RH SERIES AIR COOLED HEAT PUMP UNITS

SPECIFICATIONS Rated in Accordance with ARI Standard 210/240			RH414F		
PERFORMANCE					
		Rated with Optional Air Handler Model	VCH/HCH374		
		Rated CFM	14,000		
	COOLING	Total BTUH	393,700		
		Sensible BTUH	300,500		
		EER	9.7		
	HEATING	Total BTUH	393,600		
		COP	3.4		
ELECTRICAL	SERVICE	Voltage-Phase-Hz	208/230-3-60	460-3-60	380/415-3-50
	COMPRESSOR	Type (Qty)	Scroll (2) Tandem configured		
		RLA (ea)	28.9	14.8	14.8
		LRA (ea)	195	95	95
		IPLV	10.0		
	Standard Capacity Reduction % Full load		100-75-50-25-0		
	CONDENSER FAN MOTOR(S)	Horse Power — (Qty)	1 — (4)		
		FLA (ea)	6.2	3.1	2.2
		Total CFM	23,200		
	UNIT	RLA	140.4	71.6	68.0
		Unit Minimum Circuit Ampacity	147.6	75.3	71.7
		Max. Time Delay Fuse or HACR Breaker	175	90	80
PHYSICAL DATA	CONDENSER COIL Alum. Fins on Copper Tubes	Face Area (sq.ft.)	50.1		
		Rows Deep — Fins per Inch	4 — 12		
		(Qty) — Suction Line OD In.	(2) — 1 5/8		
		(Qty) — Liquid Line OD In.	(2) — 5/8		
	WEIGHTS	Unit (lbs)	2,230		
		Shipping Weight (lbs)	2,400		

Cooling Rating

95°F Air on Outdoor Coil

Rated With Air Handler Model	CFM		Entering Air to Indoor Coil								
			75°F DB			80°F DB			85°F DB		
			63°F WB	67°F WB	71°F WB	63°F WB	67°F WB	71°F WB	63°F WB	67°F WB	71°F WB
VCH3744 or HCH374	12000	TOTAL BTUH	374,800	399,300	424,900	382,400	401,400	427,000	402,600	407,800	429,000
		SENS BTUH	287,000	234,200	181,400	349,400	298,500	245,100	383,400	359,800	309,900
		WATTS INPUT	34,580	35,440	36,330	34,860	35,540	36,430	35,580	35,780	36,520
		LVG DB/WB	53.3/52.3	57.3/56.6	61.3/60.9	53.5/52.1	57.4/56.5	61.4/60.8	56.0/51.4	57.7/56.4	61.5/60.8
	13000	TOTAL BTUH	379,700	403,700	429,300	389,600	406,500	431,500	412,400	415,100	434,300
		SENS BTUH	299,100	242,400	185,500	363,100	311,500	254,200	392,700	378,500	323,900
		WATTS INPUT	34,760	35,600	36,490	35,120	35,700	36,580	35,920	36,030	36,700
		LVG DB/WB	54.1/53.1	58.0/57.4	62.0/61.7	54.6/52.8	58.2/57.3	62.2/61.6	57.5/52.2	58.5/57.1	62.3/61.5
	14000	TOTAL BTUH	384,100	407,500	433,100	397,100	411,000	435,400	421,400	422,000	438,900
		SENS BTUH	310,900	250,500	189,500	378,200	324,300	263,300	401,100	393,600	337,700
		WATTS INPUT	34,910	35,730	36,620	35,320	35,880	36,720	36,170	36,200	36,860
		LVG DB/WB	54.8/53.8	58.7/58.0	62.7/62.3	55.4/53.4	58.9/57.8	62.9/62.3	59.0/52.8	59.4/57.7	63.1/62.2

Note: Above performance data gives gross evaporator capacity with 25' refrigerant lines and full condenser operation at 60 HZ.

Correction Factor Multiplier for Other Ambients					
Temperature	95°F	100°F	105°F	110°F	115°F
Total Capacity	1.00	.98	.95	.91	.87
Sensible Capacity	1.00	.99	.97	.95	.93
Watts	1.00	1.03	1.05	1.08	1.11
Gross EER	1.00	.95	.90	.84	.78

50 HZ Application and Performance Multipliers		
Capacity	At 60 HZ Evaporator CFM	At 50HZ Evaporator CFM
Total	0.91	0.88
Sensible	0.95	.086
Watts	0.85	.083

Notes: 50HZ evaporator CFM is 0.83 times full rated CFM shown above.

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Listed

Heating Ratings

70°F Air on Coil of Indoor Air Handler Model VCH374 or HCH374

CFM	Capacity	Ambient Air on Outdoor Coil °F							
		10	17	20	30	40	47	50	60
14,000	BTUH	203,500	230,400	242,900	287,900	337,700	374,500	391,000	451,800
	Watts	21,640	23,320	24,000	26,190	28,290	29,860	30,500	32,270

Note: Heating capacities are gross capacities. For net capacities, multiply blower BHP required times 2545 BTU per BHP and add to BTUH in table. Add blower BHP times 746 Watts per BHP to Watts for total power consumption. Refer to Air Handler specification for blower BHP.

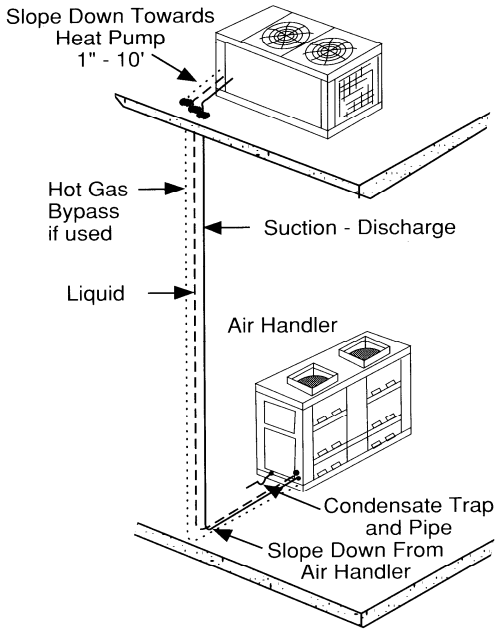
Heating Capacity Correction Multiplier
To be applied to rated heating capacity to determine capacity at other than rated CFM.

CFM	Multiplier
- 10%	0.985
Rated	1.00
+ 10%	1.015

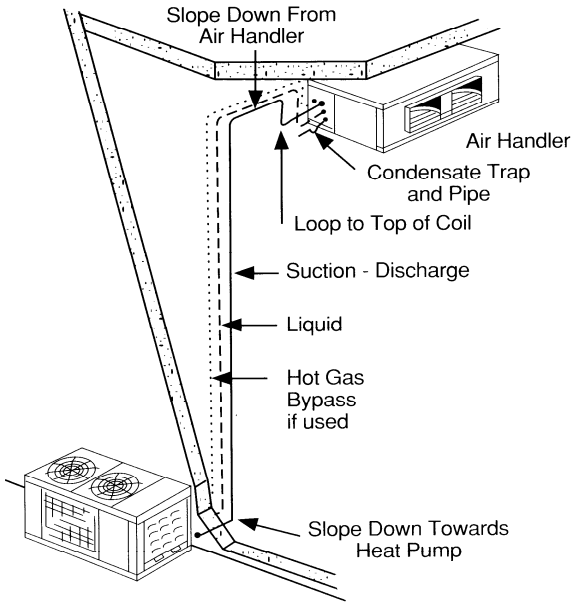
Recommended Refrigerant Line Sizes — Inches O.D.						
Equivalent Line Length – Feet						
0 to 25			26 to 50		51 to 75	
Suction	Liquid	Hot Gas Bypass	Suction	Liquid	Suction	Liquid
1 5/8 1 5/8	5/8 5/8	NA NA	1 5/8 1 5/8	5/8 5/8	1 5/8 1 5/8	3/8 3/8

Notes:
1. Line lengths are equivalent, including all fittings. Use long radius ells only.
2. Line sizes are for both vertical and horizontal runs.
3. Over 75 equivalent feet, **consult factory** for sizing recommendations.
4. Liquid line sizes are designed to minimize system refrigerant charge.
5. Hot gas bypass is typically used with the welded hermetic compressor only with an equivalent line length of 25 feet or less.
6. When condensing unit is above air handler, trap suction line at base and every 20 feet of vertical rise. Consult ASHRAE Refrigeration Handbook.

Heat Pump Above Air Handler



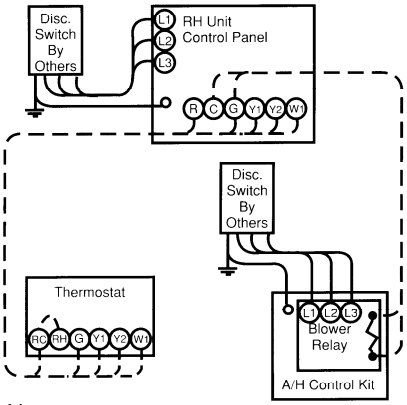
Heat Pump Below Air Handler



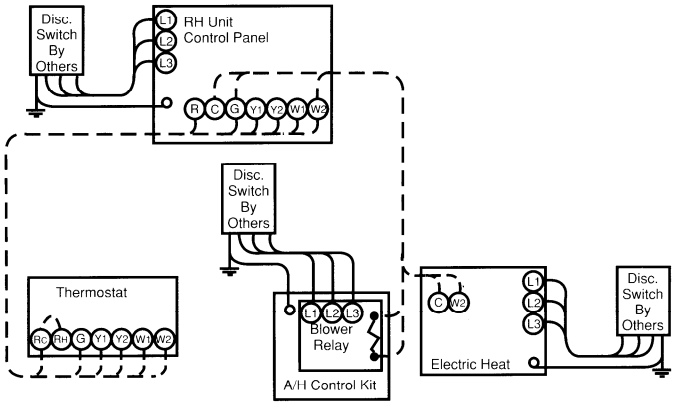
Field Piping: One of the most critical considerations in the installation of a split system heat pump is the proper sizing of piping so that oil will freely circulate with the refrigerant and not be trapped. In order to assure oil being carried upward in a vertical riser along with the refrigerant vapor, a velocity of 1,000 FPM must be maintained. Proper sizing is particularly important in a heat pump system because the discharge pipe on the heating cycle becomes the suction pipe in cooling and line velocities will be different in each cycle. Experience indicated 75 **equivalent** feet of pipe as the maximum practical length on heat pump installations. Pump down solenoids can not be used with heat pumps. When the air handler is installed above the compressor the vertical line must be properly sized to carry oil. The above tabulation indicates proper sizing.
Each refrigerant line run underground in a chase should be insulated with ¾" minimum thickness closed cell foamed plastic insulation. Each line must be insulated separately.

Typical Field Wiring

without Electric Heat



with Electric Heat



Notes:

All field wiring shall conform to N.E.C. and local codes

Line voltage power source ————————

24 volt control circuit – – – – – – –

Field Wiring

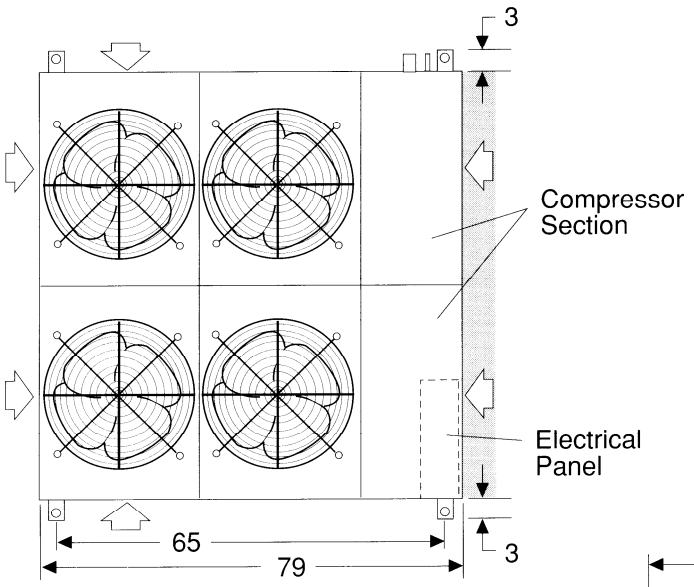
The power distribution system should be sized based on the minimum circuit ampacities in this specification sheet. The heat pumps and air handlers should be fused in accordance with the maximum fuse sizes.

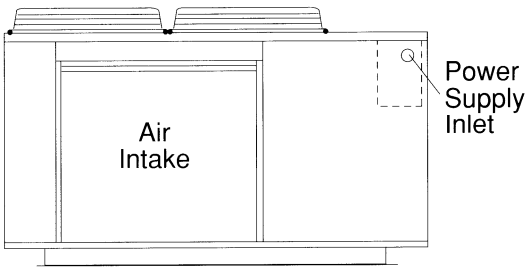
Disconnects may be optionally mounted by the factory or may be furnished and installed by the contractor. Time delay fuses should be used.

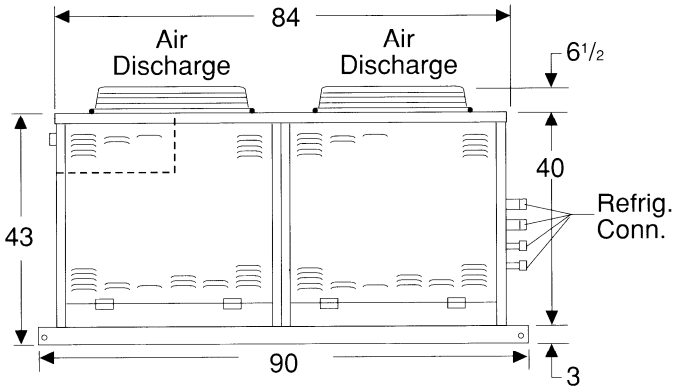
All field installed control wiring must be adequate to assure 24 volts to all controls.

Dimensions

RH414







Indicates air inlet to condenser (leave minimum 2' free clearance).

Shaded area indicates 3' clearance must be left for access to compressor and electrical panel.

Specifications subject to change without notice.

Installation Code and Annual Inspections:
All installations and service of ADDISON equipment must be performed by a contractor qualified in the installation and service of equipment sold and supplied by Addison and conform to all requirements set forth in the ADDISON manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment. To help facilitate optimum performance and safety, Addison recommends that a qualified contractor annually inspect your ADDISON equipment and perform service where necessary, using only replacement parts sold and supplied by ADDISON.

Further Information: Applications, engineering and detailed guidance on systems design, installation and equipment performance is available through ADDISON representatives. Please contact us for any further information you may require, including the Installation, Operation and Service Manual.

These products are not for residential use.

This document is intended to assist licensed professionals in the exercise of their professional judgment.

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