NEKTRA®

■ Installation Guide

Air Exchanger 150 & 200

Table of Contents

Location - Installation Notes

Install the unit in a heated space that provides clearance for service access. A typical location is in either a mechanical room or an area close to the outside wall within close proximity to where the weatherhoods are mounted. If a basement area is inconvenient or non-existent, install the unit in a utility room or laundry room.

Attic installations are not recommended due to

- The complexity of work to install;
- Freezing conditions in the attic;
- Difficulty of access for servicing and cleaning.

If attic installation is necessary the unit must be situated in a conditioned space. Leave sufficient clearance at the front of the access door for servicing the air filters and core. The recommended clearance is a minimum of 25 in. (63.5 cm) for opening and closing the door. Straps are provided for hanging the unit from the basement floor joists.

Pre-Installation Notes

Read this notice before installing unit:

NOTE

- Due to ongoing research and product development, specifications, ratings, and dimensions are subject to change without notice.

ATTENTION

- Do not apply electrical power to the unit until after the completion of the installation (including installation of low voltage control wiring).
- Ensure that the installation and wiring is in accordance with CEC, NEC, and local electrical codes.
- Plug the unit into a standard designated 120 V electrical outlet with grounded electrical outlet.
- The use of an extension cord with this unit is not recommended. If the installation requires further wiring, have a licensed electrician make all of the electrical connections. The recommended circuit is a separate 15 A/120 V circuit.

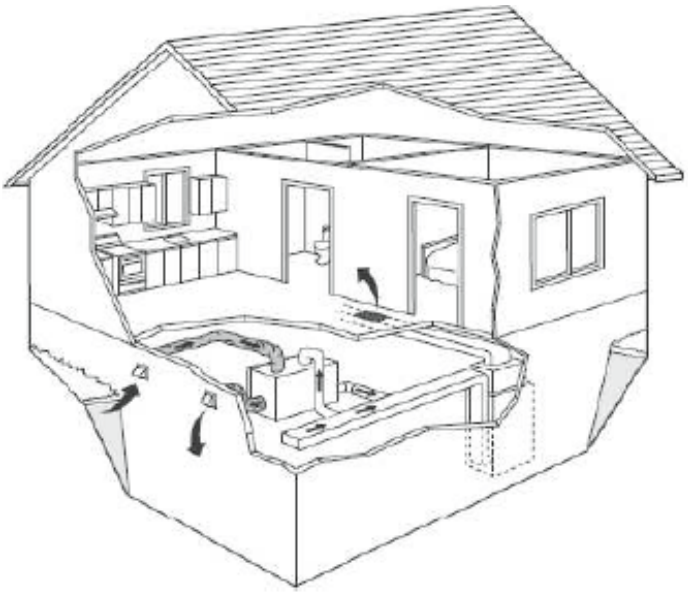
CAUTION

- Before installation, careful consideration must be given to how this system will operate if connected to any other piece of mechanical equipment, i.e. a forced air furnace or air handler, operating at a higher static. After installation, the compatibility of the two pieces of equipment must be confirmed, by measuring the airflows of the HRV, by using the balancing procedure found in this manual. Never install a ventilator in a situation where its normal operation, lack of operation or partial failure may result in the back drafting or improper functioning of vented combustion equipment.
- Unit must be installed level to ensure proper condensate drainage. Due to the broad range of installation and operational conditions, consider the possibility of condensation forming on either the unit or connecting ducting. Objects below the installation may be exposed to condensate.

WARNING

- Disconnect the power from the unit before cleaning or servicing.
- To prevent electrical shock, it is extremely important to confirm the polarity of the power line that is switched by the safety (disconnect) switch. The hot line (black) is the proper line for switching. Use either a voltmeter or test lamp to confirm the absence of a voltage between the disconnect switch and ground (on the cabinet) while the door is open. This procedure must be followed, as dwellings are occasionally wired improperly. Always ensure the proper grounding of the unit.
- Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

Simplified Installation (Return/Return Method)

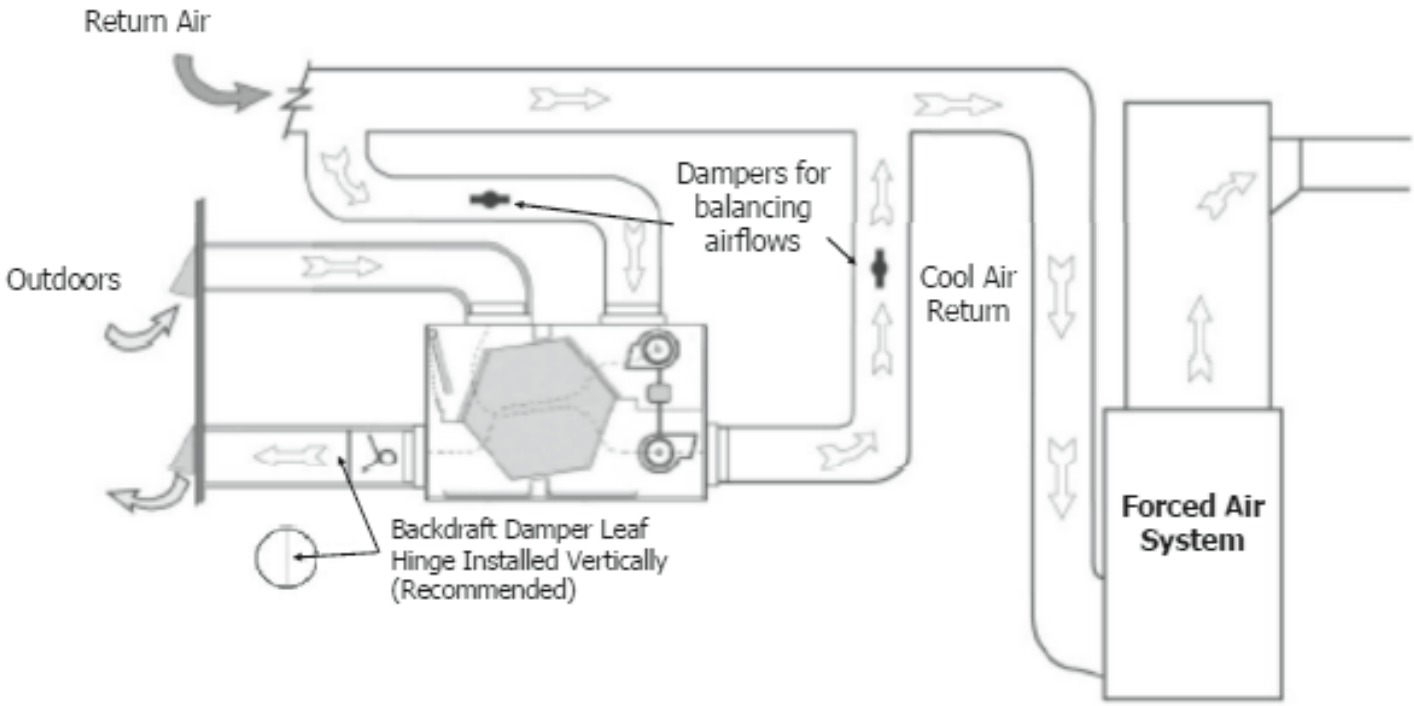


INSTALLATION NOTES

- The HRV must be balanced.
- Unit should be balanced on high speed with the furnace blower on.
- It is mandatory that the furnace blower run continuously or HRV operation be interlocked with the furnace blower.
- The duct configuration may change depending on the HRV model.
- A backdraft damper is recommended in the exhaust air duct to prevent outdoor air from entering the unit.
- The airflow must be confirmed on site using the balancing procedures found in this guide.

SPRING-LOADED BACKDRAFT DAMPER (RECOMMENDED)

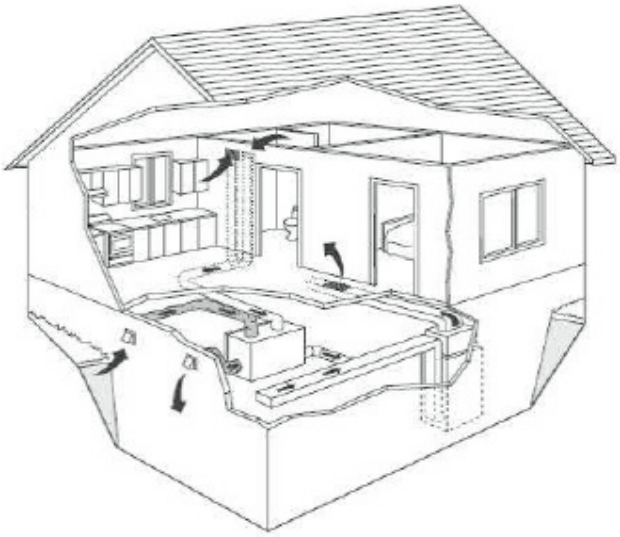
Install the backdraft damper with the leaf hinge vertically.
The damper is installed on the “Stale Air to Outside Collar”



CAUTION

- Verify existing local codes in your region to determine what is acceptable.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only.
- Backdraft dampers are recommended for connecting stale air to the outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

Partially Dedicated System



INSTALLATION NOTES

- The HRV must be balanced.
- Unit should be balanced on high speed with the furnace blower on.
- It is recommended that the furnace blower run continuously or HRV operation be interlocked with the furnace blower. Refer to building code.
- The duct configuration may change depending on the HRV model.
- A backdraft damper is recommended in the exhaust air duct to prevent outdoor air from entering the unit.
- The airflow must be confirmed on site using the balancing procedures found in this guide.

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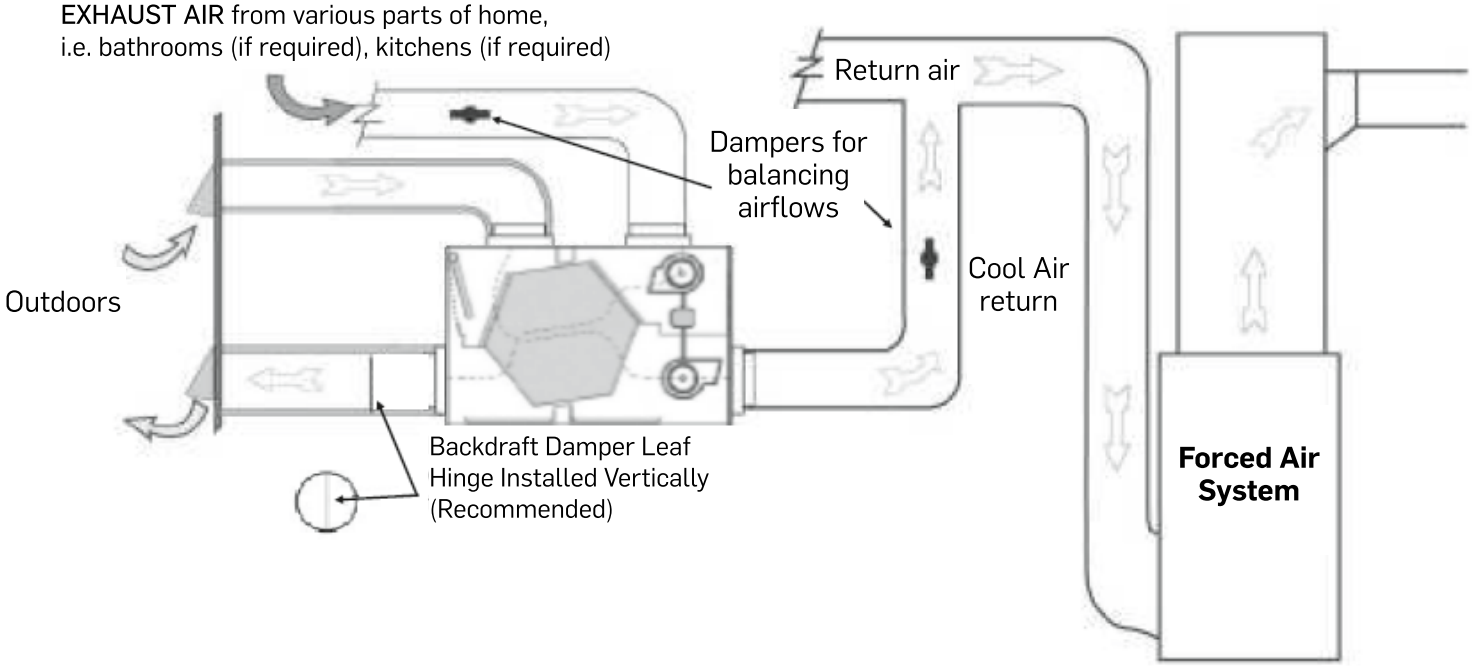
Install the backdraft damper with the leaf hinge vertically.
The damper is installed on the “Stale Air to Outside Collar”.



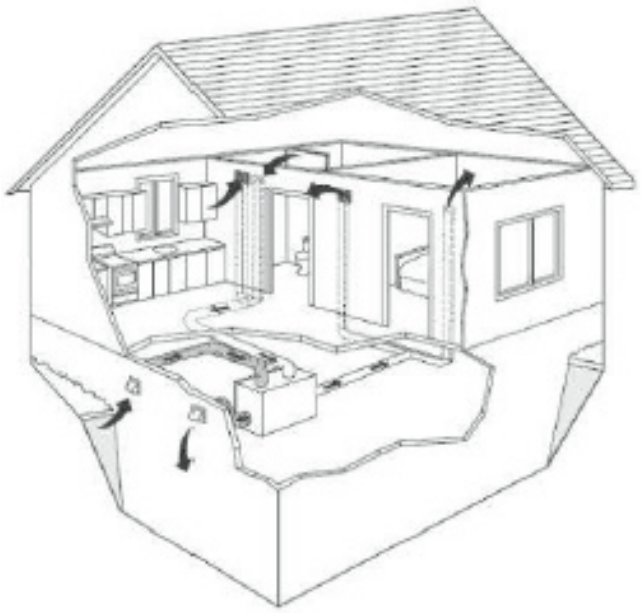
CAUTION

- Verify existing local codes in your region to determine what is acceptable.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only.
- Backdraft dampers are recommended for the stale air to outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

Fully Dedicated System

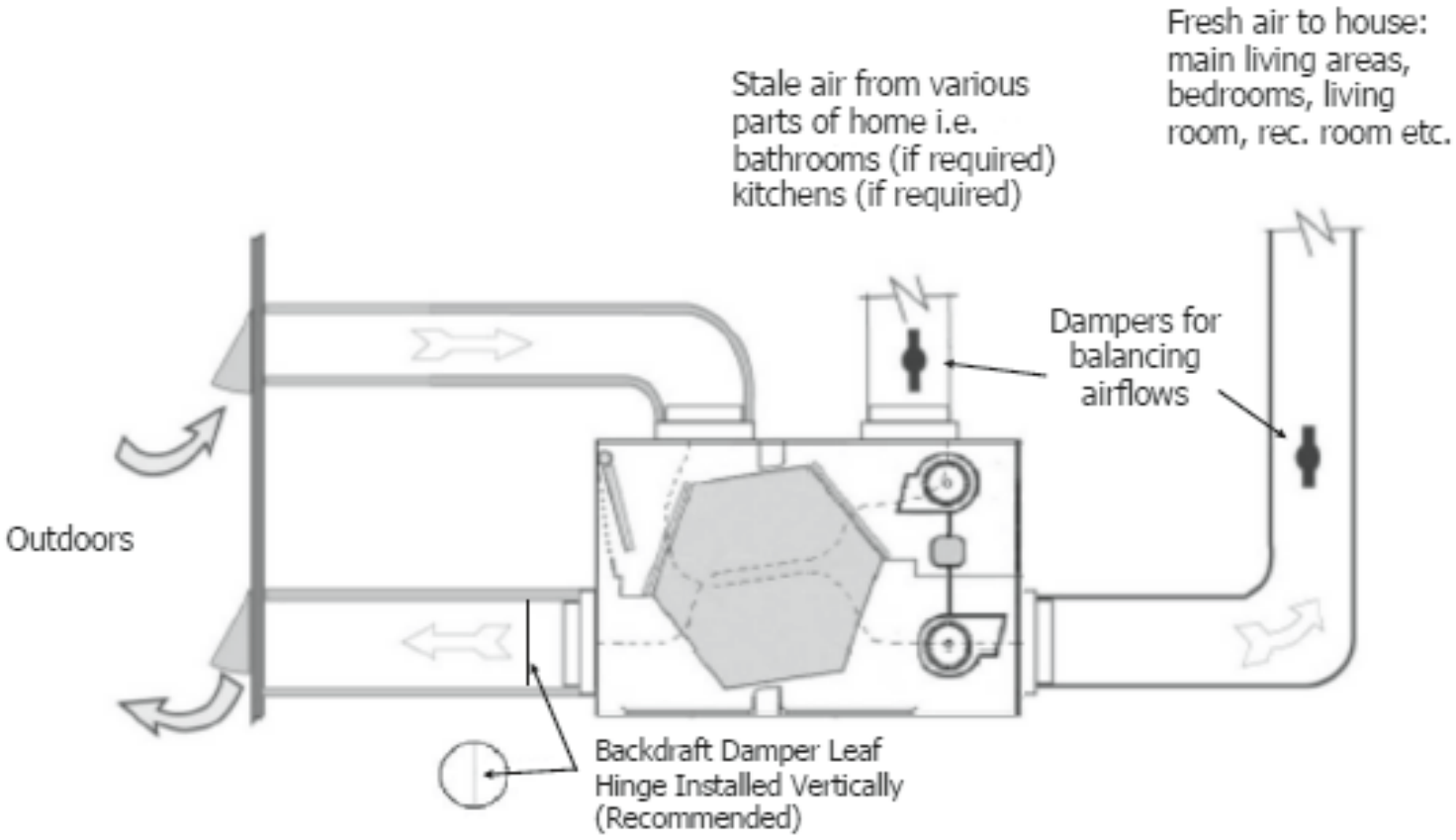
INSTALLATION NOTES

- The HRV must be balanced.
- When balancing, all external exhaust systems should be turned off (i.e. range hood, dryer exhaust, bathroom vents).
- All exhausting appliances should have their own make-up air, as this is not an intended use of the HRV system.
- The duct configuration may change depending on the HRV model.
- The airflow must be confirmed on site using the balancing procedures found in this guide.



SPRING-LOADED BACKDRAFT DAMPER (RECOMMENDED)

Install the backdraft damper with the leaf hinge vertically.
The damper is installed on the “Stale Air to Outside Collar”.



CAUTION

- Verify existing local codes in your region to determine what is acceptable.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only.
- Backdraft dampers are recommended for the stale air to outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

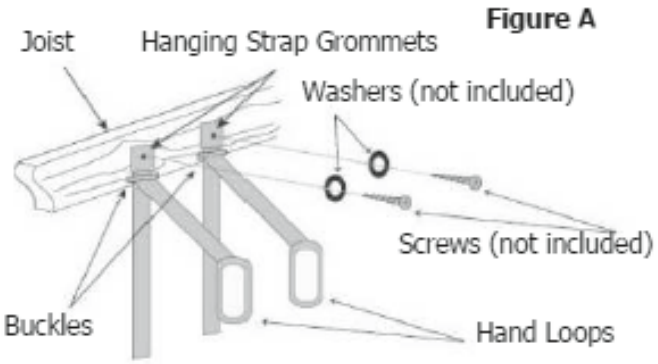
Hanging Straps

INSTALLATION NOTES

Use 4 screws and 4 washers (not included) to attach the hanging straps to the floor joists. The washer must be wider than the eyelet of the grommet on the hanging strap. The hanging straps are designed to reduce the possibility of noise, resonance and harmonics.

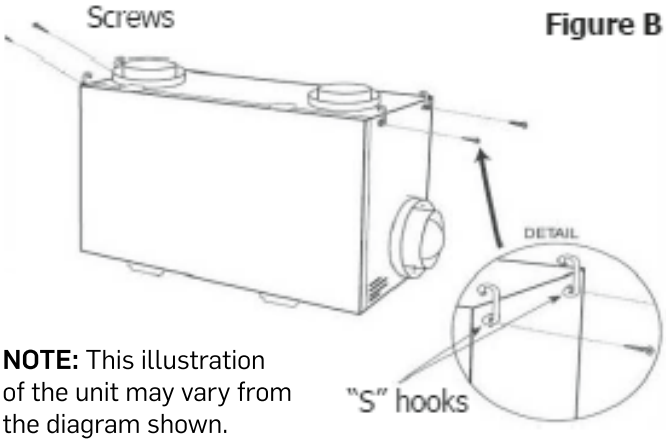
Step 1: Insert the screws and washers (not included) through the hanging strap grommets and fasten to the joists.

Figure A



Step 2: Unscrew the 4 machine screws located on the upper side of the unit. Attach the "S" hooks and reinsert the machine screws.

Figure B



NOTE: This illustration of the unit may vary from the diagram shown.

Step 3: Hook the bottom grommets of the straps through the "S" hooks. Pull down vertically on the handle loops while lifting the bottom of the unit.

Figure C

NOTE: Pull down on the hand loops while lifting

Step 4: Level the unit from right to left to right and front to back. Adjust the unit up by pulling down vertically on the hand loops while lifting up on the bottom of the cabinet.

Step 5: Fold the hand loops in excess strap and secure with a nylon tie (not included).

CAUTION

- You must push up on the bottom of the HRV when pulling the hanging straps.
- The device must be level in order to ensure proper drainage.

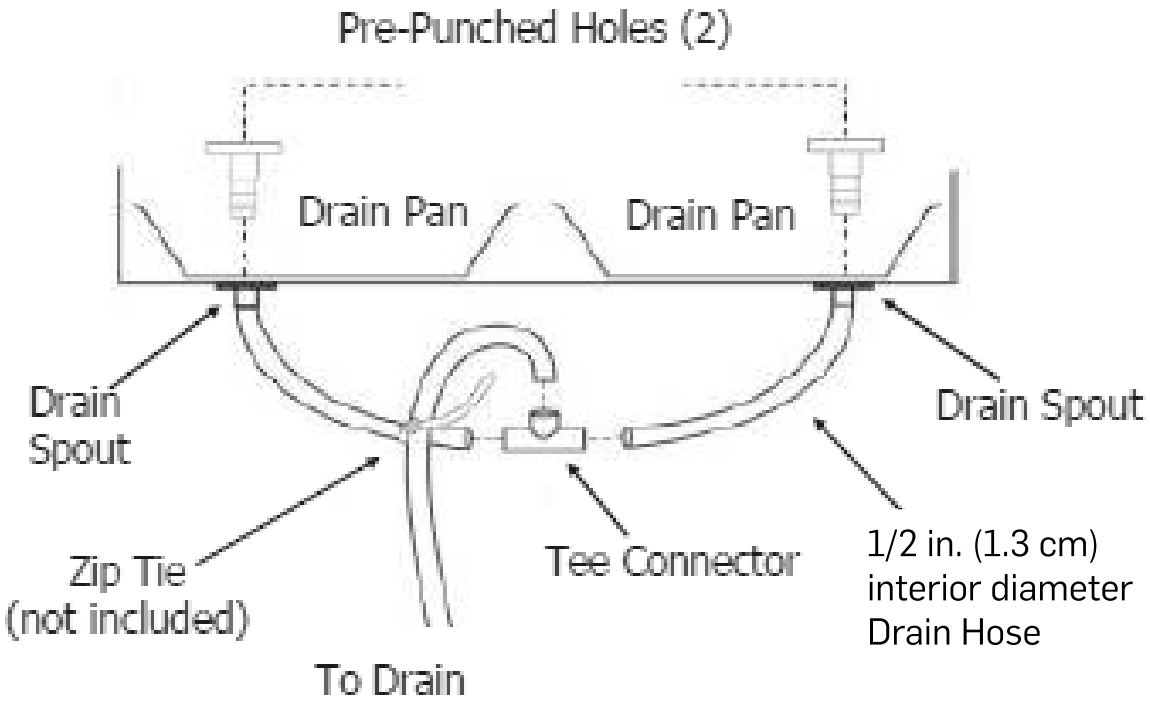
Drain Connection

INSTALLATION NOTES

The HRV cabinet has pre-punched holes for the drain (see below). The HRV may produce some condensation during a defrost cycle. This water should flow into a nearby drain, or be taken away by a condensate pump.

1. Insert the drain spout through the hole in the drain pan.
2. Tighten the nut which holds the drain spout in place.
3. Construct a P-trap using the plastic tee connector.
4. Cut two 1/2 in. (1.3 cm) diameter drain hose lengths (not included) and connect the other ends to the two drain spouts.
5. Position the tee connector to point upward and connect the drain line.
6. Tape or fasten base to avoid any kinks.
7. Pour a cup of water into the drain pan of the HRV after the drain connection is complete. This creates a water seal which will prevent odours from being drawn up the hose and into the fresh air supply of the HRV.

DRAIN HOSE PLUMBING



WARNING

- The HRV and all condensate lines must be installed in a space where the temperature is maintained above the freezing point. If not, freeze protection must be provided,
- Drain trap and tubing must be below the bottom of the door with 1/4 in. (0.6 cm) per foot downward slope away from the unit.
- A secondary drain pan may be required to protect from condensate leakage.

Grilles

Adjustable grilles should be used to balance the flow rates into and out of various rooms. The grilles should not be adjusted after balancing the unit.

Grilles or diffusers should be positioned high on the wall or in the ceiling. The kitchen exhaust should never be connected to the range hood. They should be installed at least 4 ft (1.2 m) horizontally away from the stove.

Field-supplied balancing dampers should be installed outside of the unit to balance the amount of stale air being released with the amount of fresh air being brought into the house. Refer to airflow balancing section.

The TechGrille

The TechGrille is a round, fully adjustable grille, which provides quiet air distribution.

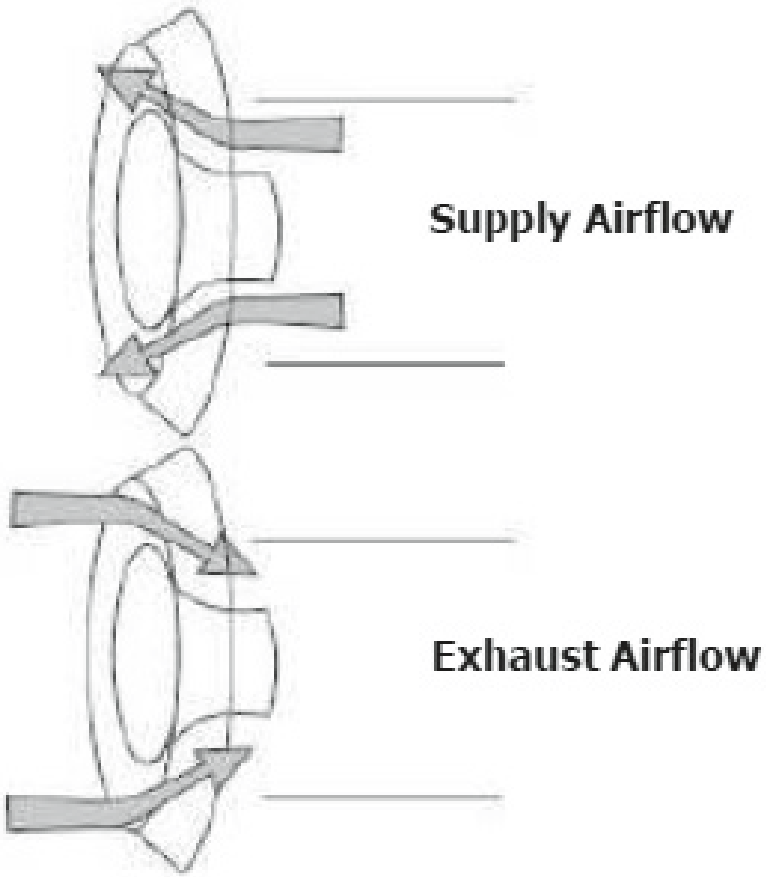
Available in:

4 in. (10.2 cm) diameter

5 in. (12.7 cm) diameter

6 in. (15.2 cm) diameter

8 in. (20.3 cm) diameter

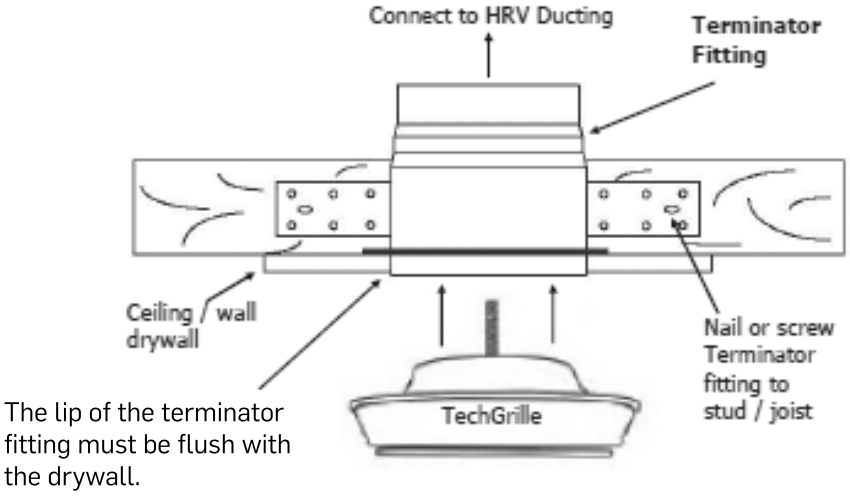


Grille Fittings

TERMINATOR FITTING

Use this rough-in fitting before the drywall is installed.

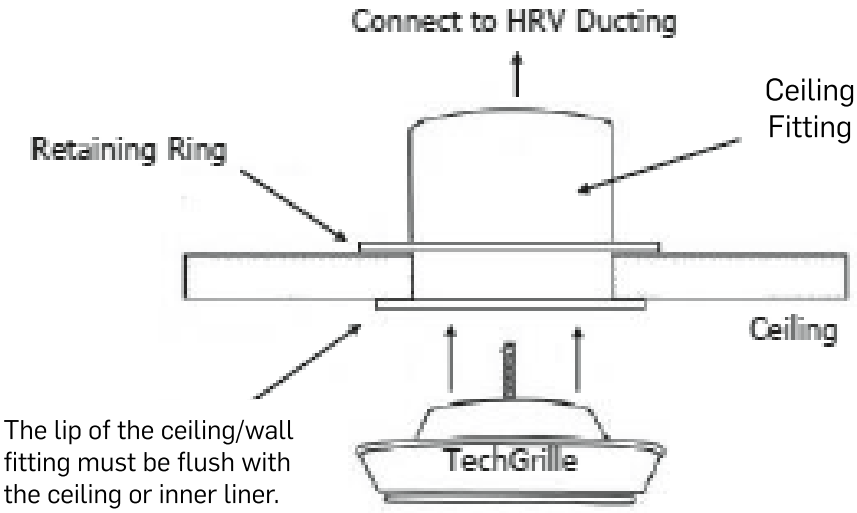
- Nail or screw fitting onto the stud or joist.
- Available sizes: 4 in., 5 in., and 6 in. (10.2 cm, 12.7 cm, 15.2 cm).
- Adapts to ridged and flex ducting.
- Strong attachment for grilles, either vertically or horizontally.



SUSPENDED CEILING/WALL FITTING

Use this fitting for ceiling tiles or finished/installed drywall.

- Cut a hole through the ceiling tile, insert the fitting and use the retaining ring to hold the fitting in place.
- For finished/installed drywall, use caulking around the lip if you do not have access to attach the retaining ring.
- Available size: 6 in. (15.2 cm) diameter.



CAUTION

- Do not mount exhaust grille within 4 ft (1.2 m) (horizontally) of a stove to prevent grease from entering the unit.

Weatherhoods

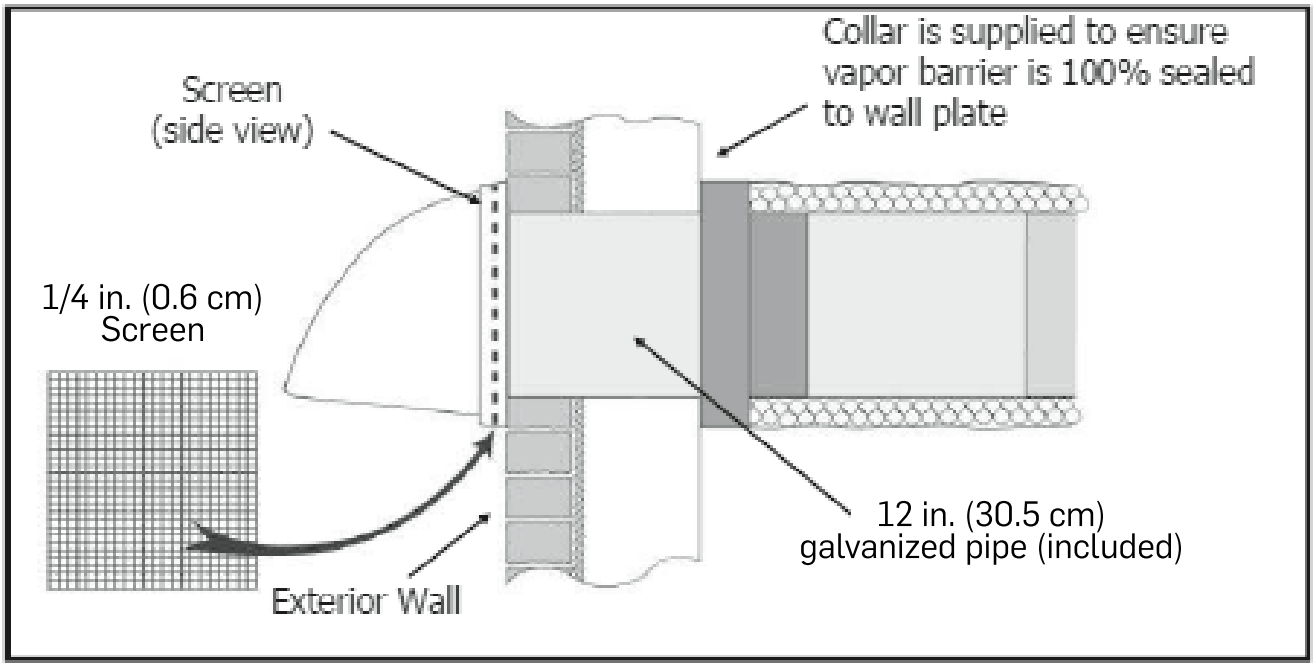
Fixed covered weatherhoods have a built-in bird screen with a 1/4 in. (0.6 cm) mesh to prevent foreign objects from entering the ductwork.

INSTALLATION NOTES

The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and the appropriate port on the HRV. It is very important that the fresh air intake line be given special attention to make sure it is well sealed. A good bead of high quality caulking (preferably acoustical sealant) will seal the inner flexible duct to both the HRV port and the weatherhood prior to clamping.

The flexible insulated duct that connects the two outside weatherhoods to the HRV should be stretched tightly and be as short as possible to minimize air flow restrictions.

Twisting or folding the duct will severely restrict airflow. Hard (rigid) ducting which has been sealed and insulated should be used for runs over 10 ft (3 m). Refer to local building codes.



Weatherhood Requirements

- Do not install in garage, attic or crawl space.

INTAKE:

- Should be located upstream (if there are prevailing winds) from the exhaust outlet.
- Not near dryer vents, furnace exhaust, driveways, oil fill pipes, gas meters, or garbage containers.

EXHAUST:

- Not near a gas meter, electric meter or a walkway where fog or ice could create a hazard.

CAUTION

- Contact local authorities before installing the dual hoods to verify compliance with local building codes.

Main Control Installation

The Digital Control GDXPL02 is to be surface mounted onto a wall. Only one master control should be installed to a ventilation system (the face plate on this illustration may not be exactly the same as yours).

CAUTION

- Pay special attention not to damage the contact pins when removing and detaching the face plate (Figures B and C).

1. For GDXPL02 control, remove the operating instructions card from the top of the control (Figure A).
2. Separate the face plate from the back plate by firmly pulling apart (Figure B). Be careful not to damage face plate contact pins.
3. For GDXPL02 control, place the back plate of the control in the desired location on the wall and pencil mark the wall with the right and left screw holes (Figure C).
4. Remove the back plate from the wall and mark the center hole for the wires in the middle of the screw holes. Refer to Figure C for dimensions.
5. Drill 2 (two) 1/8 in. (0.3 cm) holes for the screws and wall anchors (Figure C). Drill a 1 in. (2.5 cm) hole in the center (Figure C).
6. Pull 3 wire 20 gauge (min.) 100 ft (30 m) length (max.), through the opening in the wall.
7. Connect red, green, and yellow to the wiring terminals located on the back plate (Figure C).
8. Attach the back plate to the wall using two supplied screws and anchors.
9. Attach the face plate to the back plate (Figure B). Note: Be careful to correctly align the face plate to avoid damaging the face plate contact pins.
10. Insert the operating instructions card into the control (Figure A).
11. Connect the 3 wire 20 gauge (min.) 100 ft (30 m) length (max.) to the terminal block located on ventilator (Red #3, Yellow #4 and Green #5).

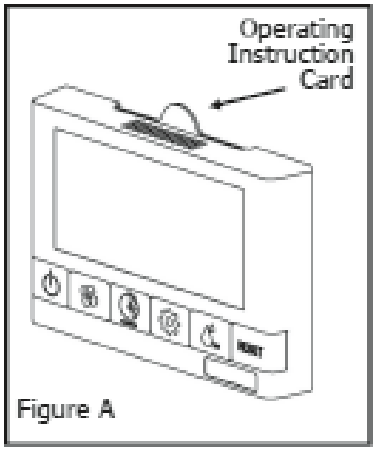


Figure A

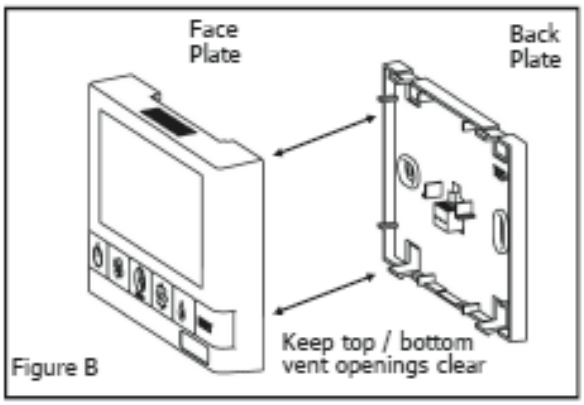


Figure B

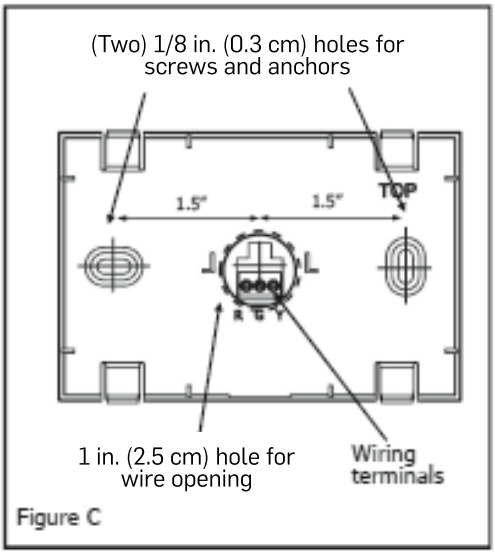
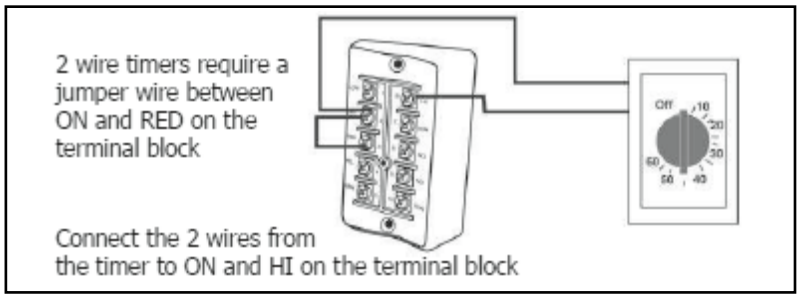


Figure C

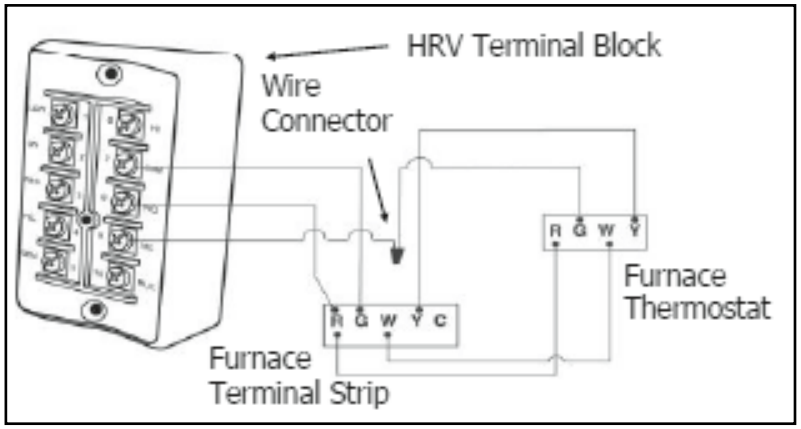
Mechanical Timer Installation (not included)

The Mechanical Timer is a 2 wire “dry contact” timer. A jumper wire must be connected between 2 (ON) and 3 (RED). Connect the 2 timer wires to ON and HI.



INTERLOCKING THE HRV TO AN AIR HANDLER OR FURNACE BLOWER

Connecting the HRV as illustrated will ensure the air handler/furnace blower motor is operating whenever the HRV is venting. The HRV must be interlocked to the furnace/air handler with a simplified installation (return/return installation) and should be interlocked with a partially dedicated installation.



SETTING “STANDBY” WHEN USING A MAIN CONTROL

The HRV will be “fully-off” when the off position is selected on the Main Control. Timers and/or other controls will not function when the HRV is in the off position. The “fully-off” feature can be modified to “standby-off” by adding a jumper on the terminal block between 2 (ON) and 3 (RED). “Standby” can also be achieved by setting the main control to the ON position and selecting speed 0*. Timers and/or additional controls will initiate high speed ventilation when activated.

*Speed 0 is not available on all controls.

OPERATING THE HRV WITHOUT A MAIN CONTROL AND ADDING DRY CONTACT CONTROLS

A jumper must be in place between 2 (ON) and 3 (RED) on the terminal block to activate the HRV for timers and/or dry contact controls.

ADDING DRY CONTACT CONTROLS

Low Speed: A jumper between 2 (ON) and 1 (LOW) initiates low speed ventilation.

High Speed: A jumper between 2 (ON) and 6 (HI) initiates high speed ventilation.

Dehumidistat: A dry contact for a Dehumidistat is connected between 2 (ON) and 10 (BLK)

The HRV must have a jumper in place between 2 (ON) and 3 (RED) on the terminal block when installing the unit without a main control.

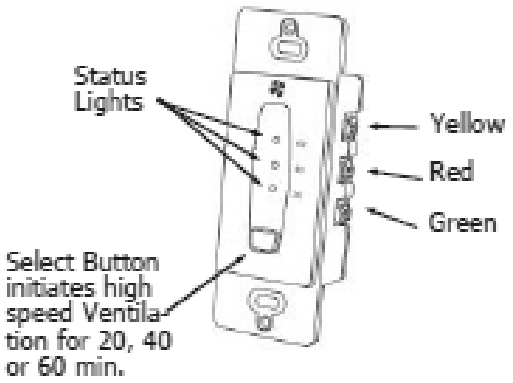
CAUTION

- Timers mount in standard electrical boxes.
- Use 3 wire 20 gauge (min.) 100 ft (30 m) length (max.) low voltage wire and multiple timers individually wired back to the unit.
- Consideration should be given to competing airflows when connecting the HRV in conjunction with an air handler/ furnace blower system.
- Building codes in some areas require “fully-off” functionality. Check with your local building authority before modifying the unit to “standby-off”. Unintentional operation of the HRV by the end user may occur if the unit is modified from “fully-off” to “standby-off”.

Installation and Operation 20/40/60 Minute Timer: 99-DET01

INSTALLATION

The 99-DET01 Timers are to be surface mounted onto a wall. Multiple Timers may be installed in a system. Once mounted, connect Yellow, Red, Green wires on side of 99-DET01 to the terminal block on unit using 3 wire 20 gauge (min.) 100 ft length (max.).



OPERATING THE TIMER

Press and release the Select Button to activate a 20, 40 or 60 minute HIGH speed override cycle. The Light will illuminate and the unit will run on HIGH speed Ventilation for the selected time. The Light will dim after 10 sec. for run time. The Light will flash during the last 5 min. of the cycle. The Timer connected to the unit will illuminate for the duration of the override when the Select Button is pressed.

LOCKOUT MODE

Lockout Mode is useful if you wish to disable the Timers. The Timer can be set to lockout mode by pressing and holding the Select Button for five seconds. After 5 sec., the Light will flash; release the Select Button. The Timer is now in lockout mode. If the Select Button is pressed during lockout mode the Light will momentarily illuminate but no override will be initiated.

If lockout mode is initiated when the Timer is activated, the Timer will continue its timed sequence but will not allow any further overrides to be initiated. Lockout mode can be unlocked by pressing and holding the Select Button for 5 sec. After 5 sec. the Light will stop flashing. Release the Select Button and the Timer will now operate normally.

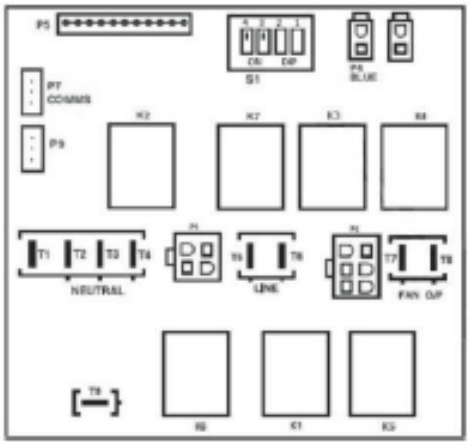
Installer Selectable High Speed Settings

The circuit board on this unit has adjustable DIP switches for the se lection of speeds Hi 1, Hi 2 or Hi 3. The factory setting is Hi 3. Refer to the reference charts (pages 17 to 20) for the airflow rates on Hi 1, Hi 2 and Hi 3.

NOTE: Low speed is not adjustable.

DESCRIPTION	SWITCH 1	SWITCH 2	SWITCH 3	SWITCH 4
Hi 3 (factory default)	Factory Setting “ON”	Leave on factory Setting	ON	ON
Hi 2	Factory Setting “ON”	Leave on factory Setting	OFF	ON
Hi 1	Factory Setting “ON”	Leave on factory Setting	ON	OFF

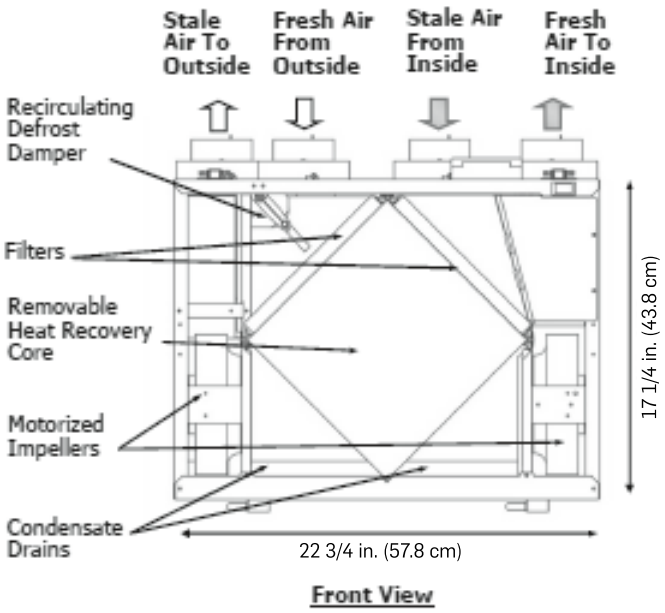
Illustration of DIP switches 3 and 4 in the ON position (factory setting).



Functionality of DIP Switches 1 and 2

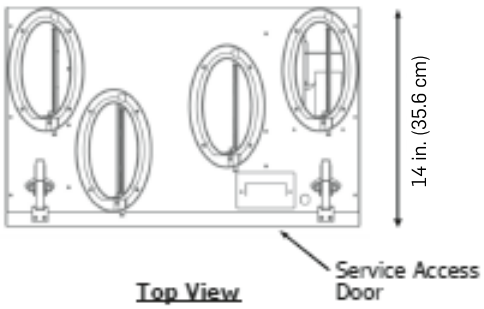
DIP 1 ON	R2000 defrost cycle disabled (factory default)
DIP 1 OFF	R2000 defrost cycle enabled
DIP 2 ON	Recirculating defrost models
DIP 2 OFF	Damper defrost and fan defrost models

Dimensional Drawings for **NEKTRA 150** Model



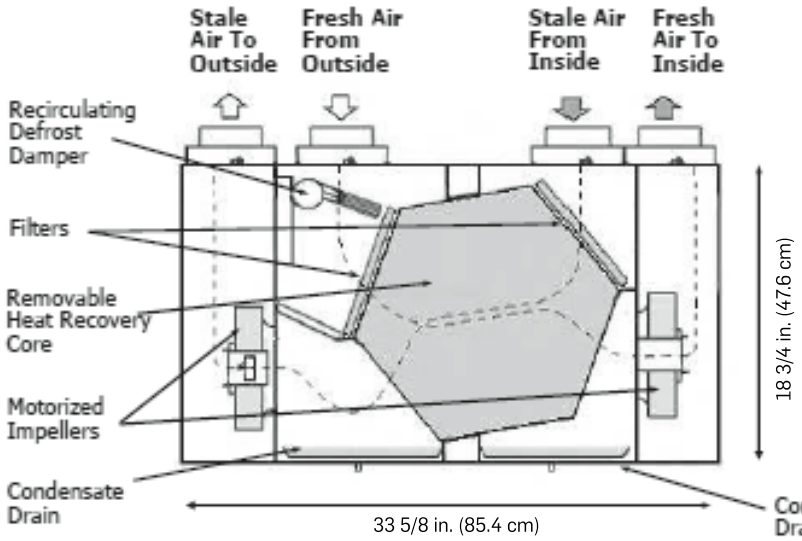
Front View

Note: Front clearance of 25 in. (63.5 cm) is recommended for servicing unit. All ducts use **5 in. (12.5 cm)** oval collars, balancing dampers are located on all collars.



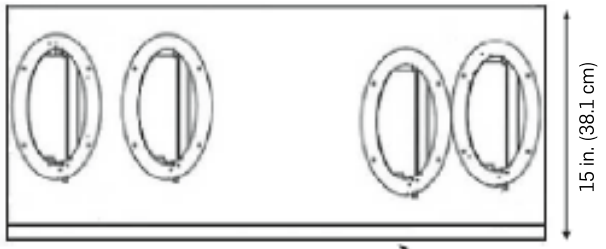
Top View

Dimensional Drawings for **NEKTRA 200** Model



Front View

Note: Front clearance of 25 in. (63.5 cm) is recommended for servicing unit. All ducts use **6 in. (15 cm)** oval collars, balancing dampers are located on all collars.



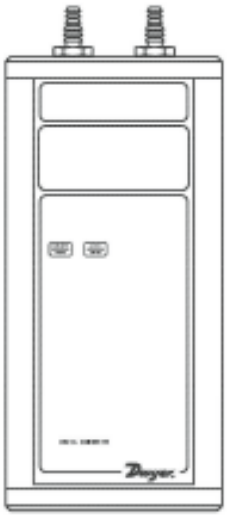
Top View

Balancing the Airflows

Balancing the airflows is critical to ensuring that the amount of air introduced from the outside of the building equals the amount of air exhausted to the outside of the building. If these two airflows are not properly balanced, the following issues may occur:

- A positive or negative pressure in the house;
- HRV not operate at its maximum efficiency;
- The unit not defrost properly.

Digital Manometer



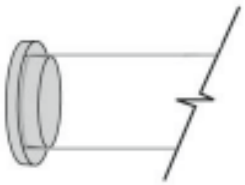
AIRFLOW MEASURING GAUGE

To balance the airflows, use a digital manometer capable of displaying differential pressures with a 3-digit precision.

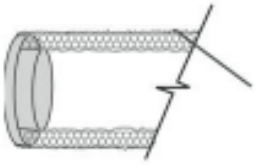
Units with Balancing Collars

Install these units with the dampers fully open and damper down the duct with the higher airflow to equal the lower airflow. Refer to the “Balancing the Airflows” page found in this manual. All other units require dampers for balancing airflows installed into the “Fresh Air to Building” and “Stale Air from Building” ductwork.

Push and turn with slotted screw-driver. Damper automatically locks when pressure is released.



Hard / rigid ducting



Insulated flexible ducting

1/2 in (1.3 cm)

When connecting ductwork to the collar, take note where screws are located. Screws should be located no further than 1/2 in (1.3 cm) from outside edge of collar, so as not to impede operation of the damper.

CAUTION

- Continuous, excessive, positive pressure may drive moist indoor air into the external walls of the building. Once inside the external walls, moist air may condense (in cold weather) and degrade structural components or cause locks to freeze.
- Continuous, excessive, negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement or ground contact areas, and may also cause the backdrafting of vented combustion equipment.

CAUTION

- Installations where the HRV is ducted directly to the return of a furnace may require additional dampening on the fresh air to building duct. This is due to the high return static pressures found in some furnace installations.

Balancing Preparation

Prior to performing the air balancing procedure, perform the following steps:

- Seal the ductwork.
- Confirm the installation and proper operation of all the components of the HRV.
- Fully open the balancing dampers.
- Turn off all household exhaust devices (range hood, clothes dryer, bathroom fans).
- Set the HRV at high speed.
- Prior to balancing the unit, first adjust airflows in the branch lines to specific areas of the house.
- If the outdoor temperature is below 0°C (32°F), ensure the unit is not running in defrost.
- If the system is a simplified or partially dedicated installation, operate the furnace/air handler at high speed.

Balancing the Airflows using the Door Ports

Door balancing ports are designed to be used in the conjunction with a digital manometer to measure the stale and fresh airflows for balancing.

Step 1: Prepare the digital manometer by connecting the hoses to the low and high pressure side of the gauge.

Step 2: Open the HRV door. Remove the 4 door port covers by carefully pushing them out from the back side of the door.

Step 3: Close the HRV door. Initiate power and operate the HRV on high speed. Operate the forced air system on high speed (if the HRV is connected to the forced air system).

Step 4: Insert the 2 rubber fittings from the gauge to the stale air balancing ports (See illustration). Seal the fresh air balancing ports with tape. Record your reading.

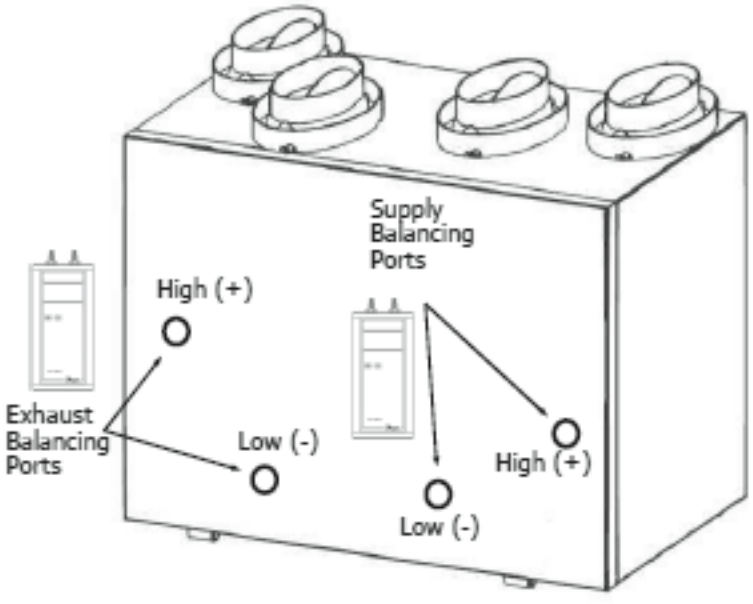
Step 5: Insert the 2 rubber fittings from the gauge to the fresh air balancing ports (See illustration). Seal the stale air balancing ports with tape. Record your reading.

Step 6: Refer to the “Airflow Reference Chart” for your model and determine the fresh air and stale airflow rates (pages 17 to 20).

Step 7: Damper down the higher airflow and repeat Steps 4 to 6 as required until both airflows are identical (balanced).

Step 8: Remove the tape and reinstall the 4 door port covers.

Balancing Ports for the NEKTRA 150 and NEKTRA 200 models



Digital manometer connection overview

Airflow Reference Charts **NEKTRA 150** Model

The **NEKTRA 150** model has 3 airflow charts in order to ensure the adjustable high-speed settings that the installer can choose. Refer to "Installer Selectable High Speed Settings" on page 13 of this guide for instructions on how to adjust the circuit board DIP switches. Hi 3 is the factory setting (the highest speed).

Hi 3			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.580	145		177
0.590	148		174
0.600	150		172
0.610	153		169
0.620	155		167
0.630	158		164
0.640	160		162
0.650	163		159
0.660	165		157
0.670	168		154
0.680	170		152
0.690	173		149
0.700	175		147
0.710	178		144
0.720	180		142
0.730	183		139
0.740	185		137
0.750	188	175	134
0.760	190	172	132
0.770	193	169	129
0.780	195	167	127
0.790	198	164	124
0.800	201	161	121
0.810	203	158	119
0.820	206	155	116
0.830	208	153	114
0.840	211	150	111
0.850	213	147	109
0.860	216	144	106
0.870	218	141	104
0.880	221	139	101

Hi 2			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.360	90		160
0.370	93		158
0.380	95		156
0.390	98		154
0.400	100		151
0.410	103		149
0.420	105		147
0.430	108		144
0.440	110	155	142
0.450	113	153	140
0.460	115	151	138
0.470	118	149	135
0.480	120	147	133
0.490	123	145	131
0.500	125	144	129
0.510	128	142	126
0.520	130	140	124
0.530	133	138	122
0.540	135	136	119
0.550	138	134	117
0.560	140	132	115
0.570	143	130	113
0.580	145	129	110
0.590	148	127	108
0.600	150	125	106
0.610	153	123	104
0.620	155	121	101
0.630	158	119	99
0.640	160	117	97
0.650	163	115	94
0.660	165	114	92

Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.280	70		140
0.290	73		138
0.300	75		135
0.310	78		133
0.320	80		131
0.330	83		129
0.340	85		126
0.350	88		124
0.360	90		122
0.370	93	139	120
0.380	95	137	117
0.390	98	135	115
0.400	100	133	113
0.410	103	131	111
0.420	105	129	108
0.430	108	127	106
0.440	110	125	104
0.450	113	123	102
0.460	115	121	99
0.470	118	119	97
0.480	120	117	95
0.490	123	115	93
0.500	125	113	90
0.510	128	111	88
0.520	130	109	86
0.530	133	107	84
0.540	135	105	81
0.550	138	102	79
0.560	140	100	77
0.570	143	98	75
0.580	145	96	72

0.890	223	136	99
0.900	226	133	96
0.910	228	130	94
0.920	231	127	91
0.930	233	125	89
0.940	236	122	86
0.950	238	119	84
0.960	241	116	81
0.970	243	113	79
0.980	246	111	76
0.990	248	108	74
1.000	251	105	71
1.010	253	102	69
1.020	256	100	66
1.030	258	97	
1.040	261	94	
1.050	263	91	
1.060	266	88	
1.070	268	86	
1.080	271	83	
1.090	273	80	
1.100	276	77	
1.110	278	74	

0.670	168	112	90
0.680	170	110	88
0.690	173	108	85
0.700	175	106	83
0.710	178	104	81
0.720	180	102	79
0.730	183	100	76
0.740	185	99	74
0.750	188	97	72
0.760	190	95	69
0.770	193	93	67
0.780	195	91	65
0.790	198	89	63
0.800	200	87	60
0.810	203	85	58
0.820	205	84	56
0.830	208	82	54
0.840	210	80	51
0.850	213	78	
0.860	215	76	
0.870	218	74	
0.880	220	72	
0.890	223	70	
0.900	225	69	
0.910	228	67	
0.920	230	65	
0.930	233	63	
0.940	235	61	
0.950	238	59	
0.960	240	57	
0.970	243	55	
0.980	245	54	
0.990	248	52	
1.000	250	50	

0.590	148	94	70
0.600	150	92	68
0.610	153	90	66
0.620	155	88	63
0.630	158	86	61
0.640	160	84	59
0.650	163	82	57
0.660	165	80	54
0.670	168	78	52
0.680	170	76	50
0.690	173	74	48
0.700	175	72	45
0.710	178	70	43
0.720	180	68	41
0.730	183	66	39
0.740	185	64	
0.750	188	62	
0.760	190	60	
0.770	193	58	
0.780	195	56	
0.790	198	54	
0.800	200	52	
0.810	203	50	
0.820	205	48	
0.830	208	45	
0.840	210	43	
0.850	213	41	

Airflow Reference Charts **NEKTRA 200** Model

The **NEKTRA 200** model has 3 airflow charts in order to ensure the adjustable high-speed settings that the installer can choose. Refer to “Installer selectable High Speed Settings” on page 13 of this guide for instructions on how to adjust the circuit board DIP switches. Hi 3 is the factory setting (the highest high speed).

Hi 3			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.500	125	218	231
0.510	128	215	228
0.520	130	212	225
0.530	133	208	223
0.540	135	205	220
0.550	138	202	217
0.560	140	199	214
0.570	143	195	212
0.580	145	192	209
0.590	148	189	206
0.600	150	186	203
0.610	153	183	201
0.620	155	180	198
0.630	158	177	195
0.640	160	174	193
0.650	163	171	190
0.660	165	168	188
0.670	168	165	185
0.680	170	162	182
0.690	173	159	180
0.700	175	156	177
0.710	178	153	175
0.720	180	151	172
0.730	183	148	169
0.740	185	145	167
0.750	188	142	164
0.760	190	140	162
0.770	193	137	159
0.780	195	134	157
0.790	198	132	154
0.800	200	129	152
0.810	203	127	150
0.820	205	124	147
0.830	208	122	145
0.840	210	119	142
0.850	213	117	140
0.860	215	114	138

Hi 2			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.400	100	176	195
0.410	103	173	191
0.420	105	170	188
0.430	108	166	185
0.440	110	163	182
0.450	113	160	178
0.460	115	157	175
0.470	118	154	172
0.480	120	151	169
0.490	123	148	166
0.500	125	145	163
0.510	128	142	160
0.520	130	139	157
0.530	133	136	154
0.540	135	133	151
0.550	138	130	148
0.560	140	127	145
0.570	143	125	143
0.580	145	122	140
0.590	148	119	137
0.600	150	117	134
0.610	153	114	132
0.620	155	111	129
0.630	158	109	126
0.640	160	106	124
0.650	163	104	121
0.660	165	101	118
0.670	168	99	116
0.680	170	97	113
0.690	173	94	111
0.700	175	92	109
0.710	178	90	106
0.720	180	87	104
0.730	183	85	101
0.740	185	83	99
0.750	188	81	97
0.760	190	79	95

Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow
(" w.g.)	(Pa)	(cfm)	(cfm)
0.300	75	163	183
0.310	78	159	180
0.320	80	155	176
0.330	83	152	172
0.340	85	148	169
0.350	88	145	165
0.360	90	142	162
0.370	93	138	159
0.380	95	135	155
0.390	98	132	152
0.400	100	129	149
0.410	103	126	145
0.420	105	123	142
0.430	108	120	139
0.440	110	117	136
0.450	113	114	133
0.460	115	111	130
0.470	118	108	127
0.480	120	105	124
0.490	123	102	121
0.500	125	100	118
0.510	128	97	116
0.520	130	94	113
0.530	133	92	110
0.540	135	89	107
0.550	138	87	105
0.560	140	84	102
0.570	143	82	100
0.580	145	80	97
0.590	148	78	95
0.600	150	75	92
0.610	153	73	90
0.620	155	71	88
0.630	158	69	85
0.640	160	67	83
0.650	163	65	81
0.660	165	63	79

0.870	218	112	135
0.880	220	109	133
0.890	223	107	130
0.900	225	105	128
0.910	228	102	126
0.920	230	100	123
0.930	233	98	121
0.940	235	96	119
0.950	238	94	117
0.960	240	91	114
0.970	243	89	112
0.980	245	87	110
0.990	248	85	108
1.000	250	83	105
1.010	253	81	103
1.020	255	79	101
1.030	258	77	99
1.040	260	75	97
1.050	263	73	94
1.060	265	71	92
1.070	268	69	90
1.080	270	67	88
1.090	273	66	86
1.100	275	64	84
1.110	278	62	82
1.120	280	60	80
1.130	283	59	78
1.140	285	57	75
1.150	288	55	73
1.160	290	54	71
1.170	293	52	69
1.180	295	50	67
1.190	298	49	65
1.200	300	47	63
1.210	303	46	61
1.220	305	44	59
1.230	308	43	58
1.240	310	41	56
1.250	313	40	54
1.260	315	39	52
1.270	318	37	50
1.280	320	36	48
1.290	323	35	46
1.300	325	33	44
1.310	328	32	42
1.320	330	31	40

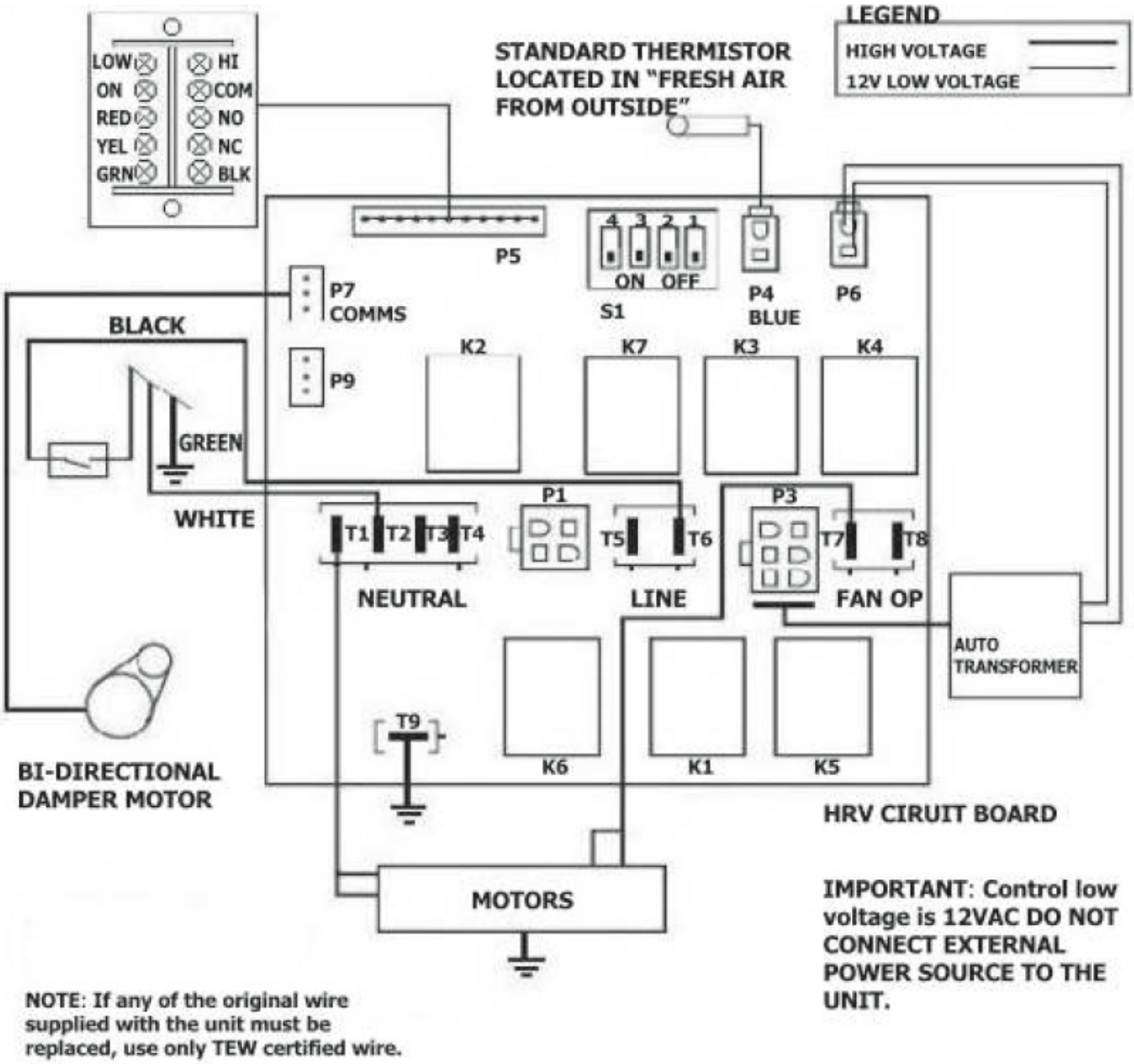
0.770	193	77	92
0.780	195	75	90
0.790	198	72	88
0.800	200	71	86
0.810	203	69	84
0.820	205	67	82
0.830	208	65	80
0.840	210	63	78
0.850	213	61	76
0.860	215	59	74
0.870	218	58	72
0.880	220	56	70
0.890	223	54	68
0.900	225	53	66
0.910	228	51	65
0.920	230	49	63
0.930	233	48	61
0.940	235	46	60
0.950	238	45	58
0.960	240	44	56
0.970	243	42	55
0.980	245	41	53
0.990	248	39	51
1.000	250	38	50
1.010	253	37	48
1.020	255	36	47
1.030	258	34	46
1.040	260	33	44
1.050	263	32	43
1.060	265	31	42
1.070	268	30	40
1.080	270	29	39
1.090	273	28	38
1.100	275	27	37

0.670	168	61	77
0.680	170	59	74
0.690	173	57	72
0.700	175	56	70
0.710	178	54	68
0.720	180	52	67
0.730	183	50	65
0.740	185	49	63
0.750	188	47	61
0.760	190	46	59
0.770	193	44	58
0.780	195	43	56
0.790	198	42	54
0.800	200	40	53
0.810	203	39	51
0.820	205	38	50
0.830	208	37	49
0.840	210	36	47
0.850	213	35	46
0.860	215	34	44
0.870	218	33	43
0.880	220	32	42
0.890	223	31	41
0.900	225	30	40
0.910	228	29	39
0.920	230	28	38
0.930	233	28	37
0.940	235	27	36
0.950	238	27	35

Wiring Diagram

CAUTION

ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY.



Parts Lists for **NEKTRA 150** and **NEKTRA 200** models

RESIDENTIAL HRV – NEKTRA 150

PART NUMBER	DESCRIPTION	QTY.
23-249R	Fan Motor	1
92-228	Damper Motor	1
99-375	Circuit Board & Transformer Kit	1
19-116	Transformer	1
26-TB01	Terminal Block	1
26-211	Thermistor	1
14-107R	Door Interlock Switch (plastic)	1
65-160	Foam Filter	2
35-411R	Drain Spout Assembly Kit	1

RESIDENTIAL HRV – NEKTRA 200

PART NUMBER	DESCRIPTION	QTY.
63-205-R	Right Blower	1
63-205-L	Left Blower	1
92-222	Damper Motor	1
99-375	Circuit Board & Transformer Kit	1
19-116	Transformer	1
26-TB01	Terminal Block	1
15-200R	Defrost Temperature Sensor / Thermistor	1
14-107R	Door Interlock Switch (plastic)	1
65-161	Foam Filter for Hexagon Core 8 1/8 in. x 13 in. x 3/4 in. (20.6 cm x 33 cm x 1.9 cm)	2
99-65-186	6-Filter Set for Hex Core Units	1
81-007	Metal Filter Clip	2
35-411R	Drain Spout Assembly Kit	1

Troubleshooting

PROBLEM	CAUSES	SOLUTIONS
Poor airflows	· 1/4 in. (0.6 cm) mesh on outside hood 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. · Open and adjust dampers. · Have electrician check supply voltage. · Check duct installation. · Increase the speed of the HRV. · Have contractor balance HRV.
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 diffuse or grilles so as not to directly spill the supply air on the occupant (i.e. over a sofa). · Turn down the HRV supply speed. A small duct heater (1 kW) 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.
Dehumidistat is not operating	· Outdoor temperature is above 15°C (59°F). · Improper low voltage connection. · External low voltage is shortened out by a staple or nail. · Check Dehumidistat setting because it may be OFF.	· Dehumidistat is functioning normally (see user guide). · Check that the correct terminals have been used. · Check external wiring for a short. · Set the Dehumidistat at the desired setting.
Humidity levels are too high; condensation is appearing on the windows	· Dehumidistat is set too high. · HRV is not sized to handle a hot tub, indoor pool etc. · Lifestyle of the occupants. · Moisture coming into the home from an unvented or unheated crawl space. · Moisture is remaining in the wash room and kitchen areas. · Condensation seems to form in the spring and fall. · HRV is set at too low a speed.	· Set Dehumidistat lower. · Cover pools, hot tubs when they are not in use. · Avoid hanging clothes to dry and storing wood inside. · Vent crawl space and place a vapor barrier on the floor of the crawl space. · Ducts from the bathroom should be sized to remove moist air as effectively as possible, use of a bathroom fan for short periods will remove additional moisture. · On humid days, as the seasons change, some condensation may appear but the indoor air quality will remain high with some HRV use. · Increase speed of the HRV.
Humidity levels are too low	· Dehumidistat setting set too low. · Blower speed of HRV is too high. · Lifestyle of occupants. · HRV airflows may be improperly balanced.	· Set Dehumidistat higher. · Decrease HRV blower speed. · Humidity may have to be added through the use of humidifiers. · Have contractor balance HRV airflows.
HRV and/or ducts frosting up	· HRV airflows 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. · Ensure damper defrost is operating during self-test.
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.
Excess water in the bottom of the HRV	· Drain pans plugged. · Improper connection of HRV's drain lines. · HRV is not level. · Drain lines are obstructed. · HRV heat exchange core is not properly installed.	· Look for obstructions in the drain line. · Look for kinks in the drain line. · Look drain connection.
Excessive vibration	· Dirt on fan wheels.	· Have contractor service HRV.

CONSUMER INFORMATION

Brand owners must include the following information on the product model, in product model literature, and on the brand owner's website:

A. To ensure quiet operation of the ENERGY STAR certified H/ERV, each product model must be installed using sound attenuation techniques appropriate for the installation.

B. The way your heat/energy-recovery ventilator is installed can make a significant difference to the electrical energy you use. To minimize the electricity use of the heat/energy-recovery ventilator, a stand-alone fully ducted installation is recommended. If you choose a simplified installation that operates your furnace air handler for room-to-room ventilation, an electrically efficient furnace that has an electronically commutated (EC) variable speed blower motor will minimize your electrical energy consumption and operating cost.

C. Installation of a user-accessible control with your product model will improve comfort and may significantly reduce the product model's energy use.

D. The brand owner must provide clear and consistent labelling of ENERGY STAR certified H/ERVs. The ENERGY STAR mark must be clearly displayed on the top/front of the product model, on product model packaging, in product model literature (i.e., user manuals, spec sheets, etc.), and on the brand owner's website where information about ENERGY STAR certified models is displayed.

E. An ENERGY STAR disclaimer label, which includes the following statement, must be placed on the product model packaging of ENERGY STAR certified H/ERVs:

> **"This product earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. This product meets ENERGY STAR requirements only when used in Canada."**

The placement of this statement must be adjacent to the ENERGY STAR mark and any text describing the ENERGY STAR program and/or certified product models.

The disclaimer label will be available for Participants to download from the ENERGY STAR website with other ENERGY STAR marks. It shall be at least 3" x 2" in size and may be vertical or horizontal. The Participant may enlarge it for larger product model packaging surfaces if so desired.

The disclaimer label must be clearly displayed on the same side as the ENERGY STAR mark on the product model and product model packaging, in the installation/instruction manual, and on the Participant's website where information about ENERGY STAR certified models is displayed.

ONE (1) YEAR LIMITED WARRANTY

NOVELCA offers this limited warranty, which is for one (1) year from the original date of purchase of this Nektra Air Exchanger Installation Kit (hereafter: the "**Product**"). This limited warranty is valid only for the original purchaser of the Product and it may not be transferred. This limited warranty is not meant to exclude, restrict, limit or modify the legal warranty given by law to the purchaser of the Product. This Product is a quality product. It was made and selected with care. If one or many parts of the Product were defective, the retailer of the Product commits to replace or repair, to its sole discretion, the defective part or parts without charge under the following cumulative conditions: 1) the purchaser must contact the retailer where he purchased the Product; 2) the purchaser must bring back the defective part or parts or the Product to the retailer; 3) the purchaser must hand back to the retailer the invoice as proof of purchase and date of purchase of the Product; 4) the purchaser must supply the Product identification information, including the serial number or the model number; and 5) the period of one (1) year covered by this limited warranty must not be expired. If the retailer decides to replace the defective part or parts, the replacement part or parts would be new or reconditioned, equivalent to new parts.

This limited warranty is not applicable: 1) to consumable parts; 2) to normal wear; 3) when the Product is used for other purposes than residential ones or for other purposes than those determined by the manufacturer; 4) when the serial number or other identification information of the Product is erased or withdrawn; 5) to damages that are only aesthetics and do not affect the normal use of the Product; 6) when the damages, defects, faults or other problems arise from: a) an abnormal use of the Product; b) an inadequate maintenance of the Product; c) a faulty installation or a faulty assembly of the Product or an installation or assembly that is not in accordance with the installation guide or the user's manual (if one exists); d) a modification, a repair or dismantle to the Product by someone other than those authorized by the retailer or the manufacturer; e) the transportation by the purchaser, his employee, officer or representative; f) a negligence by the purchaser, his employee, officer or representative; g) an accident; h) a case of force majeure (are considered force majeure: natural disasters, lightning, flood, fire, etc.); or i) any event that is not caused by the Product itself. In no circumstances can the manufacturer or the retailer be held responsible for any extraordinary, special, indirect, accessory or consecutive damages resulting from the use of or the incapacity to use the Product. Their responsibility is limited to the sales price of the Product as indicated on the invoice and paid by the purchaser at the time of purchase. It is understood that this is not meant to limit, restrict or exclude the protection given by the legal warranty.

French version VS English version

In case of discrepancy between the French and the English versions of the text of this limited warranty, the French version would prevail.

Modifications

This warranty text could be amended at any time.

NOVELCA
Québec, Canada G2J 1C8