Radiant Heating Brochure
Contents

Introduction 4
How radiant heating works 5
Performance & Widths 6
Sector demands 7

Product Range 8
Radiant Ceiling Panels 8
• Square Edge
• Dutch - Fold
• Anti - Ligature

Radiant Ceiling Raft 14
• Acoustic Rafts
• Plain Rafts
Radiant heating products are an alternative space heating solution to traditional wall-mounted radiators, air-conditioning systems and underfloor heating. Energy efficient, easy to clean and safe*, SAS International offers a range of integrated radiant ceiling products and freely suspended radiant rafts.

**Benefits**

- Radiant heating systems offer value and work using small quantities of water, facilitating rapid warm-up times and low energy consumption.
- Easy to clean with flat surfaces featuring no moving parts, resulting in low service and maintenance requirements, and reduced whole life costs.
- *Safely out of reach of building users, radiant products are fully compliant with HSE HSIS6 guidance (see page 6).
- Wall and floor space is freed up with the installation of ceiling mounted radiant heating panels, leading to an increase in the net usable floor area.
- SAS systems operate without significant air movement, leading to less air-borne particles, such as dust.
- Important for wellbeing, radiant heating increases productivity by improving occupant comfort.

---

*SAS radiant heating solutions are HLK Stuttgart GmbH tested to EN 14037 for quality for quality and performance.
How it works
SAS Radiant Panels use the physical property of radiation to heat the working environment silently and without draught. Warm water passes through the copper element, warming the air around the tile and radiating heat into the space.

Radiant heating systems use approximately one seventh of the water contained in a traditional radiator system. This results in quicker heat up times and smaller plant demands.

Demands on central plants and energy, are further reduced by the lower friction levels experienced by water as it passes through the pipe-work. The surface area that water passes over as it flows through a traditional radiator system is larger, creating greater drag and requiring higher water pressures.

Manufacturing
With over 30 years of manufacturing experience, every panel is fully assembled and pressure tested before leaving the factory.

In the manufacturing process, copper elements are bonded to the rear of a panel via aluminium pipe saddles.

Additionally, our own pad line offers tailor-made thermal and acoustic insulation options for every project. These manufacturing advantages combined ensure product quality and ease of installation.
**Correction Factors**

Variation in excess temperature**

<table>
<thead>
<tr>
<th>ΔT [K]</th>
<th>Correction factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.40</td>
</tr>
<tr>
<td>30</td>
<td>0.49</td>
</tr>
<tr>
<td>32</td>
<td>0.53</td>
</tr>
<tr>
<td>34</td>
<td>0.57</td>
</tr>
<tr>
<td>36</td>
<td>0.61</td>
</tr>
<tr>
<td>38</td>
<td>0.65</td>
</tr>
<tr>
<td>40</td>
<td>0.69</td>
</tr>
<tr>
<td>42</td>
<td>0.73</td>
</tr>
<tr>
<td>44</td>
<td>0.77</td>
</tr>
<tr>
<td>46</td>
<td>0.81</td>
</tr>
<tr>
<td>48</td>
<td>0.85</td>
</tr>
<tr>
<td>50</td>
<td>0.90</td>
</tr>
<tr>
<td>51</td>
<td>0.92</td>
</tr>
<tr>
<td>52</td>
<td>0.94</td>
</tr>
<tr>
<td>53</td>
<td>0.96</td>
</tr>
<tr>
<td>54</td>
<td>0.98</td>
</tr>
<tr>
<td>55</td>
<td>1.00</td>
</tr>
<tr>
<td>56</td>
<td>1.02</td>
</tr>
<tr>
<td>57</td>
<td>1.04</td>
</tr>
<tr>
<td>58</td>
<td>1.07</td>
</tr>
<tr>
<td>59</td>
<td>1.09</td>
</tr>
<tr>
<td>60</td>
<td>1.11</td>
</tr>
</tbody>
</table>

**Standard Dimensions**

<table>
<thead>
<tr>
<th>Panel Ref</th>
<th>Nominal Width (mm)</th>
<th>Heat Output per linear metre of panel [W/m] @ 55 K</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCT 300</td>
<td>300</td>
<td>169</td>
</tr>
<tr>
<td>RCT 450</td>
<td>450</td>
<td>254</td>
</tr>
<tr>
<td>RCT 600</td>
<td>600</td>
<td>338</td>
</tr>
<tr>
<td>RCT 750</td>
<td>750</td>
<td>423</td>
</tr>
<tr>
<td>RCT 900</td>
<td>900</td>
<td>507</td>
</tr>
<tr>
<td>RCT 1200</td>
<td>1200</td>
<td>676</td>
</tr>
</tbody>
</table>

**Rated Thermal Heat Output ΦD**

Tested to DIN EN 14037
Test no. DC216-D12.4195-200
Issued by HLK Stuttgart

<table>
<thead>
<tr>
<th>Panel Ref</th>
<th>Nominal Width (mm)</th>
<th>Pipe Connections</th>
<th>Heat Output per linear metre of panel* [W/m] @ 55 K</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCT 600</td>
<td>600</td>
<td>s/e</td>
<td>338</td>
</tr>
</tbody>
</table>

*tested at water flow rate of 0.0149 l/(s*m)

**excess temperature DT [K] = mean water temperature tm [°C] - reference temperature tref [°C]

**Performance & Widths**

Panels are available in lengths starting from 600mm and widths from 300mm up to 1200mm.

---

6 INTERNATIONAL & UK +44 (0) 1189 290 900 | IRE +353 (0) 1899 1134 | FR +33 (0) 170 709 328 | MENA +971 (0) 4885 5545 | AUS +61 (0) 28823 0000
Education
Removing radiators from ground level creates valuable teaching space and reduces the risk of accidental burning. Radiant heating panels are durable and robust, an ideal solution for both learning and working environments.

Acoustic absorption pads can be incorporated in order to meet specific acoustic requirements e.g. Building Bulletin 93 (BB93).

SAS systems operate without significant air movement, leading to less air-borne particles, such as dust.

Healthcare
Radiant heating panels are ideal for long corridors and hospital wards.

Radiant panels and rafts are safely out of reach of children, the elderly and people who cannot react appropriately, or quickly enough, to prevent injury caused by hot surfaces.

Specified with an Anti-Microbial (AM) polyester powder coating inhibits the growth of viruses, spores and bacterial growth such as E. coli and MRSA.

Durable, flat and smooth faced, radiant heating panels can be easily cleaned.

Leisure
Sports and leisure venues, which may only be used sporadically, can quickly and efficiently heat their premises using radiant heating. Due to a lack of moving parts, radiant heating systems require minimal maintenance and their smooth surfaces enable easy cleaning, perfect for busy leisure facilities.

Maximising Safety

Suspended radiant panels support H&S procedures by:

- Removing the risk of burns from hot surfaces and radiators
- Keeping sharp corners and edges away from building users
- Reducing the risk of Legionnaire’s disease and microbial build-up associated with air-conditioning systems

SAS International stringently follows the HSE HS156 guidance for Managing the risks from hot water and surfaces in health and social care.
Radiant Ceiling Panels

Ceiling mounted Radiant Heating Panels offer a space saving alternative to traditional wall or floor mounted heating systems.

Radiant Heating Panels with their rapid warm up times, radiate heat downwards, warming the occupants and surfaces in a space.

Panels can be manufactured to a variety of sizes and integrate into a plasterboard surround or suspended ceiling grid.

System Benefits

- Easy to clean
- Frees up floor and wall space
- Rapid warm up times, due to low water content
- Low air movement
- Low pressure drop (operating pressures)
- Low whole life costs – lack of moving parts
- Easily installed in standard T-Grid ceiling
- Different option available for integration in plasterboard

Types

- Square Edge
- Dutch-Fold
- Anti-Ligature

Standard Sizes & Weight

Panels are available in lengths from 600mm and widths from 300mm. (See page 5 for widths)

Approximate weights of radiant panels are between 9.70kg/m² – 16kg/m² depending on the width and gauge of the panel.

Finish & Perforations

RAL 9010 Polyester Powder Coat supplied as standard.

Fine-texture smooth finish, anti-microbial (AM) and the full RAL range of colours are also available.

Perforation patterns dependant on the thermal and acoustic requirements of each project.
Largs College

Location: Ayrshire
Architect: JM Architects
System: Dutch-Fold Radiant Panels
Sector: Education
Radiant Ceiling Panels

Exploded Dutch - Fold
1 Foil Backing
2 Mineral Wool Pad
3 End Caps
4 Aluminium Carrier
5 Copper Meander
6 Fleece
7 Metal Tile

Dutch-Fold Application Perspective Drawing
8 T-Grid or Alagrid
9 Bracket
10 Rod (by others)
11 Suspension Bracket (by others)
12 Hoses (by others)
Dutch - Fold Cross Section

Square Edge Cross Section

Anti-Ligature Cross Section

13 Security fixings (by others)
14 Plasterboard surround (by others)
Radiant Ceiling Rafts

Radiant rafts are a freely suspended and cost-effective way of combining heating, lighting and acoustic absorption. Ideal for class rooms, the exact choice of raft will be a result of the:

- Building design and area
- Heat output required
- Location of the primary pipework
- Acoustic and aesthetic requirements

System Benefits

- Easy to clean
- Frees up floor and wall space
- Rapid warm up times, due to low water content
- Low air movement
- Low pressure drop (operating pressures)
- Low whole life costs – lack of moving parts
- Can be modular or joined together in continuous runs
- Freely suspended from the soffit

Types

- Acoustic
- Non-Acoustic

Services

Rafts can be manufactured with an aperture for lights and other services. The aperture width can be adjusted to suit the choice of light (supplied by others).

Standard Sizes & Weight

Radiant rafts are available in a range of lengths. Made from panels joined together, long runs can be designed to span the required length. (See page 5 for widths)

Approximate weights of radiant panels are between 9.70kg/m² – 16kg/m² depending on the width and gauge of the panel.

Finish & Perforations

RAL 9010 Polyester Powder Coat supplied as standard.

Fine-texture smooth finish, anti-microbial (AM) and the full RAL range of colours are also available.

A variety of perforation patterns dependant on the thermal and acoustic requirements of each project.

Acoustic rafts tested in accordance with BS EN ISO 11654:1997 for sound absorption and BS EN ISO 20140-9:1994 for sound insulation.
Ayr Academy

Location
Ayrshire

Architect
BDP Glasgow

System
Acoustic Radiant Raft

Sector
Education
Radiant Ceiling Rafts

Raft Application Perspective Drawing
1 Foil Backing
2 Mineral Wood Pad
3 End Caps
4 Aluminium Carrier
5 Copper Meander
6 Fleece
7 Metal Tile
8 Stiffener
9 Rivet
10 Threaded Rod (by others)

Exploded Raft
Marr College

Location
Ayrshire

Architect
BDP Glasgow

System
Radiant Raft

Sector
Education