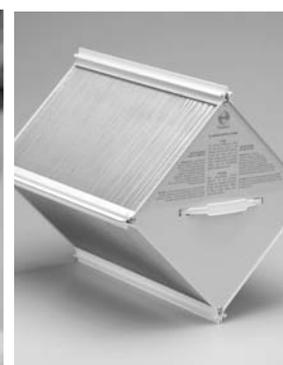




## Heat Recovery Ventilator Operation Manual



**\*Leave with Homeowner**



For use with Models

SHR 1504 • SHR 1505 R(D) • SHR 2004 • SHR 2005 R(D) • SHR 3005 R • SHR 3205RD  
VHR 1404 • VHR 1405 R • VHR 2004 • VHR 2005 R • VHR 704

# What Are HRVs ?

To understand these products and their functions, here are a few things to remember.

## Heat Recovery Ventilators (HRVs)

are recommended for colder areas of the country that have longer heating seasons as well as drier desert areas of the South.

Heat Recovery Ventilators are complete whole house ventilation systems that incorporate a supply motor and an exhaust motor in one unit. The supply motor draws fresh air in from the outside and the exhaust motor pushes stale contaminated air out. The two air streams are separated by a heat/ energy recovery core which tempers the air making it the most comfortable solution for a healthy indoor environment.

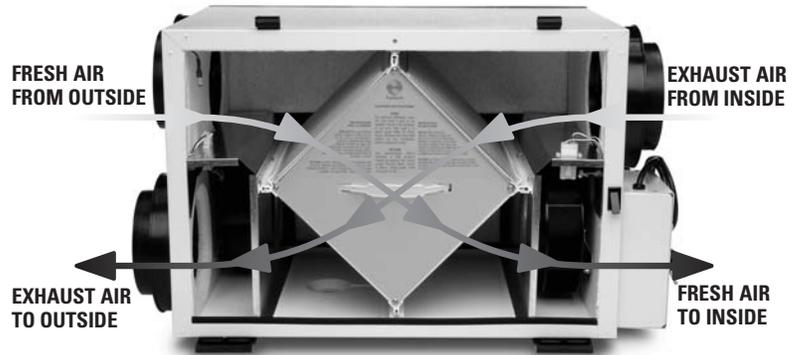
For information on how these units can help you save energy and lower heating or cooling costs, read "How Do They Work".



# How Do They Work?

## Heat Recovery Ventilators (HRVs)

An HRV is designed to bring a continuous supply of fresh air into a home while exhausting an equal amount of contaminated air. HRVs use what is called a "sensible" heat recovery core. This special aluminum core transfers heat from the exhaust air stream to the incoming air stream. Fresh incoming air is tempered by the heat that is transferred from the outgoing air so you save on energy costs. Fantech HRVs are equipped with automatic defrost mechanisms so even if you live in the coldest climates you can use your HRV all year long.



## Understanding Fantech Model Numbers

### Example 1:

VHR1404 =  
Vertical Ports  
Heat Recovery Ventilator  
Remote Controls

VHR1404  
CFM # PORTS

### Example 2:

SHR2004 =  
Side Ports  
Heat Recovery Ventilator  
Remote Controls

SHR2004  
CFM # PORTS

## Port Configurations

**Five Port Models** feature motorized damper for recirculation mode and defrost. Positive shut off of supply port when unit is in standby.

**Four Port Models** provide constant ventilation even in defrost mode without the need for additional parts. An exhaust only (fan shut down) defrost strategy is an effective method at an affordable price.

# OPERATION

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A Heat Recovery Ventilator (HRV) is designed to bring fresh air into a building while exhausting an equal amount of stale air. During the winter months, the incoming cold fresh air is warmed by utilizing the heat recovered from the stale air before it is exhausted to the outdoors. During summer months when the indoor space is air conditioned, the HRV will help in cooling the incoming fresh air with the stale air that is being exhausted.

Fantech HRV's are designed to run continuous or on intermittent, giving the homeowner complete control over their air quality. Continuous low speed ventilation is recommended, which will help eliminate carbon dioxide, voc's and other gases as well as freshen up the home. Intermittent high speed ventilation can be obtained through a variety of optional remote controls found in this manual. Below are some examples of seasonal operation of an HRV.

## Winter:

Humidity control is very important during the winter months. This is when problems will be most apparent since condensation on the windows will often occur. The colder the outside temperature, the greater the risk of condensation in the home. The average relative humidity should be maintained between (30-60) to avoid condensation. Low speed continuous ventilation with high speed override is recommended.



## Spring:

Temperatures are more moderate and become warmer each day. To keep the humidity and temperature uniform, set the dehumidistat higher (if installed). You may also switch the HRV to standby mode if desired.



## Summer:

The air is sometimes hot and humid. To stop the warm humid air from entering, set the dehumidistat at its highest level. If the Intellitek series controller is installed, the air exchanger can be set to cycle the unit on and off as desired from that wall control. However, continuous ventilation is recommended.



## Fall:

Rain and rapid temperature changes make it difficult to control the internal humidity level and may result in condensation on the windows. A remote dehumidistat may help give greater control over the inside environment.



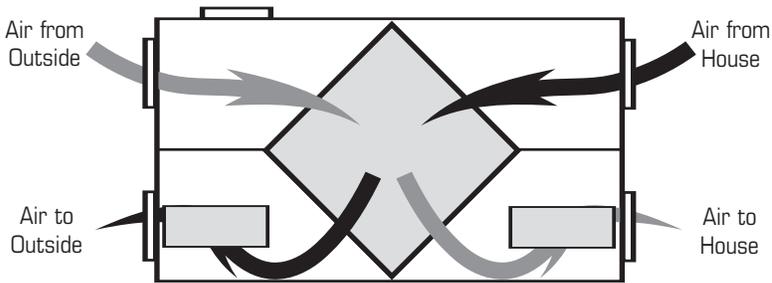
**NOTE:** Some products may not be exactly as illustrated in the Installation, Operation and Maintenance Manual.

Fantech Inc. reserves the right to modify, at any time and without notice, any or all of its product's features, designs, components and specifications, to maintain their technological leadership position.

# MODES OF OPERATION

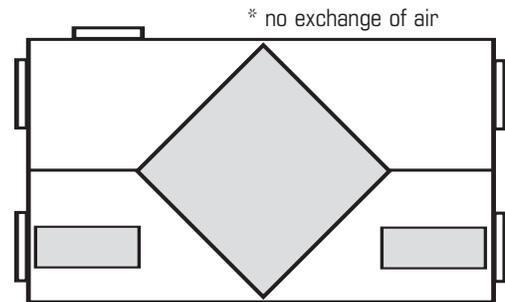
## 1. Continuous / Ventilation Mode

In this mode of operation both fans are operating and exchanging air with the outside. The heat recovery ventilator (HRV) constantly exchanges the air at the rate you select, either at low or medium speed, and switches to high speed when activated by an optional remote control. The "Low" and "Med" fan speed selection will cause the unit to operate in continuous exchange mode at an exchange rate of 35% and 50% maximum airflow rating respectively. Continuous mode is recommended, since pollutants are slowly but constantly being generated in your house.



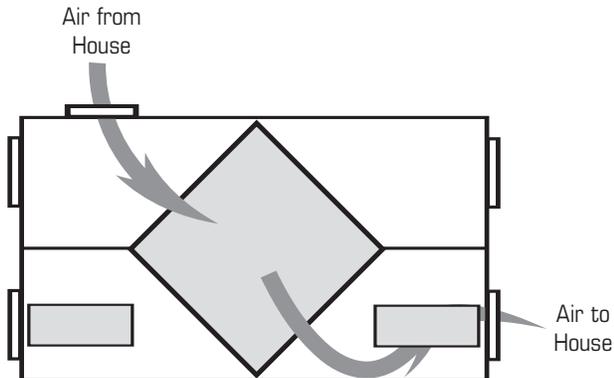
## 2. Intermittent / Standby Mode (SHR(D) / VHR Series of HRV's)

The system is always on standby and operates at high speed when activated by an optional remote control. "Standby" should be selected if the user wishes to stop the unit from continuous exchange. We recommend that the "Standby" mode only be used if your system is equipped with an optional external control, in which case, the unit would activate to "High" fan speed, until the control is satisfied and then return to standby (off).



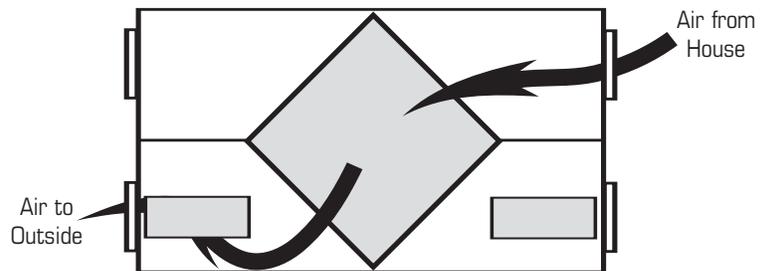
## 3. Defrost/Recirculation Mode (5 port "R" Models)

During the defrost sequence, its mechanism uses a motorized damper to temporarily block the incoming fresh air stream allowing the warm air from the home to circulate through the HRV. The exhaust blower shuts down & the supply blower continues to run. The unit then returns to normal operation, and continues cycle.



## 4. Defrost (Fan shutdown 4 port models)

During the defrost sequence, the supply blower shuts down & the exhaust blower continues to ventilate for a preset time. The unit then returns to normal operation, and continues cycle.



# OPTIONAL REMOTE CONTROLS



**MDEH1 Dehumidistat** - The wall mount dehumidistat monitors the humidity level in the area it is installed. When the humidity level rises above the desired set-point, the HRV will activate to high speed/override mode. Once the humidity level returns to desired condition, the unit will return to the normal mode. Typically used during heating season.



**MDEH2 Dehumidistat** - The wall mount dehumidistat II offers the same features of the dehumidistat I plus additional off/on control for the HRV. Dial illuminates when in override mode.



**Air Quality Sensor** - The wall mount Air Quality Sensor (AQS) monitors indoor air quality and activates the override mode when carbon monoxide, formaldehyde, benzene, volatile organic compounds and other pollutants are detected. The unit will then return to normal mode once the air pollutants are reduced to a pre-determined lower level.

\* This control is not a warning device.



**RTS2 Pushbutton Timer** - The 20-minute remote timer is typically installed in areas where contaminated such as moisture and odors, are produced. Simply push the button and the HRV will activate to high speed for 20 minutes. Up to 5 electronic timers can be installed throughout the building at a distance of up to 500 feet (152 meters) from the HRV.



**RTS3 Pushbutton Timer** - This intermittent timer is the ideal control for those areas of the home where excess moisture, steam and odors are created. Press the button once to energize your HRV system to high speed for 20 minutes (green). Press the button twice and the unit will run for 40 minutes at high speed (yellow). Press the button three times and the unit kicks to high speed for 60 minutes (red). When time expires the unit will return to its original setting.



**EDF1 Triple Function Wall Control**- Triple-Function Wall Control makes it easy to control your home's indoor air quality system. Press the button once to run your HRV at a continuous low speed (green). Press the button twice and the unit will run 20 minutes on/40 minutes off (yellow). The cycle repeats continuously. Push the button three times and the system will run continuously on high speed (red).

\* All controls are low voltage. 18 to 24 gauge wire is recommended.

## To avoid window condensation:

It is not necessary to change the humidity control every day. Monitor the average weekly temperature or experiment with various settings until you find a level that is comfortable for you. Adjust the control when needed.

## NOTE:

A dehumidistat is ideal for use in energy efficient houses where indoor humidity (during the heating season) is higher than outdoor levels. High humidity is a major cause of structure damage and IAQ problems such as mold and mildew.

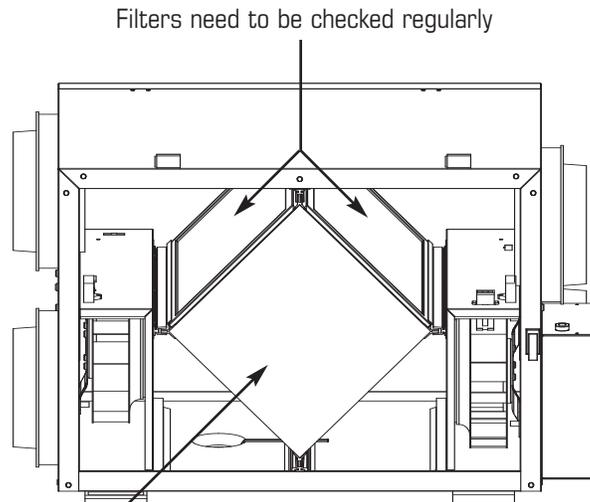
# MAINTENANCE

**CAUTION** MAKE SURE UNIT IS UNPLUGGED BEFORE ATTEMPTING ANY MAINTENANCE WORK

The following components should also be inspected regularly and well maintained.

## Filters

The filters (2) need to be checked and cleaned every three months or when they appear dirty. Wash in warm sudsy water (mild detergent). The filters should be replaced when they can no longer be cleaned properly.



## Heat Recovery Core

The heat recovery core needs to be checked and cleaned every six months. The core can be cleaned using a mild soap and water. Rinse thoroughly. Handle with care. Hot water and a strong detergent will damage the heat recovery core. It is recommended to clean the core in the summer or when the temperature is mild. Never clean the heat recovery core during winter.

### Clean Core and Filters Every 3-6 Months. Unplugged before doing any repairs or maintenance

- Open access door.
- Carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel.
- Once removed from the cabinet remove filters.
- Wash core in warm soapy water (do not use dishwasher).

### To Install Clean Core and Filters.

- First mount the bottom flange of the core guide into the bottom channel approximately 1/4" (6mm).
- Mount the left or right side flange of the core guide approximately 1/4" (6mm) followed by the other side.
- Mount the top flange of the core guide into the top channel approximately 1/4" (6mm).
- With all four corners in place and the core straight and even, push hard in the center of the core until the core tops on the back of the cabinet.

**The motor** - The motors are factory balanced and lubricated for life. They require no maintenance.

**The unit** - The inside of the unit should be vacuumed yearly. Be careful not to damage any of the mechanical components and electrical connections.

**The drain pan and drain line** - Units with drain lines should have their line and connection checked regularly.

**Outside hoods** - The outside hoods need to be checked every season to make sure there are no leaves or insects blocking the airflow. Check regularly that there are no pollutants near the intake hood. Make sure they are clear of any snow accumulation during the winter months.

### NOTE:

- To prevent electrical shock, check that the unit is unplugged before doing any repairs or maintenance.
- A yearly inspection is recommended to ensure the efficiency and trouble-free use of your system. Run through the system and verify the different operating modes.

# TROUBLESHOOTING

Problem	Causes	Solutions
Air is too dry	Dehumidistat control is set too low  HRV out of balance	Increase the desired level of humidity. Change ventilation mode from continuous mode to standby.  Have contractor balance HRV airflows
Air is too humid	Dehumidistat control is set too high  Sudden change in temperature  Storing too much wood for heating  Dryer vent exhaust is inside home  Poor air circulating near windows  HRV out of balance  Well sealed basement door is closed	Reduce the desired level of humidity. Combine this with the use of continuous exchange mode.  Wait until outside temperature stabilizes (winter). Heating will also improve situation.  Store a majority of your wood outside. Even dried, a cord of wood contains more than 20 gallons of water.  Arrange outside vent for dryer.  Open curtains or blinds. Bay or bow windows may require mechanical method.  Have contractor balance HRV airflows  Open the door or install a grill on the door.
Persistent condensation on window	Improper adjustment of dehumidistat control  HRV out of balance	Reduce the desired level of humidity. Combine this step with use of continuous exchange mode.  Have contractor balance HRV
Poor Air Flows	-1/4" (6mm) mesh on the outside hoods is plugged -Filters plugged -Core obstructed -House grilles closed or blocked -Dampers are closed if installed -Poor power supply at site -Ductwork is restricting HRV -Improper speed control setting -HRV airflow improperly balanced	-Clean exterior hoods or vents -Remove and clean filter -Remove and clean core -Check and open grilles -Have electrician check supply voltage at house -Check duct installation -Increase the speed of the HRV -Have contractor balance HRV airflows
Supply air feels cold	-Poor location of supply grilles, the airflow may irritate the occupant -Outdoor temperature extremely cold	Locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuser or grilles so as not to directly spill the supply air on the occupant (eg. Over a sofa) -Turn down the HRV supply speed. A small duct heater (1kw) could be used to temper the supply air -Placement of furniture or closed doors is restricting the movement of air in the home -If supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably -Have contractor balance HRV airflows
HRV / and / or Ducts Frosting up	-HRV air flows are improperly balanced -Malfunction of the HRV defrost system	-Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions -Have HVAC contractor balance the HRV airflows
Condensation or Ice Build Up in Insulated Duct to the Outside	-Incomplete vapor barrier around insulated duct -A hole or tear in outer duct covering	-Tape and seal all joints -Tape any holes or tears made in the outer duct covering -Ensure that the vapor barrier is completely sealed.

# HRV MAINTENANCE CHART

Maintenance Required	Recommended Frequency	Date Maintenance Performed					
Check and Clean Filters	Every 3 months or if dirty						
Check Heat Recovery Core	Every 6 months						
Check Drain Pan and Lines	Every 3 months						
Vacuum the Inside of the Unit	Annually						
Clean and Un-block Outside Hoods	Annually						
Clean and Inspect Duct Work	Annually						
General Servicing by a Qualified Contractor	Annually						

\* Schedule may be altered to meet your own needs. More frequent servicing may be required depending on the severity of your home's indoor and outdoor environments or the manufacturer's recommendations

Contractor	Telephone Number	Date Serviced

## The Best Limited Warranty in the Business

- The heat recovery aluminum core has a limited lifetime warranty.
  - The motors found in all Fantech HRV's require no lubrication, and are factory balanced to prevent vibration and promote silent operation.
  - The limited warranty covers normal use. It does not apply to any defects, malfunctions or failures as a result of improper installation, abuse, mishandling, misapplication, fortuitous occurrence or any other circumstances outside Fantech's control.
  - Inappropriate installation or maintenance may result in the cancellation of the warranty.
  - Any unauthorized work will result in the cancellation of the warranty.
  - Fantech is not responsible for any incidental or consequential damages incurred in the use of the ventilation system.
  - Fantech is not responsible for providing an authorized service centre near the purchaser or in the general area.
  - Fantech reserves the right to supply refurbished parts as replacements.
  - Transportation, removal and installation fees are the responsibility of the purchaser.
  - The purchaser is responsible to adhering to all codes in effect in his area.
  - The warranty is limited to 5 years on parts and 7 years on the motor from the date of purchase, including parts replaced during this time period. If there is no proof of purchase available, the date associated with the serial number will be used for the beginning of the warranty period.
- \* This warranty is the exclusive and only warranty in effect relative to the ventilation system and all other warranties either expressed or implied are invalid.



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