

The logo for SPC, featuring the letters 'S', 'P', and 'C' in a bold, sans-serif font. Each letter has a vertical gradient from blue at the top to orange at the bottom, with a slight 3D effect.

www.spc coils.co.uk



THERMASAIL

COOLING & HEATING

RADIANT CONDITIONING SAILS

INNOVATION WITH STYLE

About SPC

The Company

SPC is a specialist manufacturer and supplier of fan convectors, coil heat exchangers, and HVAC equipment to the public and private sector.

SPC leads the way in HVAC technology and in responsiveness to customer needs. We thrive on innovation, new technologies and new challenges. We stand for irresistible quality, exceptional customer care, and whole-life value for money.

For more than 25 years, we've applied our ingenuity to the heating, cooling, and dehumidifying of indoor environments - and to the delivery of HVAC equipment that withstands the grind of daily use. The result is a range of products that are aesthetic, robust, and economical to run.

But new ideas are never developed in isolation. They come from a service culture that takes pride in putting customers first. We listen and, if asked, we advise; we offer free site surveys – and we always return your calls.

Our mission is simple – to become your first-choice HVAC supplier; and to be the one company that provides a solution that exactly matches your needs.

KEY FACTS ABOUT SPC:

Our mission is to be your first choice for HVAC equipment

Major supplier to local government and commercial sectors

Unrivalled regional sales and technical support team

Free site check / survey

Free selection software package

ISO 9001 and Investor in People

Providers of approved CPD seminars



THERMASAIL Radiant Conditioning Sails

Introduction



THERMASAILS, A unique concept for Cooling and Heating

THERMASAIL Radiant Conditioning Systems fill the gap between chilled beams and chilled ceilings, opening up an entirely new range of architectural and design possibilities, whilst combining energy efficiency and ease of installation.

THERMASAIL Radiant Conditioning Sails are unobtrusive, and yet provide an effective and energy efficient performance for both cooling and heating applications. THERMASAILS offer a uniquely flexible design providing both architectural and technical appeal in a wide variety of internal spaces, with sails sized, shaped and coloured to suit any internal concept.



THERMASAILS are manufactured from a patented composite aluminium sheet which ensures strength, rigidity and high thermal conductivity, whilst at the same time being light and easy to install. The copper coil is fixed into aluminium extrusions which are in turn mechanically fixed to the top side of the sail, ensuring excellent and reliable heat transfer. The simplicity of the THERMASAIL structure enables the high cooling performance.

For applications where noise control is an issue, the SPC radiant conditioning THERMASAILS can be factory perforated and provided with an acoustic lining to achieve significant noise attenuation in the room.

SPC are able to provide a design service to assist with the design and selection of radiant conditioning THERMASAIL systems.



THERMASAILS are part of a range of specialist heating and cooling products which also includes Thermatile plus radiant heating panels.

THERMASAIL Radiant Conditioning Sails

Technology

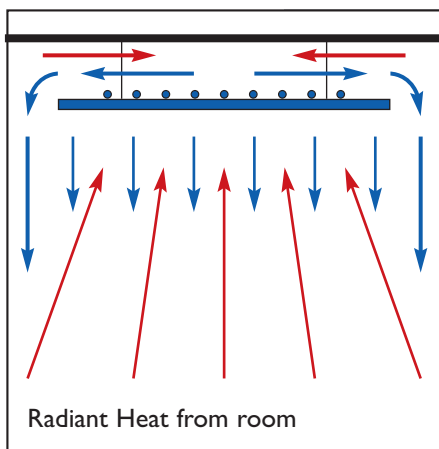


At the heart of the SPC's THERMASAIL system is a unique, patented composite aluminium sheet panel. Structurally rigid, the panel is used elsewhere in the automotive and marine construction industries, because of its high strength and low weight characteristics. It is a building material in its own right.

The good thermal conductivity of the aluminium panel ensures high efficiency for SPC radiant heating and cooling products.

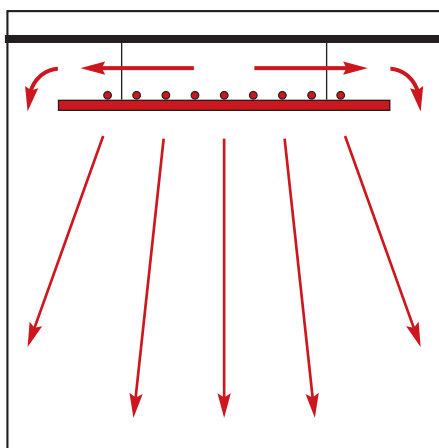
BASIC OPERATION

Chilled or hot water is introduced into the panel via copper pipes which are mechanically fixed into aluminium extrusions. The extrusions are then bonded and riveted to the upper surface of the panel ensuring excellent and reliable heat transfer:



COOLING

When chilled water is passed through the coil, the large chilled lower surface cools the air against it. It also absorbs radiant gains from the room. The air above the panel is also cooled, and this cooled air convects around the edges of the sail. The unique strength of the panel eliminates the need for any structural sidewall allowing unrestricted cooled air movement and high cooling performance.



HEATING

When warm water is passed through the coil, the lower surface of the sail operates as an efficient radiant heater:

The air above the panel is also warmed, and convects into the room space. With a large heated area, low water temperatures can be used which maximises boiler efficiency. The system has a low inertia, reacting very rapidly to heating and cooling demands, ensuring minimum energy consumption.

THERMASAIL Radiant Conditioning Sails

Benefits and Advantages

- Attractive, smooth surface finish to almost any size, shape and colour.
- Lightweight, easy and safe to carry, lift and install.
- Slim profile, just 25mm, ensuring maximum use of ceiling height.
- Easy to integrate lighting and other services into the sails.
- Energy efficient heating and cooling from the same sail system.
- Low system inertia, giving excellent controllability and low energy consumption.
- Ceiling mounted giving unrestricted use of floor and wall space.
- Easy to adapt to changes in space usage.

COOLING

- Large chilled THERMASAIL surface utilises radiant cooling effect ensuring energy efficiency.
- All sensible cooling with no energy wasted condensing water.
- Relatively high cooling water temp (16 - 18 degrees) allows for efficient chiller operation.
- Also suitable for groundwater source cooling.
- Rigid THERMASAIL panel allows for convective cooling with diffuse dispersal of chilled air, ensuring high cooling output with maximum comfort conditions.

HEATING

- Large heated surface allows for low water temperatures and maximum boiler efficiency.
- Radiant heating effect increases energy efficiency and improves comfort.
- Coil options enable heating and cooling with 3 or 4 pipe systems. Separate heating and cooling coils can be fitted to the sails.

THERMASAIL Radiant Conditioning Sails

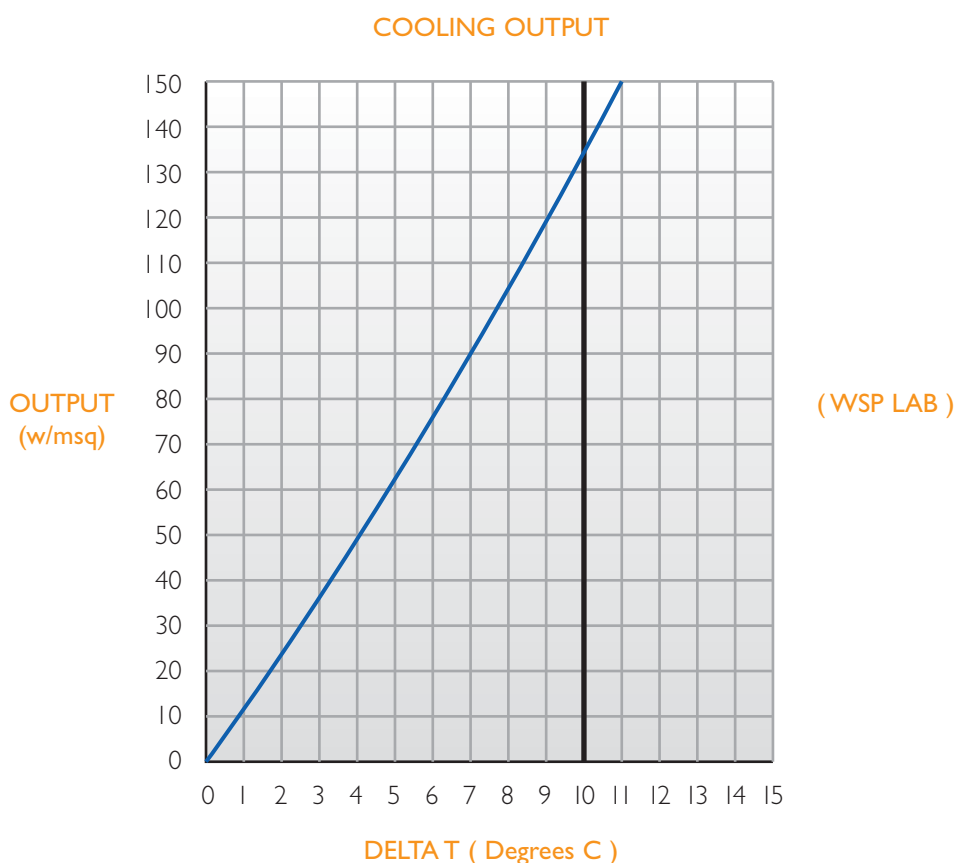
Cooling with THERMASAILS

The maximum output of SPC's THERMASAILS is governed by dew point. The water temperature must be carefully controlled to ensure that condensation does not occur on the THERMASAIL. This means that in the UK the difference between the water flow temperature and the room temperature is likely to be about 8 or 9 degrees.

The cooling load is calculated in the normal way, except that there are no latent loads because the flow temperature is kept above dew point.

Radiant gains can also be ignored when sizing the THERMASAILS because of the radiant cooling effect, but they must be included in flow rate and chiller load. Remember that the radiant cooling effect will also mean the resultant comfort temperature will be about 2 or 3 degrees cooler than the air temperature.

Divide the cooling load by the THERMASAIL cooling output given below to find the area of THERMASAIL required. This area is divided into suitable sail shapes and sizes, (e.g. 1.2m x 3 m sails).



The resultant THERMASAILS should be evenly distributed across the ceiling to provide uniformly comfortable conditions.

Services such as lighting, fire alarms, sprinklers etc., can be fitted to, or through the THERMASAILS, so there is no need to compromise on systems layout.

THERMASAIL Radiant Conditioning Sails

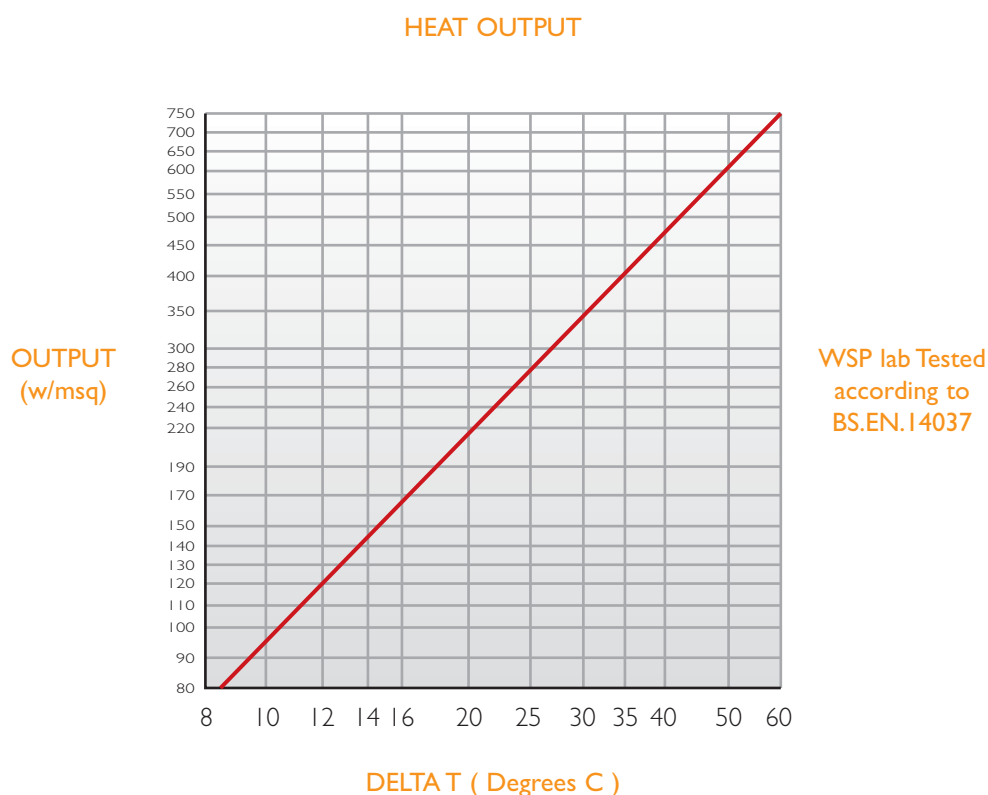
Heating with THERMASAILS

Heat loads are calculated in the normal way, however with radiant heating using THERMASAILS comfort temperature is achieved with an air temperature 2 degrees lower than conventional heating, which significantly reduces the heat load.

Divide the heat load by the output of the THERMASAIL given in the graph below to give the area of THERMASAIL required for heating.

The surface area of THERMASAILS is likely to be governed by cooling requirements, so given an area of THERMASAIL for cooling, the graph below can be used for calculating the required mean water temperature, which will normally be relatively low; increasing boiler efficiency.

It is possible to put a separate coil on a THERMASAIL for heating, in which case the heating area required is added to the cooling area.



Note: - a THERMASAIL used for heating provides more heat output than an equivalent THERMATILE radiant panel as there is no upper insulation, which means there is additional convected heat output. The outputs are shown 'according to' not 'certified to' BS EN 14037, because no insulation is applied.

Heating THERMASAILS should be evenly spaced across a room to provide a comfortable even distribution of heat.

THERMASAIL Radiant Conditioning Sails

Options

There are a wide range of THERMASAIL options to suit any architectural scheme.

COLOUR

SPC THERMASAILS are finished as standard with a 20% gloss RAL 9010 white. The sails are delivered with a plastic protective layer which should be peeled off after installing.

Any RAL colour can be provided on request to match decor or to form a special feature.

EDGE DETAIL

There are a number of options for finishing the edge of the THERMASAIL.

<p>1 The lower surface is curved up to meet the top edge.</p>	
<p>2 A rubberised plastic trim in either white or black is inserted into the edge of the THERMASAIL. This is normally used where THERMASAILS have curved edges.</p>	
<p>3 An open edge would normally only be used when THERMASAILS are integrated into a suspended ceiling.</p>	
<p>4 The lower edge is folded up to give a square edge detail.</p>	
<p>5 The edge of the THERMASAIL can be folded up to any angle to form an upstand. It should be noted that this edge method reduces the cooling output of the THERMASAIL.</p>	

HANGING BRACKETS

The THERMASAILS are fitted with the appropriate number and type of hanging brackets to suit the sail and the hanging method.

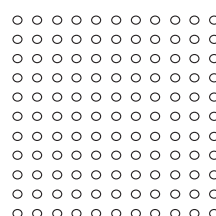
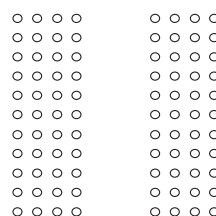
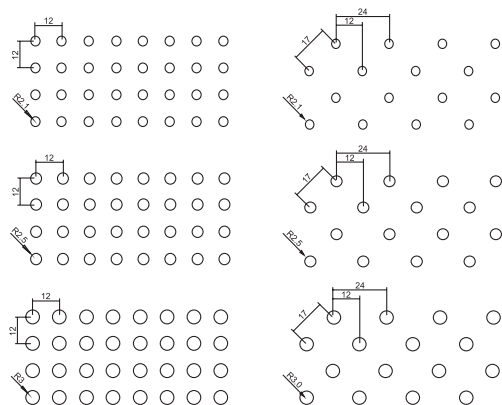
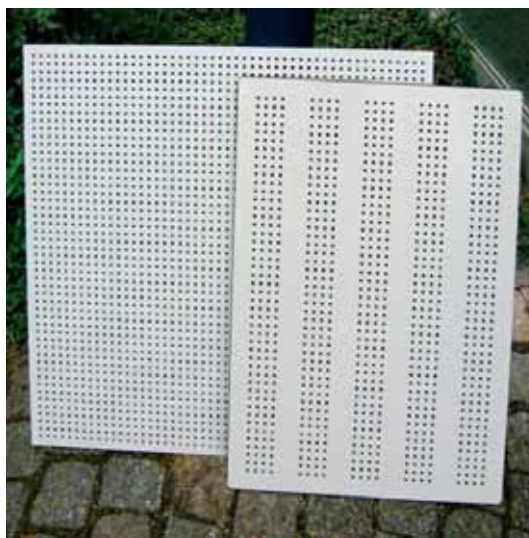
Alternatively, there are hanging rails available, which are suitable for hanging the THERMASAILS close to the soffit.

THERMASAIL Radiant Conditioning Sails

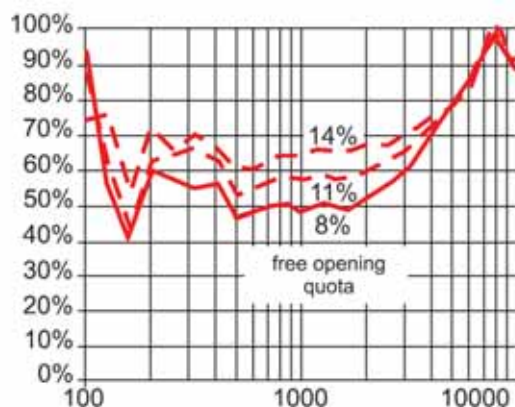
Perforated Sails

The THERMASAILS can be factory perforated. This provides excellent acoustic attenuation.

There are a number of perforation size and layout options, which not only gives a different finished appearance, but also varies the acoustic performance.



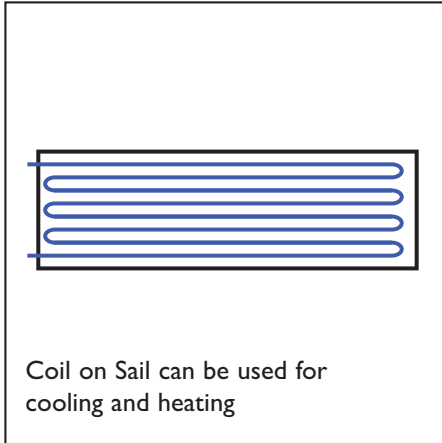
ACOUSTIC PERFORMANCE



Full details of the acoustic performance relative to specific perforation layouts are available on request.

THERMASAIL Radiant Conditioning Sails

Coils and Connections

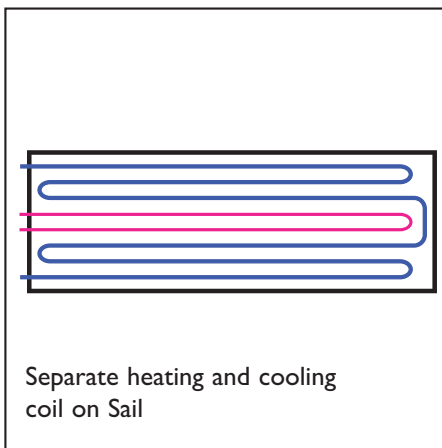


The coil on an SPC THERMASAIL is made to suit the application.

Coils will be from 10mm or 12mm copper pipe which is held tightly in aluminium extrusions, which are in turn riveted to the top surface of the THERMASAIL. This ensures excellent heat conductivity and reliable performance.

The layout of the coil is also made to suit the application and details of flow rates and pressure drops will be provided at time of order.

If a separate heating and cooling coil is specified this too will be designed to suit the application.



If THERMASAILS are not installed horizontally, the coil must be aligned to ensure there are no possible air traps.

The coils are terminated with 10mm or 12mm copper pipe tails, corresponding to the coil pipe diameter.

Connections are normally made with high quality push fit flexible connectors, as supplied by SPC.

Connections between THERMASAILS in series should be horizontal to avoid air traps, and connections to the supply and return pipe work should be vertical to allow venting from the pipe work system.



THERMASAIL Radiant Conditioning Sails

Standard Engineering Specification

THE INSTALLATION OF AN SPC THERMASAIL IS A SIMPLE PROCESS. FIRSTLY THREADED RODS OR HANGING WIRES SHOULD BE ANCHORED TO THE SOFFIT USING SUITABLE ANCHORS.

1 LIFT UP

the sail with a lift truck or manually (weight of sails incl. copper tubes and attaching parts max. 8Kg/sqm)



2 HANG

the suspenders into the nuts of the threaded rods, or on hanging wires.



3 ADJUST

the fine adjustment in any direction is possible even after mounting the sail.



4 CONNECT

flexible quick couplers can be plugged onto the sail and the supply. Lights can be fixed directly in or onto the sails.



THERMASAIL Radiant Conditioning Sails

Standard Engineering Specification

THERMASAIL Radiant Conditioning Sails shall be supplied by S & P Coil Products Limited, SPC House, Evington Valley Road, Leicester. THERMASAILS are suitable for all applications as described in the literature. The quantities and model references shall be as indicated in the schedule, with the constructional features complying to the under mentioned specification.

THERMASAIL RADIANT CONDITIONING

THERMASAILS shall comprise of a rigid composite 6mm aluminium, high thermal performance sandwich panel, with 10 or 12mm O/D copper pipes close fitted into aluminium extrusions which are riveted to the upper surface of the THERMASAIL. There shall be no strengthening structure other than the rigid composite aluminium panel.

COIL TEST PRESSURE

Each Coil is factory tested with pressurised air, under water up to 10 bar.

COIL WORKING PRESSURE

All THERMASAILS are to suitable for a maximum working pressure of 7 bar.

THERMASAIL RADIANT CONDITIONING SAIL SURFACE FINISH

The THERMASAIL surface is to be completely smooth with a painted 20% white gloss finish to RAL 9010. The top surface shall be primed only. Visible surface shall be protected by removable plastic film. Other RAL colours to special order.

HANGING BRACKETS

The THERMASAILS shall be manufactured with fitted hanging brackets suitable for hanging wires or threaded rod as specified. Alternatively, if specified, the sails shall be provided with fitted rail hangers.

CONNECTIONS

The THERMASAILS shall be provided with 10 or 12mm copper pipe tails to the coil, according to the design specification, for connection to the flow and return pipe work. The connection should be made with high quality push fit flexible connectors as supplied by SPC to the correct diameter to fit the coil tails and the connecting pipe work.

PACKAGING

Each tile shall be dispatched in a purpose-made carton, clearly marked with the model reference and instructions for the specification.

CE MARKING

The THERMASAIL shall complies with all relevant EU directives currently in force.

THERMASAIL Radiant Conditioning Sails

Examples



CAMPEON



CAMPEON



ROCKWOOL



HUGO BOSS



SSK



SSK

EXAMPLES

THERMASAIL Radiant Conditioning Sails

Examples



MAXTOR



ROCKWOOL



RAIBA RESTAURANT



CAPITELLUM



FUJITSO-SIEMENS



SSK

THERMASAIL Radiant Conditioning Sails

Examples



CAPITELLUM



MARY KAY



BASEL UNIVERSITY



HUGO BOSS



TESIS



PRINCE REGENT

EXAMPLES



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