,6	9,11	450	49,40	69161
0,7	8,91	503	56,47	79051
0,8	8,73	553	63,34	88672
1,0	8,42	645	76,58	107219
1,2	8,17	729	89,27	124984

land'an	Latala	41.1									$\ell$ span in	m		
loading conditions	height cm	thickness mm	weight Kg/m²	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00
	-	0,6	195	2264	1611	1188	898	690	536	420	329	256	198	151
	<b>AB</b> cm. 3 cm	0,7	196	2614	1869	1385	1053	815	640	506	402	320	253	199
	<b>SLA</b> ,5 cl	0,8	198	2955	2119	1576	1203	937	740	590	474	381	307	246
Δ ι Δ	2	1,0	200	3565	2600	1944	1494	1172	934	753	612	500	410	336
	士	1,2	203	3826	3062	2297	1772	1397	1119	908	744	613	508	422
		deflection cm		0,18	0,24	0,32	0,40	0,50	0,60	0,72	0,84	0,97	1,12	1,27

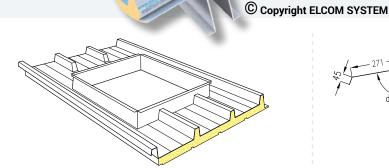
Geo	ometric and static properties	Net loads in	n Kg/m²													
000	meme and stane properties		Later	424									$\ell$ span in	m		
ess	<b>SLAB</b> - 6,5 cm. HT = 14 cm.	loading conditions	height cm	thickness mm	weight Kg/m²	1,50	1.75	2.00	2,25	2,50	2.75	3.00	3,25	3,50	3.75	4,00
thickne	X J W Me cm cm <sup>4</sup> /m cm <sup>3</sup> /m kg cm/m	Conditions	<b></b>		Ng/ III	1,50	1,75	2,00	2/20	2,50	2,70	0,00	0,23	0,50	0,75	4,00
0,6	9.83 556 56.61 79249		έ	0,6	220	2598	1850	1365	1032	794	618	484	380	297	231	176
0,7	9,60 622 64,72 90604	T	4 cr .	0,7	221	3000	2145	1591	1210	938	737	584	465	370	294	232
0,8	9,40 683 72,60 101645	- L	SI 5,5	0,8	223	3391	2432	1810	1383	1078	852	681	547	441	355	285
	,	-   '	~ ÷	1,0	225	3775	2985	2233	1717	1348	1075	867	706	577	474	389
1,0	9,07 796 87,80 122915	_		1,2	228	4034	3425	2637	2036	1606	1288	1046	857	708	587	488
1,2	8,79 899 102,33 143264			deflection cm		0,17	0,23	0,29	0,37	0,46	0,56	0,66	0,78	0,90	1,04	1,18

NOTE - Trapezoidal sheets that derive from the SOLAC 75 and SOLAC 55, are used to work on wide spans both for roof and walls. These sheets, called LG750 and LG550, are without the marks on the sides of the rib.

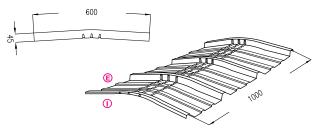




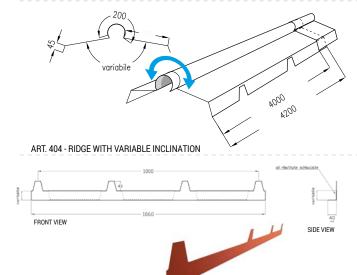




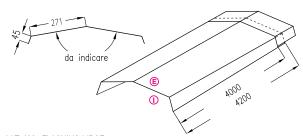
ART. 405 - SPECIAL SKY-LIGHT ELEMENT



ART. 403 - RIDGE IN PRESSED SHEET

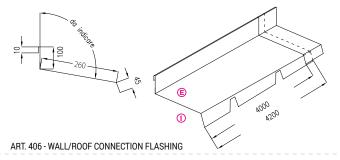


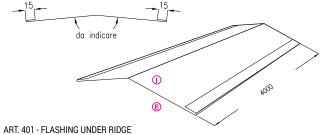
ART. 407 - ROOF FRONT END CAP

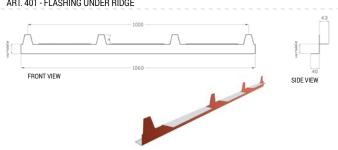


CONSTRUCTION REQUIREMENTS

ART. 402 - FLASHING RIDGE







ART. 408 - ROOF FRONT END CAP - OVERLAP





### **ACCESSORIES AND FINISHINGS**

#### **FIXING ACCESSORIES**



CAPS

Shaped caps needed to fix Termocoperture® available in prepainted steel, stainless steel, copper, cor-tèn, prepainted aluminium, aluzinc



#### SELF-SCREWING STEEL SCREW WITH HEXAGONAL HEAD

Self-screwing screw for Termocoperture® or Termopareti® with visible fixing on steel structure



PVC WASHERS important part of the fixing group for Termocoperture®



#### DRILLEX SCREWS

Screw to fix aluminium profile of our Serbond® system.



#### SELF-DRILLING STEEL SCREW WITH HEXAGONAL HEAD

Self-drilling screw for Termocoperture® or Termopareti® with visible fixing on steel structure



#### COMPLETE FIXING GROUP

Fixing group for Termocoperture® including screw, washer and cap



#### SCREW WITH LARGE FLAT HEAD

Special screw for hidden fixing



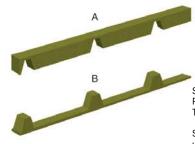
#### DIFFERENT RIVETS

Rivets in different colours to fix flashings.



#### WOOD SCREWS

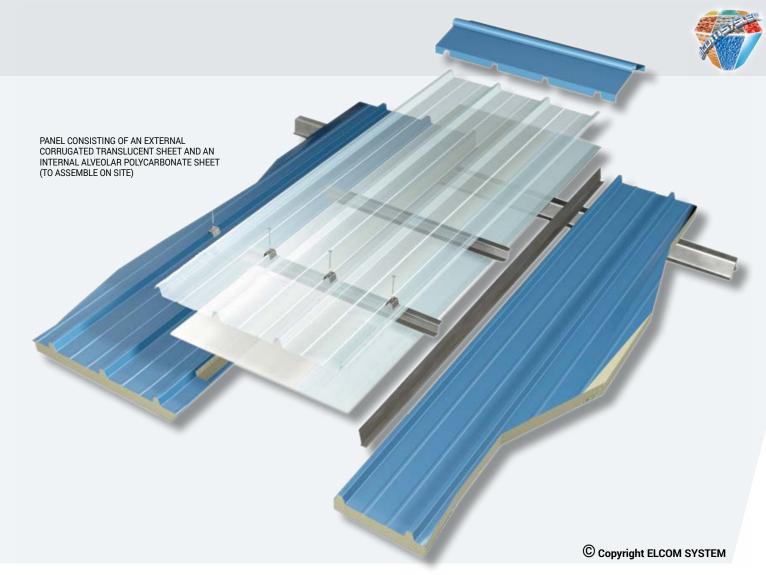
Wood screws to fasten Termocoperture® or Termopareti® with visible fixing on wood structure



## SHAPED PACKING IN EXPANDED POLYURETHANE WITH ACRYLIC RESINS TYPE A AND B

Sealing packing to be installed under the ridge

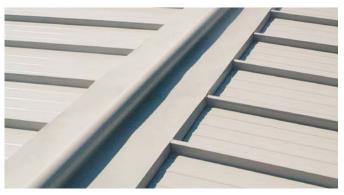








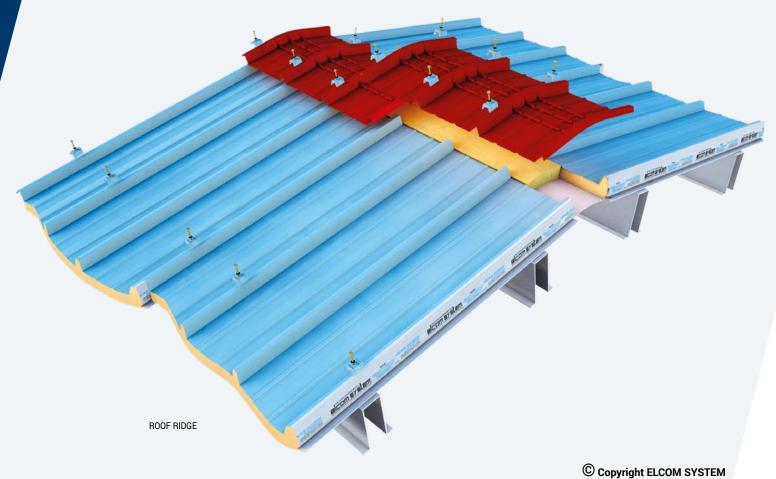








# **ACCESSORIES AND FINISHINGS**

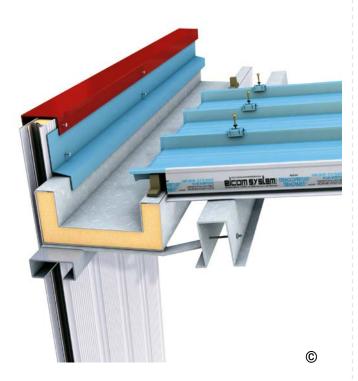




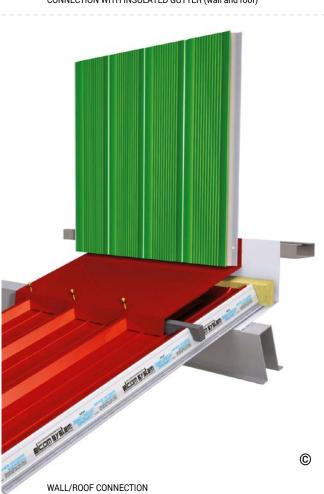


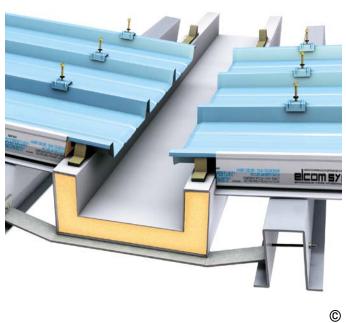






CONNECTION WITH INSULATED GUTTER (wall and roof)





INSULATED VALLEY GUTTER DETAIL



WALL / "DECK" ROOF CONNECTION





# **COLOUR CHART**





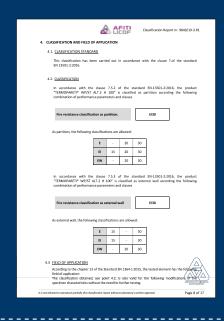
to be considered for guidance purposes only

Pearl gold

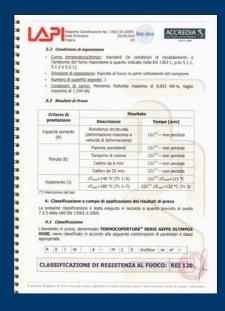
Yellow green

#### **CLASSIFICATION REPORTS**







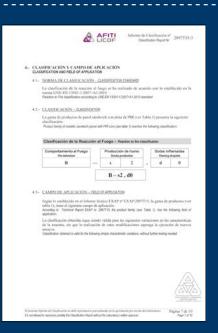




4. Classi	ficazione e campo di ap	plicazione dei ri	sultati	di prov	ret	
la presente 7.5.2.4 della	classificazione è stata ese UNI EN 13501-2:2009.	guita in accordo	a quant	to previ	sto al pu	into
4.1 Clas	sificazione					
	prova denominato TERI icato in accordo alla se					
R E	1 W t -	M C S I	ncSlow	sh e	ef r	
CLASSIF	ICAZIONE DI RES	ISTENZA A	. FUO	co:	EI 6	
costruzioni si seguito e che	ella prova di resistenza mili in cui sono state effe e continuano a rimanere co rigidità e stabilità:	tuate una o più	delle me	odifiche	indicate	net
costruzioni si reguito e che n termini di r	mili in cui sono state effe continuano a rimanere co	tuate una o più nformi al codice o	delle me	odifiche ttazione	indicate appropr	net
costruzioni si peguito e che n termini di r tiferimento EN 1364-1	mili in cui sono state effe continuano a rimanere co rigidità e stabilità:	tuate una o più nformi al codice o	delle me li proget szloni ci	odifiche ttazione onsenti	indicate appropr	net
costruzioni si seguito e che n termini di r liferimento EN 1364-1 ed. 1999	mili in cui sono state effe continuano a rimanere co igidità e stabilità:  Descrizione  Voriazioni in altezza (N)	tuate una o più nformi al codice o Varia	delle me il proget nzioni ci	odifiche Itazione onsenti	indicate appropri	nel
ostruzioni si leguito e che n termini di r Riferimento EN 1364-1 ed. 1999 13.1 a) 13.3	milli in cui sono state effe continuano a rimanere co igidità e stabilità: Descrizione  Voriuzioni in albezza (N) della panete  Aumento di spessore della	tuate una o più nformi al codice o  Varia  Altezza consentita  Consentita aumen	delle mi il proget szioni ci : Hs-4000 tto di spe m ustone tto dello	odifiche ttazione onsenti onse	indicate appropri	nel riato































Manus and Manus



PROJECTS















# TERMOPARETI® TERMOCOPERTURE®



® registered trade names























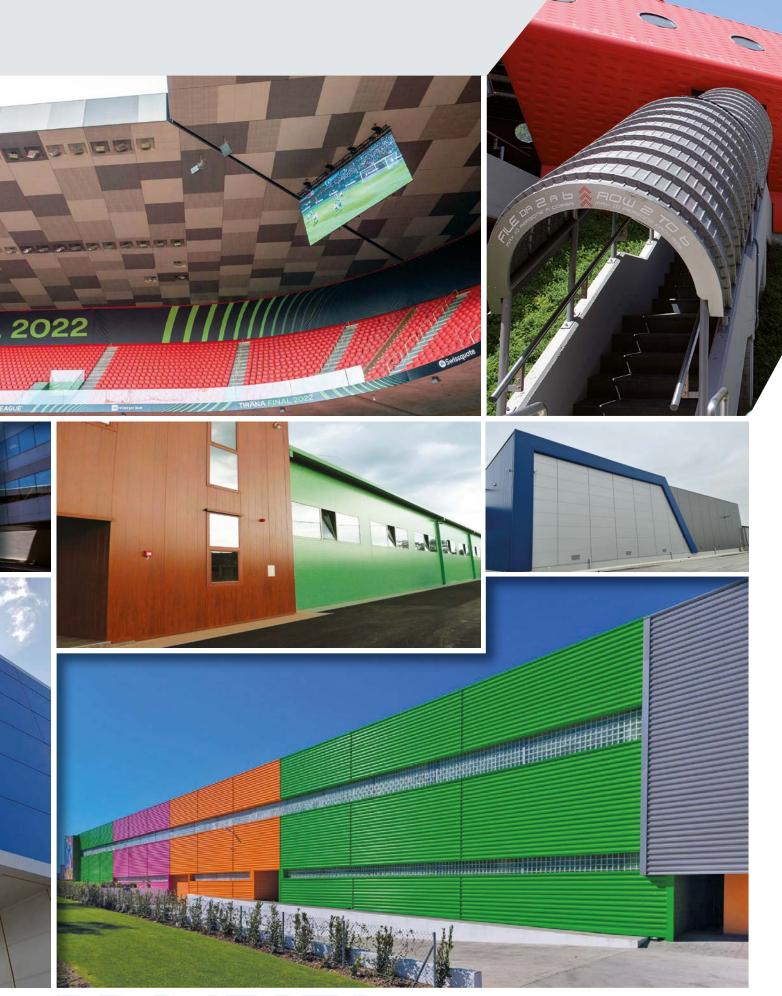












# **PROJECTS**





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06059 PANTALLA di TODI (PERUGIA) Italy - Tel. +39.075.8855 Export Dept: info@elcomsystem.it











