

Halton Ava AIN, radiant panel - Technical description

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1 Introduction

1.1 About this document

The purpose of this document is to give technical information and design examples for salespersons, technical support and designers.

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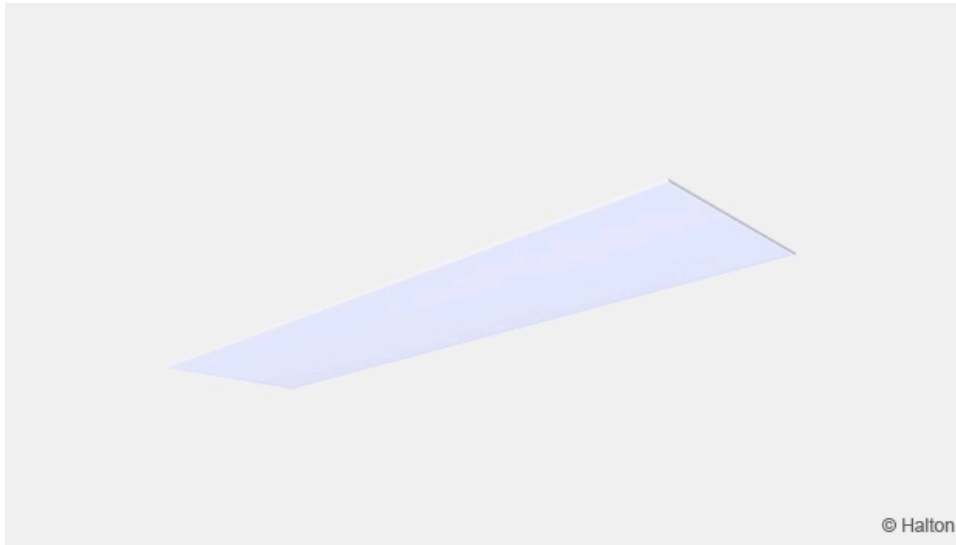
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1.3 Summary of changes

Release	Date	Description
1.0	23.04.2026	First published version from Heretto (Content moved from WordPress)

2 Product description

2.1 Overview



This eco radiant panel offers low pressure drop and high capacity, even at low water flows, and its materials are fully recyclable. It is efficient and provides draught-free conditions.

Features

- Radiant cooling and heating can be designed with different supply air distribution methods/diffusers to provide excellent indoor climate conditions.
- High cooling and heating output
- Low and smooth design with an easily cleanable surface
- Suitable for ceiling-integrated and exposed installation
- Lightweight aluminium structure with copper pipes
- CE marked according to EN-14037-1:2016.

Product models

- Radiant panels with one or two pipe loops (cooling/heating or both)
- Lengths from 600 to 3600 mm and widths from 600 to 1200 mm
- Panels with or without insulation
- Radiant panels with perforated front panel and insulation for room attenuation
- Customised models available (see tab Customised solutions)

2.2 Operating principle

Radiant panels are used as a cooling or heating unit. They are draught-free because heat transfer is mostly by radiation. The heat is transferred from water flowing through the panel's copper pipe to the aluminium sheet, which works as a radiant surface to the space. In addition to the radiant heat transfer, the panels also use convection to heat or cool the space. In typical conditions, the ratio of radiant to convective heat transfer is approximately 55:45 in cooling (Fig. 1) and 90:10 in heating (Fig. 2) with ceiling-integrated radiant panels.



Fig. 1. Halton Ava AIN, cooling



Fig. 2. Halton Ava AIN, heating

The panel can achieve its maximum capacity in an exposed installation without top insulation, since the upper side also cools or heats the space. However, in a ceiling-integrated installation, an uninsulated panel also heats the space above the suspended ceiling. If necessary, that effect can be reduced by using insulated panels. Alternatively, panels without top insulation in a suspended ceiling can be utilised to conduct cooling or heating capacity through the slab to the upper floor.

Effective area and capacity measurements

Effective panel area is the area of a radiant panel covered with heat exchanger piping. In Halton Ava AIN radiant panel, the effective area is calculated as $W-8 * L-100$ [mm]. The cooling capacity of radiant panels is

measured in accordance with EN 14240. The standard specifies the measurement of the radiant panel's cooling capacity in exposed and ceiling-integrated installations.

The capacity of radiant panels depends on the ratio of the effective panel area to the total ceiling area. Decreasing the ratio increases the effective panel area's capacity. Cooling capacity measurement according to the standard EN-14240 requires the ratio to be less than 50% in an exposed installation. In ceiling-integrated installations, the ratio shall be over 70%. The effect of the ratio is considered in Halton HIT Design or Halton eHIT selecting tool. The panel capacities can also be calculated without the ratio effect if needed. Also, both EN-14240 cases can be calculated with the tool.

The heating capacity is measured according to EN-14037:2016, which comprises five parts. CE marking and Declaration of Performance are required for radiant heating panels. This includes measurement results for the CE mark according to the EN-14037-2. This measurement has been conducted in the accredited laboratory WSPLab (notified body) for Halton Ava Individual top-insulated radiant panels in an exposed installation. The measurement standard EN-14037-5 (part 5) also contains other standardised measurements of the radiant panel heating capacity.

Perforated models

Perforated radiant panels (PE=A) are often used for acoustic (with insulation IN=P) or architectural reasons, but they can also offer additional capacity. An uninsulated, perforated panel in an exposed installation has greater capacity than an unperforated panel because air is moving through it. The increased capacity is approximately 10% and can be calculated with Halton HIT Design's performance tool.

Increasing capacity by ventilation

Convective heat transfer and the radiant panel's total capacity can be increased through air distribution. The total capacity will increase in areas where supply air jets flush the radiant panel surface. Typically, the increase is 5–10% in cooling conditions (with a 16 °C supply air temperature) and 10–30% in heating conditions, depending on the air distribution method and operating conditions. This effect is not included in Halton HIT Design and should be analysed separately.

2.3 Features and options

Category	Option	Feature	Description
Number of loops	NL=1	1 loop (cooling or heating)	-
	NL=2	2 loops (cooling and heating)	-
Insulation	IN=P	Polyester fibre (Fig.1.)	-
Perforation	PE=A	23% open area (Fig.2.)	Only available for 600 mm wide models
Adjustable hanging wires	AC=W4 or W6	Adjustable hanging wires, L=1,3 m (Fig. 3.)	4 or 6 pieces depending on the no. fixing points
Flexible hoses	AC=FH2 or FH4	Flexible hose, L=0,5 m. 10 mm quick connectors (straight + 90° angle)	2 or 4 pieces depending on the no. of loops

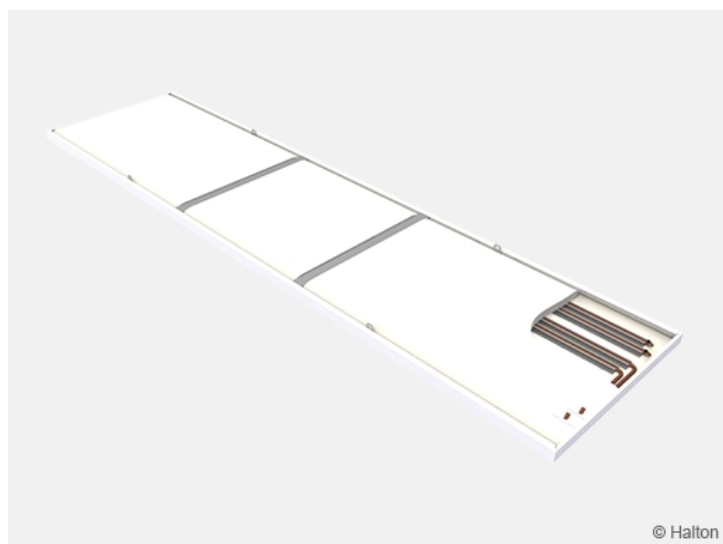


Fig. 3. Insulated model (IN=P)

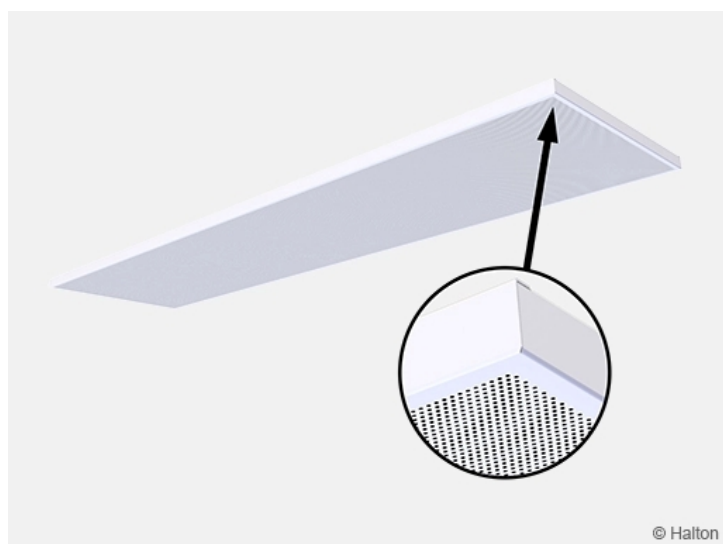


Fig. 4. Perforated model (PE=A)

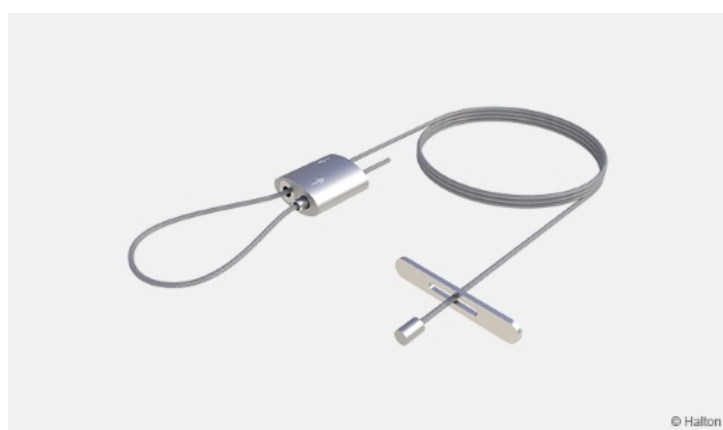


Fig. 5. Adjustable hanging wire (AC= W4 or W6)

2.4 Structure and materials

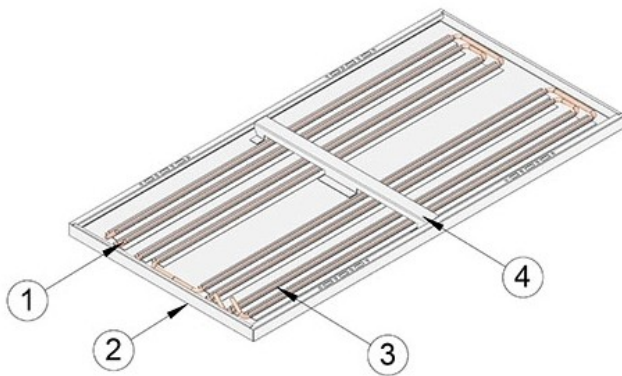


Fig. 6. Halton Ava AIN, structure

No.	Part	Description	Note
1	Heat exchanger pipes	Copper	Ø 10 mm
2	Front panel	Pre-painted aluminium	Polyester-painted, white (RAL 9003/20%)
3	Pipe fixing profiles	Aluminium	-
4	Cross supports	Aluminium	-

2.5 Dimensions and weight

Halton Ava AIN radiant panels are available in three widths and six lengths. The widths are 600, 900 and 1200 mm, and the lengths are 600, 1200, 1800, 2400, 3000 and 3600 mm. The panels are 35 mm high.

Also, project-specific special sizes are available with a maximum length of 3600 mm and a width of 1200 mm. Integration of air distribution, lighting and other building services is also available.

Note: Contact Halton sales for further information.

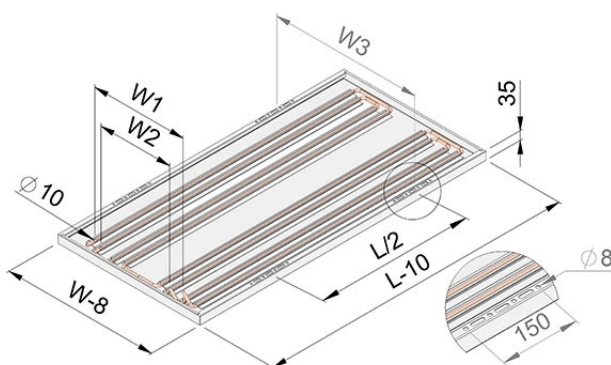


Fig. 7. Halton Ava AIN dimensions with 4 installation brackets (see Table 1)

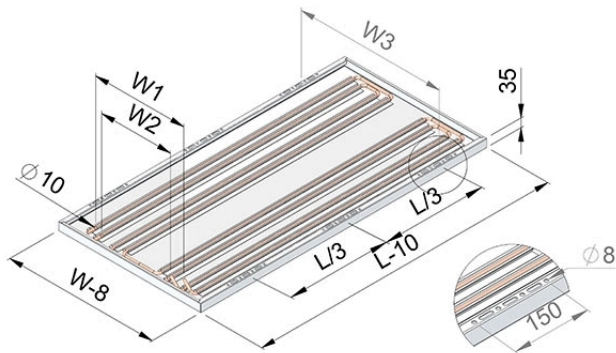


Fig. 8. Halton Ava AIN dimensions with 6 installation brackets (see Table 1)

W Nominal width [mm]			600	900	1200
W1 Pipe spacing, loop 1 (cooling or heating) [mm]			366	662	958
W2* Pipe spacing, loop 2 (heating) [mm]			286	582	286
W3 Bracket spacing [mm]			552	852	1152
Dry mass NL=1 / NL 2 [kg/m]			3.7 / 5.3	5.5 / 7.0	7.2 / 8.8
Water volume NL=1 /NL=2 [kg/m]			0.9 / 1.9	1.4 / 2.4	1.9 / 2.8
No. of brackets	L	600	4	NA	NA
		1200	4	4	4
		1800	4	4	4
		2400	4	6	6
		3000	4	6	6
		3600	6	6	6

Table 1. Dimensions, weight and number of brackets.

2.6 Specification

Materials

- All pipes are manufactured from copper.
- The installation brackets are made of galvanised steel.
- The radiant panel and cross supports are made of aluminium.

Structure

- Maximum operation pressure for the pipework is 1.0 MPa.
- All visible parts are white, 20% gloss.
- The radiant panel is 592, 892 or 1192 mm wide and 35 mm thick.

Packaging and transport

- Visible surfaces of the radiant panels are protected by removable plastic coating.
- The pipe ends are sealed during delivery.
- The radiant panels are identified by a label attached to the top side of the panel.

2.7 Customised solutions

Halton Ava family products are suitable for customised solutions. Examples of those solutions are presented below. Please contact sales for further information.

Lighting and other accessories

Halton Ava radiant panels can be equipped with lighting, various types of sensors, sprinklers, etc., according to project-specific requirements.



Fig. 9. Solution of radiant panel with lights

Digital Coating

Images can be transferred to the visible surface of Halton Ava radiant panels. The coating has high wearing resistance to UV radiation and abrasion. Imitation of different materials is also possible.

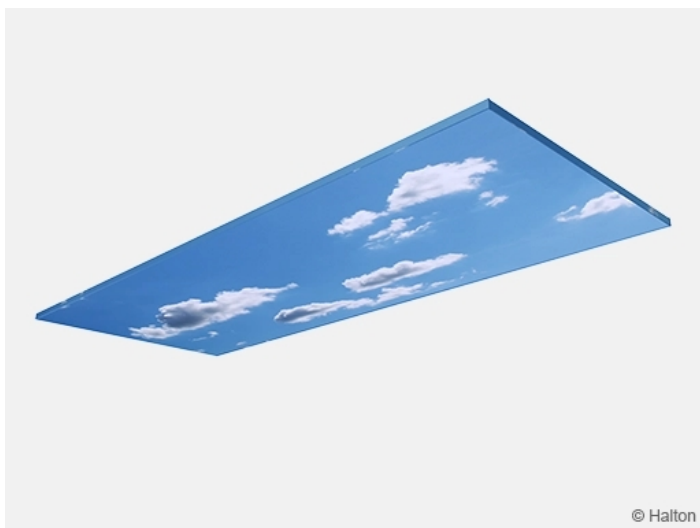


*Fig. 10. Solution of a radiant panel with an image of the summer sky**



Fig. 11. Solution for radiant panel with brick wall appearance*

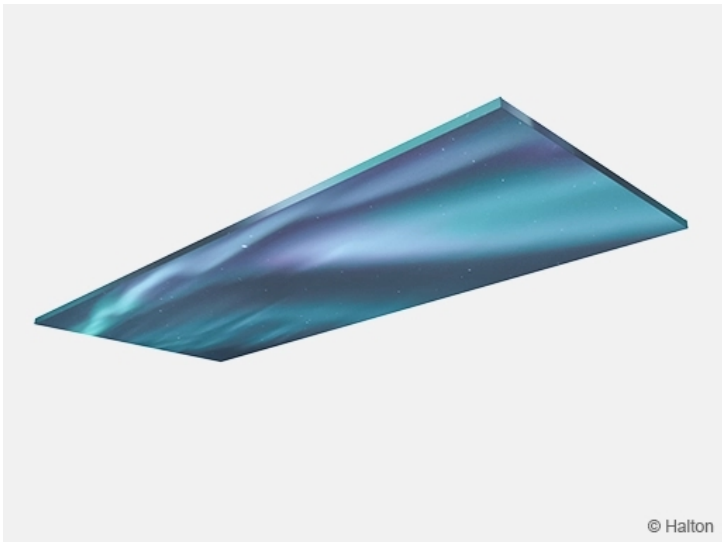


Fig. 12. Solution for radiant panel with northern lights*

* Image is only an illustration of the presented solution.

2.8 Order code

AIN-L-W; NL-IN-PE-AC-CO-ZT

Main options	
L = Length of radiant panel [mm]	600, 1200, 1800, 2400, 3000, 3600
W = Width of radiant panel [mm]	600, 900, 1200

Other options and accessories	
NL = Number of loops	
1	1 loop (cooling or heating)
2	2 loop (cooling and heating)

Other options and accessories	
IN = Insulation	
NA	Not assigned
P	Polyester fibre
PE = Perforation	
NA	Not assigned
A	Perforation 23%
AC = Accessories	
W4	Adjustable hanging wire, 1,3m (4 pcs)
W6	Adjustable hanging wire, 1,3m (6 pcs)
FH2	Flex. hose, 0,5m, 10mm 0°+90° (2 pcs)
FH4	Flex. hose, 0,5m, 10mm 0°+90° (4 pcs)
CO = Colour	
SW	Signal white (RAL 9003)
X	Special colour (RAL xxxx)
ZT = Tailored product	
N	No
Y	Yes (ETO)

Order code example

AIN-1200-600, NL=1, IN=P, PE=NA, AC=W6, CO=SW, ZT=N

3 Design information

3.1 Installation

Halton Ava AIN radiant panels are suitable for exposed and ceiling-integrated installation.

Installation is easy with multiple fixing-point options (Fig. 1) and adjustable wires (W4 or W6, available as accessories). 500 mm flexible hoses with straight and elbow quick connectors are also available as accessories (FH2 or FH4).

See the detailed installation guide from Downloads.

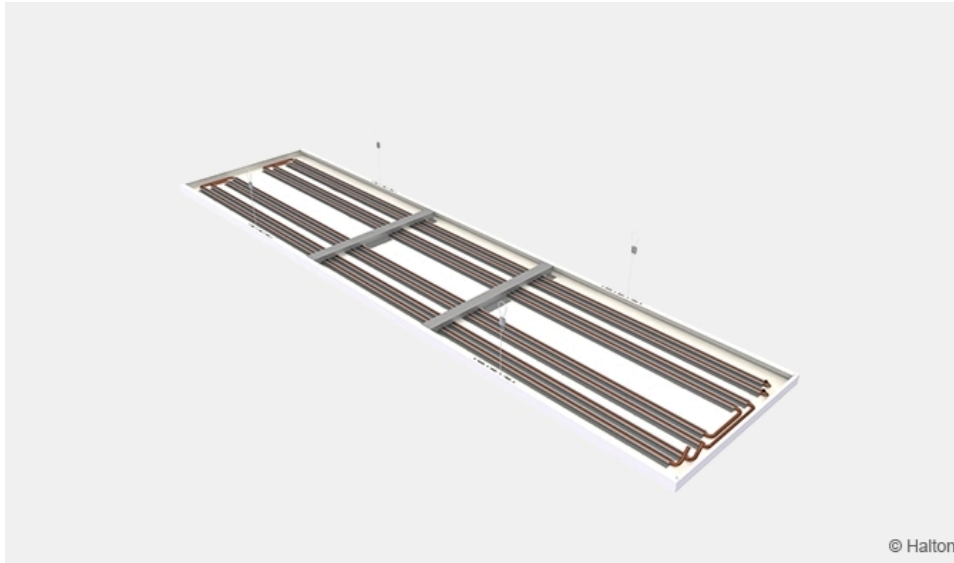


Fig. 13. Installed panel with adjustable wires

3.2 Commissioning

Cooling

The recommended cooling water mass flow rate is 0.020–0.035 kg/s, resulting in a temperature rise of 1–3 °C in the heat exchanger. To avoid condensation, the recommended inlet water temperature for the heat exchanger is above 14 °C.

Heating

The recommended heating water mass flow rate is 0.015–0.030 kg/s, resulting in a temperature drop of 3–10 °C in the heat exchanger. In typical rooms (room heights up to 3 m), the usual recommended maximum inlet water temperature is 50 °C to reduce the risk of excessive radiation asymmetry. With an exposed installation at least 3 m from the floor and an effective panel area/whole ceiling area less than 50%, higher inlet water temperature (e.g., 60 °C) can be used without risk of excessive radiant asymmetry.

3.3 Maintenance

No regular maintenance is required for the product.

Clean the front panel and other visible painted plates using a damp cloth. Also, the top side of the radiant panel in an exposed installation can be easily cleaned with a vacuum cleaner or a damp cloth.