

Recirculating kitchen extract

for commercial foodservice



No duct or route to atmosphere



Reduce fire risk



Environmental benefits



Unlock new locations



Problem solving



Cost saving & flexibility

Reco-Air units work at the heart of a kitchen ventilation system serving all electric catering equipment and achieving complete recirculation of vitiated exhaust air, with no requirement for a duct or route to atmosphere.

Highly efficient filter technology removes moisture, steam, smoke, grease and odours to provide exhaust air independently certified as clean and safe to re-introduce internally as supply air.

Significantly reducing fire risk and CAPEX by eliminating the need for fire rated ductwork & onerous routes to atmosphere, reducing OPEX by negating specialist cleaning and auditing of lengthy duct runs, reducing plant requirement, ensuring no nuisance emissions and simplifying planning and change of use.

Reco-Air enables installation of kitchens to previously unfeasible locations and provides scope for fresh space planning and complete internal layout flexibility. Ideal for mixed-use and landlocked developments, shopping malls, leisure venues, travel hubs and heritage buildings.

Reco-Air has specifically designed solutions for ghost kitchens, food courts, kiosks and pop-up locations.

Reco-Air units can be introduced as a new installation or retro-fitted to existing kitchens and can be located as close, or remote, from the point of hood extract as layout permits.

A range of Reco-Air models, configurations, exterior finishes and flexible build options, including flat pack delivery, ensure a Reco-Air unit to suit all kitchen sizes, layouts and locations.

Reco-Air's smart controls incorporate safety protocols satisfying the strictest regulations and ensure cost efficient maintenance, with notifications as filters reach end of life.



UL 710B listed
(selected models only)



Patented

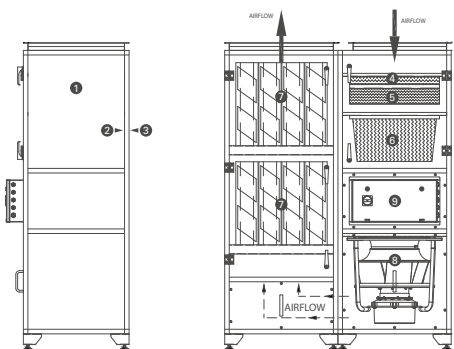


DW/172 Compliant



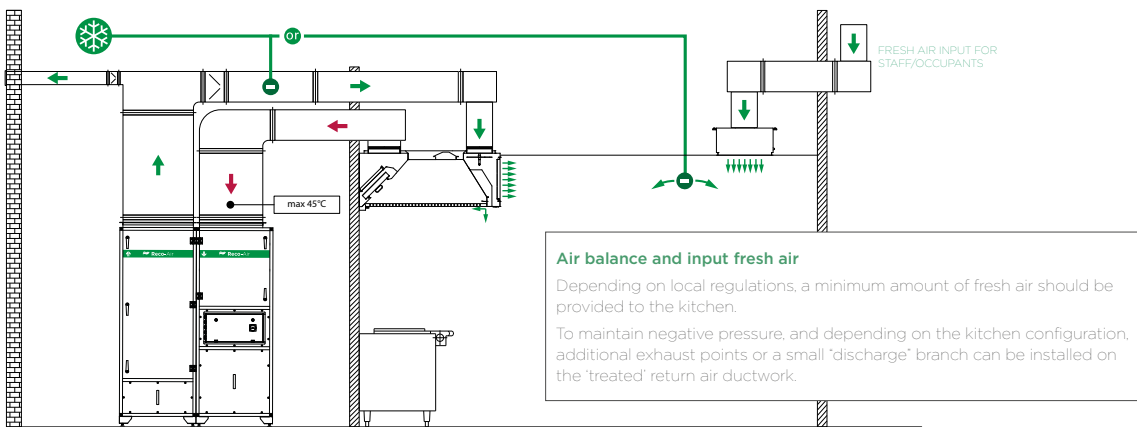
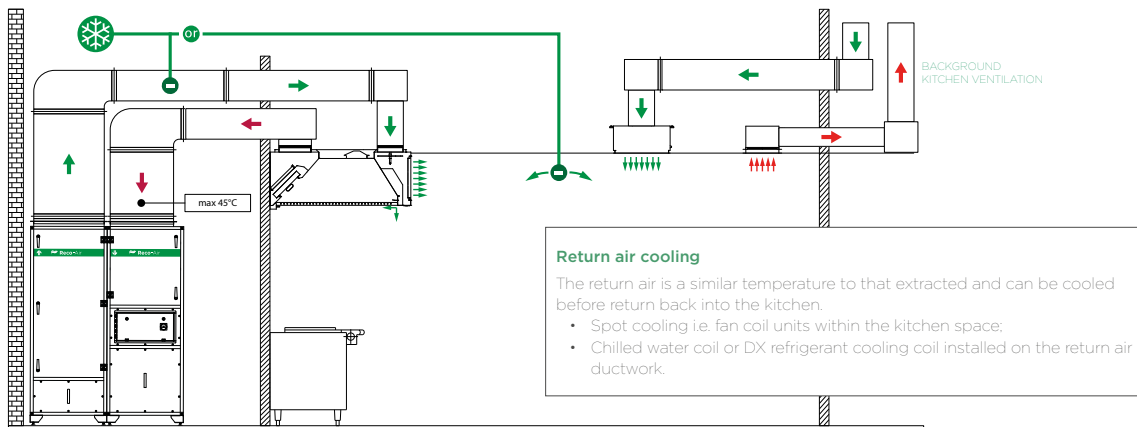
CE Compliant

Technical descriptions and operation

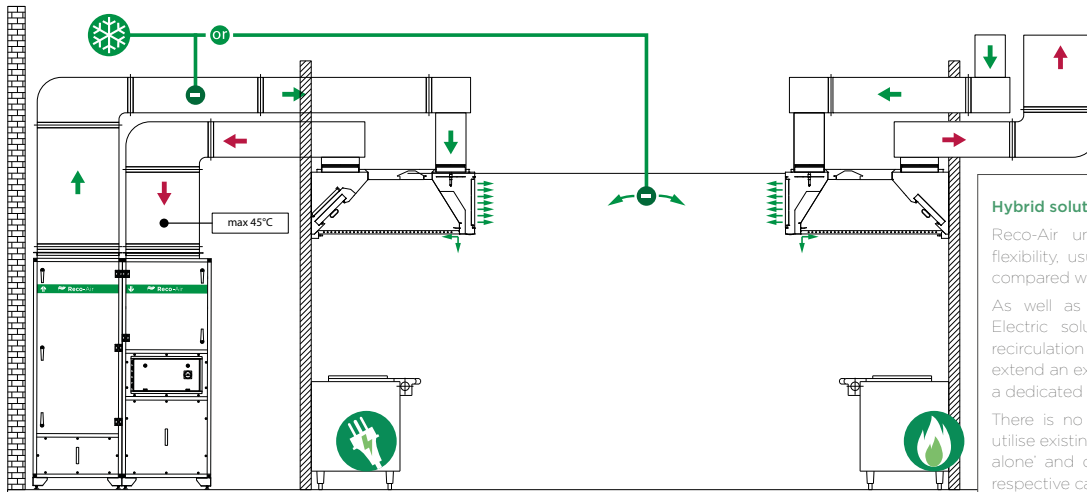


Code	Description
1	25 mm double skin panel, 45 kg/m ³ density mineral wool insulation
2	Galvanized steel finish to interior
3	Plastisol finish external (white as standard)
4	F1 Filtration stage 1 / Large grease particles removal - Grade G4
5	F2 Filtration stage 2 / Fine grease particulate removal - Grade M6
6	F3 Filtration stage 3 / Smoke removal - Grade E10
7	F4 Filtration stage 4 / Odour removal - Food grade activated carbon filters
8	EC plug fan, 230-400V/50Hz, suitable for 0 to 10 V signal control
9	Control box

NOTE: Enhanced filter grades are available upon request



Hybrid solutions



Hybrid solution

Reco-Air units offer increased Kitchen Extraction flexibility, usually with favourable capital costs when compared with traditional discharge systems.

As well as providing the approved alternative, All Electric solution for new establishments, Reco-Air recirculation systems can be installed retrospectively to extend an existing cookline, increase a Menu offer, add a dedicated cookline etc.

There is no requirement for the Reco-Air system to utilise existing extract risers or ducts, since this is 'stand alone' and only requires ductwork connecting to its respective canopy.

In these Hybrid instances, all existing Gas / Fossil Fuel cooking equipment and the associated extraction canopies / system can remain without adaptation.

Design duty, SFP, dwell time & noise breakout

Model	Fan	Design Air Volume m ³ /s	Design External Pressure Pa.	Available Maximum External Pressure Pa.	Specific Fan Power SFP (Clean Filters) kW/m ³ /s *	Specific Fan Power SFP (Dirty Filters) kW/m ³ /s *	Carbon Filter Dwell-Time sec. **	Casing Breakout in dB(A) @ 1m Free-Field *	
								Filters Clean	Filters Dirty
RA0.5	Ziehl ø310	0.5	250	600	0.801	2.583	0.228	41	58
RA0.8	Ziehl ø310	0.8	180	410	0.911	2.174	0.214	49	55
RA1.0	ebm ø355 (HP)	0.9	250	1180	1.45	2.82	0.203	53	61
RA1.5	ebm ø355 (HP)	1.2	320	905	1.43	2.67	0.228	57	61
RA2.0	ebm ø450 (Gen2)	1.8	250	360	1.27	2.44	0.203	53	60
RA2.5	2 x ebm ø450 (Gen2)	2.25	320	560	1.44	2.99	0.203	59	68
RA3.0	2 x ebm ø450 (Gen2)	2.7	320	530	1.36	2.77	0.203	58	67
RA4.0	2 x ebm ø450 (Gen2)	3.6	250	360	1.27	2.44	0.203	56	63

* Specific Fan Power (SFP) & Casing Breakout dB(A) Levels are based on Design External Pressure, NOT Maximum External Pressure.

** The MINIMUM Dwell-Time for Cooking Large amounts of Fried Foods or concentrated Burgers is 0.2sec.

When cooking Currys, Spices or an Excess of Onions or Garlic, the dwell time should be increased to at least 0.3sec or, in extreme cases 0.4sec.

This can only be achieved by REDUCING the airflow on the above units by the appropriate margin (i.e. for the RA 2.0 unit to achieve a dwell-time of 0.4 sec. through the Carbon Filters, the air volume will need to be Reduced to 0.9 m³/s).



Main technologies and options



High efficiency filtration

Removes coarse and fine grease particulate, smoke and moisture



Food grade activated carbon

Provides odour suppression



Filter monitoring

Live filter status monitoring and remote connectivity



Fan monitoring control platform

Fan speed control
(constant airflow)



HDMI Touch Screen

Unique and intuitive LCD user interface control option

Reco-Air product range

Reco-Air is the innovative, proven and fully approved alternative to external extraction.

A range of Reco-Air models are available, covering an extraction air flow range of 0.5 cu.m/sec to 3.6 cu.m/sec, with 4 different configurations:

- > Floor mounted
- > Ceiling Void mounted
- > Double Stacked external
- > Double stacked internal

All Reco-Air units are manufactured to order, enabling flexible build options and bespoke designs, ensuring the best solution and performance for every client.

Reco-Air Standard Model

As Reco-Air Specification (page 10 and 11), incorporating Standard or Premium Smart Controls.

Reco-Air HP Model

The High Performance (HP) version delivers all of the benefits of the Standard Model, but features upgraded filtration & Premium controls to deal with higher discharge temperatures & higher concentrations of smoke. These products are usually associated with cooking on a Griddle, Chargrill or Broiler, for example, when cooking hamburgers, marinated meats, steaks etc.



Reco-Air UL Model

This version delivers all of the benefits of the Standard Model, but incorporates some design enhancements to meet compliance with the Underwriters Laboratory of America (UL). This permits the system to be installed in the United States of America and in other locations around the world, which have adopted the UL standard for their own approval process, such as Airport Authorities.

Enhanced Fire Safety (EFS)

Where there is a specific requirement for additional Fire Safety measures to be implemented, any of the above Reco-Air models can be designed, together with the Client's Design Team, to incorporate an enhanced level of fire safety. These units can be engineered to include integration of fire dampers and/or automatic fire suppression systems.

Reco-Air models

Model	UL	Void	DSI/DSE	Air flow	Pascals	Fan size	Amps	Phase
RA 0.5 S		✓		0.5 m³/s (1,800m³/hr)	250 Pa	310mm Ø	4.0	Three
RA 0.8 S		✓	✓	0.8 m³/s (2,880m³/hr)	180 Pa	310mm Ø	4.0	Three
RA 1.0 S	✓	✓	✓	0.9 m³/s (3,240m³/hr)	250 Pa	355mm Ø	7.2	Three
RA 1.5 S	✓	✓	✓	1.2 m³/s (4,320m³/hr)	320 Pa	355mm Ø	7.2	Three
RA 2.0 S	✓	✓	✓	1.8 m³/s (6,480m³/hr)	250 Pa	450mm Ø	8.0	Three
RA 2.5 S		✓	✓	2.25 m³/s (8,100m³/hr)	320 Pa	2 x 450mm Ø	16.0	Three
RA 3.0 S			✓	2.7 m³/s (9,720m³/hr)	320 Pa	2 x 450mm Ø	16.0	Three
RA 4.0 S				3.6 m³/s (12,960m³/hr)	250 Pa	2 x 450mm Ø	16.0	Three

Notes:

1. All Standard Models (S) available as floor mounted.
2. All Standard Models available for internal or external application.
3. UL - Underwriter's Laboratories compliant.
4. DSI - Double Stacked Internal.
5. DSE - Double stacked External.

Reco-Air dimensional data

Floor Mounted Units

Model	Width	Depth	Height	Weight
RA0.5	880	685	2155	385 kgs
RA0.8	1100	850	2155	440 kgs
RA1.0	1500	700	2005	542 kgs
RA1.5	1540	1130	2005	753 kgs
RA2.0	1540	1430	2005	914 kgs
RA2.5 (DA)	1815	1540	2005	1142 kgs
RA3.0	2370	1500	2005	1380 kgs
RA4.0	2970	1500	2005	1693 kgs

Void Mounted Units

Model	Width	Depth	Height	Weight
RA0.5	880	2100	800	436 kgs
RA0.8	1040	2100	790	520 kgs
RA1.0	700	3580	875	594 kgs
RA1.5	1130	3580	895	857 kgs
RA2.0	1430	3580	895	1020 kgs
RA2.5 (DA)	1815	3580	895	1269 kgs
RA3.0			TBC	
RA4.0			TBC	

Double Stacked Units

Model	Width	Depth	Height	Weight
RA1.0	2050	700	1625	605 kgs
RA1.5	2050	1130	1665	792 kgs
RA2.0 (DA)	2050	1430	1665	1022 kgs
RA2.5 (DA)	2050	1815	1665	TBC kgs
RA3.0 (DA)	2050	2115	1665	TBC kgs

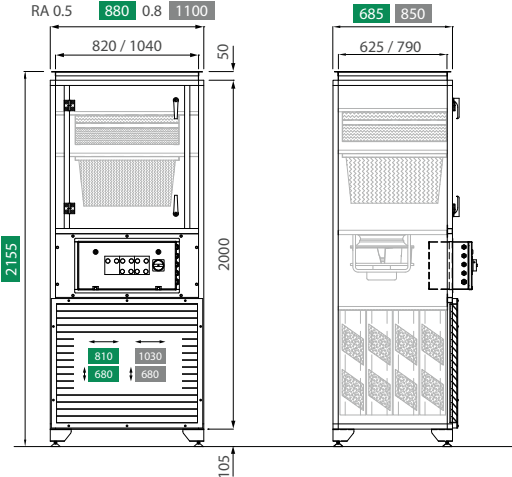
Notes:

1. All unit dimensions stated in millimetres.
2. (DA) = Double Sided Access recommended
- Access required front and rear of unit.

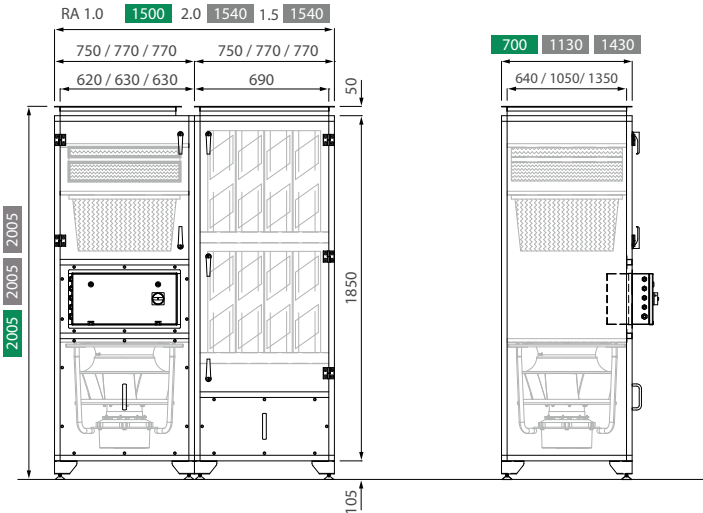


Dimensions - Floor Units

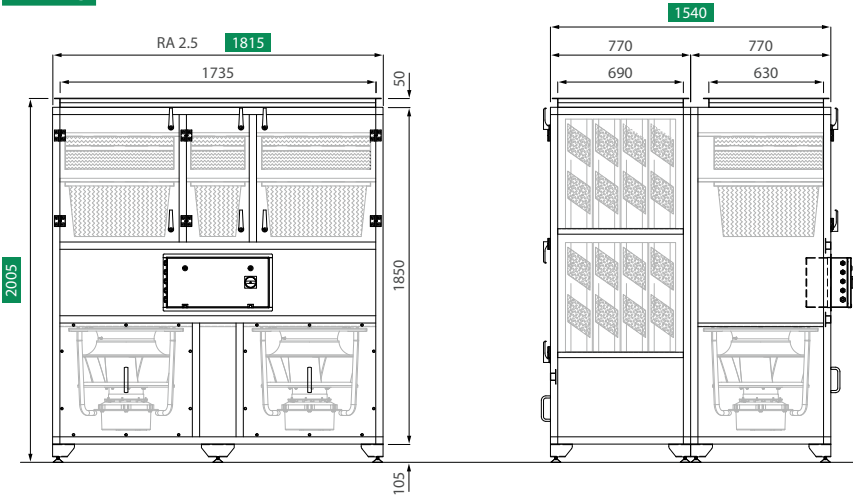
RA 0.5 **RA 0.8**



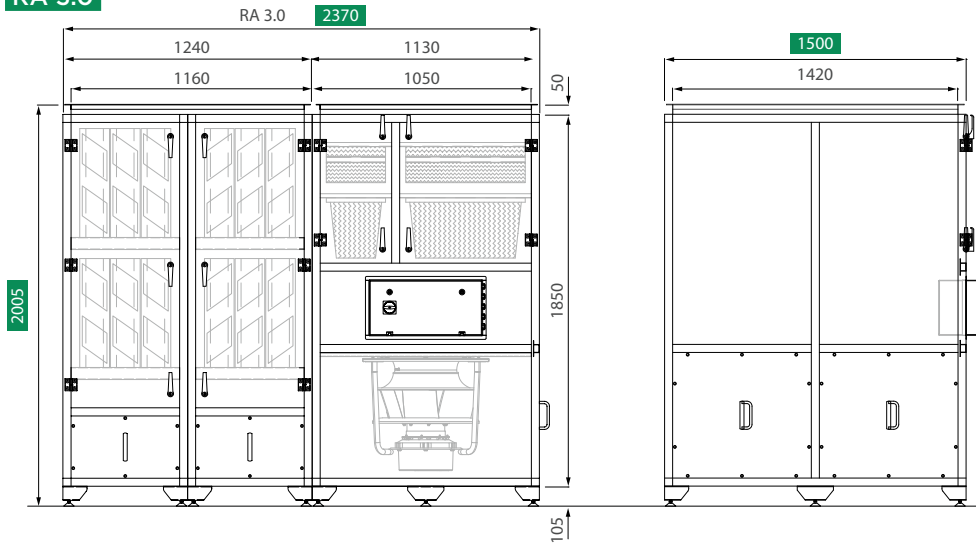
RA 1.0 **RA 1.5** **RA 2.0**



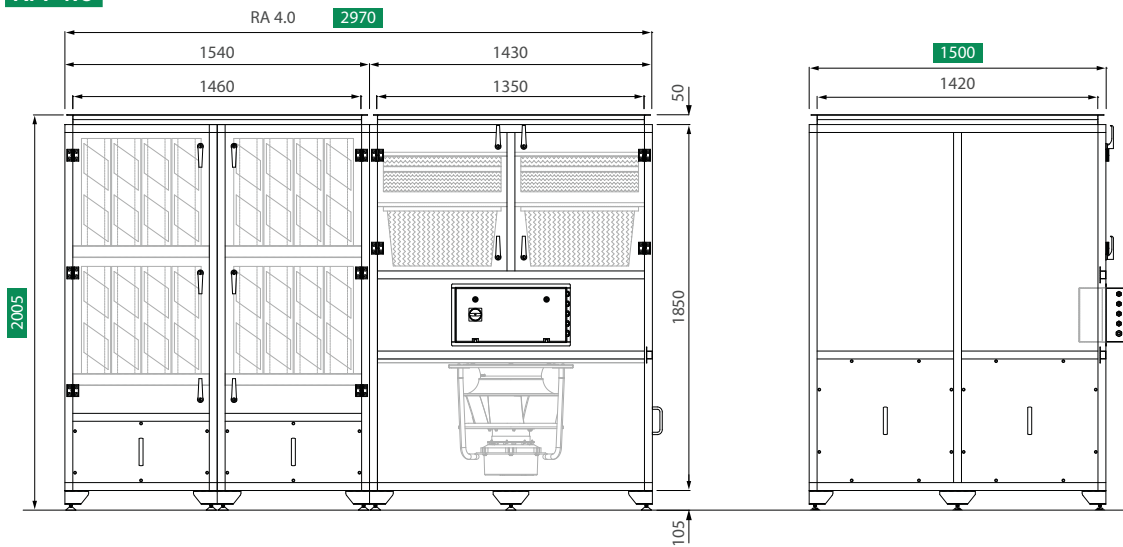
RA 2.5



RA 3.0

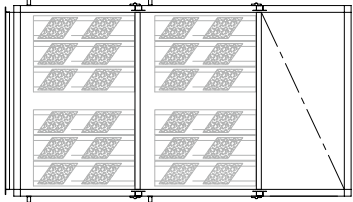
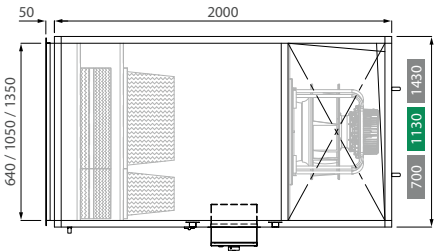
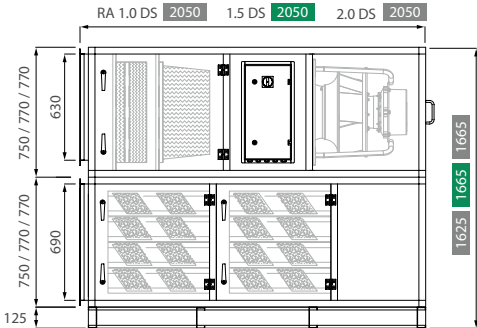


RA 4.0

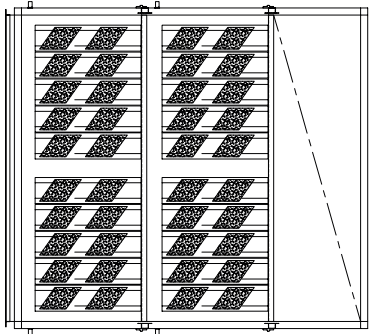
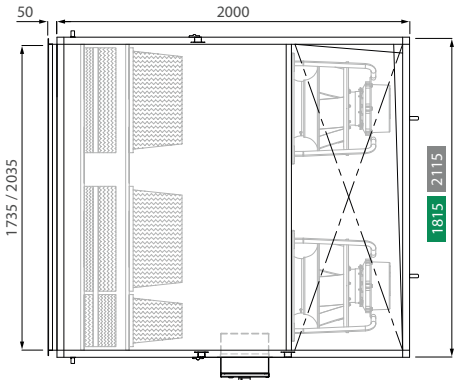
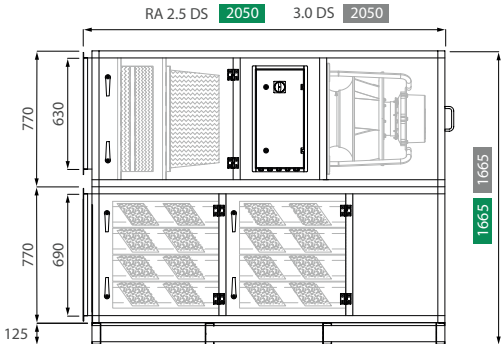


Dimensions - Double Stack Floor Units

RA 1.0 DS RA 1.5 DS RA 2.0 DS

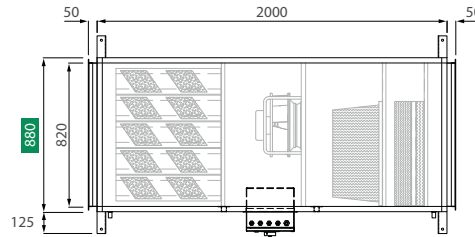
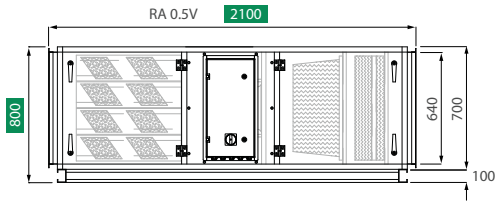


RA 2.5 DS RA 3.0 DS

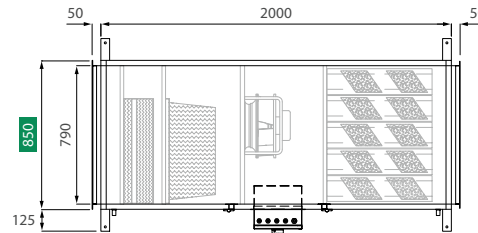
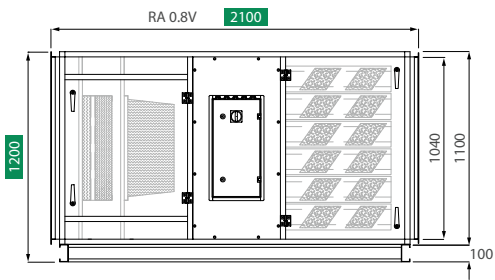


Dimensions - Ceiling Void Units

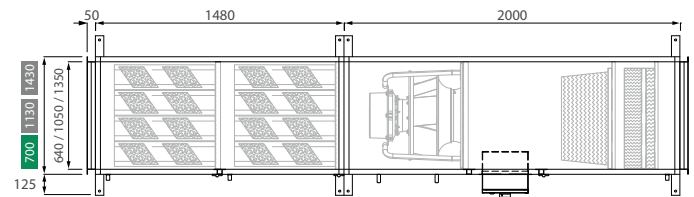
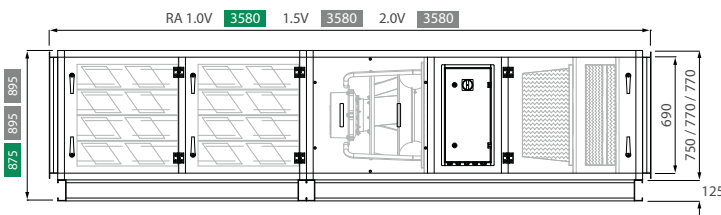
RA 0.5 V



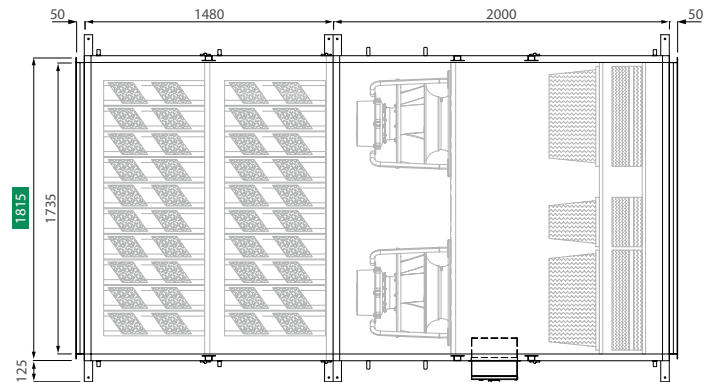
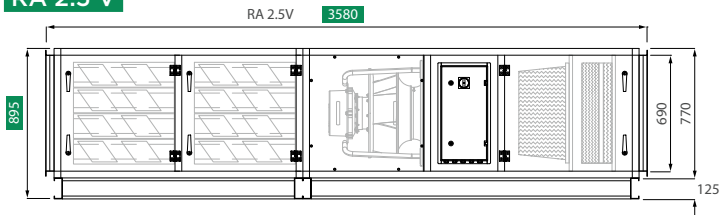
RA 0.8 V



RA 1.0 V RA 1.5 V RA 2.0 V



RA 2.5 V



Reco-Air Specification

Reco-Air recirculating kitchen extract unit

- The recirculating extract unit shall be as manufactured from the Reco-Air product range. It is equipped with a full air treatment system to remove grease, steam, smoke and odours from the vitiated extract air.
- The Reco-Air unit shall be supplied complete, fully pre-wired and pre-commissioned from the factory and ready to be installed. The following specifications shall be fully observed.
- Flatpack delivery and on-site construction is available upon request.

General Unit Construction

- Unit shall be constructed with 25 mm double skinned panels galvanised steel finish internally and white Plastisol finish external. They shall be insulated using 45 kg/m³ 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 lift off or mounted on hinges and equipped with lockable black handles for access by Authorised Personnel only. Fan(s) access doors shall be screw fixed.

Specific Requirements

- As a minimum requirement, each unit shall incorporate the following grade filter media:
 - F1 > G4 - Large grease particulate component
 - F2 > M6 - Fine grease particulate removal
 - F3 > E10 - Smoke removal
 - F4 > Food Grade Activated Carbon cylinders - Odour suppression, 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 & Interface Requirements

- All Reco-Air units are available with either Standard or Premium Control operating platforms.
- Both Control Systems incorporate unique safety features and ensure operation ceases if any of the following scenarios arise:
 - > Filter access door is left open or ajar
 - > Filters are removed or left out of the unit
 - > Fire Alarm system is activated
 - > Registered filter pressure drop across any of the primary 3 sets of filters exceeds pre-set Warning levels & reaches Critical levels
 - > Internal Time Control unit, activated on filter Alarm, has been allowed to 'Time Out'
 - > 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
- When requested, an Electrical Interlock System can be incorporated, which disables all essential cooking equipment whenever a 'No Air Flow' status is present.
- This ensures that no cooking operation can be effected without a proven & adequate air flow / extraction rate from the recirculation system / unit.

- In addition to satisfying the above features, the Premium Control platform incorporates the option to provide remote connectivity via a broadband router or 4G Sim Card.
- Allowing for continuous monitoring of filter pressure drops and unit status and enabling adjustment of values, activity logging and emergency re-start. Providing Real Time filter status and monitoring, ensuring use of filters to full life.
- Our Premium Control platform also incorporates an Intuitive, User Friendly HDMI Touchscreen, which can be located adjacent to the Cookline or remote from the Kitchen.

Air Commissioning / Testing

- The Reco-Air unit(s) shall be delivered pre-commissioned from the factory.
- On completion of any Reco-Air 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 must be sealed with proprietary plugs on completion of this operation.

Provision for Service & Maintenance

- When planning the installation of a Reco-Air unit - however configured - adequate clearance must be allowed to facilitate safe operative replacement of filter media & fan(s).
- To comply with specific Landlords/Authority approvals - a Service Contract is required with an accredited service partner.
- Evidence of same must be made available prior to formal approval being acknowledged.
- Failure to engage in a formal Service Contract could invalidate warranty at a future date.

Reco-Air 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.

Approvals

Reco-Air's Specification is fully compliant with UK industry standards and guidelines & meets globally recognised advanced safety standards.

- DW/172: 2018 (section 25) Recirculation introduced by BESA to Kitchen Ventilation Systems industry guidelines, reflecting Reco-Air's smart controls and integrated safety features.
- City of Westminster Guidelines 2016: Reco-Air Specification approved as an alternative to high level discharge by EHO and Planning Departments.
- UL710b Listed models available on request. A range of Reco-Air models are UL710b Listed - Underwriters Laboratories accredited - a global certification approving Reco-Air for high-risk cooking in high-risk locations.
- CE: European Conformity Compliant.



Case studies



Slim Chickens - Bishopsgate, London

No route to atmosphere

New venue for Slim Chickens, in the heart of London, with no direct route to atmosphere and strict emissions controls.

Reco-Air was the best solution, delivering a reliable and proven internal kitchen extract solution.

Solution: RA2.0



JD Wetherspoon - Network Rail Waverley Station, Edinburgh

Heritage location

Heritage Grade II listed building had no option for external extract due to strict conservation control.

Reco-Air unit installed, enabling a previously unfeasible location to trade with a full, hot food menu.

Solution: RA2.5



The Waterside Pub & Restaurant - Imperial Wharf, London

Emissions control

A trading Youngs site with on-going grease and odour issues for residents in apartments above.

Resolved by the retro-fit installation of a **Reco-Air** unit, which also gave additional fire safety to the building and its residents.

Solution: RA2.5



Camden Bar & Kitchen - Stansted Airport

Unlock new location

SSP identified an opportunity to introduce a Bar & Kitchen in an airside location previously occupied by retail, and with no route to atmosphere.

The **Reco-Air** installation enabled an otherwise impossible location to trade with a full hot food menu.

Solution: 2x RA2.0UL