

# Kair Single Room Heat Recovery Ventilator

Model:

KHRV150/12RH - Pullcord & Humidistat

## Data Sheet

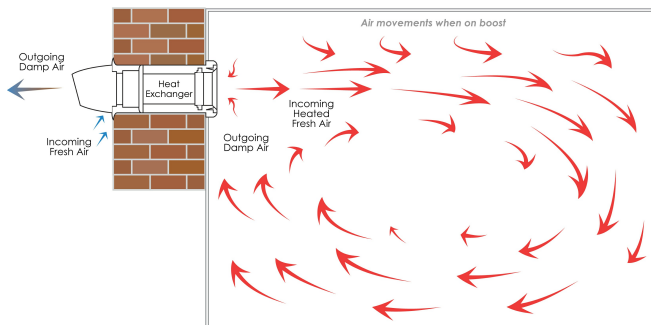
Energy Efficient Continuous Heat Recovery For Healthy Air In Kitchens, Bathrooms, Utility Rooms, Living Rooms, Lavatories, Washrooms, Conservatories, Offices and Bedrooms.



### Benefits

- ✓ Whisper quiet
- ✓ Up to 86% Heat Recovery
- ✓ Easy to install (no external access required - 152mm Core Drill)
- ✓ Continuous running trickle ventilation
- ✓ Humidity sensor (preset or adjustable)
- ✓ Night sensor allows Bedroom installation
- ✓ Health benefit - Produces dramatic improvements of indoor air quality
- ✓ Low running costs
- ✓ Tamper proof screws (optional)
- ✓ Energy savings – differential payback within 4 years against conventional extractor fans
- ✓ Balanced airflow (input and extract)
- ✓ Security ventilation™ (no need to open windows)
- ✓ Meets IEE, SELV and Building Regulation requirements

### How it works



Kair Heat Recovery Room Ventilators provide a continuous air change, replacing stale moisture-laden unhealthy air with filtered, fresh, warmed air from outside the dwelling.

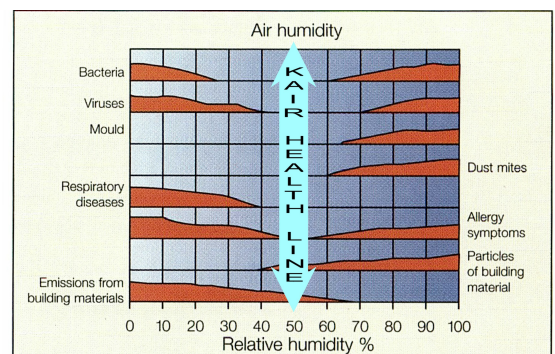
The continuous controlling of Relative Humidity levels ensures that conditions will not exist in which condensation or mould growth problems can develop and thrive.

Kair units are easy to fit and provide an effective solution to stale, musty indoor air condensation and mould growth problems in any room in which they are fitted.

### Health dividend

As long ago as 1989, an article in the British Medical Journal referred to the health hazards associated with condensation and mould growth in dwellings. The Statutory Fitness Standard clearly states that dwellings with inadequate ventilation, condensation and mould growth problems are unfit for human habitation and Building Regulation Guidelines require a supply of fresh air and the removal of pollutants.

Kair units, by reducing humidity to optimum levels (Kair Health Line), eradicate condensation, prohibit mould growth and discourage the spread of bacteria, viruses and dust mite activity. By expelling dust particles, gasses and other household pollutants, the units create a dramatic improvement in the quality of the indoor air supply.



## Energy efficiency

Unlike conventional extractor fans which suck out and waste expensively produced heat, Kair Single Room Heat Recovery Ventilators recover up to 86% of exhaust heat, even when operating on boost mode.

The world is becoming increasingly aware of the enormous cost of energy production, and this, plus the use of fossil fuels to generate power, is a momentous environmental issue.

Extractor fans potentially waste over a million kilowatts of energy every year. This is comparable to the total output of two large power stations. Replacing conventional extractor fans with heat recovery systems could save at least half of that energy loss.

## Electrical safety

Installation can be carried out by a suitably qualified craftsman and connected to electrical supply by an electrician in accordance with IEE Regulations.

The ventilator and control unit have been tested for electrical safety in accordance with the requirements of HD 280 S1 and HD 251 S3. They meet the requirements of the Low Voltage Electrical Equipment (Safety) Regulations 1989.

**IP Ratings:** IP57 SELV Heat exchanger / wall unit.      **IP Ratings:** IP30 SELV Transformer

## Control



The isolating transformer / humidity sensor control unit includes a thumb wheel to adjust the setting for the humidity level at which the fans are switched from trickle to boost mode. Once set, the thumb wheel can be removed and a blanking plate installed to prevent further adjustment, if desired.

A pull cord provides a manual override option to facilitate additional 'boost' supplies of fresh filtered air.

## Installation instructions

The 'through the wall unit' is designed for easy installation by use of a 152mm core drilled hole. Installation is undertaken entirely within a building with no requirement for external access, thus reducing installation costs on High Rise applications.

Suitable for wall thickness from 229mm to 356mm. An extension kit is available for walls up to 1 metre thickness.

A window kit is available for installation through single or double glazed windows.

Full installation instructions are provided with the unit.

## Specifications

Please see separate specification clause leaflet.

## Maintenance

Filters should be removed regularly and replaced or cleaned with a domestic vacuum cleaner or washed if exceptionally dirty.

The motors are guaranteed for 5 years and are fitted with 'Sealed for Life' bearings, which do not require maintenance or lubrication.

'Through the wall' or Window Kit versions of the Kair Single Room Ventilator can be serviced and maintained from inside the building with no requirement for external access.



# Regulations

The unit meets IEE, SELV and Building Regulations.

# Performance

The amount of heat energy recovered by the KHRV150 ventilator is dependent on temperature operating conditions (internal & external) together with the airflow rates through the heat exchanger. The airflow is dependent on the operating mode and on the pressure difference across the unit.

Figure (A) shows the heat energy recovered as a percentage of the electrical energy consumed by the KHRV150 operating under a zero pressure difference and various temperature conditions for both trickle and boost modes. Figure (B) shows the temperature conditions under which there are net energy gains.

Figure (C) shows the energy recovered from the exhausted air by the ventilator operating under a zero pressure difference and various temperature conditions for both trickle and boost modes.

Values gained from the graphs can be used when determining the contribution of the KHRV150 to the SAP [1] rating of a dwelling.

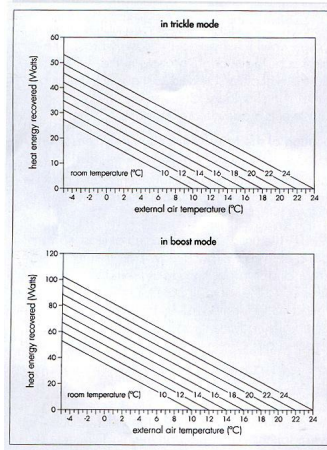


Figure A

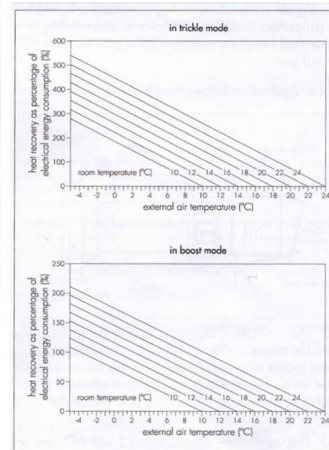


Figure B

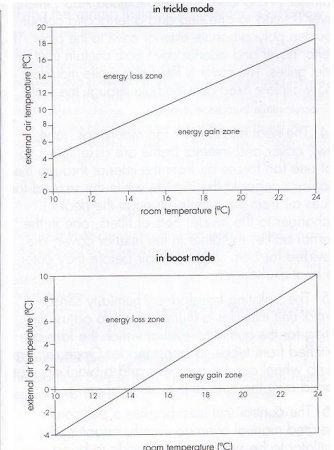


Figure C

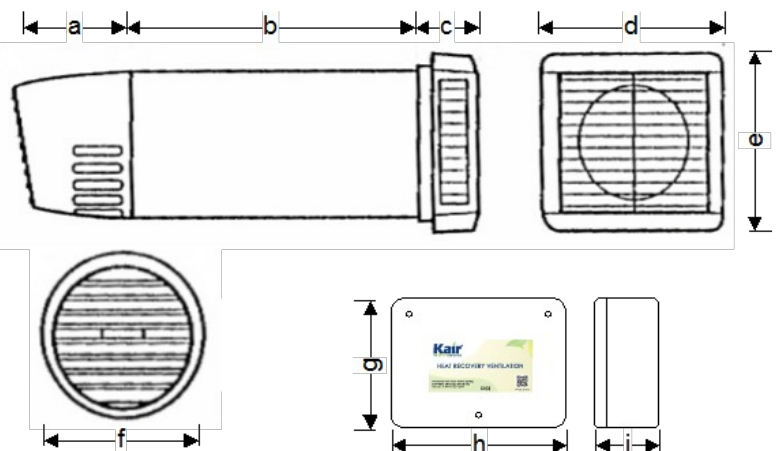
[1] Standard Assessment Procedure as referenced in Approved Document L to the Building

# Dimensions

| Model  | Airflow |        | Airflow Daily |
|--|---------|--------|---------------|
|  | Trickle | Boost  |               |
| KHRV150/12   | 19m³/h  | 38m³/h | 547m³/24h     |
| <i>Typical Performance figures - Assuming an average of 80% trickle and 20% boost speed.</i> |         |        |               |

| Watts  |       | dBA     |       | Heat Recovery |
|--|-------|---------|-------|---------------|
| Trickle  | Boost | Trickle | Boost |               |
| 9  | 46    | 21      | 45    | Up to 86%     |
| Test with outside air temperature at 7°C and inside room temperature at 23°C |       |         |       |               |

| Dimensions (mm)                              |     |    |     |     |     |     |     |    |
|--|-----|----|-----|-----|-----|-----|-----|----|
| a  | b   | c  | d   | e   | f   | g   | h   | i  |
| 128  | 345 | 60 | 200 | 180 | 148 | 125 | 170 | 80 |
| Suitable for wall thickness from 229 – 356mm |     |    |     |     |     |     |     |    |



## Why Specify Kair

Ventilation is necessary to maintain a healthy and comfortable internal environment and to rapidly remove pollutants such as moisture, volatile organic compounds (VOC's), allergens such as dust, oxides of nitrogen, carbon monoxide, carbon dioxide, tobacco smoke and unpleasant odours.

Moisture is generally assumed to be the most significant of these pollutants because of the high rates of generation from cooking, bathing, washing, drying etc and the consequential condensation and mould growth problems. It follows that if the ventilation strategy is based on controlling this principle pollutant by heat recovery input / extract ventilation then logically the other indoor pollutants will also be adequately controlled.

Stale air, and air which is hot or humid, should be replaced at a reasonable rate. Good ventilation means providing a balance between energy efficient and healthy indoor air best summed up by the catchphrase 'Build tight – ventilate right'.







The fresh air supply rate should not normally fall below 5 to 8 l/s per occupant. This is best achieved by creating continuous air changes of 0.5 to 1.0 every hour, throughout the entire dwelling as specified in D.E.T.R. Good Practice Note 268.

Although Building Regulations relate to new buildings, the guidance on ventilation is applicable to existing dwellings and, most important of all, the regulations are concerned with minimising the risk to health from the build up of pollutants. KHRV150 helps to satisfy all of these criteria.

### References:

- i. Statutory Fitness Standards – Housing Act 1985
- ii. Department Of The Environment F1 Guidance – Means Of Ventilation
- iii. Airborne Fungal Glossary – Basic Facts About Mould –TRD
- iv. Housing Act – (COSHH) Control Of Substances Hazardous To Health Regulations – 1988
- v. Optimum Relative Humidity Guide KTIC
- vi. Building Research Establishment. Digest 297 'Surface Condensation And Mould Growth In Dwellings'
- vii. NHS – A Health Strategy For London
- viii. DETR – Energy Efficient Ventilation In Housing – Good Practise Guide 268
- ix. Home Energy Conservation Act 1985
- x. British Standards Institution. BS 5250. 'Control Of Condensation In Buildings'. BSI, London, 1989
- xi. Perera M D A E S And Parkins L M. 'Build Tight – Ventilate Right'. Building Services Journal, June 1992. – CIBSE, London, 1992
- xii. Property Associated Technical Standards

## Accessories

| Filter Pair<br>Stock Code:<br>K-HRV150-FLT  | Extension Kit<br>Stock Code:<br>KHRV150-EXT   | Replacement Cowl<br>Stock Code:<br>K-HRVCOWL  | Trasformer<br>Stock Code:<br>K-HRV150/12RH/T  | Tamperproof bit<br>Stock Code:<br>K-TMPB  | Hygrometer<br>Stock Code:<br>ISELLS-HYGRO   |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| Replacement filter pack. Consists of two large filters and two small filters.       | For installations where wall thickness exceeds 356mm (colour may vary)              | 150mm Push Through HRV Outer Cowl - Terracotta                                      | Transformer for KHRV150/12RH range  | These bits have been specially designed to fit the tamperproof System Zero®           | Measures the Relative Humidity and temperature levels                                 |



[www.kair.co.uk](http://www.kair.co.uk)

*Kair Heat Recovery Room Ventilator Model: KHRV150/12RH*

Available from:

As part of our policy of continuous product development, Kair reserves the right to alter specifications without notice.

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