



# Siltherm Board 3D

## Rigid Microporous Insulation



1100°C



1000x600  
mm



5-50  
mm

**Siltherm Board 3D is a rigid, high integrity microporous board offering superior insulation properties combined with good handleability specifically developed for machining purposes.**

Produced from an opacified blend of pyrogenic silica with a filament reinforcement, this board is available in a 1000 and 1100 grade, in a raw state (ie no encapsulation) or enhanced in a variety of coverings, such as shrink wrapped PE foil, glass fibre or aluminium encapsulation. Siltherm Board 3D offers a higher compressive strength than the standard board.

The unparalleled thermal resistance provided by Siltherm microporous insulation products makes them a realistic alternative and best cost competitive choice on the market to other lightweight insulation solutions, such as low density calcium silicate, vermiculite, temperature resistant fibres or wool based blankets and boards, whilst also delivering benefits in terms of space optimisation and reduced weight.

### Features and Benefits

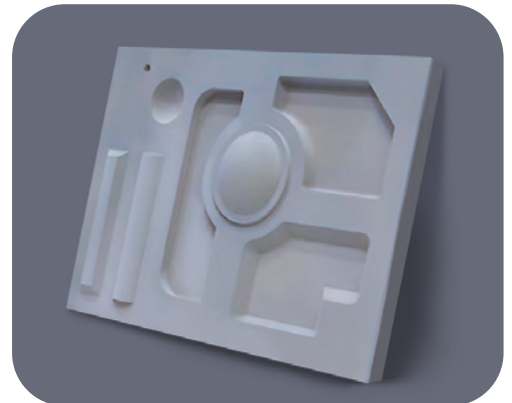
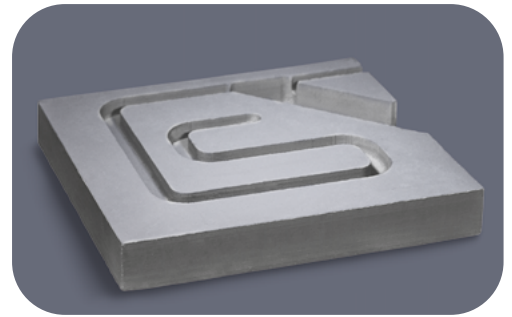
Microporous insulation offers considerable and measurable advantages in terms of thermal management, energy efficiency and reduction of carbon footprint; the integration of microporous insulation in your heat containment systems and equipment provides a set of unique and measurable assets which impact at environmental, operational, social, economic and strategic levels like no other insulation can.

#### Features

- Extremely low thermal conductivity over a wide temperature range and up to its classification temperature.
- High thermal stability over time, no ageing effect.
- Low shrinkage.
- Thermal shock resistant.
- Inorganic and non-combustible.
- Wide range of sizes available to order.
- Alternative grades available to suit the application.
- Simple to handle, cut, and shape.
- No harmful respirable fibres.
- Environmentally friendly.
- Resistant to most chemicals.

#### Benefits

- Grade suitable for machining with good definition on machined surfaces.
- Superior compressive strength to standard microporous boards.
- Allows more freedom in engineering at the design stage.
- Increases capacity of existing equipment or reduces external space and weight.
- Reduces carbon footprint and energy consumption.
- Custom made high precision components.
- Contributes to a safer working environment.
- Ideal for both small and large series production.
- Alternative grades to suit the application.
- No thermal shift effect.
- Various encapsulation options available.



### Typical Applications

#### As machined components in:

- **Radiant Heaters**
- **Hot Batteries**
- **Smoke Generators**
- **Domestic Appliances**
- **Voyage Data Recorder**
- **Defense**
- **Fuel Cells:** in and around BOP and Stack in SOFC, PEMFC and MCFC.
- **Data Loggers:** used to protect and control temperature inside the device, data logger, monitor, portable measurement instruments, temperature recorders.



# Siltherm Board 3D

## Technical Specification

| CHARACTERISTICS                          | TEST METHOD | UNITS             | GRADE 1000 | GRADE 1100 |
|--|-------------|-------------------|------------|------------|
| <b>Classification Temperature</b>        |             | °C                | 1000       | 1050       |
| <b>Nominal Density</b>                   |             | kg/m <sup>3</sup> | 325        | 350        |
| <b>Cold Compressive Strength</b>         |             |                   |            |            |
| 10% deformation                          | ASTM C165   | MPa               | 0.73       | 0.73       |
| <b>Thermal Conductivity <sup>1</sup></b> |             |                   |            |            |
| mean temperature of                      | ASTM C177   | W/m•K             |            |            |
| 200°C                                    |             |                   | 0.023      | 0.028      |
| 400°C                                    |             |                   | 0.025      | 0.033      |
| 600°C                                    |             |                   | 0.034      | 0.044      |
| 800°C                                    |             |                   | 0.040      | 0.057      |
| <b>Specific Heat Capacity</b>            |             |                   |            |            |
|  |             | kJ/kg•K           |            |            |
| 200°C                                    |             |                   | 0.86       | 0.93       |
| 400°C                                    |             |                   | 0.94       | 0.96       |
| 600°C                                    |             |                   | 0.96       | 1.02       |
| 800°C                                    |             |                   | 0.99       | 1.07       |
| <b>Linear Shrinkage <sup>1</sup></b>     |             |                   |            |            |
| 24 hr full soak                          | ASTM C356   | %                 |            |            |
| 1000°C                                   |             |                   | ≤2.5       | ≤0.5       |
| 1050°C                                   |             |                   | -          | ≤3.5       |
| <b>Typical Chemical Composition</b>      |             |                   |            |            |
| SiO <sub>2</sub>                         |             |                   | 55-80      | 50-75      |
| SiC                                      |             | %                 | 15-30      | 15-25      |
| Al <sub>2</sub> O <sub>3</sub>           |             |                   | -          | 5-10       |
| Others                                   |             |                   | 5-15       | 5-15       |
| Loss on Ignition, dry conditions         |             |                   | <2.0       | <2.0       |

<sup>1</sup> Pure core tested

## Standard Dimensions, Tolerances and Coverings

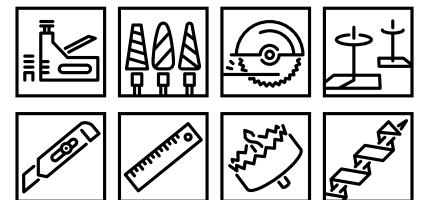
| CHARACTERISTICS                                     | SIZES (mm) | SURFACE COVERINGS OPTIONS         | TOLERANCES (mm) |
|---|------------|-----------------------------------|-----------------|
| <b>Standard Sizes (Length x Width) <sup>2</sup></b> | 1000 x 600 | PE, GF (2 GF or 6 GF),            | ±3              |
| <b>Maximum Sizes (Length x Width)</b>               | 1200 x 600 | ALU <sup>3</sup> (2 ALU or 6 ALU) |                 |
| <b>Standard Thicknesses <sup>2</sup></b>            | 5-50       |                                   | ±1              |

<sup>2</sup> Other sizes and thicknesses are available on demand

<sup>3</sup> PE = Polyurethane Foil; GF = Glass Fleece; ALU = Aluminium Foil

## Cutting and Fixing

Siltherm Board 3D can be cut, shaped, sawn, drilled and punched with conventional woodworking hand tools and automatic CNC machinery and fixed as with other similar insulation materials using glue, retaining pins or anchors. For environmental, health & safety information, please refer to our Material Safety Data Sheet.



ISO9001:2015  
CERTIFIED

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