

# RAH – Reco-Air by Halton – Recirculating kitchen extract unit (CE)



## Overview

RAH units eliminate long ductwork to outside when they become too costly or when they simply are impossible to install. Technical constraints on buildings' structure, restrictions linked to listed activities or historic sites, co-ownerships opposed to the degradation of the facades aesthetic or to odor nuisance risk... all these challenges can easily be overcome with recirculation units.

In addition to providing opportunities to install kitchen operations in previously unfeasible locations, RAH units significantly reduce fire risk. They also simplify planning procedures.

## Globally cost effective

- RAH units reduce CAPEX investment. They eliminate the costly fire-rated duct work to atmosphere thus reducing the construction and installation costs.
- They also reduce the utility usage and plant requirement with a compact design, an ease of assembly and flat pack options.
- RAH units enable establishing a restaurant wherever you choose i.e. where it is of most value, whatever the technical or environmental challenges.
- Traditional extract duct work requires regular specialist cleaning. RAH units significantly reduce maintenance regimes when accessing duct systems and plant is difficult and time consuming.
- When combined with Halton's Capture Jet™ hoods or ventilated ceiling, the installation and operating costs are even more reduced. They reach the lowest possible level when M.A.R.V.E.L. optimization airflow technology is also used.

- RAH units are a cost efficient alternative to traditional extract when there's no easy route to atmosphere.

## Reduced fire risk and emissions control

- RAH units significantly reduce fire risk by eliminating ductwork to outside and suppressing grease deposits after the unit.
- RAH units reduce the need to pierce buildings' fire compartments.
- For high risk operational environments with the most stringent fire safety requirement, RAH units can be in addition installed in their own fire compartment. Whether located in or outside the main fire compartment, wherever a fire occurs, there's no risk RAH units contributing to the fire spreading.
- The contaminants produced by commercial kitchens are no longer expelled to outside thus removing the risk of nuisance on the neighbourhood and possible legal actions.

## Distant monitoring

- Equipped with **Halton Connect** IoT (Internet of Things platform) platform with advanced 24/7 distant monitoring capabilities.
- Highest value of ownership thanks to **Halton Connect & Care** smart services offering.

## Flexible at many respects

- RAH units can be located internally or externally, adjacent to or remote from the kitchen. The unit can be hung within ceiling voids giving flexibility to equipment layout and also eliminating the requirement for certain planning processes.
- RAH units enables adding cooking appliances in existing kitchens without the need to deeply modify the ventilation system.
- RAH units facilitate internal layout flexibility. They are easily retro-fitted or relocated.

## Independently tested

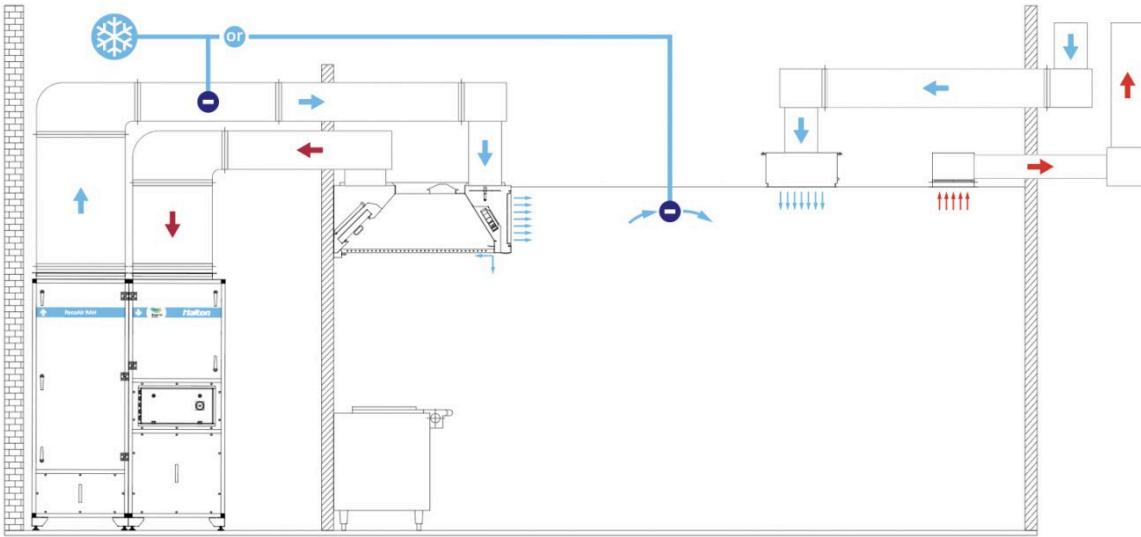
- Air Cleanliness Study by Validair.
- Acoustic survey report by Applied Acoustic Design.

## Principles of operation

### Cooling down the return air

After RecoAir unit, the return air is a similar temperature to that extracted and needs to be cooled down before being blown back into the kitchen.

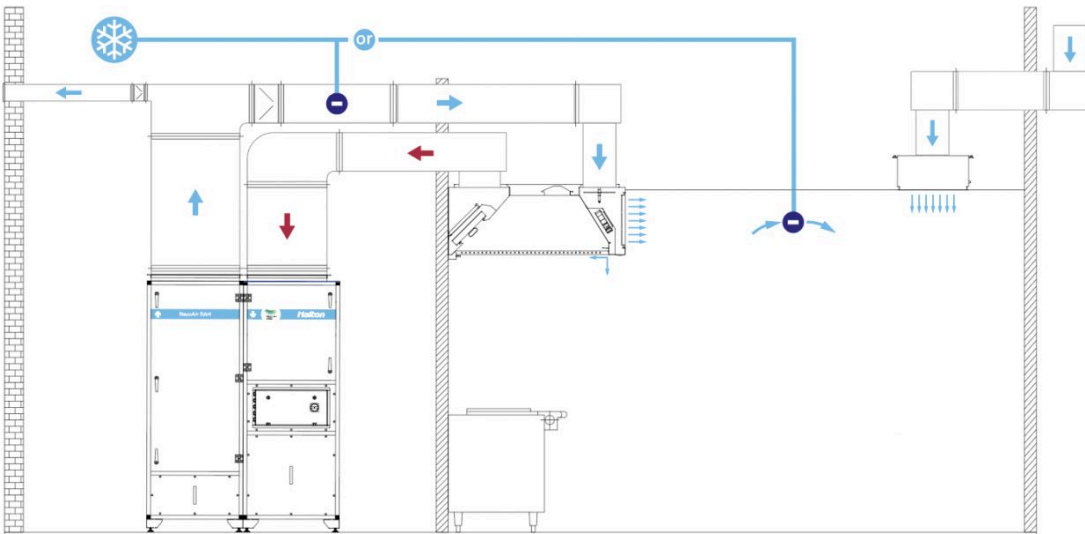
- Spot cooling i.e. fan coil units within the kitchen space;
- Chilled water coil or DX refrigerant cooling coil installed on the return air ductwork etc...



### Air balance and “hygienic” fresh air

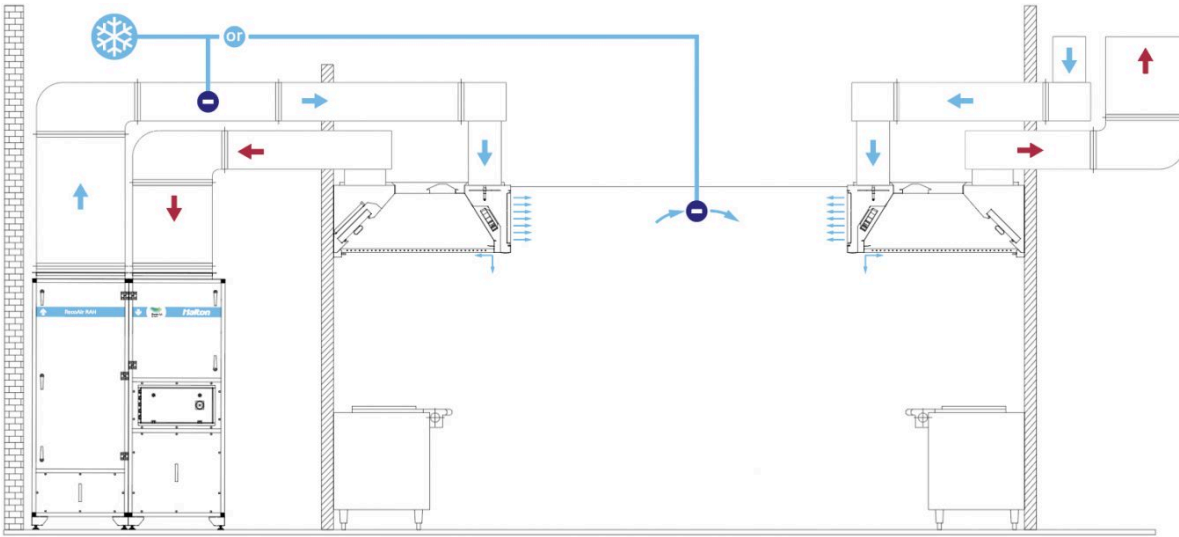
Depending on local regulations, a minimum amount of fresh air has to be blown inside the kitchen.

To keep the kitchen under negative pressure, and depending on the kitchen configuration, additional exhaust points can be installed or a small “discharge” branch can be installed on the return air ductwork.



### Hybrid solution

RecoAir units can be used to complement traditional Air Handling Units in some specific configuration or when it is not possible to use the required duct sections for the design total airflows.



## About Halton Connect & Care



**Halton Connect** is a state-of-the-art IoT (Internet of Things) platform whose core is an advanced cloud-based portal. It enables 24/7 remote monitoring of the solutions designed by Halton. It allows access to important and useful information along with powerful data analytics to the end users. It also provides crucial information to our engineers. In return, they can remotely and safely control all systems and their settings when required.

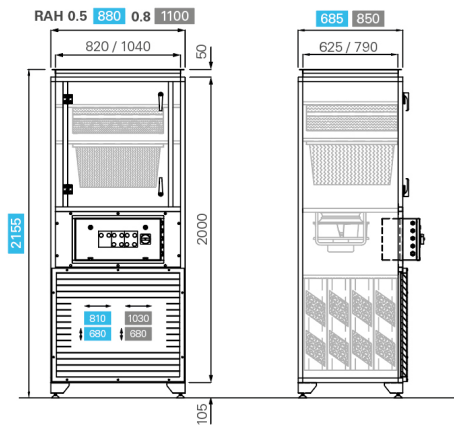
This digital “two directions” technology opens the way to Premium Services that are vital to keep the performance of the systems and technologies at the initial design level and during the entire lifecycle. Even better! They enable continuous optimisation of your systems, resulting in even lower operating costs.

[Halton Connect for commercial kitchen ventilation](#)

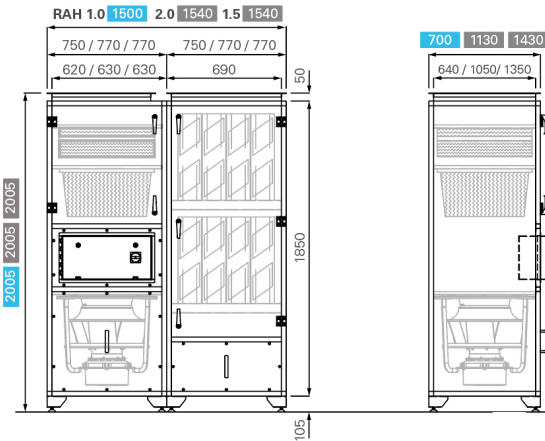
# Dimensions

## Floor units

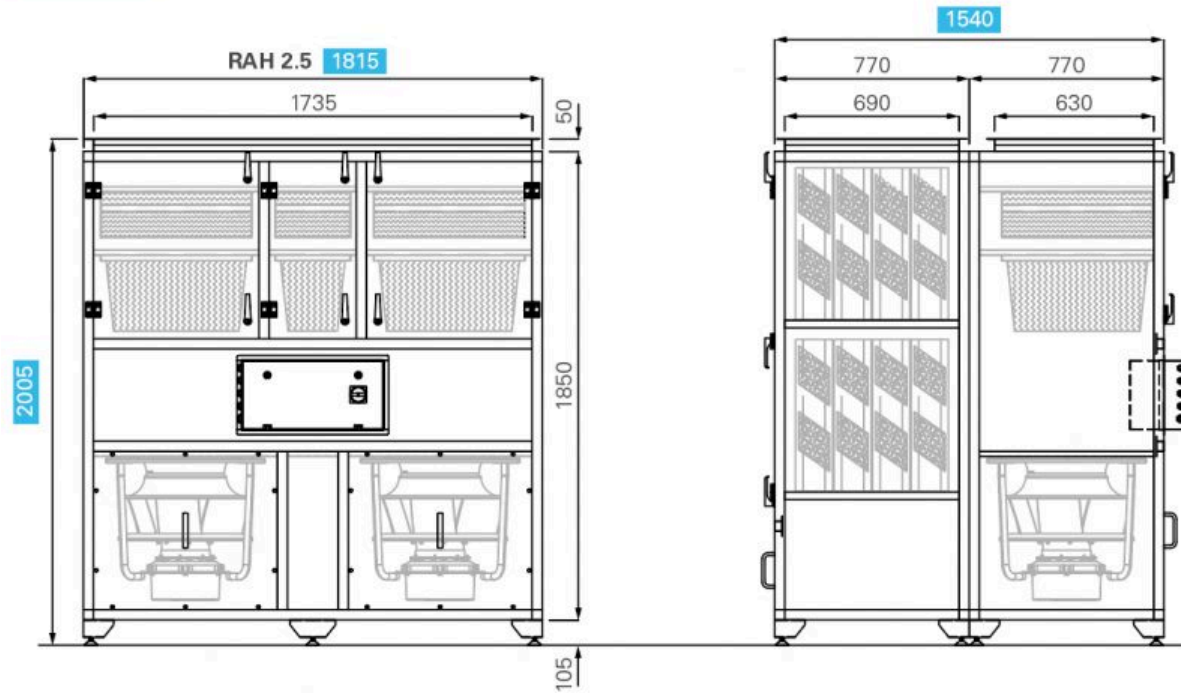
RAH 0.5 RAH 0.8



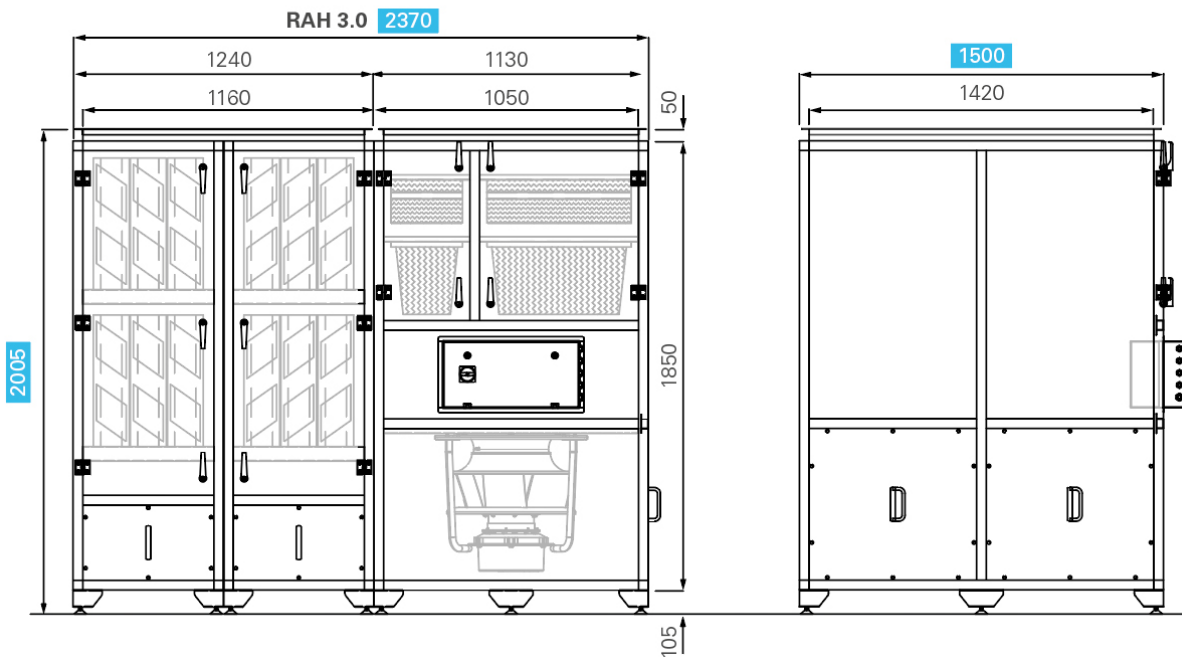
RAH 1.0 RAH 1.5 RAH 2.0



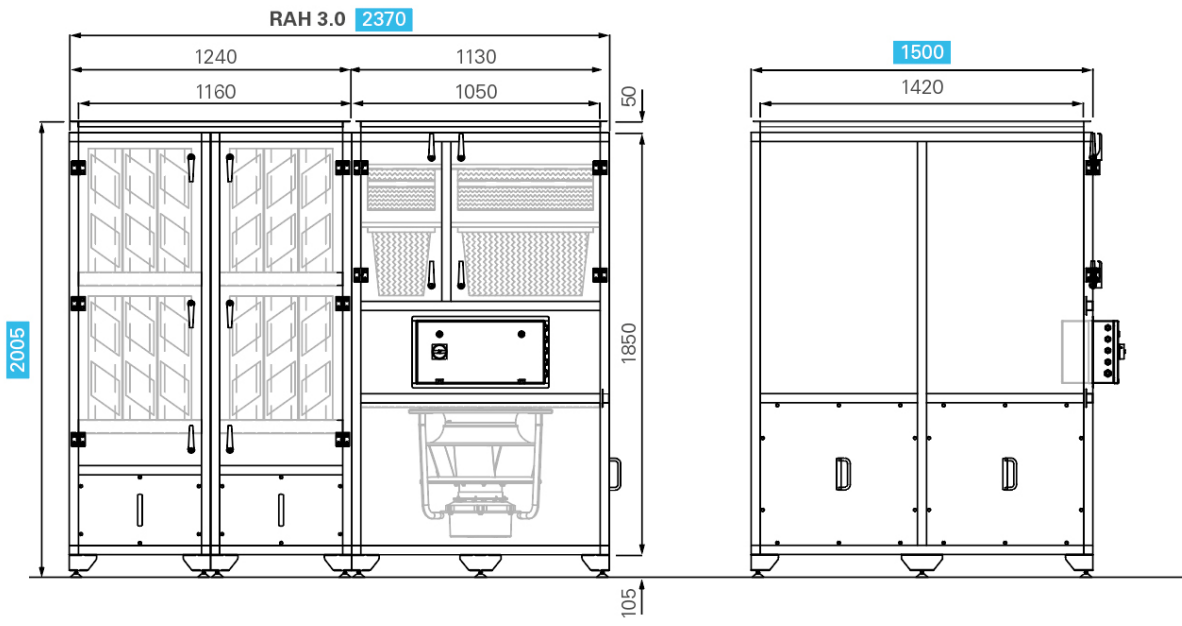
RAH 2.5



# RAH 3.0



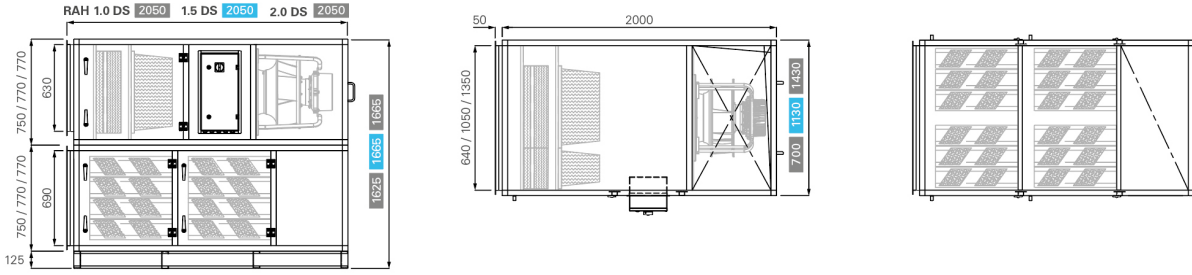
# RAH 4.0



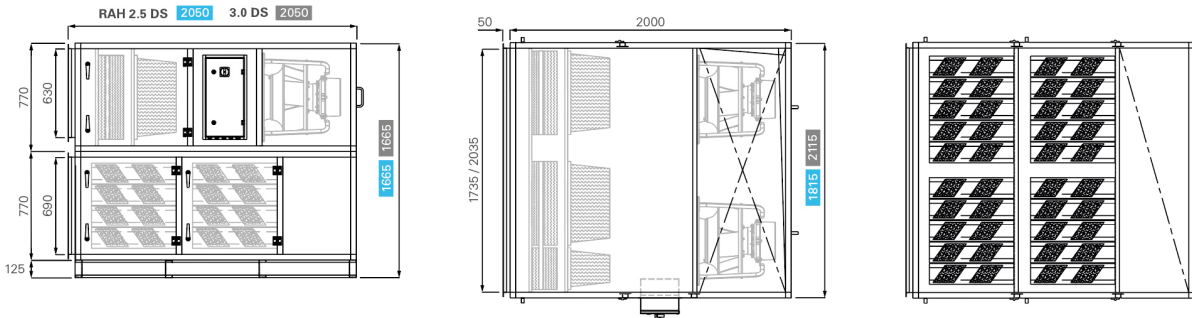


# Double Stack Floor units

RAH 1.0 DS RAH 1.5 DS RAH 2.0 DS

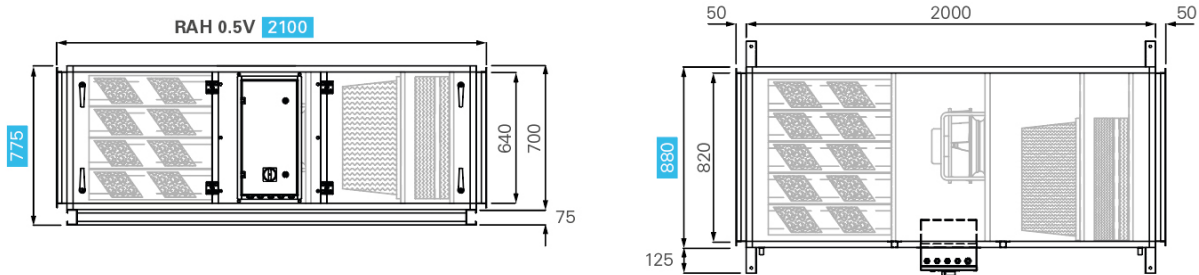


RAH 2.5 DS RAH 3.0 DS

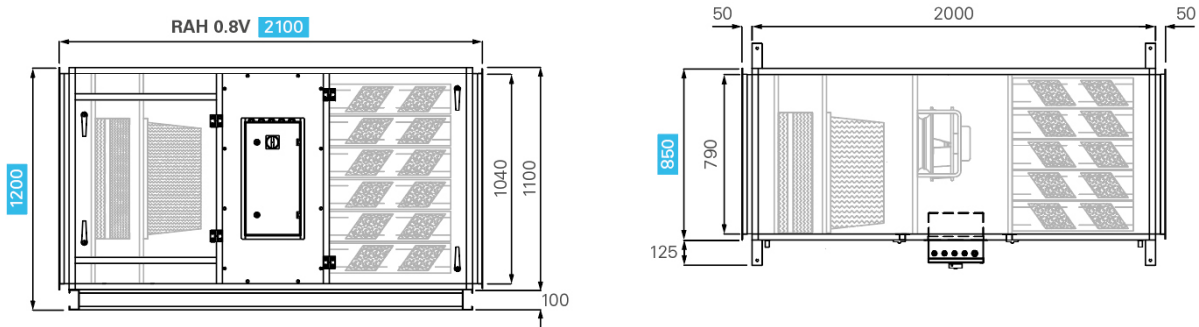


# Ceiling Void units

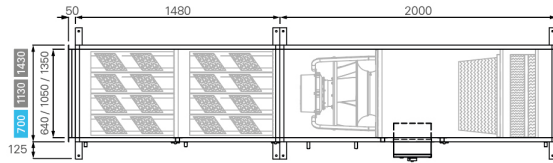
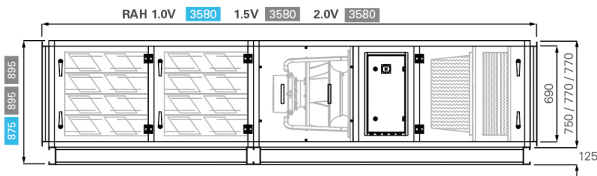
RAH 0.5 V



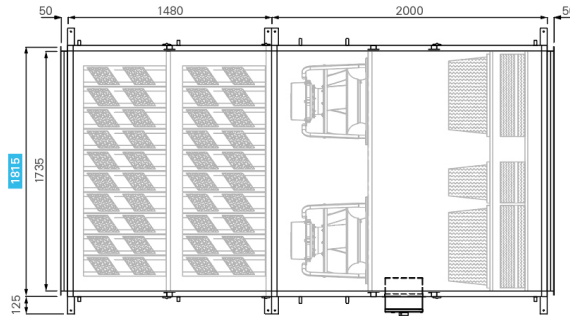
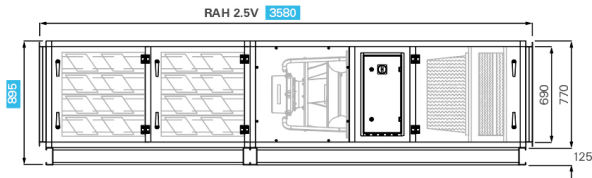
RAH 0.8 V



RAH 1.0 V RAH 1.5 V RAH 2.0 V



RAH 2.5 V



# Specification

## Suggested specification

The recirculating extract unit shall be Halton Brand, Reco-Air by Halton RAH range. It is equipped with a full air treatment system to remove grease, steam, smoke and odours from the extract air.

The unit shall be supplied complete, fully pre-wired from factory and ready to be installed. The following specifications shall be fully observed.

## General Unit Construction

- Unit shall be constructed with 25 mm double skinned panels galvanised steel finish internally and blue Plastisol finish external. They shall be insulated using 45 kg/m<sup>3</sup> density mineral wool to ensure good acoustic performance & thermal properties.
- Depending on unit size, the panels shall be mounted on a 30 or 40 mm satin anodised aluminium Pentapost framework with powder coated black adjustable support feet or base frame.
- Access doors to the main filter sections shall be mounted on hinges and equipped with lockable black handles for an access by Authorised Personnel only. Fan(s) access door(s) shall be screwed.

## Specific Requirements

- As a minimum requirement, each unit shall incorporate the following grade filter media:
  - Coarse 60-70% (ISO 16890) – Large grease particulate removal.
  - ePM<sub>2.5</sub> 50% to coarse 85% (ISO 16890) – Fine grease particulate removal.
  - E10 85% MPPS (EN 1822) – Smoke removal.
  - Food Grade Activated Carbon cylinders – Odour removal minimum dwell time shall be 0.2 seconds.
- As a minimum requirement, each unit shall incorporate the following fan assembly:
  - EC Plug fan, 230 or 400 V (depending on unit capacity).
  - Single / Three phase, suitable for 0 to 10V signal control.
  - Unit Duty to suit current DW/172 Specific Extract Flow Rate (SEFR) or supplier's recommendation when applicable as well as design requirements.



- Max. ambient working temperature to suit specific application.
- Each fan shall be Inverter Controlled, so fan speed ramps up as the filter pressure increases to maintain a constant air volume flow rate at the cookline / hood.

### **Control platform & Interface Requirements**

- The control platform shall be Halton Brand, Halton Connect. It shall include a unique LCD user interface, common to all technologies of the manufacturer. It shall also have advanced distant monitoring capabilities enabling future premium services, including a predictive maintenance of the systems.
- The control platform shall ensure the unit ceases to function if any of the following scenarios arise:
  - A unit filter access door is left open or slightly open.
  - Filters are removed or left out of the unit.
  - The Fire Alarm system is activated.
  - The registered filter pressure drop across any of the primary 3 sets of filters exceeds pre-set warning levels & reaches critical levels.
  - The unit Isolator is turned Off.
  - A system Timeclock – external controls – is not calling for system activation.
  - A remote Shut-off safety feature – external controls – has been activated.
- [Option] An electrical interlock system shall be incorporated, to disable all essential cooking equipment whenever a 'No Air Flow' status is present.
- See enclosed the full and specific descriptions of Halton Connect.

### **Air Commissioning / Testing**

- The unit(s) shall be delivered pre-commissioned from factory.
- On completion of any RecoAir unit installation, the air volume flow rates to extract & return air ductwork must be verified by a suitably qualified commissioning engineer & a report produced as point of record.
- All test points are sealed with proprietary plugs on completion of this operation.

### **Measures for unit's Service & Maintenance**

- When planning the installation of the recirculation unit –however configured – adequate clearance must be allowed to facilitate safe operative replacement of the filter media & fan(s).
- To comply with Specific Landlord / Authority approvals – a Service Contract is required. It is highly recommended to use a suppliers' accredited service partner.
- Evidence of same must be made available prior to formal approval being acknowledged.

### **RecoAir Unit Noise Breakout**

- In normal 'Internal' instances, breakout noise from the unit shall not exceed 60 dB(A) when measured at 1 metre (free field).
- Where Specific Authorities enforce lower noise levels, the unit construction shall be modified accordingly.