



# FIBERTEX SW

## Rockwool Sandwich Panel Core

### Introduction

CSR [Fibertex SW](#) Rockwool core is designed for use as insulation core for metal faced Sandwich Panels. It is a robust thermal and acoustic insulation with excellent fire resistant property.

### Product Description

CSR Rockwool is manufactured from long fine fibres, spun from molten natural rock, bonded with thermosetting resin. The product is non-combustible and fire resistant with a high fusion temperature in excess of 1000°C. It has no smoke development and does not produce toxic fume or gases in case of fire. CSR Fibertex SW Rockwool core is produced into rigid slab form (product name: SW 40-S/SW 60-S/SW 100-S) or cut into lamella form (product name: SW 40-L/SW 60-L/SW 100-L) and can be identified by its dark green/brown appearance.

### Applications

CSR Fibertex SW Rockwool core is used in flat metal faced Sandwich Panel to provide required mechanical strength as well as thermal, acoustic and fire proof insulation.

CSR Fibertex SW Rockwool board is normally cut into lamellas during panel fabrication process. Insulation lamellas are glued and pressed on flat panel cover sheets. With its remarkable compression, shear and tensile strength, Fibertex SW Rockwool core provides the panel with required strength and stiffness.

### Benefits

- Purposely designed and tested strength properties for core insulation of panels
- High quality durable Rockwool core makes certain of equal strength properties in each cross section of a panel
- Non-combustible and Euro class A1
- Remarkable resistance to shrinkage at temperatures encountered in fire conditions
- Chemically neutral and does not cause corrosion
- Performance is not adversely effected from contact with water
- Lightweight & easy handling
- Contains no asbestos, CFCs and HCFCs
- Bio-soluble and recyclable

### Standard Sizes and Packaging

Product	Nominal Density (kg/m <sup>3</sup> )	Thickness (mm)	Size (mm)
Fibertex SW 40-S	105	90-122	1200 x 1200 1200 x 600
Fibertex SW 60-S	120		
Fibertex SW 100-S	150		

Note:

- Other densities, dimensions and tolerances of rigid slabs are available on request.
- The lamellas are sawn out of a rigid slab in suitable thickness. Dimension and tolerance of lamellas are available upon request.
- Standard packaging is shrink-wrapped polythene. Lamellas are packed with carton box.

# Technical Parameters

Properties	SW 40-L	SW 60-L	SW 100-L	Unit	Standards
<b>Mechanical Strength (Average Value of Lamella)</b>					
Compression Strength	85	105	150	kPa	EN 826
Shear Strength	60	80	100	kPa	EN 12090
Tensile Strength	170	220	350	kPa	EN 1607
Shot Content	< 5% (Coarse shot size > 0.25mm) < 30% (Ultimate shot size > 63µm)				ASTM C1335
Fiber Diameter	5 (+/-1) µm				GB/T 5480.4
Thermal Conductivity of Rockwool slab $\lambda_{20}$	$\leq 0.036$	$\leq 0.036$	$\leq 0.038$	W/mK	GB/T 10295 ASTM C518
Thermal Conductivity of lamella (parallel to orientation of fibres) $\lambda_{20}$	0.043	0.043	0.046	W/mK	EN 12667
Swelling after aging	$\leq 5\%$ (Long term durability on high level after ageing test in high temperature)				prEN 14509
Moisture Absorption (by weight)	< 1%				ASTM C1104 GB/T 5480.7
Water repellence	$\geq 98\%$ (on request)				GB 10299
Fire Performance	Non-Combustible				EN ISO1182 GB/T 5464-1999
	Reaction to fire Class A1				EN13501-1 GB 8624-2006
Fire Resistance	30 to 240 minutes depending on the thickness and construction of the sandwich panel				



# Features

## Thermal Performance

The excellent thermal insulation of the sandwich panel is supported by the continuous and homogeneous layer of the rock wool core that breaks thermal bridges. CSR Fibertex SW Rockwool core is fully dimensionally stable and does not age even under extreme ambient condition. Thermal insulation value is therefore permanently maintained at high value.

Tabulated U-values of sandwich panels are calculated according to the insulation thickness and test values of thermal conductivity  $\lambda$  (k) perpendicular to lamella faces.

Note\* U-values including surface resistance

$$R_{si} + R_{se} = 0.17 \text{ m}^2\text{K/W}$$

Insulation thickness d mm	U-value * W/m <sup>2</sup> K	
	min	max
50	0.72	0.83
80	0.47	0.54
100	0.38	0.44
120	0.32	0.37
150	0.26	0.30
180	0.22	0.26
200	0.20	0.23
240	0.17	0.19

## Fire Safety

CSR Fibertex SW Rockwool core is made of natural rocks and is classified as A1 non-combustible insulation material. The product is fireproof and does not contribute the spread of fire in any case and it can be used to meet the highest fire rating requirement in buildings.

Major fire safety properties of CSR Fibertex SW Rockwool core are:

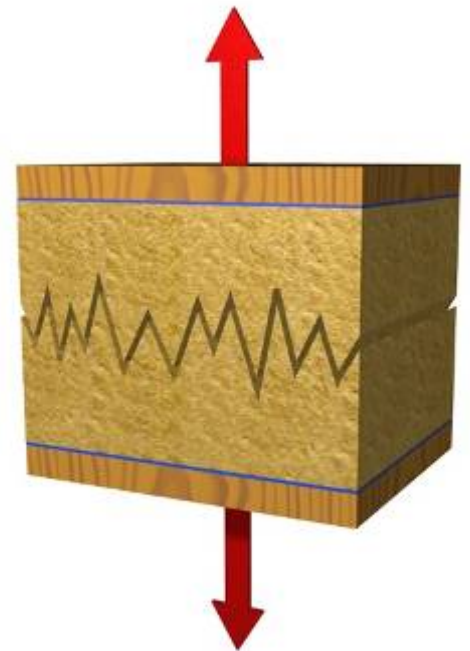
- Non-ignitable and will not contribute heat to the fire.
- Virtually no smoke development and does not produce toxic fume or gases in case of fire.
- Fire resistant with high fusion temperature in excess of 1000°C.
- High shrink resistance to retain insulation and integrity at extreme temperature and can be utilized to contribute up to 4 hours of fire insulation to building structures including metal faced sandwich panels.

## Mechanical Properties

The metal panel is a sandwich structure and the load-bearing stresses are resolved and taken by composite action of the core and metal skins. The optimal strength properties of each material is the basis in panel design.

CSR Fibertex SW Rockwool core is particularly designed and manufactured for core insulation of panels. The vertical fiber structure gives remarkable shearing, compression and tensile strength which contribute to the overall mechanical properties of the panel.

CSR Fibertex SW Rockwool core is tested in accordance with EN13162 and tests are conducted on lamella form.



Tensile strength perpendicular to lamella faces (kPa)			
SW 40-L	SW 60-L	SW 100-L	Limitation
170	220	350	≥ 100

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## Efficient Sound Insulation

The fiber structure of CSR Fibertex SW Rockwool core offers ideal acoustic properties and is used to achieve both noise reduction and noise absorption purposes.

Acoustic properties of the panel depend also on the type of metal facing applied. Sound absorption can be achieved by using perforated metal sheet. Sound reduction index (Rw) of more than 30dB of the panel can also be achieved with suitable metal sheets.

## Durability

Durability in sandwich panels is its long-term performance as a structural building component.

For lightweight sandwich panel, moisture and temperature variations are the most critical factors influencing degradation.

CSR continuously conducts durability test with an accelerated ageing method according to the European product standard EN14509 for sandwich panel core materials. The durability of panel and core materials can be tested and fulfil the most stringent international standards.

## Moisture and Water Resistance

Rockwool insulation products are intended to be used in dry conditions. CSR Rockwool fiber is non-hygroscopic and the moisture content of the insulation in normal service conditions remains below 1.0 % in weight. Sandwich panel and its joints shall be designed to withstand water in the form of rain, snow, ice, mist and dew. To avoid ingress of water into the insulation core during erection and installation, CSR Fibertex SW Rockwool core can be treated to be water-repellent, which means water drops are not absorbed when get contact with the insulation. CSR Fibertex SW Rockwool core meets the water resistance requirement of ASTM C1104/1104M.

## Corrosion Resistance

CSR Fibertex SW Rockwool core material is chemically inert. An aqueous extract of the products is neutral or slightly alkaline. The product does not contribute to the corrosion of fittings or metal sheet of the sandwich panels.

## Nonhazardous, Environmental Friendly

CSR Rockwool is free of asbestos, CFCs, HCFCs and does not promote growth of fungi and bacteria. Rockwool is classified in Group 3 by IARC (International Association for Research into Cancer), i.e. "unclassifiable as to it's carcinogenicity to humans".

For further information refer MSDS sheet available from CSR offices and website.

CSR Rockwool is environmentally friendly throughout its lifecycle, causing no harm to nature during or after use. Rockwool does not contain any ingredients or chemicals that prevent or impede recycling.



CSR Rockwool insulation is designed for different purposes including metal faced sandwich panel core. CSR is not liable to test or verify product information of the composite panels or structures provided by panel suppliers or manufacturers.