

Project Name: Press Hotel, Portland, Maine

Architect: Archetype Architects
48 Union Wharf
Portland, Maine 04101

Contractor: Wright Ryan Construction, Inc.
10 Danforth Street
Portland, Maine 04101

Subcontractor: Warren Mechanical, Inc.
P.O. Box 149
Westbrook, Maine 04098-0149

Supplier: Aircon, Inc.
P.O. Box 615
Windham, Maine 04062

Manufacturer: Addison

Section: 15620 Water Source Heat Pumps

Contractor Review

Architect's Review

PRESS HOTEL FLORIDA HEATUMP (HP-A) STANDARD FEATURES AND OPTIONS

STANDARD FEATURES

- Heavy Gauge G90 galvanized steel cabinetry
- ½" thick, 1.5 lb/cu ft density. Micromat insulation for thermal insulation and acoustical attenuation. It meets NFPA 90A and 90B for fire protection and is certified to meet the GREENGUARD Indoor Air Quality Standard for Low Emitting Products.
- Stainless steel drain pans
- Floating base pans which are unique to FHP. The compressor is mounted on a heavy steel plate which rests on a high density rubber pad on the base of the unit. In addition, compressors are mounted on rubber grommets. This method of double isolation prevents vibration and noise transmission from the compressor to the unit structure, resulting in exceptionally quiet operation. The floating base pan design is FHP's answer for sound attenuation.
- Schrader valves for high/low pressure and the electrical box is located for easy service access
- Merv 8 construction filters are being provided with the units.
- PSC, 3 speed motors
- Heavy duty steel brackets and rubber grommets are provided for hanging
- Water connections are heavy duty bronze FTP
- Copper interior, steel exterior, coaxial coils
- TXV's are included
- UPM Control Board w/ Protection Module
 - Protects compressors by monitoring switches and sensors
 - Provides time delays
 - Protects heat exchangers
- Standard safety controls
 - High pressure switch
 - Low pressure switch
 - Low fluid temperature sensor
 - Condensate overflow
 - Low air coil temperature sensor
 - Brownout/Surge/Power Interruption protection
 - L.E.D. Fault indicators

OPTIONS INCLUDED

- 2 Way Motorized control valves factory installed
- Hose kit / valve packages (Submitted in a separate package)
- 1" filter racks
- Disconnects

OPTIONS NOT INCLUDED

- Spare filters provided and installed by others
- Thermostats provided by others



Project Submittal

FHP Bosch Group

Prepared For:

<customer>

<company>

Date: 3/10/2014

Customer P.O. Number:

Customer Project Number:

Sold To:

Job Number:

Job Name: Press Hotel

FHP is pleased to provide the enclosed submittal for your review and approval.

Product Summary

Qty	Model Description
92	LV - COMPACT SERIES
15	LV - COMPACT SERIES
7	LV - COMPACT SERIES
3	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
3	LV - COMPACT SERIES
3	LV - COMPACT SERIES
2	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES
2	LV - COMPACT SERIES
1	LV - COMPACT SERIES
1	LV - COMPACT SERIES

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

The results reported herein are based on testing by FHP. Variations in the installation and operational environment may alter performance. FHP disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. Continuous research and development may result in a change to an appliances design and specifications, which FHP may change without notice

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
009	92	COMPACT SERIES	LV009-1HZC-FLE

Tag(s): HP-A, HP-2

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, End Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
012	15	COMPACT SERIES	LV012-1HZC-FLE

Tag(s): HP-B

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, End Discharge

Application Type, TXV Option (LH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
015	7	COMPACT SERIES	LV015-1HZC-FLE

Tag(s): HP-C

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, End Discharge

Application Type, TXV Option (LH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
030	3	COMPACT SERIES	LV030-3VTC-FRT

Tag(s): HP-1, HP-10, HP-11

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Right Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
012	1	COMPACT SERIES	LV012-1HZC-FLE

Tag(s): HP-3

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, End Discharge

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
018	1	COMPACT SERIES	LV018-1VTC-FLT

Tag(s): HP-4

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Top Discharge

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
024	1	COMPACT SERIES	LV024-3VTC-FRT

Tag(s): HP-5

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Right Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
030	1	COMPACT SERIES	LV030-3HZC-FRS

Tag(s): HP-6

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Right Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (RH)

Switching Devices, Disc Switch, 40A, External, LV Units (LH)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
018	3	COMPACT SERIES	LV018-1VTC-FLT

Tag(s): HP-7, HP-13, HP-15

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
030	3	COMPACT SERIES	LV030-3VTC-FLT

Tag(s): HP-8, HP-17, HP-19

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
024	2	COMPACT SERIES	LV024-3VTC-FLT

Tag(s): HP-9, HP-14

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
015	1	COMPACT SERIES	LV015-1HZC-FRS

Tag(s): HP-12

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Right Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (RH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
036	1	COMPACT SERIES	LV036-3VTC-FLT

Tag(s): HP-16

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Top Discharge

Application Type, TXV Option

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
007	1	COMPACT SERIES	LV007-1HZC-FRS

Tag(s): HP-18

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Right Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (RH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
018	2	COMPACT SERIES	LV018-1HZC-FLS

Tag(s): HP-20, HP-21

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (LH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
024	1	COMPACT SERIES	LV024-3HZC-FLS

Tag(s): HP-22

Unit Voltage: 208-230/3/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (LH)

Switching Devices, Disc Switch, 40A, External, LV Units (LH)

Refrigeration Circuit Options, Shraeder Valve Assy

Product Data - COMPACT SERIES

Size	Qty	Description	Model Number
048	1	COMPACT SERIES	LV048-1HZC-FLS

Tag(s): HP-23

Unit Voltage: 208-230/1/60

Water Connections, Front Flush Mounted Water Fittings

Return Air Configuration, Left Hand Return Air

Discharge Air Configuration, Straight Discharge

Application Type, TXV Option (LH)

Switching Devices, Disc Switch, 40A, External, LV Units (RH / VT)

Refrigeration Circuit Options, Shraeder Valve Assy



Model **LV009**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-A	91	Horizontal	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	4.36	5.2	15

System Information

Air Flow: 300 CFM	External Static Pressure: 0.44 Inches of H2O
Fluid Flow: 2.7 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 6.3 / 6.7 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	8.2	MBH	11	MBH
Sensible Capacity:	6.8	MBH		
Heat of Rejection:	10.2	MBH		
Heat of Absorption:			8.9	MBH
Leaving Air Dry Bulb:	59.3	F	100.6	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	97.6	F	63.6	F
Input Power:	0.65	kW	0.63	kW
Efficiency:	12.5	EER	5.1	COP

General Information

Operating Weight:	103	lbs.
Shipping Weight:	132	lbs.
Unit Length:	33.00	inches
Unit Width:	19.00	inches
Unit Height:	11.50	inches
Refrigerant Charge:	1.19	lbs.-all circuits

Fan Performance

CFM:	300	CFM
External Duct Static:	0.44	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Rotary		1			3.4	22.2
	Supply	1	0.1	0.96		



Model LV012

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-B	15	Horizontal	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	5.56	6.7	15

System Information

Air Flow:	400 CFM	External Static Pressure:	0.20 Inches of H2O
Fluid Flow:	3 GPM	Altitude:	0 Feet
Fluid Type:	Water	WPD Cooling / Heating:	7.8 / 8.3 Feet of Water
Unit Load:	Full Load	Antifreeze Percentage:	0 %

Entering Conditions

	<u>Cooling</u>	<u>Heating</u>
Entering Air Dry Bulb:	80.00 F	68.00 F
Entering Air Wet Bulb:	67.00 F	-
Entering Water/Fluid:	90.00 F	70.00 F

Unit Performance	<u>Cooling</u>	<u>Heating</u>
Total Capacity:	11.2 MBH	14.4 MBH
Sensible Capacity:	9.1 MBH	
Heat of Rejection:	14.1 MBH	
Heat of Absorption:		11.5 MBH
Leaving Air Dry Bulb:	59.1 F	100.0 F
Leaving Air Wet Bulb:	59 F	
Leaving Water Temp:	99.3 F	62.6 F
Input Power:	0.93 kW	0.89 kW
Efficiency:	12.1 EER	4.8 COP

General Information

Operating Weight:	105 lbs.
Shipping Weight:	134 lbs.
Unit Length:	33.00 inches
Unit Width:	19.00 inches
Unit Height:	11.50 inches
Refrigerant Charge:	1.19 lbs.-all circuits

Fan Performance

CFM:	400 CFM
External Duct Static:	0.20 inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Rotary		1			4.6	27.9
	Supply	1	0.1	0.96		



Model **LV015**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-C	7	Horizontal	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	6.56	8	15

System Information

Air Flow: 500 CFM	External Static Pressure: 0.20 Inches of H2O
Fluid Flow: 3.7 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 12.3 / 13.1 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	13.6	MBH	17.4	MBH
Sensible Capacity:	11.0	MBH		
Heat of Rejection:	17.1	MBH		
Heat of Absorption:			13.8	MBH
Leaving Air Dry Bulb:	60	F	99.0	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	99.4	F	62.8	F
Input Power:	1.09	kW	1.10	kW
Efficiency:	12.4	EER	4.6	COP

General Information

Operating Weight:	127	lbs.
Shipping Weight:	158	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.19	lbs.-all circuits

Fan Performance

CFM:	500	CFM
External Duct Static:	0.20	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Rotary		1			5.6	29
	Supply	1	0.1	0.96		



Model **LV030**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-1	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F
Unit Performance		<u>Cooling</u>		<u>Heating</u>
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model **LV009**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-2	1	Horizontal	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	4.36	5.2	15

System Information

Air Flow:	300	CFM	External Static Pressure:	0.44	Inches of H2O
Fluid Flow:	2.7	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	6.3 / 6.7	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	8.2	MBH	11	MBH
Sensible Capacity:	6.8	MBH		
Heat of Rejection:	10.2	MBH		
Heat of Absorption:			8.9	MBH
Leaving Air Dry Bulb:	59.3	F	100.6	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	97.6	F	63.6	F
Input Power:	0.65	kW	0.63	kW
Efficiency:	12.5	EER	5.1	COP

General Information

Operating Weight:	103	lbs.
Shipping Weight:	132	lbs.
Unit Length:	33.00	inches
Unit Width:	19.00	inches
Unit Height:	11.50	inches
Refrigerant Charge:	1.19	lbs.-all circuits

Fan Performance

CFM:	300	CFM
External Duct Static:	0.44	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Rotary		1			3.4	22.2
	Supply	1	0.1	0.96		



Model LV012

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-3	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	5.56	6.7	15

System Information

Air Flow:	400	CFM	External Static Pressure:	0.20	Inches of H2O
Fluid Flow:	3	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.8 / 8.3	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	11.2	MBH	14.4	MBH
Sensible Capacity:	9.1	MBH		
Heat of Rejection:	14.1	MBH		
Heat of Absorption:			11.5	MBH
Leaving Air Dry Bulb:	59.1	F	100.0	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	99.3	F	62.6	F
Input Power:	0.93	kW	0.89	kW
Efficiency:	12.1	EER	4.8	COP

General Information

Operating Weight:	105	lbs.
Shipping Weight:	132	lbs.
Unit Length:	19.00	inches
Unit Width:	19.00	inches
Unit Height:	24.30	inches
Refrigerant Charge:	1.13	lbs.-all circuits

Fan Performance

CFM:	400	CFM
External Duct Static:	0.20	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Rotary		1			4.6	27.9
	Supply	1	0.1	0.96		



Model LV018

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-4	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	8.3	9.9	15

System Information

Air Flow:	600	CFM	External Static Pressure:	0.65	Inches of H2O
Fluid Flow:	4.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.2 / 7.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	19.8	MBH	24.1	MBH
Sensible Capacity:	14.6	MBH		
Heat of Rejection:	24.4	MBH		
Heat of Absorption:			19.6	MBH
Leaving Air Dry Bulb:	57.7	F	104.1	F
Leaving Air Wet Bulb:	57	F		
Leaving Water Temp:	100.9	F	61.7	F
Input Power:	1.57	kW	1.54	kW
Efficiency:	12.6	EER	4.6	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	208	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	600	CFM
External Duct Static:	0.65	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model **LV024**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-5	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/3/60	7.7	9.2	15

System Information

Air Flow: 800 CFM	External Static Pressure: 0.53 Inches of H20
Fluid Flow: 6 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 12.6 / 13.4 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	23.6	MBH	29.1	MBH
Sensible Capacity:	17.8	MBH		
Heat of Rejection:	28.9	MBH		
Heat of Absorption:			23.2	MBH
Leaving Air Dry Bulb:	59.7	F	100.8	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.7	F	62.6	F
Input Power:	1.77	kW	1.89	kW
Efficiency:	13.3	EER	4.5	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	205	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	800	CFM
External Duct Static:	0.53	inches H20

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			5.9	63
	Supply	1	0.25	1.8		



Model LV030

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-6	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	194	lbs.
Shipping Weight:	224	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model LV018

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-7	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	8.3	9.9	15

System Information

Air Flow: 600 CFM	External Static Pressure: 0.65 Inches of H20
Fluid Flow: 4.5 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 7.2 / 7.6 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>	<u>Heating</u>
Entering Air Dry Bulb:	80.00 F	68.00 F
Entering Air Wet Bulb:	67.00 F	-
Entering Water/Fluid:	90.00 F	70.00 F

Unit Performance

	<u>Cooling</u>	<u>Heating</u>
Total Capacity:	19.8 MBH	24.1 MBH
Sensible Capacity:	14.6 MBH	
Heat of Rejection:	24.4 MBH	
Heat of Absorption:		19.6 MBH
Leaving Air Dry Bulb:	57.7 F	104.1 F
Leaving Air Wet Bulb:	57 F	
Leaving Water Temp:	100.9 F	61.7 F
Input Power:	1.57 kW	1.54 kW
Efficiency:	12.6 EER	4.6 COP

General Information

Operating Weight:	173 lbs.
Shipping Weight:	201 lbs.
Unit Length:	21.50 inches
Unit Width:	21.50 inches
Unit Height:	32.30 inches
Refrigerant Charge:	1.75 lbs.-all circuits

Fan Performance

CFM:	600 CFM
External Duct Static:	0.65 inches H20

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model LV030

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-8	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model LV024

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-9	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/3/60	7.7	9.2	15

System Information

Air Flow: 800 CFM	External Static Pressure: 0.53 Inches of H20
Fluid Flow: 6 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 12.6 / 13.4 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	23.6	MBH	29.1	MBH
Sensible Capacity:	17.8	MBH		
Heat of Rejection:	28.9	MBH		
Heat of Absorption:			23.2	MBH
Leaving Air Dry Bulb:	59.7	F	100.8	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.7	F	62.6	F
Input Power:	1.77	kW	1.89	kW
Efficiency:	13.3	EER	4.5	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	205	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	800	CFM
External Duct Static:	0.53	inches H20

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			5.9	63
	Supply	1	0.25	1.8		



Model **LV030**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-10	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model **LV030**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-11	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model **LV015**

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-12	1	Horizontal	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	6.56	8	15

System Information

Air Flow: 500 CFM	External Static Pressure: 0.20 Inches of H2O
Fluid Flow: 3.7 GPM	Altitude: 0 Feet
Fluid Type: Water	WPD Cooling / Heating: 12.3 / 13.1 Feet of Water
Unit Load: Full Load	Antifreeze Percentage: 0 %

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F
Unit Performance		<u>Cooling</u>		<u>Heating</u>
Total Capacity:	13.6	MBH	17.4	MBH
Sensible Capacity:	11.0	MBH		
Heat of Rejection:	17.1	MBH		
Heat of Absorption:			13.8	MBH
Leaving Air Dry Bulb:	60	F	99.0	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	99.4	F	62.8	F
Input Power:	1.09	kW	1.10	kW
Efficiency:	12.4	EER	4.6	COP

General Information

Operating Weight:	127	lbs.
Shipping Weight:	158	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.19	lbs.-all circuits

Fan Performance

CFM:	500	CFM
External Duct Static:	0.20	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Rotary		1			5.6	29
	Supply	1	0.1	0.96		



Model LV018

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-13	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	8.3	9.9	15

System Information

Air Flow:	600	CFM	External Static Pressure:	0.65	Inches of H2O
Fluid Flow:	4.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.2 / 7.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	19.8	MBH	24.1	MBH
Sensible Capacity:	14.6	MBH		
Heat of Rejection:	24.4	MBH		
Heat of Absorption:			19.6	MBH
Leaving Air Dry Bulb:	57.7	F	104.1	F
Leaving Air Wet Bulb:	57	F		
Leaving Water Temp:	100.9	F	61.7	F
Input Power:	1.57	kW	1.54	kW
Efficiency:	12.6	EER	4.6	COP

General Information

Operating Weight:	173	lbs.
Shipping Weight:	201	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	32.30	inches
Refrigerant Charge:	1.75	lbs.-all circuits

Fan Performance

CFM:	600	CFM
External Duct Static:	0.65	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model LV024

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-14	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	9.2	11.1	15

System Information

Air Flow:	800	CFM	External Static Pressure:	0.53	Inches of H2O
Fluid Flow:	6	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	12.6 / 13.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	23.6	MBH	29.2	MBH
Sensible Capacity:	17.8	MBH		
Heat of Rejection:	29.0	MBH		
Heat of Absorption:			23.2	MBH
Leaving Air Dry Bulb:	59.7	F	101.0	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.8	F	62.6	F
Input Power:	1.80	kW	1.92	kW
Efficiency:	13.1	EER	4.5	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	205	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	800	CFM
External Duct Static:	0.53	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			7.4	43
	Supply	1	0.25	1.8		



Model LV018

Project Name:	Press Hotel
Representative:	
Other Information:	

<u>Unit Tag</u>	<u>Qty</u>	<u>Configuration</u>	<u>Remarks</u>
HP-15	1	Vertical	

Electrical Data

<u>Voltage-Ph-Hz</u>	<u>Unit Amps - FLA</u>	<u>Min. Cir. Amps - MCA</u>	<u>Max. Fuse Size - MFS</u>
208-230/1/60	8.3	9.9	15

System Information

Air Flow:	600	CFM	External Static Pressure:	0.65	Inches of H2O
Fluid Flow:	4.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.2 / 7.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	19.8	MBH	24.1	MBH
Sensible Capacity:	14.6	MBH		
Heat of Rejection:	24.4	MBH		
Heat of Absorption:			19.6	MBH
Leaving Air Dry Bulb:	57.7	F	104.1	F
Leaving Air Wet Bulb:	57	F		
Leaving Water Temp:	100.9	F	61.7	F
Input Power:	1.57	kW	1.54	kW
Efficiency:	12.6	EER	4.6	COP

General Information

Operating Weight:	173	lbs.
Shipping Weight:	201	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	32.30	inches
Refrigerant Charge:	1.75	lbs.-all circuits

Fan Performance

CFM:	600	CFM
External Duct Static:	0.65	inches H2O

Motors

<u>Compressor</u>	<u>Fan Service</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (ea.)</u>	<u>RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model **LV036**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-16	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	12.2	14.2	20

System Information

Air Flow:	1,200	CFM	External Static Pressure:	0.51	Inches of H2O
Fluid Flow:	9	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	11.7 / 12.5	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F
Unit Performance		<u>Cooling</u>		<u>Heating</u>
Total Capacity:	36.9	MBH	45	MBH
Sensible Capacity:	28.0	MBH		
Heat of Rejection:	45.3	MBH		
Heat of Absorption:			36.1	MBH
Leaving Air Dry Bulb:	58.5	F	101.7	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	100.1	F	62.2	F
Input Power:	2.67	kW	2.76	kW
Efficiency:	13.8	EER	4.8	COP

General Information

Operating Weight:	229	lbs.
Shipping Weight:	255	lbs.
Unit Length:	26.00	inches
Unit Width:	21.50	inches
Unit Height:	43.30	inches
Refrigerant Charge:	3.00	lbs.-all circuits

Fan Performance

CFM:	1,200	CFM
External Duct Static:	0.51	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			7.8	68
	Supply	1	0.5	4.4		



Model **LV030**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-17	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F
Unit Performance		<u>Cooling</u>		<u>Heating</u>
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model **LV007**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-18	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	3.46	4.1	15

System Information

Air Flow:	250	CFM	External Static Pressure:	0.40	Inches of H2O
Fluid Flow:	1.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	1.5 / 1.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>	<u>Heating</u>
Entering Air Dry Bulb:	80.00 F	68.00 F
Entering Air Wet Bulb:	67.00 F	-
Entering Water/Fluid:	90.00 F	70.00 F

Unit Performance	<u>Cooling</u>	<u>Heating</u>
Total Capacity:	6.1 MBH	7.8 MBH
Sensible Capacity:	5.5 MBH	
Heat of Rejection:	7.6 MBH	
Heat of Absorption:		6.5 MBH
Leaving Air Dry Bulb:	60.1 F	96.0 F
Leaving Air Wet Bulb:	60 F	
Leaving Water Temp:	100.1 F	61.7 F
Input Power:	0.52 kW	0.46 kW
Efficiency:	11.8 EER	5 COP

General Information

Operating Weight:	98	lbs.
Shipping Weight:	128	lbs.
Unit Length:	33.00	inches
Unit Width:	19.00	inches
Unit Height:	11.50	inches
Refrigerant Charge:	1.06	lbs.-all circuits

Fan Performance

CFM:	250	CFM
External Duct Static:	0.40	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Rotary		1			2.5	17.7
	Supply	1	0.1	0.96		



Model LV030

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-19	1	Vertical	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	8.7	10.4	15

System Information

Air Flow:	1,000	CFM	External Static Pressure:	0.45	Inches of H2O
Fluid Flow:	7.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	13.5 / 14.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	30.2	MBH	36.6	MBH
Sensible Capacity:	23.2	MBH		
Heat of Rejection:	36.9	MBH		
Heat of Absorption:			29.8	MBH
Leaving Air Dry Bulb:	58.8	F	100.9	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.9	F	62.3	F
Input Power:	2.19	kW	2.16	kW
Efficiency:	13.8	EER	5	COP

General Information

Operating Weight:	190	lbs.
Shipping Weight:	217	lbs.
Unit Length:	21.50	inches
Unit Width:	21.50	inches
Unit Height:	39.30	inches
Refrigerant Charge:	2.31	lbs.-all circuits

Fan Performance

CFM:	1,000	CFM
External Duct Static:	0.45	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.9	63
	Supply	1	0.25	1.8		



Model LV018

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-20	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	8.3	9.9	15

System Information

Air Flow:	600	CFM	External Static Pressure:	0.65	Inches of H2O
Fluid Flow:	4.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.2 / 7.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	19.8	MBH	24.1	MBH
Sensible Capacity:	14.6	MBH		
Heat of Rejection:	24.4	MBH		
Heat of Absorption:			19.6	MBH
Leaving Air Dry Bulb:	57.7	F	104.1	F
Leaving Air Wet Bulb:	57	F		
Leaving Water Temp:	100.9	F	61.7	F
Input Power:	1.57	kW	1.54	kW
Efficiency:	12.6	EER	4.6	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	208	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	600	CFM
External Duct Static:	0.65	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model **LV018**

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-21	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	8.3	9.9	15

System Information

Air Flow:	600	CFM	External Static Pressure:	0.65	Inches of H2O
Fluid Flow:	4.5	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	7.2 / 7.6	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	19.8	MBH	24.1	MBH
Sensible Capacity:	14.6	MBH		
Heat of Rejection:	24.4	MBH		
Heat of Absorption:			19.6	MBH
Leaving Air Dry Bulb:	57.7	F	104.1	F
Leaving Air Wet Bulb:	57	F		
Leaving Water Temp:	100.9	F	61.7	F
Input Power:	1.57	kW	1.54	kW
Efficiency:	12.6	EER	4.6	COP

General Information

Operating Weight:	177	lbs.
Shipping Weight:	208	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	600	CFM
External Duct Static:	0.65	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			6.5	43
	Supply	1	0.25	1.8		



Model LV024

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-22	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/3/60	7.7	9.2	15

System Information

Air Flow:	800	CFM	External Static Pressure:	0.53	Inches of H2O
Fluid Flow:	6	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	12.6 / 13.4	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	23.6	MBH	29.1	MBH
Sensible Capacity:	17.8	MBH		
Heat of Rejection:	28.9	MBH		
Heat of Absorption:			23.2	MBH
Leaving Air Dry Bulb:	59.7	F	100.8	F
Leaving Air Wet Bulb:	58	F		
Leaving Water Temp:	99.7	F	62.6	F
Input Power:	1.77	kW	1.89	kW
Efficiency:	13.3	EER	4.5	COP

General Information

Operating Weight:	181	lbs.
Shipping Weight:	212	lbs.
Unit Length:	43.00	inches
Unit Width:	22.00	inches
Unit Height:	17.00	inches
Refrigerant Charge:	1.81	lbs.-all circuits

Fan Performance

CFM:	800	CFM
External Duct Static:	0.53	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			5.9	63
	Supply	1	0.25	1.8		



Model LV048

Project Name:	Press Hotel
Representative:	
Other Information:	

Unit Tag	Qty	Configuration	Remarks
HP-23	1	Horizontal	

Electrical Data

Voltage-Ph-Hz	Unit Amps - FLA	Min. Cir. Amps - MCA	Max. Fuse Size - MFS
208-230/1/60	20.1	24	35

System Information

Air Flow:	1,600	CFM	External Static Pressure:	0.60	Inches of H2O
Fluid Flow:	12	GPM	Altitude:	0	Feet
Fluid Type:	Water		WPD Cooling / Heating:	6.1 / 6.5	Feet of Water
Unit Load:	Full Load		Antifreeze Percentage:	0	%

Entering Conditions

	<u>Cooling</u>		<u>Heating</u>	
Entering Air Dry Bulb:	80.00	F	68.00	F
Entering Air Wet Bulb:	67.00	F	-	
Entering Water/Fluid:	90.00	F	70.00	F

Unit Performance

	<u>Cooling</u>		<u>Heating</u>	
Total Capacity:	46.8	MBH	58.5	MBH
Sensible Capacity:	35.2	MBH		
Heat of Rejection:	58.8	MBH		
Heat of Absorption:			45.8	MBH
Leaving Air Dry Bulb:	59.9	F	100.6	F
Leaving Air Wet Bulb:	59	F		
Leaving Water Temp:	99.8	F	62.6	F
Input Power:	3.74	kW	3.73	kW
Efficiency:	12.5	EER	4.6	COP

General Information

Operating Weight:	268	lbs.
Shipping Weight:	299	lbs.
Unit Length:	54.50	inches
Unit Width:	25.00	inches
Unit Height:	21.00	inches
Refrigerant Charge:	2.75	lbs.-all circuits

Fan Performance

CFM:	1,600	CFM
External Duct Static:	0.60	inches H2O

Motors

Compressor	Fan Service	Qty	HP (ea.)	FLA (ea.)	RLA (ea.)	LRA (ea.)
Reciprocating		1			15.7	84
	Supply	1	0.75	4.4		

Ducted Discharge - Vertical Models

Model	LOAD	Octave Band Sound Power Levels dB, re 10-12 Watts									
		Center Frequency - Hz									
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
LV007	Cooling Full	82	65	57	58	60	52	53	54	82	64
	Heating Full	84	65	58	58	60	52	52	54	84	64*
	FAN Only	72	65	58	58	60	53	53	54	73	63
LV009	Cooling Full	75	66	61	59	60	53	54	55	76	64
	Heating Full	79	66	61	59	59	53	54	55	79	64
	FAN Only	72	66	61	60	60	54	55	56	74	64
LV012	Cooling Full	75	68	62	59	60	53	53	54	76	64
	Heating Full	80	70	66	62	61	54	53	55	81	66
	FAN Only	79	70	66	62	62	54	54	56	80	66
LV015	Cooling Full	79	69	65	63	62	57	56	52	80	67
	Heating Full	80	70	65	63	63	57	57	53	81	68
	FAN Only	75	72	65	63	64	57	57	54	77	68
LV018	Cooling Full	75	67	61	62	58	54	54	49	76	64
	Heating Full	78	71	61	62	58	53	53	50	79	64
	FAN Only	76	68	61	62	58	54	54	50	77	64
LV024	Cooling Full	77	68	63	65	61	55	56	52	78	67
	Heating Full	77	72	64	64	61	55	56	53	79	67
	FAN Only	77	69	64	65	61	56	56	53	78	67
LV030	Cooling Full	79	70	65	68	63	57	58	55	80	69
	Heating Full	76	73	66	67	63	57	58	56	79	69
	FAN Only	77	71	66	67	64	57	59	56	79	69
LV036	Cooling Full	78	72	66	67	64	59	60	57	80	70
	Heating Full	78	76	67	67	65	59	60	58	81	70
	FAN Only	79	72	67	67	65	60	60	59	80	70
LV041	Cooling Full	77	75	67	66	65	61	61	59	80	70
	Heating Full	79	80	67	66	66	62	62	60	83	71
	FAN Only	80	73	67	67	67	62	62	61	81	71
LV042	Cooling Full	80	80	67	70	74	70	68	65	84	78
	Heating Full	82	82	67	70	73	70	68	65	86	77
	FAN Only	79	83	68	70	74	71	69	66	85	78
LV048	Cooling Full	83	75	69	72	75	71	69	66	85	79
	Heating Full	82	76	69	71	75	71	69	66	84	78
	FAN Only	82	75	69	72	76	72	70	67	85	79
LV060	Cooling Full	80	75	65	68	71	67	65	61	82	75
	Heating Full	78	75	66	68	71	67	65	61	81	75
	FAN Only	77	77	67	69	73	68	65	62	81	76
LV070	Cooling Full	85	79	74	73	73	70	67	63	87	78
	Heating Full	86	78	74	73	74	70	67	63	88	78
	FAN Only	86	80	75	74	74	70	68	64	88	79

Ducted Discharge - Horizontal Models

Model	LOAD	Octave Band Sound Power Levels dB, re 10-12 Watts									
		Center Frequency - Hz									
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
LV007	Cooling Full	84	63	57	56	60	54	54	55	83	65*
	Heating Full	82	62	55	53	58	53	53	55	82	65*
	FAN Only	76	62	55	53	58	54	53	54	76	64*
LV009	Cooling Full	82	64	61	56	60	55	55	56	83	65
	Heating Full	77	63	58	54	57	54	55	56	77	62
	FAN Only	76	63	58	55	58	55	55	56	77	65*
LV012	Cooling Full	82	66	62	56	60	55	54	55	83	65
	Heating Full	78	67	63	57	59	55	54	56	79	64
	FAN Only	83	67	63	57	60	55	54	56	84	65*
LV015	Cooling Full	86	69	66	62	65	59	58	54	87	70
	Heating Full	79	68	64	61	64	59	59	55	80	68
	FAN Only	77	71	64	61	65	59	59	56	79	67*
LV018	Cooling Full	81	69	63	63	64	57	56	52	81	68
	Heating Full	78	71	62	63	62	56	56	53	79	66
	FAN Only	76	69	62	62	62	57	57	53	78	68*
LV024	Cooling Full	82	72	67	68	71	58	59	56	83	73
	Heating Full	78	73	68	69	69	60	61	58	80	72
	FAN Only	75	72	68	68	68	60	61	58	78	71
LV030	Cooling Full	82	71	67	67	65	60	60	57	82	70
	Heating Full	79	72	68	68	68	60	61	58	81	71
	FAN Only	74	72	68	68	67	61	61	59	78	71
LV036	Cooling Full	85	77	69	70	69	65	64	61	86	74
	Heating Full	84	78	71	71	71	65	64	61	86	74
	FAN Only	83	78	71	71	71	65	65	62	85	75
LV042	Cooling Full	88	84	72	73	74	70	68	64	90	78
	Heating Full	90	84	74	74	73	70	68	64	91	78
	FAN Only	91	84	74	74	74	70	68	65	92	79
LV048	Cooling Full	85	81	71	72	73	70	67	63	87	77
	Heating Full	85	82	72	72	73	69	67	63	87	77
	FAN Only	85	82	72	73	74	70	67	63	88	78
LV060	Cooling Full	81	78	69	71	72	69	66	61	84	76
	Heating Full	81	79	70	71	73	69	66	62	84	76
	FAN Only	79	80	70	71	73	69	66	62	84	77
LV070	Cooling Full	80	81	66	69	70	67	65	61	84	75
	Heating Full	79	76	68	69	70	67	65	61	82	75
	FAN Only	77	80	68	69	71	68	66	62	83	75

NOTE- Tested according to AHRI-260 standard for ISO-13256 WLHP condition at rated water and air flow rate
 Overall calculated using 63-8000 Hz octave bands.
 All ratings based upon PSC fan motors.

* The background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Casing Radiated - Vertical Models

Model	LOAD	Octave Band Sound Power Levels dB, re 10-12 Watts									
		Center Frequency - Hz									
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
LV007	Cooling Full	73	58	55	49	45	37	31	29	73	53*
	Heating Full	79	59	54	48	45	37	32	34	79	55
	FAN Only	70	57	51	47	43	36	28	26	70	50*
LV009	Cooling Full	74	57	58	49	46	39	32	30	74	54*
	Heating Full	72	57	55	48	45	37	31	29	73	52*
	FAN Only	67	54	49	46	43	38	31	29	67	49*
LV012	Cooling Full	73	64	58	50	46	40	34	29	74	55
	Heating Full	73	64	61	50	46	39	35	31	74	56
	FAN Only	73	61	55	49	45	39	33	30	73	53
LV015	Cooling Full	78	60	56	50	47	42	41	38	79	56*
	Heating Full	79	62	55	50	46	42	37	35	79	56
	FAN Only	73	58	52	49	45	41	35	31	74	53
LV018	Cooling Full	68	65	56	52	52	48	38	31	70	56
	Heating Full	72	65	56	53	51	46	38	34	73	57*
	FAN Only	66	61	52	49	49	42	34	26	67	53
LV024	Cooling Full	82	63	59	55	53	47	43	35	82	60
	Heating Full	79	70	58	54	53	48	46	39	79	60
	FAN Only	72	60	54	53	51	44	36	29	72	55
LV030	Cooling Full	84	64	57	54	53	52	42	35	84	61
	Heating Full	80	81	57	55	53	49	44	39	84	66
	FAN Only	68	58	56	53	51	47	39	32	69	56
LV036	Cooling Full	74	63	65	57	56	50	43	37	75	61
	Heating Full	74	76	65	58	56	53	46	42	79	64
	FAN Only	69	60	58	56	56	49	41	32	70	59
LV041	Cooling Full	79	65	63	57	54	51	47	42	79	61
	Heating Full	77	71	59	59	54	51	46	43	78	61
	FAN Only	75	63	57	55	52	49	44	38	76	58
LV042	Cooling Full	80	67	63	56	52	48	47	40	80	61
	Heating Full	77	73	60	56	54	49	47	41	78	61
	FAN Only	70	67	57	54	51	47	39	33	72	57
LV048	Cooling Full	80	64	62	59	60	55	46	39	80	64
	Heating Full	76	67	63	60	61	56	47	41	77	64
	FAN Only	78	65	61	58	60	55	47	39	78	64
LV060	Cooling Full	74	72	64	59	58	54	45	36	77	63
	Heating Full	82	73	67	59	57	53	47	40	83	64
	FAN Only	71	70	60	58	57	53	44	36	74	62
LV070	Cooling Full	80	67	62	59	54	49	43	37	80	62
	Heating Full	81	68	64	57	53	50	44	39	81	61
	FAN Only	73	65	60	55	53	49	43	37	74	59

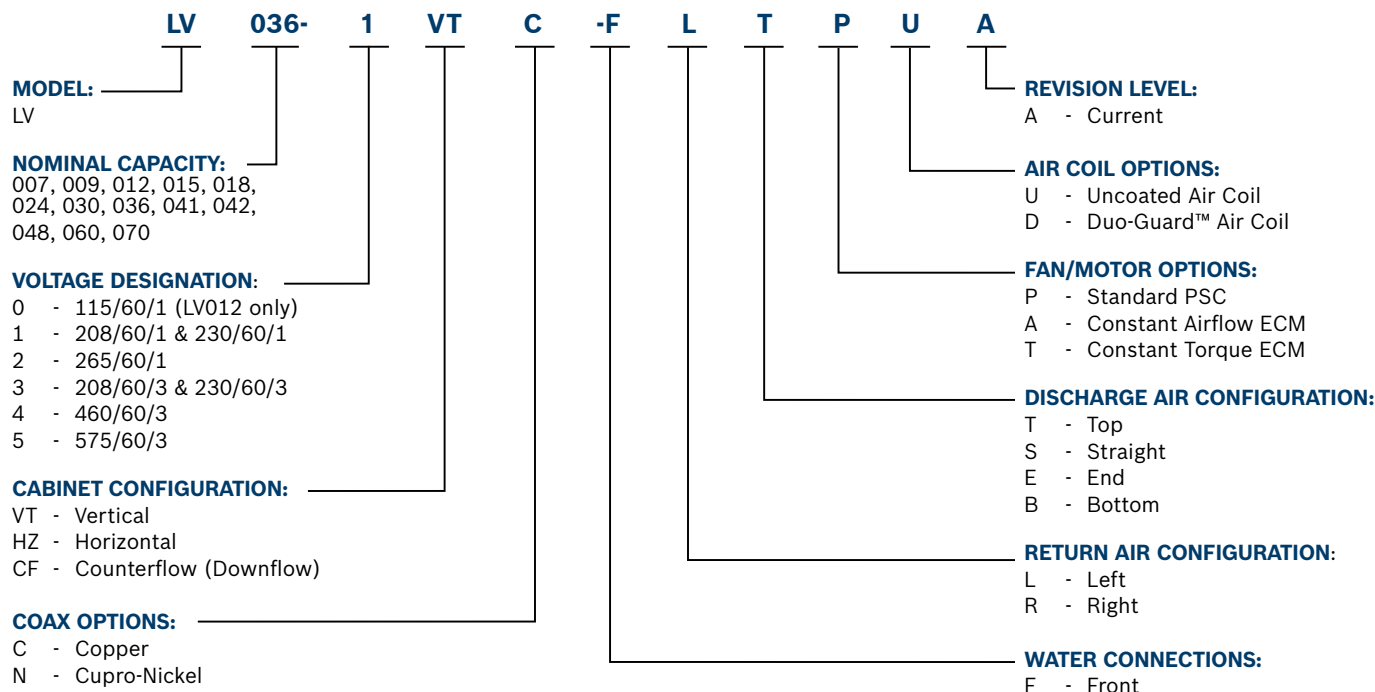
Casing Radiated - Horizontal Models

Model	LOAD	Octave Band Sound Power Levels dB, re 10-12 Watts									
		Center Frequency - Hz									
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
LV007	Cooling Full	84	55	52	47	46	39	37	35	83	61*
	Heating Full	85	58	49	47	46	40	37	42	91	61*
	FAN Only	65	51	47	45	44	37	29	26	65	51*
LV009	Cooling Full	86	54	55	47	47	41	38	37	84	60*
	Heating Full	84	56	50	47	46	40	36	36	84	60*
	FAN Only	62	48	45	44	44	39	32	29	62	65*
LV012	Cooling Full	84	61	55	48	47	42	40	35	84	59
	Heating Full	85	62	56	49	47	43	40	38	85	60
	FAN Only	67	54	51	47	46	40	34	30	68	51
LV015	Cooling Full	85	58	54	49	48	44	46	44	85	60*
	Heating Full	88	59	52	50	47	45	40	41	87	59
	FAN Only	68	53	51	48	47	42	37	32	70	52
LV018	Cooling Full	70	63	55	52	53	49	40	35	72	57
	Heating Full	77	60	55	53	52	47	39	38	78	58*
	FAN Only	62	58	53	49	51	43	37	28	64	54
LV024	Cooling Full	80	62	59	56	54	48	43	37	80	60
	Heating Full	81	63	59	55	54	48	44	41	81	60
	FAN Only	68	59	58	54	53	45	40	33	69	57
LV030	Cooling Full	80	69	64	56	54	47	47	40	80	61
	Heating Full	82	74	64	57	54	48	47	42	82	63
	FAN Only	72	69	64	55	50	44	37	29	75	59
LV036	Cooling Full	81	71	64	57	55	49	46	40	82	62
	Heating Full	82	74	64	58	55	50	47	44	83	64
	FAN Only	77	71	64	57	53	46	40	33	79	61
LV042	Cooling Full	83	72	64	59	55	50	45	41	83	63
	Heating Full	83	74	65	59	56	52	47	46	83	64
	FAN Only	83	72	64	58	55	49	43	37	83	63
LV048	Cooling Full	81	70	63	58	56	49	43	39	81	62
	Heating Full	81	71	64	60	56	53	47	46	82	64
	FAN Only	78	69	63	57	54	48	42	37	79	61
LV060	Cooling Full	79	67	62	58	57	48	42	37	79	61
	Heating Full	80	68	63	60	56	53	47	47	80	63
	FAN Only	73	66	61	56	54	47	41	36	74	59
LV070	Cooling Full	83	72	67	65	60	53	43	41	83	66
	Heating Full	83	74	66	63	61	53	47	43	83	66
	FAN Only	76	71	66	64	60	51	42	43	78	65

NOTE- Tested according to AHRI-260 standard for ISO-13256 WLHP condition at rated water and air flow rate
 Overall calculated using 63-8000 Hz octave bands.
 All ratings based upon PSC fan motors.

* The background noise level is too high for the A-weighted value to be valid. Actual levels are less than or equal to stated values.

Model Nomenclature



FHP Manufacturing

Specializing in efficient green technology for commercial heating and cooling products, FHP is one of the leading manufacturers of Geothermal and Water Source heat pumps, which assures that you are buying a unit you can trust. We are part of Bosch Thermotechnology Ltd., a Robert Bosch Group unit, dedicated to providing highly efficient heating and cooling solutions to the private and public sectors.

FHP headquarters has a state-of-the-art facility with the latest manufacturing technology available. Each unit is factory tested according to Bosch quality standards in order to ensure our customers the highest level of satisfaction and comfort. We carefully select our suppliers in order to equip our products with the best components available.

Advantages of FHP Technology

- ▶ Low installation costs
- ▶ Lower operating costs
- ▶ Flexibility and comfort
- ▶ Energy efficiency
- ▶ Space savings
- ▶ Superior quality
- ▶ Quiet operation



LV Model 007 - 070

- ▶ 13 Models from 1/2 through 6 tons
- ▶ Horizontal, Vertical, and Counterflow Configurations

The LV Model is a cost-effective, single stage water source heat pump designed for commercial retrofit and new construction applications.

Standard Features

Cabinet

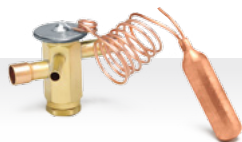
The LV unit cabinetry is constructed using heavy-gauge, G90 galvanized steel. This steel provides superior corrosion protection for units located indoors.

All interior surfaces are lined with 1/2" thick, 1.5 lb./cu. ft. density, Micromat insulation for thermal insulation and acoustical attenuation. This insulation is non-combustible, non-hygroscopic and does not support fungal growth. Insulation meets NFPA 90A and 90B for fire protection and is certified to meet the GREENGUARD® Indoor Air Quality Standard for Low Emitting Products.

Protection against corrosion is a feature in the LV unit. A stainless steel drain pan will last the lifetime of the unit and resist corrosion and cracking that may occur with steel or plastic materials.



**Tin Plated with Coated Fin
Evaporator Coil (Optional)**



TXV Valve (Optional)



**Blower Housing
(with Removable Inlet Ring)**



UPM Control Board

Unit Protection Module

Each LV unit is factory provided with a Unit Protection Module (UPM) that controls the unit operation and monitors the safety controls that protect the unit. The UPM interfaces with the thermostat or direct digital controller. The main purpose of the UPM is to protect the compressors by monitoring the different states of switches and sensors. This module provides time delays and protects the unit against freezing of the water to refrigerant and air to refrigerant heat exchangers as well as condensate overflow when the appropriate sensors are installed.

Safety controls include the following as standard:

- ▶ High pressure switch located in the refrigerant discharge line.
- ▶ Low pressure switch located in the unit refrigerant suction line.
- ▶ Standard low fluid temperature (freeze) protection sensor. The freeze protection sensor, located on the refrigerant liquid line entering the coaxial heat exchanger, is designed to disable compressor operation when the unit is in the heating mode, should the refrigerant temperature fall below either 30°F (-1.1°C) or 15°F (-9.4°C).
- ▶ Condensate overflow protection sensor is standard and factory mounted in the drain pan of the unit.
- ▶ Low air coil temperature (freeze) protection sensor disables the compressor when the refrigerant entering the air coil drops below 30°F (-1.1°C).

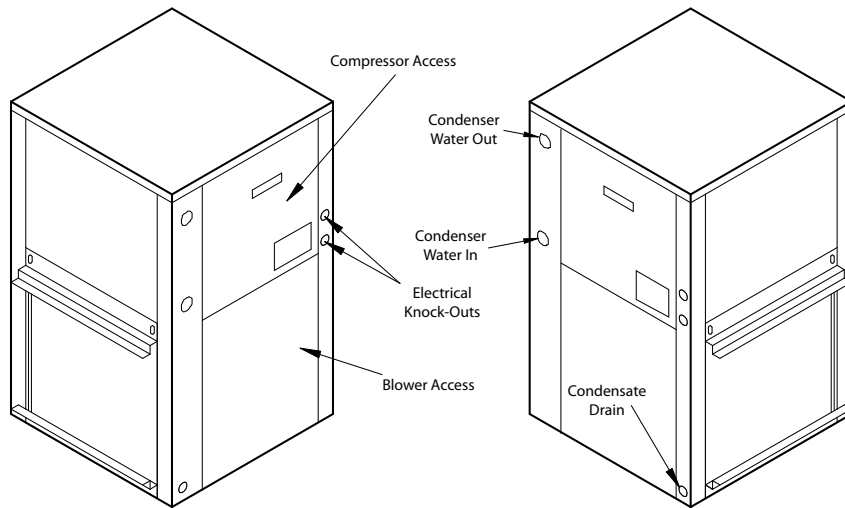
UPM Control Board Features

- ▶ **Anti-Short Cycle Timer** – 5 minute delay on break timer to prevent compressor short cycling.

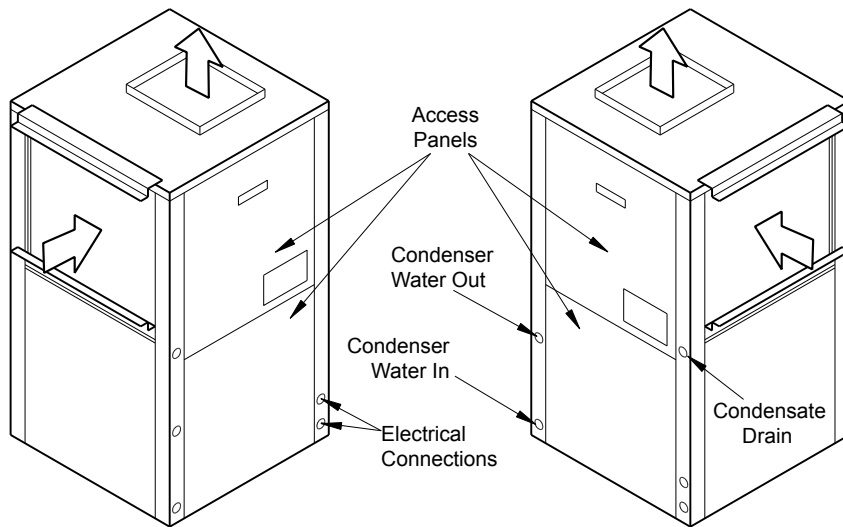
- ▶ **Random Start** – Each controller has a unique random start delay ranging from 270 to 300 seconds after power is applied to the board. This will prevent the simultaneous start of multiple units after a power outage.
- ▶ **Low Pressure Bypass Timer** – The low pressure switch is bypassed for 120 seconds after a call for compressor operation to prevent nuisance low pressure lockouts during cold start-up in the heating mode.
- ▶ **Brownout/Surge/Power Interruption Protection** – Prevents compressor operation should the voltage drop below 10% of unit rated value. The unit will restart once the voltage is within tolerance and the random start has timed out.
- ▶ **Malfunction (Alarm) Output** – The controller has a set of contacts for remote fault indication. This can be either a steady output or can be set to pulse with the fault code. Two connections are available - one to provide a 24 volt output, the other to provide a dry contact.
- ▶ **Test Service Mode** – A dip switch setting is provided to reduce all time delay settings to 10 seconds maximum during troubleshooting for verification of unit operation.
- ▶ **L.E.D. Fault Indication** – Two L.E.D. indicators are provided as follows:
 - ▶ **Green:** Power L.E.D. indicates 18 – 30 VAC present at the board.
 - ▶ **Red:** Fault indicator with blink codes identifying the particular fault. This information is available via the malfunction (alarm) output contacts.

Unit Configuration Diagrams

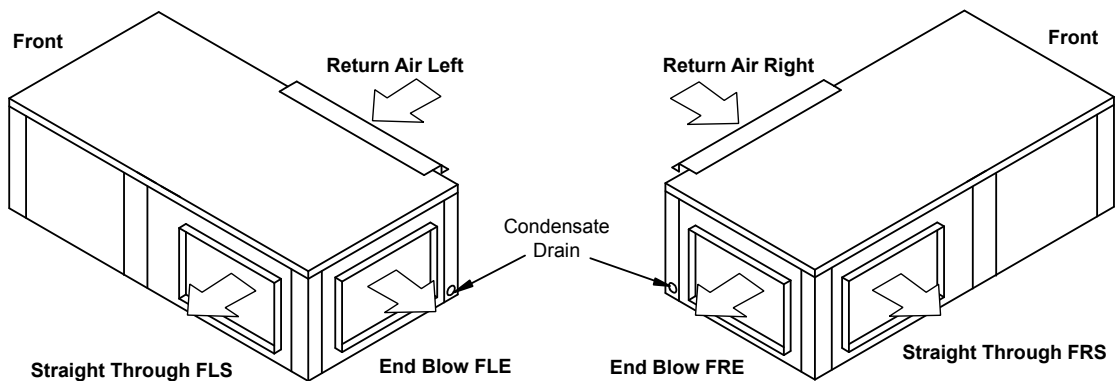
Counterflow



Left Hand Return Top Discharge FLT Right Hand Return Top Discharge FRT



Typical Horizontal Unit Configurations



Unit Electrical Data

with Standard Blower Motor

Model	Voltage Code	Voltage/Hz/ Phase	Voltage Min/Max	Compressor			Blower Motor			Min. Circuit Amps	HACR Breaker
				Quantity	RLA	LRA	FLA	HP	Total Unit FLA		
LV007	1	208-230/60/1	187/253	1	2.6	17.7	0.96	0.1	3.56	4.2	15
	2	265/60/1	238/292	1	2.6	13.5	0.96	0.1	3.56	4.2	15
LV009	1	208-230/60/1	187/253	1	3.4	22.2	0.96	0.1	4.36	5.2	15
	2	265/60/1	238/292	1	2.9	18.8	0.85	0.1	3.75	4.5	15
LV012	0	115/60/1	103/126	1	9.6	58.4	2.2	0.1	11.8	14.2	20
	1	208-230/60/1	187/253	1	4.6	28.0	0.96	0.1	5.56	6.7	15
	2	265/60/1	238/292	1	3.8	22.2	0.85	0.1	4.65	5.6	15
LV015	1	208-230/60/1	187/253	1	5.6	29.0	0.96	0.1	6.56	8.0	15
	2	265/60/1	238/292	1	4.6	20.0	0.85	0.1	5.45	6.6	15
LV018	1	208-230/60/1	187/253	1	6.5	43.0	1.8	0.25	8.3	9.9	15
	2	265/60/1	238/292	1	5.8	46.0	1.6	0.25	7.4	8.9	15
LV024	1	208-230/60/1	187/253	1	7.4	43.0	1.8	0.25	9.2	11.1	15
	2	265/60/1	238/292	1	6.7	46.0	1.6	0.25	8.3	10.0	15
	3	208-230/60/3	187/253	1	5.9	63.0	1.8	0.25	7.7	9.2	15
	4	460/60/3	414/506	1	2.9	30.0	0.9	0.25	3.8	4.5	15
LV030	1	208-230/60/1	187/253	1	9.9	54.0	1.8	0.25	11.7	14.2	20
	2	265/60/1	238/292	1	8.5	46.0	1.6	0.25	10.1	12.2	20
	3	208-230/60/3	187/253	1	6.9	63.0	1.8	0.25	8.7	10.4	15
	4	460/60/3	414/506	1	5.4	30.0	0.9	0.25	6.3	7.7	15
LV036	1	208-230/60/1	187/253	1	13	74.0	4.4	0.5	17.4	20.7	30
	2	265/60/1	238/292	1	11.3	67.0	3.3	0.5	14.6	17.4	25
	3	208-230/60/3	187/253	1	7.8	68.0	4.4	0.5	12.2	14.2	20
	4	460/60/3	414/506	1	3.9	34.0	1.8	0.5	5.7	6.7	15
LV041	1	208-230/60/1	187/253	1	13.6	88.0	4.4	0.5	18	21.4	35
	3	208-230/60/3	187/253	1	8.8	68.0	4.4	0.5	13.2	15.4	20
	4	460/60/3	414/506	1	4.4	34.0	1.8	0.5	6.2	7.3	15
LV042	1	208-230/60/1	187/253	1	13.6	88.0	4.4	0.5	18	21.4	35
	3	208-230/60/3	187/253	1	8.8	68.0	4.4	0.5	13.2	15.4	20
	4	460/60/3	414/506	1	4.4	34.0	1.8	0.5	6.2	7.3	15
LV048	1	208-230/60/1	187/253	1	15.7	84.0	4.4	0.75	20.1	24.0	35
	3	208-230/60/3	187/253	1	11	88.0	4.4	0.75	15.4	18.2	25
	4	460/60/3	414/506	1	5.4	44.0	2.8	0.75	8.2	9.6	15
	5	575/60/3	517/633	1	4.4	36.0	2.6	0.75	7	8.1	15
LV060	1	208-230/60/1	187/253	1	26.3	134.0	5.5	0.75	31.8	38.4	60
	3	208-230/60/3	187/253	1	15.6	110.0	5.5	0.75	21.1	25.0	40
	4	460/60/3	414/506	1	7.8	52.0	2.8	0.75	10.6	12.6	20
	5	575/60/3	517/633	1	5.8	38.9	2.6	0.75	8.4	9.9	15
LV070	1	208-230/60/1	187/253	1	28.3	178.0	5.5	0.75	33.8	40.9	60
	3	208-230/60/3	187/253	1	19.2	136.0	5.5	0.75	24.7	29.5	45
	4	460/60/3	414/506	1	8.7	66.1	2.8	0.75	11.5	13.7	20
	5	575/60/3	517/633	1	6.9	55.3	2.6	0.75	9.5	11.2	15

NOTES:

208/230V units shipped with transformer wired for 230V—for 208V remove orange transformer primary lead and replace with red lead. All blower motors are single phase.

UNIT POWER SUPPLY: A voltage variation of +/- 10% of nameplate rating is acceptable. Phase imbalance shall not exceed 2%.

Unit Electrical Data

with Constant CFM ECM (Variable Speed)

Model	Voltage Code	Voltage/Hz/ Phase	Voltage Min/Max	Compressor			Blower Motor			Min. Circuit Amps	HACR Breaker
				Quantity	RLA	LRA	FLA	HP	Total Unit FLA		
LV015	1	208-230/60/1	187/253	1	5.6	29.0	2.8	0.3	8.4	9.8	15
	2	265/60/1	238/292	1	4.6	20.0	2.6	0.3	7.2	8.4	15
LV018	1	208-230/60/1	187/253	1	6.5	43.0	2.8	0.3	9.3	10.9	15
	2	265/60/1	238/292	1	5.8	46.0	2.6	0.3	8.4	9.9	15
LV024	1	208-230/60/1	187/253	1	7.4	43.0	2.8	0.3	10.2	12.1	15
	2	265/60/1	238/292	1	6.7	46.0	2.6	0.3	9.3	11.0	15
	3	208-230/60/3	187/253	1	5.9	63.0	2.8	0.3	8.7	10.2	15
	4	460/60/3*	414/506	1	2.9	30.0	2.6	0.3	5.5	6.2	15
LV030	1	208-230/60/1	187/253	1	9.9	54.0	2.8	0.3	12.7	15.2	25
	2	265/60/1	238/292	1	8.5	46.0	2.6	0.3	11.1	13.2	20
	3	208-230/60/3	187/253	1	6.9	63.0	2.8	0.3	9.7	11.4	15
	4	460/60/3*	414/506	1	5.4	30.0	2.6	0.3	8.0	9.4	15
LV036	1	208-230/60/1	187/253	1	13.0	74.0	4.3	0.5	17.3	20.6	30
	2	265/60/1	238/292	1	11.3	67.0	4.1	0.5	15.4	18.2	25
	3	208-230/60/3	187/253	1	7.8	68.0	4.3	0.5	12.1	14.1	20
	4	460/60/3*	414/506	1	3.9	34.0	4.1	0.5	8.0	9.0	15
LV041	1	208-230/60/1	187/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
	3	208-230/60/3	187/253	1	8.8	68.0	6.8	0.8	15.6	17.8	25
	4	460/60/3*	414/506	1	4.4	34.0	5.5	0.8	9.9	11.0	15
LV042	1	208-230/60/1	187/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
	3	208-230/60/3	187/253	1	8.8	68.0	6.8	0.8	15.6	17.8	25
	4	460/60/3*	414/506	1	4.4	34.0	5.5	0.8	9.9	11.0	15
LV048	1	208-230/60/1	187/253	1	15.7	84.0	6.8	0.8	22.5	26.4	40
	3	208-230/60/3	187/253	1	11.0	88.0	6.8	0.8	17.8	20.6	30
	4	460/60/3*	414/506	1	5.4	44.0	5.5	0.8	10.9	12.3	15
LV060	1	208-230/60/1	187/253	1	26.3	145.0	9.1	1.0	35.4	42.0	60
	3	208-230/60/3	187/253	1	15.6	123.0	9.1	1.0	24.7	28.6	45
	4	460/60/3*	414/506	1	7.8	70.0	6.9	1.0	14.7	16.7	20
LV070	1	208-230/60/1	187/253	1	28.3	158.0	9.1	1.0	37.4	44.5	70
	3	208-230/60/3	187/253	1	19.2	155.0	9.1	1.0	28.3	33.1	50
	4	460/60/3*	414/506	1	8.7	75.0	6.9	1.0	15.6	17.8	25

* 460V models with a constant air flow motor require a neutral wire to provide 265V power to the motor

Blower Performance CFM

Standard PSC Blower Motor

Model	Available External Static Pressure (in. wc. Wet coil and filter included)													
	Motor Speed	Rated Airflow	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
LV007	Low		370	340	295	250	-	-	-	-	-	-	-	-
	Medium	300	390	360	330	300	260	-	-	-	-	-	-	-
	High		410	380	350	315	280	210	-	-	-	-	-	-
LV009	Low		370	340	295	250	-	-	-	-	-	-	-	-
	Medium		390	360	330	300	260	-	-	-	-	-	-	-
	High	350	410	380	350	315	280	210	-	-	-	-	-	-
LV012	Low		300	290	290	300	-	-	-	-	-	-	-	-
	Medium		380	380	360	330	290	-	-	-	-	-	-	-
	High	400	420	400	380	360	340	320	-	-	-	-	-	-
LV015	Low		320	300	280	-	-	-	-	-	-	-	-	-
	Medium		380	370	360	340	330	-	-	-	-	-	-	-
	High	500	520	500	480	460	430	400	340	-	-	-	-	-
LV018	Low		630	590	560	-	-	-	-	-	-	-	-	-
	Medium	650	810	790	760	730	680	590	-	-	-	-	-	-
	High		1010	970	920	870	800	680	530	-	-	-	-	-
LV024	Low		650	610	570	540	510	-	-	-	-	-	-	-
	Medium		830	820	800	770	720	620	-	-	-	-	-	-
	High	850	1050	1000	950	910	840	710	570	-	-	-	-	-
LV030	Low		740	730	700	660	610	-	-	-	-	-	-	-
	Medium		830	810	770	730	680	620	-	-	-	-	-	-
	High	950	1000	950	900	830	750	690	630	-	-	-	-	-
LV036	Low		1290	1250	1200	1150	1080	1000	-	-	-	-	-	-
	Medium		1410	1350	1290	1220	1150	1060	900	-	-	-	-	-
	High	1200	1500	1440	1370	1290	1210	1120	1000	900	-	-	-	-
LV041	Low		990	990	970	950	920	860	-	-	-	-	-	-
	Medium		1220	1190	1150	1120	1080	1020	940	-	-	-	-	-
	High	1200	1450	1380	1320	1250	1190	1120	1040	960	-	-	-	-
LV042	Low		1210	1210	1190	1160	1120	1080	-	-	-	-	-	-
	Medium		1460	1450	1430	1390	1330	1250	1160	-	-	-	-	-
	High	1400	1750	1710	1670	1620	1560	1460	1330	1210	1080	-	-	-
LV048	Low		1450	1440	1420	1400	1360	1320	-	-	-	-	-	-
	Medium		1700	1670	1630	1580	1530	1470	1400	-	-	-	-	-
	High	1600	1930	1870	1810	1740	1670	1600	1520	1430	1340	-	-	-
LV060	Low		1560	1550	1540	1530	1505	1475	1440	1400	-	-	-	-
	Medium		1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-	-
	High	2000	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590	-
LV070	Low		1570	1560	1550	1540	1530	1505	1475	1440	1400	-	-	-
	Medium		1900	1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-
	High	2100	2240	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590

Physical Data

	LV Models	LV007	LV009	LV012	LV015	LV018	LV024	LV030
	Compressor Type (Qty. 1)	Rotary	Rotary	Rotary	Rotary	Reciprocating	Reciprocating	Reciprocating
	Max. Water Working Pressure (PSIG/kPa)	400	400	400	400	400	400	400
PSC Fan Motor & Blower	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
	Fan Motor (HP)	1/10	1/10	1/10	1/10	1/4	1/4	1/4
	Blower Wheel Size (Dia. x W)	4.5 x 4.5	4.5 x 4.5	5.5 x 4.5	5.5 x 4.5	9 x 7	9 x 7	9 x 7
ECM Fan Motor & Blower	Fan Motor Type/Speeds	N/A	N/A	N/A	X13 / EON	X13 / EON	X13 / EON	X13 / EON
	Fan Motor (HP)	N/A	N/A	N/A	1/3	1/3	1/3* / 1/2	1/3* / 1/2
	Blower Wheel Size (Dia. x W)	N/A	N/A	N/A	9 x 7	9 x 7	9 x 7	9 x 7
Water Connection Size	FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	Coaxial Coil Volume (gal)	0.04	0.06	0.08	0.09	0.14	0.14	0.24
	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Vertical Cabinet	Refrigeration Charge (oz)	14	15	18	19	28	29	37
	Air Coil Dimensions (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	20 x 16.5	20 x 16.5
	Std. Filter - 1" Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
	Opt. Filter - 2" MERV 8 or 13 Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
	Weight - Operating (lbs)	98	103	105	123	173	177	190
	Weight - Shipping (lbs)	126	130	132	151	201	205	217
Horizontal Cabinet	Refrigeration Charge (oz)	17	19	19	19	29	29	37
	Air Coil Dimensions (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	16 x 20.5	16 x 20.5
	Std. Filter - 1" Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
	Opt. Filter - 2" MERV 8 or 13 Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
	Weight - Operating (lbs)	98	103	105	127	177	181	194
	Weight - Shipping (lbs)	128	132	134	158	208	212	224

	LV Models	LV036	LV041	LV042	LV048	LV060	LV070
	Compressor Type (Qty. 1)	Reciprocating	Reciprocating	Reciprocating	Scroll	Scroll	Scroll
	Max Water Working Pressure (PSIG/kPa)	400	400	400	400	400	400
PSC Fan Motor & Blower	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
	Fan Motor (HP)	1/2	1/2	1/2	3/4	3/4	3/4+
	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
ECM Fan Motor & Blower	Fan Motor Type/Speeds	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON
	Fan Motor (HP)	1/2	1/2	3/4	3/4	1	1
	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
Water Connection Size	FPT	3/4	3/4	3/4	1	1	1
	Coaxial Coil Volume (gal)	0.27	0.27	0.27	0.49	0.62	0.62
	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4
Vertical Cabinet	Refrigeration Charge (oz)	48	48	48	52	59	73
	Air Coil Dimensions (H x W)	24x20.2	20x16	24x20.2	24x26.75	24x26.75	32x26.2
	Std. Filter - 1" Throwaway (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
	Opt. Filter - 2" MERV 8 or 13 Throwaway (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
	Weight - Operating (lbs)	229	217	239	287	307	336
	Weight - Shipping (lbs)	255	243	265	312	331	360
Horizontal Cabinet	Refrigeration Charge (oz)	46	N/A	43	44	64	61
	Air Coil Dimensions (H x W)	18x27.5	N/A	18x27.5	20x32	20x32	20x42
	Std. Filter - 1" Throwaway (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
	Opt. Filter - 2" MERV 8 or 13 Throwaway (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
	Weight - Operating (lbs)	237	N/A	231	268	288	316
	Weight - Shipping (lbs)	270	N/A	264	299	318	365

NOTE: * Unit sizes 024 & 030 with -4 voltage (460/3/60), the X13 motor will be 1/2 HP rather than 1/3 HP.

Subject to change without prior notice.

Horizontal Cabinet Corner Weights

Configuration			Left Hand Evaporator				Right Hand Evaporator			
Model	Total		Left Front*	Right Front*	Left Back	Right Back	Left Front*	Right Front*	Left Back	Right Back
LVH 007	Lbs	98	28	21	25	24	21	28	24	25
	kg	45	13	10	11	11	10	13	11	11
LVH 009	Lbs	103	29	23	26	25	23	29	25	26
	kg	47	13	10	12	11	10	13	11	12
LVH 012	Lbs	105	29	24	26	26	24	29	26	26
	kg	48	13	11	12	12	11	13	12	12
LVH 015	Lbs	127	36	28	34	29	28	36	29	34
	kg	58	16	13	15	13	13	16	13	15
LVH 018	Lbs	177	57	36	48	37	36	57	37	48
	kg	80	26	16	22	17	16	26	17	22
LVH 024	Lbs	181	58	37	48	38	37	58	38	48
	kg	82	26	17	22	17	17	26	17	22
LVH 030	Lbs	194	61	41	52	41	41	61	41	52
	kg	88	28	18	23	19	18	28	19	23
LVH 036	Lbs	237	71	49	66	52	49	71	52	66
	kg	108	32	22	30	24	22	32	24	30
LVH 042	Lbs	231	70	47	64	50	47	70	50	64
	kg	105	32	21	29	23	21	32	23	29
LVH 048	Lbs	268	87	60	62	60	60	87	60	62
	kg	122	39	27	28	27	27	39	27	28
LVH 060	Lbs	288	88	65	69	66	65	88	66	69
	kg	131	40	29	31	30	29	40	30	31
LVH 072	Lbs	316	98	72	76	70	72	98	70	76
	kg	143	44	32	35	32	32	44	32	35

NOTE: * Front is control box end.



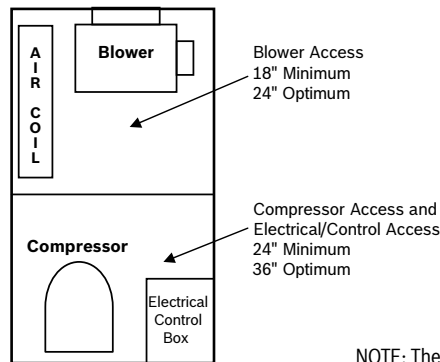
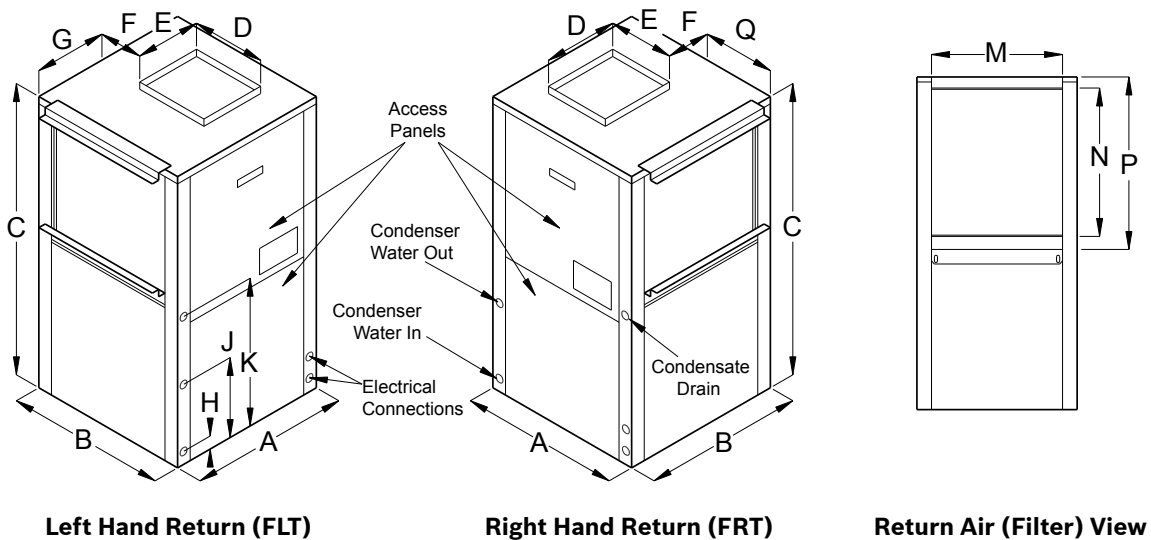
Subject to change without prior notice.

Vertical Unit Dimensions

Overall unit dimensions do not include filter rack or duct flanges.

Model	A Width	B Depth	C Height	D Discharge Depth	E Discharge Width	F Cabinet Edge to Discharge	G Left Side to Discharge	H Water Inlet	J Water Outlet	K Conden- sate Drain	M R/A Duct Width	N R/A Duct Flange Height	P Filter Rack Height	Q	Condenser Water Connections	Recommen- ded Replacement Nominal Filter Size
LV007	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV009	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV012	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV015	21.5	21.5	32.25	10.0	8.0	5.8	10.0	2.85	8.45	15.87	20.0	14.0	16.0	3.5	3/4"FPT	16 × 20 × 1
LV018	21.5	21.5	32.25	14.0	14.0	3.1	5.2	2.85	8.45	15.87	20.0	14.0	16.0	5.2	3/4"FPT	16 × 20 × 1
LV024	21.5	21.5	39.25	14.0	14.0	3.1	5.2	2.80	8.45	18.87	20.0	18.0	20.0	5.2	3/4"FPT	20 × 20 × 1
LV030	21.5	21.5	39.25	14.0	14.0	3.1	5.2	2.80	8.45	18.87	20.0	18.0	20.0	5.2	3/4"FPT	20 × 20 × 1
LV036	21.5	26.0	43.25	16.0	14.0	4.0	5.0	2.75	10.77	18.87	24.0	22.0	24.0	5.0	3/4"FPT	24 × 24 × 1
LV041	21.5	21.5	39.25	16.0	14.0	1.7	4.7	2.80	8.45	18.87	20.0	18.0	20.0	4.7	3/4"FPT	20 × 20 × 1
LV042	21.5	26.0	43.25	16.0	14.0	4.0	5.0	2.75	10.77	18.87	24.0	22.0	24.0	5.0	3/4"FPT	24 × 24 × 1
LV048	24.0	32.5	45.25	18.0	14.0	7.0	6.2	3.26	13.20	20.87	30.0	22.0	24.0	6.2	1"FPT	24 × 30 × 1
LV060	24.0	32.5	45.25	18.0	14.0	7.0	6.2	3.26	13.20	20.87	30.0	22.0	24.0	6.2	1"FPT	24 × 30 × 1
LV070	26.0	33.25	58.25	18.0	16.0	7.8	7.2	2.92	13.36	25.87	30.0	30.0	32.0	7.2	1"FPT	16 × 30 × 1 (2)

NOTES: All dimensions within +- 0.125". All condensate drain connections are 3/4" FPT. LV015-070 can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice.
 1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit.
 The 2" filter rack is 4 sided with a filter access door on one end and can accept either a 1" or 2" filter.



**Front of Unit
Service Clearances**

Blower Access
18" Minimum
24" Optimum

Compressor Access and
Electrical/Control Access
24" Minimum
36" Optimum

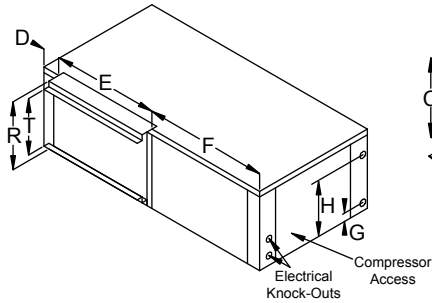
NOTE: The local electric codes may require 36" or more clearance at the electrical control box.

Horizontal Unit Dimensions

Overall unit dimensions do not include filter rack or duct flanges.

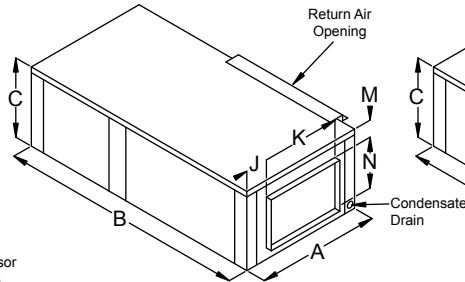
Model	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	T	Condenser Water Connections	Recommen- ded Replacement Nominal Filter Size	Recommen- ded Replacement Filter Size
	Width	Depth	Height	Cabinet End to Filter Rack	R/A Duct Width	R/A Duct to Filter Rack	Water Inlet	Water Outlet	Side to Discharge (End)	Discharge Width	Top to Discharge (FLE & FRS)	Discharge Height	Discharge (Straight)	End to Discharge (FRE & FLS)	Top to Discharge Height	Filter Rack Height			
LV007	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.375	6.3	5.97	4.1	4.875	1.41	11.3	8.6	3/4" FPT	10 × 16 × 1	
LV009	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.375	6.3	5.97	4.1	4.875	1.41	11.3	8.6	3/4" FPT	10 × 16 × 1	
LV012	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.25	6.43	6.31	4.1	4.75	1.14	11.3	8.6	3/4" FPT	10 × 16 × 1	
LV015	22.0	43.0	17.0	1.5	20.15	21.35	2.86	15.0	8.15	6.43	9.55	4.1	7.65	3.4	16.8	15.0	3/4" FPT	16 × 20 × 1	
LV018	22.0	43.0	17.0	1.5	20.15	21.35	2.86	14.13	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 20 × 1	
LV024	22.0	43.0	17.0	1.5	25.0	16.5	2.86	14.13	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 25 × 1	
LV030	22.0	43.0	17.0	1.5	25.0	16.5	2.47	15.0	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 25 × 1	
LV036	22.0	54.5	19.0	1.5	30.15	22.85	2.86	16.13	6.47	9.13	7.5	10.28	5.97	1.21	18.8	17.0	3/4" FPT	18 × 30 × 1	
LV042	22.0	54.5	19.0	1.5	30.15	22.85	2.86	16.13	5.27	10.45	6.46	11.3	4.77	1.22	18.8	17.0	3/4" FPT	18 × 30 × 1	
LV048	25.0	54.5	21.0	1.5	34.6	18.4	2.86	18.52	7.25	10.45	7.46	11.36	6.75	2.16	20.8	19.0	1" FPT	20 × 34.5 × 5 × 1	
LV060	25.0	54.5	21.0	1.5	34.6	18.4	2.86	18.52	6.32	11.76	6.81	12.5	5.82	1.68	20.8	19.0	1" FPT	20 × 34.5 × 5 × 1	
LV070	25.0	65.0	21.0	1.5	48.1	15.4	2.86	18.52	6.32	11.76	6.81	12.5	5.82	1.68	20.8	19.0	1" FPT	20 × 24 × 1 (2)	

NOTES: All dimensions within $\pm 0.125"$. All condensate drain connections are 3/4" FPT. LV015-070 can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice. 1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit. The 2" filter rack is 4 sided with a filter access door on one end and can accept either a 1" or 2" filter.

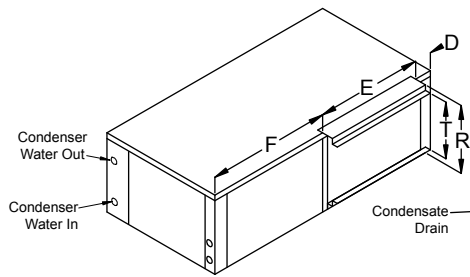


Left Hand Return End Blow (FLE)

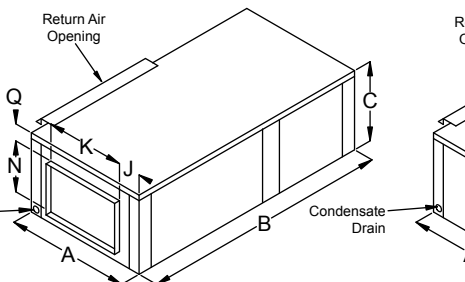
NOTE: Models LV048 & 060 Left Hand Return units have condenser water connections on the front right and electrical knockouts on the front left.



Left Hand Return Straight Through (FLS)

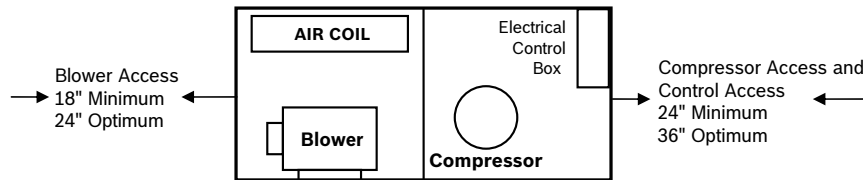


Right Hand Return End Blow (FRE)



Right Hand Return Straight Through (FRS)

Service Clearances



NOTE: The local electric codes may require 36" or more clearance at the electrical control box.

Subject to change without prior notice.

Specification Guide

1.0 General

Furnish and install FHP water source heat pumps as indicated on the plans with capacities and characteristics as listed in the schedule and the specifications that follow. The units shall be manufactured in an ISO 9001:2000 certified facility.

2.0 Horizontal/Vertical/Counterflow Water Source Heat Pumps

The units shall be designed to operate with entering fluid temperatures between 50°F (10°C) and 100°F (38°C) in cooling and between 50°F (10°C) and 80°F (27°C) in heating. With the optional factory installed extended range package, units shall operate with entering fluid temperatures between 50°F (10°C) and 110°F (43.3°C) in cooling and between 25°F (-3.9°C) and 80°F (27°C) in heating. Equivalent units from other manufacturers can be proposed, provided approval to bid is given 10 days prior to bid closing. All equipment with a nominal capacity of 135,000 BTUH Total Cooling or lower must be listed in the current AHRI Applied Equipment Directory under the AHRI Standard AHRI/ISO- 13256-1, WLHP, GWHP and GLHP certification points.

All equipment in this section must meet or exceed the DOE mandated minimum EER's and COP's as listed in ASHRAE 90.1 as follows:

For the AHRI/ISO-13256-1, WLHP Rating (12.0 EER and 4.2 COP for units larger than a nominal 17,000 BTUH Total Cooling – 11.2 EER and 4.2 COP for units below a nominal 17,000 BTUH Total Cooling).

For the AHRI/ISO-13256-1, GLHP Rating a minimum 13.4 EER and 3.1 COP. All units shall be listed with Underwriters Laboratories (UL) for safety.

2.01 Basic Construction

- A. Units shall have the air flow arrangement as shown on the plans. If units with these arrangements are not used, the contractor supplying the water source heat pumps is responsible for any extra costs incurred by other trades and must submit detailed mechanical drawings showing ductwork requirements and changes or relocation of any other mechanical or electrical system. If other

arrangements make servicing difficult, the contractor must provide access panels and clear routes to ease service. The architect must approve all changes 10 days prior to bid.

- B. All units shall have stainless steel drain pans to comply with this project's IAQ requirements. Painted steel or plastic is not acceptable.
- C. The cabinet shall be fabricated from heavy-gauge G-90 galvanized steel for superior corrosion protection. All interior surfaces shall be lined with 1/2" (12.7mm) thick, multi density, coated, glass fiber insulation. Insulation within the air handling section shall not have any exposed edges. All insulation must meet NFPA 90A and be certified to meet the GREENGUARD® Indoor Air Quality Standard for Low Emitting Products. One blower access panel and two compressor compartment access panels shall be removable with supply and return air ductwork in place.
- D. Unit shall have a floating compressor or pan consisting of a 1/2" (12 mm) thick high density elastomeric pad between the compressor base plate and the unit base pan to prevent transmission of vibration to the structure.
- E. Units shall have a 1" filter rack and 1" thick throwaway type glass fiber filter as standard. Units shall have an optional 2" thick pleated MERV 8 filter (size 007-070) or MERV 13 filter (size 015 and larger with upgraded ECM) available. The filter rack shall incorporate a 1" duct flange. The units shall have an insulated divider panel between the air handling section and the compressor section to minimize the transmission of compressor noise, and to permit service testing without air bypass.
- F. Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring.

Supply and return water connections shall be brass female pipe thread fittings and mounted flush to cabinet exterior. Connections that require a back up wrench or that extrude past the unit

Specification Guide

corner post are not acceptable. Condensate connections will be stainless steel female pipe thread fittings. Plastic is not acceptable.

- G. Hanging brackets shall be provided as standard for horizontal units.

2.02 Fan and Motor Assembly

- A. The fan shall be direct-drive centrifugal forward curved type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low velocity operation. The blower housing shall feature a removable inlet ring to facilitate removal and servicing of the fan motor. The fan motor shall be 3-speed, permanently lubricated, PSC type with thermal overload protection.
- B. 15,000 Btu/Hr to 70,000 Btu/Hr models shall have an optional constant torque electronically commutated motor for premium fan efficiency. These motors shall feature 5 pre-programmed torque settings that can be changed in the field to match design requirements. 460 V – 3 Ph – 60 Hz units with these motors must be able to operate without the need for a neutral wire for the motor.
- C. 15,000 Btu/Hr to 70,000 Btu/Hr models shall have an optional constant CFM electronically commutated motor for premium fan efficiency and constant air delivery over a wide range of external static pressures. These motors shall be field adjustable for +/- 15% of nominal design air flow. These motors shall provide feedback to the unit control box to verify motor operating mode and delivered CFM.

2.03 Refrigerant Circuit

Units shall use R-410A refrigerant. All units shall have a factory sealed and fully charged refrigerant circuit with the following components:

- A. Hermetic compressor: Hermetic reciprocating, rotary, or scroll compressors shall be specifically designed for R-410A refrigerant and shall be internally sprung (if reciprocating), externally isolated and with thermal overload protection.

- B. Refrigerant metering thermal expansion valves or capillary tubes.
- C. The finned tube heat exchanger shall be constructed of lanced aluminum fins not exceeding sixteen fins per inch bonded to rifled copper tubes in a staggered pattern and will have a 600 PSIG (4140 kPa) working pressure. The heat exchanger shall have aluminum end sheets.

Optional Air Coil Protection: The finned tube heat exchanger shall have optional Duo-Guard™ protective coil coating. This corrosion protection shall consist of tin plated copper tubing with coated aluminum fins that must pass 1000 hours of ASTM B117 salt fog testing. Painted, dipped or e-coated heat exchangers are not acceptable.

- D. Reversing valve. Reversing valves shall be four-way solenoid activated refrigerant valves which shall fail to the heating operation should the solenoid fail to function. Reversing valves which fail to the cooling operation shall not be allowed.
- E. Coaxial (tube in tube) refrigerant to water heat exchanger. Refrigerant to water heat exchangers shall be of copper inner water tube and steel outer refrigerant tube design rated to withstand 600 PSIG working refrigerant pressure and 400 PSIG working water pressure. Shell and Tube style refrigerant to water heat exchangers shall be treated as pressure vessels and shall require refrigerant pressure relief valves piped to the exterior of the building. The contractor supplying the water source heat pumps with Shell and Tube heat exchangers shall be responsible for any additional installation costs. Brazed Plate water to refrigerant heat exchangers shall require additional centrifugal separators added to the supply water piping at each unit. Each separator shall have an automated clean out valve piped to a waste line. The contractor supplying water source heat pumps with Brazed Plate heat exchangers shall be responsible for any additional costs.

Option for E: Cupro-Nickel water coil – The refrigerant to water heat exchanger shall be of Cupro-Nickel inner water tube construction.

Specification Guide

- F. Safety controls include both a high pressure and low pressure switch. Temperature sensors shall not replace these safety switches. See the controls section of this specification for additional information.
- G. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service.
- H. Activation of any safety device shall prevent compressor operation via a lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. Units which may be reset at the disconnect switch only shall not be acceptable. Refer to solid state safety circuit below.

2.04 Electrical

Controls and safety devices will be factory wired and mounted within the unit. Controls shall include fan relay, compressor contactor, 24V transformer, reversing valve coil and solid state lockout controller, Unit Protection Module (UPM). The standard transformer shall be rated for a minimum 50 VA. All units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 volts.

Option: Optional transformers shall be rated 75VA and shall have a push button reset circuit breaker on the secondary power.

2.05 Solid-State Safety Circuit

All units shall have a solid-state UPM safety control circuit with the following features:

1. Anti-short cycle time delay (5 minute delay on break).
2. Random start time delay on initial power.
3. Brown out/surge/power interruption protection.
4. 120 second low pressure switch bypass timer.
5. High refrigerant pressure shutdown.
6. Low refrigerant pressure shutdown.
7. Low water temperature shutdown (adjustable for closed loop systems).
8. Air coil freeze protection shutdown.

9. High condensate level shutdown.
10. 24 VAC alarm output for remote fault indication.

The UPM shall automatically reset after a safety shut down. Restart the unit if the cause of the shut down no longer exists (except for low temperature and high condensate level shutdowns). Should a fault re-occur within 60 minutes after reset, then a "hard" lockout will occur. A light emitting diode (LED) shall annunciate the following alarms: brown out, high refrigerant pressure, low refrigerant pressure, low water temperature and a high level of condensate in the drain pan. The LED will display each fault condition as soon as the fault occurs. If a hard lockout occurs, then the fault LED will display the type of fault until the unit is reset.

The UPM shall feature the following field configurable adjustments:

1. Lock out reset on thermostat interruption or power reset.
2. 2 or 4 restart attempts before a hard lockout.
3. Test mode (reduces all time delays to 5 seconds for diagnostic work).
4. Antifreeze setting for low water temperature sensor.

Safety devices include:

1. Low pressure cutout set a 40 PSIG (280 kPA) for loss of charge protection (freezestat and/or high discharge gas temperature sensor is not acceptable).
2. High pressure cutout control set at 600 PSIG (4125 kPA).
3. Low supply water temperature sensor that detects drops in refrigerant temperature that could result in water coax heat exchanger freezing.
4. Low air coil temperature sensor that detects drops in refrigerant temperature that could result in air heat exchanger freezing.
5. High level condensate sensor that shuts off the compressor if the condensate drain pan fills with water.
6. On board voltage detection that disables the compressor control circuit if there are extreme variations in supply voltage.