

## Energy Efficient Continuous Heat Recovery For Healthy Air in Kitchens, Bathrooms, Utility Rooms, Living Rooms, Lavatories, Washrooms, Conservatories and Offices

### FEATURES

- Meets IEE, SELV and Building Regulation requirements
- Up to 73% Heat Recovery **NEW**
- Easy to install (no external access required - 152mm Core Drill)
- Whisper quiet continuous running trickle ventilation
- Humidity sensor (preset or adjustable)
- Night sensor allows bedroom installation
- Even lower running costs **NEW**  
Trickle – 4.2w  
Boost – 17.3w (less than a 20w bulb)
- Tamperproof screws
- Balanced airflow (input and extract)
- Washable filters
- Security ventilation™ (no need to open windows)
- Health benefit - Produces dramatic improvements in indoor air quality
- Inbuilt digital hour run meter **NEW**

### APPROVAL

- NEW** The use of the Kair KHRV150/Eco in Government and energy supplier Energy Efficiency Commitment (EEC) activity overseen by the Energy Savings Trust (EST) has been approved. The EST have verified that the product does make energy savings and has informed the following:
- Ofgem
  - Energy suppliers
  - Energy Efficiency Advice Centres

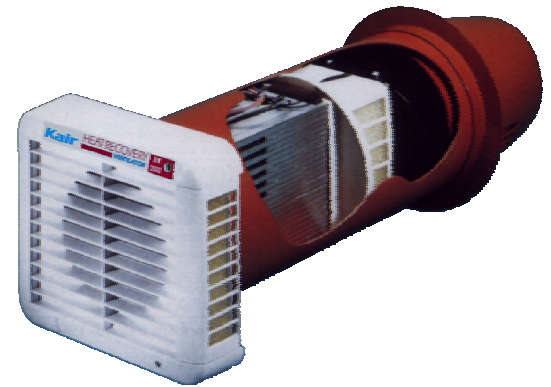
### GENERAL

Kair™ Heat Recovery Ventilators provide a continuous air change, replacing stale moisture laden air with filtered, fresh, warmed air from outside. 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.

### ENERGY EFFICIENCY

Unlike conventional extractor fans which suck out and waste expensively produced heat, Kair Single Room Heat Recovery Ventilators recover up to 73% of exhaust heat, even when operating on boost mode.

Extractor fans in the UK 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.

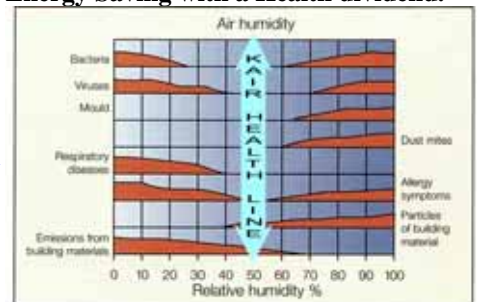


### HEALTH DIVIDEND

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.

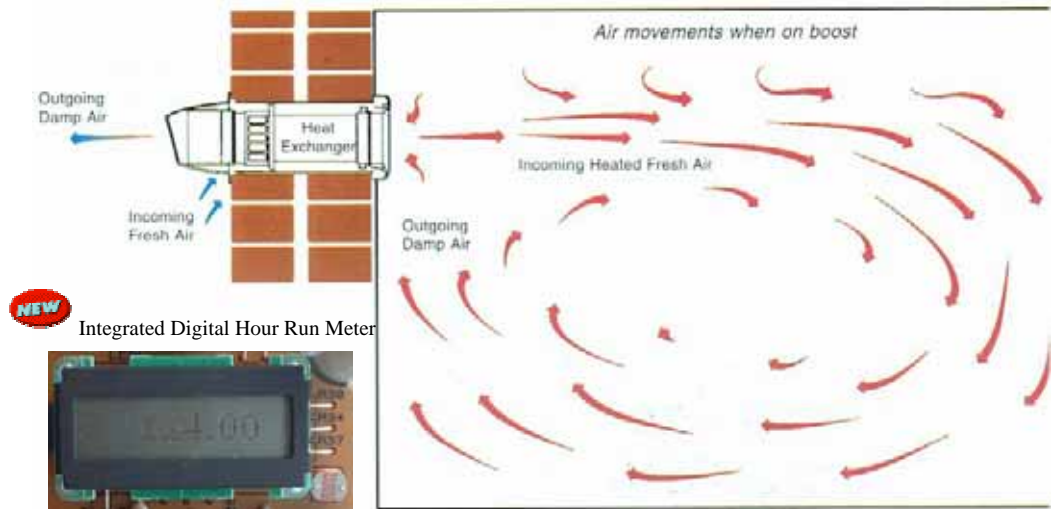
Kair™ units, by reducing humidity to optimum levels (Kair Health Line™), eradicate condensation, prohibit mould growth and discourage the spread of bacteria, viruses and dust mite activity. By expelling dust particles, gasses and other household pollutants, the units create a dramatic improvement in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

### Energy Saving with a Health dividend.



**SAVES MONEY**  
Recycles heat normally wasted by extractors





**NEW**

Integrated Digital Hour Run Meter



#### ■ 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. Thus the unit may help those that suffer from Asthma or breathing problems by reducing humidity levels and problems such as dust mites and toxic mould that require such high humidity levels.

#### ■ 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. As an alternative to the pull cord operation the unit can be connected to other two-wire switching devices such as PIR, noise, timer, thermostat, or even remote humidistat for sensing humidity in other areas.

A light level sensor or 'Night Sensor' is fitted as standard. If set, the unit is prevented from automatically boosting, but remains on trickle until the light levels increase, thus ensuring noise levels are kept to a minimum in bedrooms or bed-sit accommodation.

#### ■ INSTALLATION

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 12v DC long life 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.

## 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.

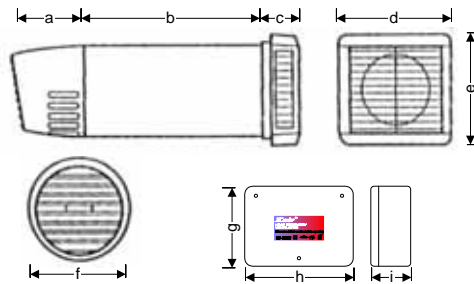
The ventilator and control unit have been tested for electrical safety in accordance with the requirements of HD 280 S1 and HD 251 S3. They meet the requirements of the Low Voltage Electrical Equipment (Safety) Regulations 1989.

## REGULATIONS

The unit meets IEE, SELV and Building Regulations.

The use of these units can help meet obligations under the Decent Homes Target implementation plan and the Housing Health and Safety Ratings System.

## DIMENSIONS



| 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 |     |    |     |     |     |     |     |    |

## PERFORMANCE

The amount of heat energy recovered by the KHRV150/Eco 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.

| Model  | Airflow               |                       | Airflow Daily     | Watts   |       | dBA     |       | Heat Recovery |
|--|-----------------------|-----------------------|-------------------|---------|-------|---------|-------|---------------|
|  | Trickle               | Boost                 |                   | Trickle | Boost | Trickle | Boost |               |
| KHRV150/Eco  | 12.6m <sup>3</sup> /h | 35.6m <sup>3</sup> /h | 413m <sup>3</sup> | 4.2     | 17.3  | 21      | 45    | Up to 73%     |
| Typical Performance figures - Assuming an average of 80% trickle and 20% boost speed.<br>Test with outside air temperature at 6.6°C and inside room temperature at 18.86°C |                       |                       |                   |         |       |         |       |               |

## APPROVAL

Approval of Kair KHRV150/Eco as an Energy Saving Product

The letter below provides verification that the Energy Saving Trust recognises that the Kair KHRV150/Eco unit can be used as energy saving product and that it is acceptable to the EST in terms of the Energy Efficiency Commitment (EEC) or the Trust's Government-funded programme activity.



| KHRV150/Eco Heat Recovery Ventilation Unit   |             | Heat Recovered                   | kW/yr |
|--|-------------|----------------------------------|-------|
| The energy savings figures set out below are suitable for use under EEC schemes. The figure entitled annual energy saving per measure should be entered into column D (annual energy saving per measure) column, in the other heating section of the EEC Scheme submission worksheets. |             | 285.3                            |       |
| A lifetime of 10 years should be assumed for this measure.   |             | Electricity use kWh/yr           | 27.7  |
|  |             | Additional Electricity           | 10.4  |
|  |             | Annual Energy Saving per measure | 17.3  |
| <b>Gas Heated Homes:</b>   |             |                                  |       |
| System Efficiency  | 67%         |                                  |       |
| Heat Recovered   | 351 kWh/yr  |                                  |       |
| Fuel Standard Heat Recovered   | 133 kWh/yr  |                                  |       |
| Electricity Consumed   | 17 kWh/yr   |                                  |       |
| Fuel Standard Electricity Consumed   | 14 kWh/yr   |                                  |       |
| Annual F1 energy saving per measure  | 136 kWh/yr  |                                  |       |
| Annual Energy Saving per measure   | 17.3 kWh/yr |                                  |       |
| <b>Oil Heated Homes:</b>   |             |                                  |       |
| System Efficiency  | 76%         |                                  |       |
| Heat Recovered   | 350 kWh/yr  |                                  |       |
| Fuel Standard Heat Recovered   | 142 kWh/yr  |                                  |       |
| Electricity Consumed   | 17 kWh/yr   |                                  |       |
| Fuel Standard Electricity Consumed   | 14 kWh/yr   |                                  |       |
| Annual F1 energy saving per measure  | 136 kWh/yr  |                                  |       |
| Annual Energy Saving per measure   | 17.3 kWh/yr |                                  |       |
| <b>Electric Heated Homes:</b>  |             |                                  |       |
| System Efficiency  | 100%        |                                  |       |
| Heat Recovered   | 230 kWh/yr  |                                  |       |
| Fuel Standard Heat Recovered   | 148 kWh/yr  |                                  |       |
| Electricity Consumed   | 17 kWh/yr   |                                  |       |
| Fuel Standard Electricity Consumed   | 14 kWh/yr   |                                  |       |
| Annual F1 energy saving per measure  | 114 kWh/yr  |                                  |       |
| Annual Energy Saving per measure   | 17.3 kWh/yr |                                  |       |
| <b>LPG Heated Homes:</b>   |             |                                  |       |
| System Efficiency  | 69%         |                                  |       |
| Heat Recovered   | 347 kWh/yr  |                                  |       |
| Fuel Standard Heat Recovered   | 147 kWh/yr  |                                  |       |
| Electricity Consumed   | 17 kWh/yr   |                                  |       |
| Fuel Standard Electricity Consumed   | 14 kWh/yr   |                                  |       |
| Annual F1 energy saving per measure  | 133 kWh/yr  |                                  |       |
| Annual Energy Saving per measure   | 17.3 kWh/yr |                                  |       |
| <b>Coal Heated Homes:</b>  |             |                                  |       |
| System Efficiency  | 55%         |                                  |       |
| Heat Recovered   | 428 kWh/yr  |                                  |       |
| Fuel Standard Heat Recovered   | 238 kWh/yr  |                                  |       |
| Electricity Consumed   | 17 kWh/yr   |                                  |       |
| Fuel Standard Electricity Consumed   | 14 kWh/yr   |                                  |       |
| Annual F1 energy saving per measure  | 226 kWh/yr  |                                  |       |
| Annual Energy Saving per measure   | 17.3 kWh/yr |                                  |       |

## ■ 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

## ■ 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.

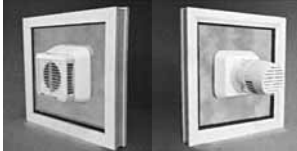





Stale air and air which is hot or humid should be replaced at a reasonable rate.

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/Eco helps to satisfy all of these criteria.

## ■ ACCESSORIES

|   |  |
|---|--|
| Window Kit  | <br><i>Stock code: KHRV150/WK</i><br>Allows installation through single or double glazed windows or panels.                       |
| Extension Kit   | <br><i>Stock code: EXTKIT</i><br>For installations where wall thickness exceeds 356mm   |
| Hour meter<br>NB. LCD Hour meter inbuilt to transformer as standard | <br><i>Stock code: HOURMETER</i><br>To verify continuous use or record interruptions to electricity supply                        |
| Tamperproof bit   | <br><i>Stock code: TBIT</i><br>Security ventilation™ – to prevent interference by persons other than authorised service personnel |
| Tamperproof driver  | <br><i>Stock code: TDRIVER</i><br>Required to install unit  |
| Pen size RH meter   | <br><i>Stock code: RHMTR</i><br>Measures the Relative Humidity and temperature levels   |



Manufactured in the EC for  
Kair Ventilation Limited.

Patents applied for.

Kilttox reserve the right to change the design of these products without prior notice.

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# Kair™ Heat Recovery Room Ventilator KHRV150/Eco

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