

VERTICAL (VCH) AND HORIZONTAL (HCA/HCH) IN-WALL STRAIGHT COOL CONDENSING UNITS

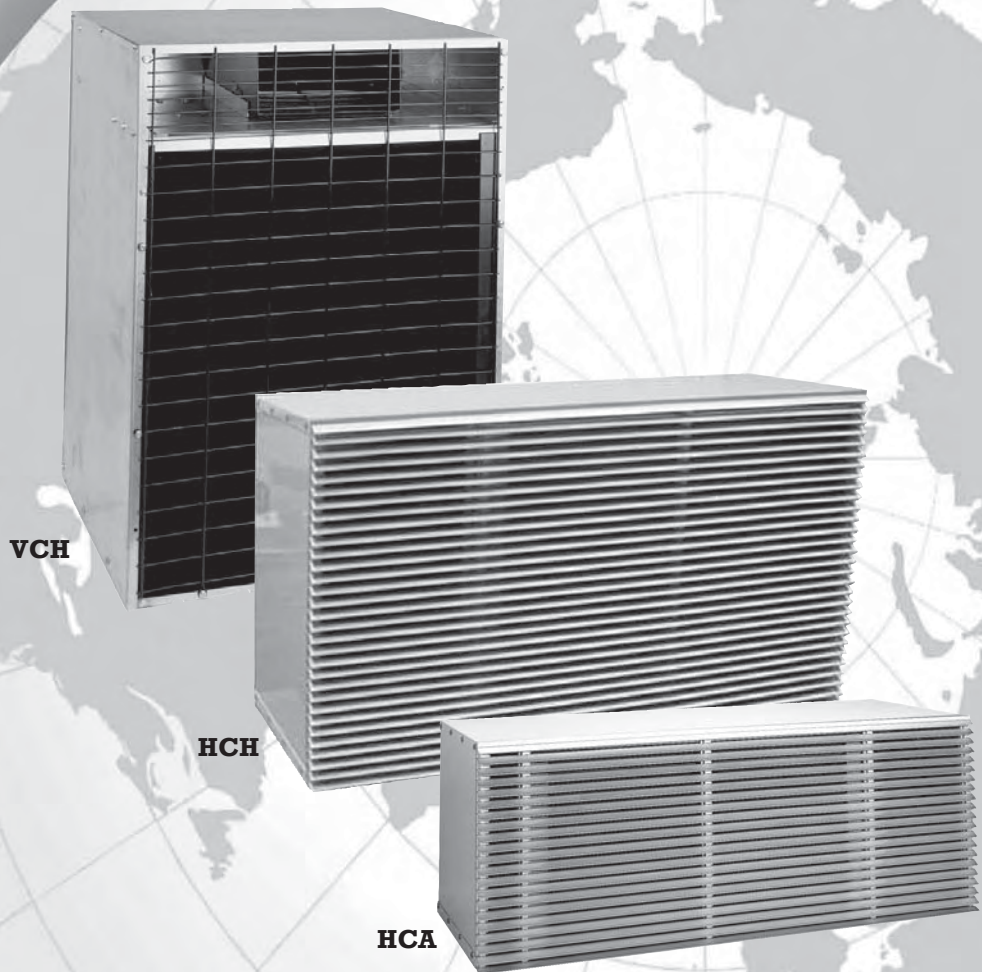
Nominal Circuits:

VCH (18,000, 24,000 & 30,000 Btuh)

HCA (18,000 & 24,000 Btuh)

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EMI  **AmericaSeries**
Comfort Where It Counts.

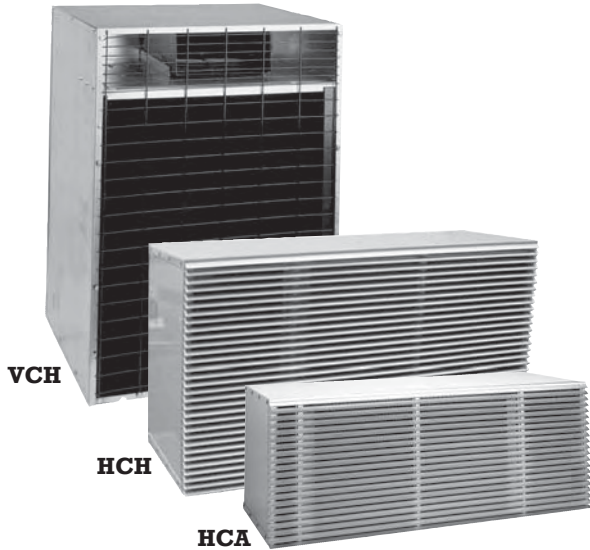


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An  **ECR International Brand**
An ISO 9001-2000 Certified Company



INSTALLATION, OPERATION, AND MAINTENANCE



EMI  *AmericaSeries*
Comfort Where It Counts.

VERTICAL (VCH) AND HORIZONTAL (HCA/HCH) IN-WALL STRAIGHT COOL CONDENSING UNITS

NOMINAL CAPACITIES: VCH (18,000, 24,000, & 30,000 Btuh), HCA
(18,000 & 24,000 Btuh), HCH (24,000 & 30,000 Btuh)

INSTALLER RESPONSIBILITIES

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE!!

This manual is intended as an aid to qualified service personnel for proper installation, operation, and maintenance of the EMI AmericaSeries Vertical and Horizontal In-Wall Condensing Unit (VCH, HCA, or HCH). Please read these instructions thoroughly and carefully before attempting installation or operation. Failure to follow these instructions may result in improper installation, operation, service, or maintenance, possibly resulting in fire, electrical shock, property damage, personal injury, or death.

Shipping Damage MUST be Reported to the Carrier IMMEDIATELY!!!

**Examine the exterior. Remove cover and examine
compressor and piping for signs of damage.**

To obtain technical service or warranty assistance
during or after the installation of this unit, call toll
free:

1-800-228-9364

When calling for assistance, please have the
following information ready:

- Model Number _____
- Serial Number _____
- Date Of Installation _____

WARNINGS

- ▲▼ Install or locate the EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit only in accordance with these instructions. Use this unit only for its intended purpose as described in this instruction manual.
- ▲▼ Before installation, check the unit rating plate to make certain the voltage shown is the same as the electrical supply to the unit.
- ▲▼ The EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit must be connected to a properly grounded electrical supply. **Do not fail to properly ground this unit.**
- ▲▼ Before servicing the EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit, be sure to disconnect the electrical supply to the unit.
- ▲▼ Do not use the EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit if it:
 - is not working properly
 - has damaged wiring
 - has been dropped or otherwise damaged.
- ▲▼ Before leaving the premises, review this manual to be sure the EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit has been correctly installed and run the unit for one complete cycle to make sure it functions properly.

P/N# 240000664, Rev. 2.1 [6/04]

IMPORTANT

The HCA Condensing Unit does not meet federal energy efficiency standards for new central air conditioning and is NOT to be used in new construction. EMI has a D.O.E. waiver to sell the HCA as a replacement unit only.

PRE-INSTALLATION

1. Unpack the unit and inspect for damage. Make any freight claims immediately.
2. Inspect the planned locations of the evaporator and condenser for proper fit as well as clearance for access and service. If this is a replacement job, wall openings may have to be modified for proper fit. Make any necessary wall opening modifications and/or provide fillers. Make certain the wall remains weather tight.
3. Eliminate any outdoor obstructions that may cause discharge air to recirculate to the intake. If this is not possible, an alternate location must be found.
4. Plan the routing for piping and wiring, noting the location of access holes for tubing and high voltage wiring on the unit. Do not block service access to the unit panels, control box, blower, etc.
5. Use a low voltage wall thermostat, assuming evaporator unit is remote controlled and supplied by Enviromaster International or a suitable equivalent. If in doubt, contact the factory for assistance. Low voltage access is in the bottom rear of the VCH and the side panels of the HCA and HCH.
6. The wall thermostat should be located on an inside wall where it will not be subject to drafts, sun exposure, or heat from electrical fixtures or appliances. Follow the manufacturer's instructions enclosed with the thermostat for general installation procedures. Color-coded insulated wires (#18 AWG) should be used to connect the thermostat to the unit.
7. If using an EMI evaporator, make certain a 24V step-down transformer must have been installed in the evaporator section to supply control power between the evaporator and the condenser. If ordering, specify a 20va transformer. Avoid ordering larger transformers as mounting space is limited.

NOTE: When matching an EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit to another manufacturer's evaporator, the evaporator section must be approved by Enviromaster International. Failure to secure approval may void the warranty.

INSTALLATION

1. Install the outdoor louver to the chassis if it is not already factory installed.

NOTE: Use of an outdoor louver other than one supplied by Enviromaster International must receive prior approval or the warranty may be voided.

2. Set the EMI AmericaSeries Vertical or Horizontal In-Wall Condensing Unit in the wall opening. Provide a minimum 1/4" pitch to the outside. Secure the unit to the wall using lag bolts or other suitable fasteners. Caulk weather tight.
3. Wiring electrical connections: All wiring must be done in accordance with the National Electrical Code (NEC), ANSI/NFPA No. 70 (latest edition); or local codes, where they prevail. Any alteration of internal wiring will void certification and warranty.

Use wiring with a temperature limitation of 75°C minimum. Run the 208 or 230 Volt, 60 hertz electric power supply through a fused disconnect switch to the control box of the unit and connect as shown in wiring diagram located on the inside of the control access panel.

The unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code ANSI/NFPA No. 70 (latest edition) or CSA C22.2 Part 1 (latest edition).

Power supply to the unit must be NEC Class 1 and must comply with all applicable code. A fused disconnect switch should be field provided for the unit. The switch must be separate from all other circuits. If any of the wire supplied with the unit must be replaced, replacement wire must have an equivalent rating.

Electrical wiring must be sized to minimum circuit ampacity marked on the unit. **Use copper conductors only.** Each unit must be wired with a separate branch circuit and properly fused.

4. Run interconnecting refrigerant lines (not to exceed 100' with 35' of vertical lift included) according to chart data for specific unit. Use clean refrigeration tubing only, and guard against kinking the tubes. Protect the tubes from transmitting noise to walls, cabinets, etc. Insulate the suction line. Connections are made at the unit service valves. When making sweat connections, use high temperature brazing alloys only and protect the valves from overheating. If using flux, protect the unit from contamination.

- Use of a liquid line filter-drier is recommended. Filter-driers may be supplied by EMI or be field supplied. Size the filter-drier properly and follow manufacturer's installation recommendations. Be sure to adjust refrigerant charge as required when adding a filter-drier.
- Evacuate and charge the unit.

NOTE: All panels must be in place when operating the unit for test or charging.

PIPING SPECIFICATIONS & CHARGE

Unit	Model	Ref. Line Sizes		Ref. Charge Oz. R-22
		Liquid	Suction	
VCH	18	3/8"	5/8"	40
	24	3/8"	3/4"	45
	30	3/8"	3/4"	68
HCA	18	3/8"	5/8"	43
	24	3/8"	3/4"	48.5
HCH	24	3/8"	7/8"	57.5
	30	3/8"	7/8"	59.0

Note: Add .5oz/ft. for interconnect refrigerant piping to the above charge amounts

Condensing units are factory charged and shipped with the service valves front-seated. Ports are provided on the service valves for evacuation and charge. Use a manifold/gauge set. Test the tubing for leaks. Do not release the refrigerant in the condensing unit until leak check and evacuation are completed. Be certain there is no pressure in the system when repairing a leak. Using a suitable vacuum pump, evacuate the tubing and indoor section to a minimum of 500 microns (service valves remain front-seated). Release the refrigerant from the condensing unit by back-seating the service valves. Always replace and tighten the caps. The system charge will require adjustments for tubing run, driers, and evaporator coils. EMI recommends charging by "Superheat."

START-UP

- Start the unit and adjust the refrigerant charge by the "**Superheat**" or "**Temperature vs. Pressure**" method. **Data chart is available on page 5.** Avoid overcharging.
- Replace any panels and covers removed during installation and start-up. Thoroughly test the system for proper operation in cooling. Check the indoor unit and thermostat for proper operation.
- Do a final visual inspection. Check for weather tightness. Repair/correct any deficiencies.

TROUBLESHOOTING

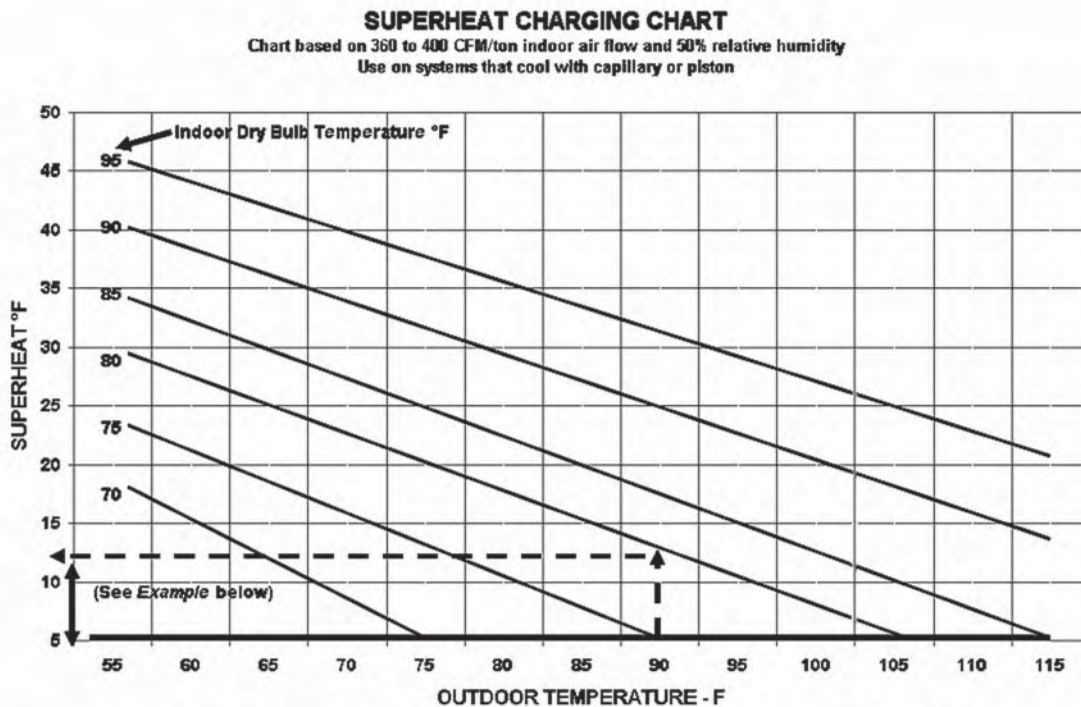
Check to see if the unit has power and if the thermostat is satisfied. If the unit has power and the thermostat is not satisfied, refer to the wiring diagram and check control components for continuity. To obtain further technical service for this unit, please contact the factory.

FIELD CHARGING

The use of the superheat method is highly recommended for field charging or checking the existing freon charge in a system. Because each installation is different in terms of indoor air flow, refrigerant line length, duct variations, etc., the factory charge may not be correct for every application. To assure the best performance from the air-conditioner, the freon charge should be checked and adjusted, if need be, on each installation.

For proper superheat readings, a standard low-side refrigerant gauge and an accurate thermometer is needed.

A mercury or stem-type thermometer is not adequate for suction-line temperatures. We recommend electric thermocouple thermometers (available at most refrigeration wholesalers); however an accurate remote-bulb thermometer can be used. When measuring the line temperature, be sure the thermometer is well installed to assure accurate measurements. The chart below gives superheat values at various outdoor temperatures. Allow at least 5 minutes running time between charge adjustments for the unit to stabilize.



Example:

Suction pressure is 65 psi. which equals 38° F on *The R-22 Scale of the Low-Side Gauge.*

Suction line temperature taken at the unit is 70° F. 70° F minus 38° F equals 32° F superheat.

Outdoor temperature is 90° F; indoor temperature is 80° F.

Intersection of the indoor-temperature and outdoor-temperature lines occur on the 12° F superheat line.

Add charge to obtain 12° F superheat.

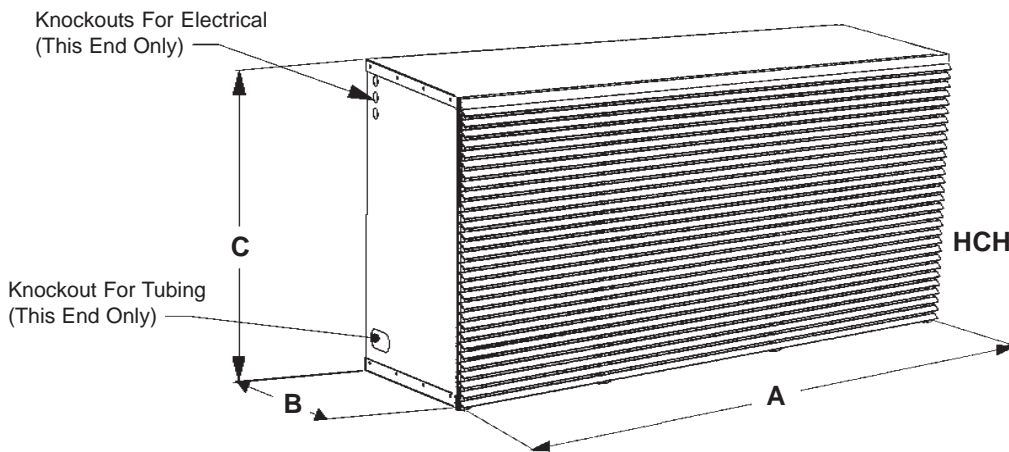
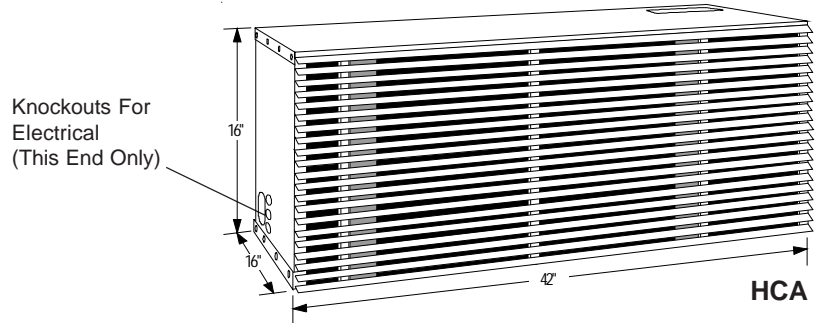
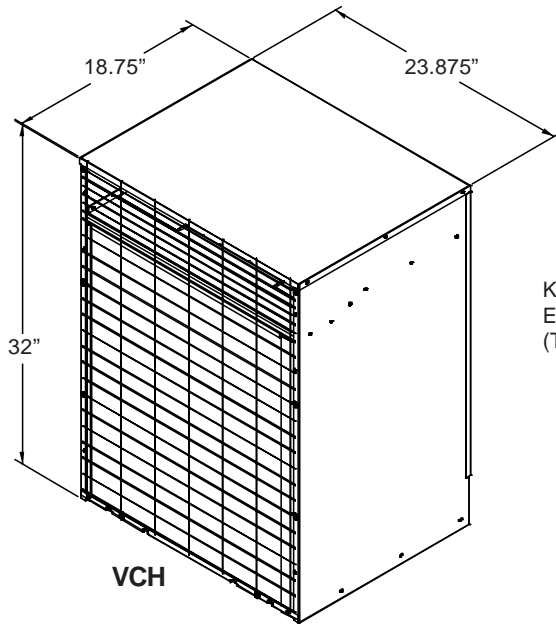
Instructions:

1. Measure suction pressure and determine evaporator-refrigerant temperature on R-22 scale of low-side gauge.
2. Measure suction-line temperature on suction line of the unit.
3. Measure outdoor and indoor temperatures.
4. Determine from the table what the superheat should be for the indoor and outdoor temperatures. (Example indicates 12° F superheat.)
5. Adjust charge if needed. Be sure unit is running at stabilized condition.

Note: If operating superheat is more than 5° F above the chart value, add refrigerant. If below the chart value remove refrigerant. If below the limit line, remove refrigerant.

ELECTRICAL SPECIFICATIONS AND DIMENSIONS

NOTE: Due to ongoing development programs, product design, specifications, and performance data may change without notice. Please contact the factory for more information.



HCH DIMENSIONS

Unit	A	B	C
24	40"	16"	24"
30	48"	16"	24"

ELECTRICAL SPECIFICATIONS

Unit	Model	Volts/Hz/Phase	Fan		Comp		Total Amps	Min. Volt	MCA	HACR BRKR
			Amps	HP	RLA	LRA				
VCH	18	208/230/60/1	1.9	0.25	7.4	48	9.3	197	11.2	15
	24	208/230/60/1	1.9	0.25	9.6	60	11.5	197	13.9	20
	30	208/230/60/1	1.9	0.25	11.8	73	13.7	197	16.7	25
HCA	18	208/230/60/1	0.72	0.125	7.4	48	8.12	197	10.0	15
	24	208/230/60/1	0.72	0.125	9.6	60	10.32	197	12.7	20
HCH	24	208/230/60/1	1.8	0.125	11.7	59	13.5	197	16.5	25
	30	208/230/60/1	1.8	0.125	15.0	73	16.8	197	20.6	30



ALL PRODUCT LIMITED WARRANTY

Enviromaster International LLC (EMI) warrants to the purchaser/owner that EMI products will be free from defects in material and workmanship under the normal use and maintenance for a period of twelve months for all components and sixty months on unit compressors from the date of original installation, or fifteen months for all components and sixty-three months on unit compressors from the date of manufacture, whichever comes first.

WHAT WE WILL COVER

EMI will replace any defective part returned to EMI's approved service organization with a new or rebuilt part at no charge. The replacement part assumes that unused portion of this warranty.

WHAT WE DON'T COVER

THIS WARRANTY DOES NOT INCLUDE LABOR or other costs incurred for repairing, removing, installing, shipping, servicing, or handling of either defective or replacement parts.

EMI IS NOT RESPONSIBLE FOR:

- Normal maintenance
- Damage or repairs required as a consequence of faulty installation or application by others.
- Failure to start due to voltage conditions, blown fuses, open circuit breakers, or other damages due to the inadequacy or interruption of electrical service.
- Damage or repairs needed as a consequence of any misapplication, abuse, improper servicing, unauthorized alteration, or improper operation.
- Damage as a result of floods, winds, fires, lightening, accidents, corrosive atmosphere, or other conditions beyond the control of EMI.
- Parts not supplied or designated by EMI.
- Products installed outside the United States or Canada.
- Any damages to person or property of whatever kind, direct or indirect, special or consequential, whether resulting from use or loss of use of the product.

LIMITATION OF WARRANTIES

This warranty is exclusive and in lieu of any implied warranties of merchantability and fitness for a particular purpose and all other warranties express or implied. The remedies provided for in this warranty are exclusive and shall constitute the only liabilities on the part of EMI including any statements made by any individual which shall be of no effect.

FOR SERVICE OR REPAIR:

- (1) Contact the Installer
- (2) Call the Nearest Distributor
- (3) Call or Write:



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