STARCELL
HONEYCOMB & COMPOSITE PANELS

Via Sebenico 22 - 20124 Milano
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E-Mail: info@starcellspa.com Website: www.starcellspa.com

LITHOCELL® Composite Stone - TUF (6,35/19)(0,5-0,5)S(1)

Description of the product

TUF is a sandwich panel with a cosmetic finish consisting of a layer of Tufite (2 mm). It has an aluminium honeycomb core and galvanized steel sheet skins. It is obtained by applying a mixture of tuff stone powder and resins to a panel without finish such as the RAWCELL® Metal panel. Main fields of application: construction (external cladding of buildings).

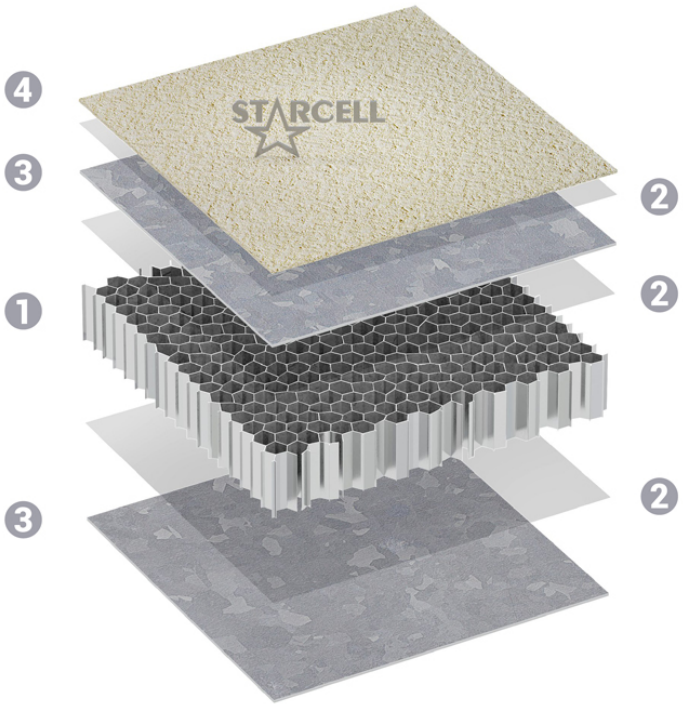
Layers

1) INTERNAL CORE
aluminium honeycomb
(Starcell production)
aluminium alloy: 3000 series
density: 29 - 40 - 56 - 65 - 80 kg/m³
cell diameter:
6.35 mm (standard);
10 - 12.7 - 19 mm (on request)

2) ADHESIVE
thermoplastic or polyurethane

3) EXTERNAL SKINS
raw or primed galvanized steel sheet
skin thicknesses:
0.3 - 0.5 - 0.6 mm (standard)
0.8 - 1.0 mm (on request)

4) FINISHING
layer of Tufite (reconstituted tuff stone)
thickness: 2 mm



Technical sheet of the support panel

PRODUCT ID CODE		
Code structure	*Value in this sheet*	*Meaning*
LITHOCELL®		family to which the product belongs
Composite Stone		subfamily to which the product belongs
TUF (n/n)(n-n)		panel type
TUF (n/)( )	6,35/ =	size (mm) of the hexagonal honeycomb cell
TUF (/n)( )	/19 =	panel thickness (mm)
TUF (/)(n-n)	0,5-0,5	thickness (mm) of the two skins
S(n)	1=	standard dimensions (mm) - S(1) = 1.000 X 1.000

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CHARACTERISTICS OF MATERIALS AND COMPONENTS

Front finishing layer

material:	layer of Tufite (reconstituted tuff stone)
standard thicknesses (mm):	2,0
surface appearance:	natural - coarse

Structural skins

material:	steel sheet
type:	hot dip galvanized
standard thicknesses (mm):	0,3 - 0,5 - 0,6 (squared); 0,8 - 1,0 (not squared)
surface appearance:	raw - primed
standard adhesive:	thermoplastic - polyurethane

Hexagonal cell honeycomb

material:	aluminium foil
type:	3000 series alloy
foil thicknesses (µm):	50 - 60 - 70
density (kg/m³):	29 - 40 - 56 - 65 - 80
standard cell sizes (mm):	6,35
on request cell size (mm):	10 - 12,7 - 19

PHYSICAL AND DIMENSIONAL CHARACTERISTICS OF THE PANEL

Dimensions

standard (mm):	S(3) = 1.000 X 2.150 - S(7) = 1.250 X 2.550 - S(12) = 1.500 X 3.050
special (mm):	1.500 - maximum length: 4.300
tolerance (mm):	± 1 (squared panels)

Thicknesses

standard (mm):	5	10	12,7	15	20	25	30
special (mm):	from 4 to 60						
tolerance (mm):	± 0,3						

Weights*

weights referred to standard thicknesses (kg/m²):	5,44	5,71	5,85	5,98	6,25	6,52	6,79
tolerance (kg/m²):	± 0,2						

*The weights refer to panels with the following characteristics:

cell size (mm): 10
foil thickness (µm): 70
thickness of the skins (mm): 0,3

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MECHANICAL CHARACTERISTICS OF THE PANEL

The characteristics of this sheet refer to the following type of panel:

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Starcell's Technical Department will gladly work with customers to determine the features of other panel configurations

Type	Standard	Characteristic value						
standard thicknesses	-	5	10	12,7	15	20	25	30
maximum load* (N):	DIN 53293; EN 14125					3.900		
deflection at Max* load (mm):	DIN 53293; EN 14125					3,58		
resistance to peeling* (N):	DIN 53295	> 130 (min.) - >380 (average)						
compressive strength* (Kg/cm²):	UNI 4913	27						
elasticity modulus (E)* (N/mm²):	DIN 53293					130.000		
stiffness modulus (R)* (N/m²):	DIN 53293	1.000						
thermal expansion coefficient* (°C⁻¹):	-	$1{,}2 \times 10^{-5}$						
operating temperature (°C):		from -40 °C to +75 °C (on request +120 °C)						

(*) values obtained by Starcell's Internal Laboratory.

CERTIFICATIONS

Type	Standard	Sector	Class
fire behaviour of the panel	EN 13501-1	CIVIL	A2-s1, d0
fire behaviour of the panel	IMO Res. MSC.307(88) - 2010FTP Code	SHIPBUILDING	C
fire behaviour of the panel	UNI 11170-3	RAIL	0
fire behaviour of the honeycomb	ISO 1182		M1 F0

PROPERTIES

- Very high resistance to bending, shear and tensile stress.
- Excellent dimensional stability, also in terms of flatness over time.
- Very good compressive strength (due to aluminium honeycomb).
- Excellent ratio between mechanical performance (high) and weight (content).
- Excellent weather resistance.
- Ideal for outdoor applications due to its excellent resistance to aggressive weather.
- Ease of machining with manual or CNC equipment suitable for machining steel.
- Wide operating temperature range.
- Excellent fire resistance and low emission of toxic fumes.

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FIELDS OF APPLICATION

Typical applications of LITHOCELL® Composite Stone - TUF are mainly for building façades.

STORAGE

The LITHOCELL® Composite Stone - TUF panel is a product in the “semi-finished products” category and therefore is subject to further processing; we recommend storing the panels horizontally in a closed and dry environment, possibly away from heat sources and to support them along their edges.

SAFETY DATA SHEETS

On request, safety data sheets for this product are available in Italian or English. For more information, please visit: www.starcellspa.com.

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