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 Revi	ew	Architect's Review

### 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
  - o Protects compressors by monitoring switches and sensors
  - o Provides time delays
  - o Protects heat exchangers
- Standard safety controls
  - o High pressure switch
  - o Low pressure switch
  - o Low fluid temperature sensor
  - o Condensate overflow
  - o Low air coil temperature sensor
  - Brownout/Surge/Power Interruption protection
  - o 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**





Prepared For: <customer> <company>

Sold To:

Date: 3/10/2014

Customer P.O. Number: Customer Project Number:

Job Number: Job Name: Press Hotel

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

### **Product Summary**

- QtyModel Description92LV COMPACT SERIES
- 15 LV COMPACT SERIES7 LV COMPACT SERIES
- 3 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.

### **Press Hotel**

### Product Data - COMPACT SERIES

Page 2 of 44

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

Page 3 of 44

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

Page 4 of 44

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

Page 5 of 44

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

Page 6 of 44

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

Page 7 of 44

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

### **Press Hotel**

### Product Data - COMPACT SERIES

Page 8 of 44

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

### **Press Hotel**

### Product Data - COMPACT SERIES

Page 9 of 44

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

Page 10 of 44

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

Page 11 of 44

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

### **Press Hotel**

Page 12 of 44

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

Page 13 of 44

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

### **Press Hotel**

### Product Data - COMPACT SERIES

Page 14 of 44

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

Page 15 of 44

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

Page 16 of 44

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

### **Press Hotel**

### Product Data - COMPACT SERIES

Page 17 of 44

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

Page 18 of 44

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

Press	Hote
11033	11010





Project Name: Pr Representative:

Press Hotel

Other Information:

<u>Unit Tag</u>	<u>Q</u>	<u>ty</u>	Configura	tion		Rer	narks		
HP-A	9	1	Horizonta	al					
Electrical Da	ta								
Voltage-Ph-	<u>Hz</u>	<u>Un</u>	it Amps -	FLA	Min. Cir. Ar	nps -	MCA	Max. Fuse S	ize - MFS
208-230/1/0	60		4.36		5.	2		15	
System Infor	mation								
Air Flow:	300	CFM	Ext	ernal Sta	atic Pressure:	0	.44	Inches of H20	
Fluid Flow:	2.7	GPM	Alti	tude:			0	Feet	
Fluid Type:	Water		WF	D Coolir	ng / Heating:	6.3	/ 6.7	Feet of Water	
Unit Load:	Full Loa	ıd	Ant	ifreeze F	Percentage:		0	%	
Entering Cor	nditions								
			Cooling		Hea	ting		]	
Entering Air D	ry Bulb:		80.00	F	68.	00	F		
Entering Air V	Vet Bulb:		67.00	F	-				
Entering Wate	er/Fluid:		90.00	F	70.	00	F		
Unit Perform	ance		Cooling		Hea	ting			
Total Capacity	y:		8.2	MBH	1	1	MBH		
Sensible Cap	acity:		6.8	MBH					
Heat of Rejec	tion:		10.2	MBH					
Heat of Absor	ption:				8.	9	MBH		
Leaving Air D	ry Bulb:		59.3	F	100	).6	F		
Leaving Air W	et Bulb:		59	F					
Leaving Wate	r Temp:		97.6	F	63	.6	F		
Input Power:			0.65	kW	0.6	63	kW		
Efficiency:			12.5	EER	5.	1	COP		
General Info	rmation								
Operating We	eight:	10	3 lbs.						
Shipping Wei	ght:	13	2 lbs.						
Unit Length:		33.	00 inch	es					
Unit Width:		19.	00 inch	es					
Unit Height:		11.	50 inch	es					
Refrigerant C	harge:	1.1	19 lbs	all circuit	S				
Fan Perform	ance				]				
CFM:		30	O CFM	1					
External Duct	Static:	0.4	14 inch	es H20					
Motors					]				
Compressor	<u>Fa</u>	an Serv	<u>/ice</u>	Q	ty <u>HP (ea</u>	.)	<u>FLA (e</u>	ea.) <u>RLA (ea.)</u>	LRA (ea.)
Rotary					1			3.4	22.2
	Si	upply			1 0.	.1	0	.96	

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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

Press Hote	I										
C	ÍD	$\sum$		Μ	odel			Project Represe	Name: entative:	Pres	s Hotel
Bosch	Group			Ll	/012	?		Other Ir	oformation:		
Unit Tag	<u>(</u>	Qt <u>y</u>	Configurat	tion		Remark	<u>s</u>				
НР-В		15	Horizonta	ıl							
Electrical D	ata									]	
Voltage-Ph	n-Hz	Ur	nit Amps - F	FLA	Min. Cir. Am	ips - MCA	<u>M</u>	ax. Fuse	Size - MFS		
208-230/1	/60		5.56		6.7	,		1	5		
System Info	ormation								_		
Air Flow:	400	CFM	Exte	ernal Sta	atic Pressure:	0.20	Inches	s of H20			
Fluid Flow:	3	GPM	Altit	ude:		0	Feet				
Fluid Type:	Water		WP	D Coolir	ng / Heating:	7.8 / 8.3	Feet c	of Water			
Unit Load:	Full Lo	bad	Anti	freeze F	Percentage:	0	%				
Entering Co	onditions	S									
			Cooling		Heat	ing					
Entering Air	Dry Bulb	):	80.00	F	68.0	<b>0</b> F					
Entering Air	Wet Bulk	o:	67.00	F	-						
Entering Wa	ater/Fluid	:	90.00	F	70.0	<b>0</b> F					
Unit Perfori	mance		Cooling		Heat	ing					
Total Capac	ity:		11.2	MBH	14.	4 MBH	1				

11.5

100.0

62.6

0.89

4.8

HP (ea.)

0.1

MBH

F

F

kW

COP

Sensible Capacity:

Heat of Rejection:

Heat of Absorption:

Leaving Air Dry Bulb:

Leaving Air Wet Bulb:

Leaving Water Temp:

General Information Operating Weight:

Shipping Weight:

Refrigerant Charge:

**Fan Performance** 

External Duct Static:

Unit Length:

Unit Width:

Unit Height:

CFM:

Motors Compressor

Rotary

Input Power:

Efficiency:

9.1

14.1

59.1

59

99.3

0.93

12.1

lbs.

lbs.

inches

inches

inches

CFM

lbs.-all circuits

inches H20

<u>Qty</u>

1

1

105

134

33.00

19.00

11.50

1.19

400

0.20

Fan Service

Supply

MBH

MBH

F

F

F

kW

EER

### March 10, 2014

FHP Submittal

FLA (ea.)

0.96

RLA (ea.)

4.6

LRA (ea.)

27.9

Press Hotel										Marc
	)		Мс	odel			Project	Name:	Press Hotel	
					_		Repres	entative:		
Bosch Group			LV	015			Other I	nformation:		
Unit Tag C	<u>Qty</u>	Configura	<u>tion</u>		<u>Remarks</u>					
HP-C	7	Horizonta	al							
Electrical Data										
Voltage-Ph-Hz 208-230/1/60	<u>Un</u>	iit Amps - I <b>6.56</b>	<u>FLA</u>	Min. Cir. Amp 8	os - MCA	<u>Ma</u>	ax. Fuse 1	<u>Size - MFS</u> 5		
System Information										
Air Flow: 500	CFM	Ext	ernal Stat	ic Pressure:	0.20	Inches	of H20	]		
Fluid Flow: 3.7	GPM	Alti	tude:		0	Feet				
Fluid Type: Water		WP	D Cooling	g / Heating: 1	2.3 / 13.1	Feet of	Water			
Unit Load: Full Loa	ad	Ant	ifreeze Pe	ercentage:	0	%				
Entering Conditions								_		
		Cooling		Heatin	ng	]				
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		Cooling		Heatin	ng					
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:	12	27 lbs.								
Shipping Weight:	15	58 lbs.								
Unit Length:	43.	00 inche	es							
Unit Width:	22.	00 inche	es							
Unit Height:	17.	00 inche	es .							
Refrigerant Charge:	1.	19 lbsa	all circuits							
Fan Performance										
CFM:	50	00 CFM								
External Duct Static:	0.2	20 inche	es H20							

### Motors

<u>Compressor</u>	Fan Service	<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			

FHP Submittal

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Press	Hote
11033	11010





*LV030* 

Project Name: Representative:

Press Hotel

Other Information:

Unit Tag Qty	<u>Cor</u>	nfigurat	ion		Remarks			
HP-1 1	Ver	tical						
Electrical Data								
Voltage-Ph-Hz	Unit A	mps - F	LA	Min. Cir. Ar	nps	- MCA	Max. Fuse S	Size - MFS
208-230/3/60		8.7		10	.4		15	5
System Information								
Air Flow: <b>1,000</b> C	FM	Exte	ernal Sta	tic Pressure:		0.45	Inches of H20	
Fluid Flow: 7.5 G	iРМ	Altit	ude:			0	Feet	
Fluid Type: Water		WP	D Coolin	g / Heating:	13.	5/14.4	Feet of Water	
Unit Load: Full Load		Anti	freeze P	ercentage:		0	%	
Entering Conditions								
	Co	ooling		Hea	ting			
Entering Air Dry Bulb:	8	0.00	F	68.	00	F		
Entering Air Wet Bulb:	6	7.00	F	-				
Entering Water/Fluid:	9	0.00	F	70.	00	F		
Unit Performance	Co	ooling		<u>Hea</u>	ting			
Total Capacity:	:	30.2	MBH	36	.6	MBH		
Sensible Capacity:	2	23.2	MBH					
Heat of Rejection:	:	36.9	MBH					
Heat of Absorption:				29	.8	MBH		
Leaving Air Dry Bulb:	į	58.8	F	100	).9	F		
Leaving Air Wet Bulb:		58	F					
Leaving Water Temp:	ę	99.9	F	62	.3	F		
Input Power:	2	2.19	kW	2.1	16	kW		
Efficiency:		13.8	EER	5	;	COP		
General Information								
Operating Weight:	190	lbs.						
Shipping Weight:	217	lbs.						
Unit Length:	21.50	inche	S					
Unit Width:	21.50	inche	S					
Unit Height:	39.30	inche	S.					
Retrigerant Charge:	2.31	lbsa	III circuits	5				
Fan Performance				]				
CFM:	1,000	CFM						
External Duct Static:	0.45	inche	s H20					
Motors								
Compressor Fan	Service		Qty	<u>/ HP (ea</u>	.)	<u>FLA (e</u>	ea.) <u>RLA (ea.)</u>	) <u>LRA (ea.)</u>
Reciprocating			1	I			6.9	63
Sup	ply		1	l 0.2	:5		1.8	

FHP Submittal

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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

Press	Hote
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LV009

Project Name: **Representative:** 

**Press Hotel** 

Other Information:

Image: Pice of the second se	Unit Tag Qty	<u>c Confi</u>	guration		Remarks	<u> </u>	
Electrical Data         Yollage-Ph-Hz       Unit Amps - FLA       Min. Cir. Amps - MCA       Max. Fuse Size - MFS         208-230/1/60       4.36       5.2       15         System Information       Air Flow:       00       Feet         Air Flow:       200 CFM       External Static Pressure:       0.44       Inches of H20         Tuid Flow:       2.7       GPM       Attitude:       0       Feet         Tuid Flow:       2.7       GPM       Attitude:       0       Feet         Jnit Load:       Full Load       Antifreeze Percentage:       0       %         Entering Conditions       Entering Conditions       F       68.00       F         Entering Vater/Fluid:       90.00       F       70.00       F         Init Performance       Cooling       Heating       Fortal Capacity:       8.2       MBH       11       MBH         feat of Rejection:       10.2       MBH       Heating       Fortal Capacity:       6.3.6       F         eaving Water Temp:       97.6       F       63.6       F       F       popt and Weat Temp:       97.6       F       63.6       F         poperating Weight:       103       lbs.       Jn	HP-2 1	Horiz	ontal				
Voltage-Ph-Hz         Unit Amps - FLA         Min. Cir. Amps - MCA         Max. Fuse Size - MFS           208-230/1/60         4.36         5.2         15           System Information         Air Flow:         300         CFM         External Static Pressure:         0.44         Inches of H20           Fluid Flow:         2.7         GPM         Attitude:         0         Feet           Fluid Type:         Weter         WPD Cooling / Heating:         6.3 / 6.7         Feet of Water           Jnit Load:         Full Load         Antifreeze Percentage:         0         %           Entering Air Dry Bulb:         80.00         F         68.00         F           Entering Weter/Fluid:         90.00         F         70.00         F           Jnit Performance         Cooling         Heating         Heating         Heating           fold Capacity:         6.8         MBH         Heating         Heating           eat of Rejection:         10.2         MBH         Heating         Heating           eat of Rejection:         10.2         MBH         Heating         Heating           eaving Air Dry Bulb:         59         F         Eaving Water Temp:         97.6         F         63.6         F<	Electrical Data						
208-230/1/60         4.36         5.2         15           System Information         System Information         0         Feet           Fuld Flow:         2.7         GPM         Altitude:         0         Feet           Fuld Type:         Water         WPD Cooling / Heating:         6.3 / 6.7         Feet of Water           Fuld Type:         Water         WPD Cooling / Heating:         6.3 / 6.7         Feet of Water           Fuld It Load:         Full Load         Antifreeze Percentage:         0         %           Entering Conditions         Solon         F         68.00         F           Entering Air Dry Bulb:         80.00         F         70.00         F           Int Performance         Cooling         Heating         Heating           Fotal Capacity:         6.8         MBH         11         MBH           4eat of Absorption:         8.9         MBH         Hatick         Feet           Eaving Air Dry Bulb:         59.3         F         100.6         F           eaving Air Dry Bulb:         59.5         KW         0.63         kW           Shepping Weight:         112         bs.         J         OP           Dint Longth:         <	Voltage-Ph-Hz	Unit Amr	os - FLA	Min. Cir. Ar	mps - MCA	Max. Fuse	Size - MFS
System Information         Air Flow:       300       CFM       External Static Pressure:       0.44       Inches of H20         Fluid Flow:       2.7       GPM       Altitude:       0       Feet         Pluid Flow:       2.7       GPM       Altitude:       0       Feet         Pluid Type:       Water       WPD Cooling / Heating:       6.3 / 6.7       Feet of Water         Jnit Load:       Full Load       Antifreeze Percentage:       0       %         Entering Conditions       Cooling       Heating       Entering Water/Fluid:       90.00       F       70.00       F         Entering Water/Fluid:       90.00       F       70.00       F       Jnit Performance       Cooling       Heating         Fotal Capacity:       8.2       MBH       11       MBH       Heating       Heatiof Absorption:       Heating       Heating	208-230/1/60	4.3	36	5.	2	1:	5
Air Flow:       300       CFM       External Static Pressure:       0.44       Inches of H20         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       Entering Conditions       68.00       F         Entering Air Dry Bulb:       80.00       F       68.00       F         Entering Water/Fluid:       90.00       F       70.00       F         Init Capacity:       8.2       MBH       11       MBH         east of Absorption:       8.9       MBH       easting Air Dry Bulb:       59.3       F       100.6         eaving Air Dry Bulb:       59.3       F       100.6       F       eaving Air Dry Bulb:       59.5       F         eaving Air Dry Bulb:       59.5       F       63.6       F       pput Power:       0.65       kW       0.63       kW         Eaving Weight:       103       bs.       Shipping Weight:       132       bs.       Jnit Length:       33.00       inchees         Jnit Length:       3	System Information						
Fluid Flow:       2.7       GPM       Altitude:       0       Feet         Fluid Type:       Water       WPD Cooling / Heating:       6.3 / 6.7       Feet of Water         Init Load:       Full Load       Antifreeze Percentage:       0       %         Entering Conditions       Cooling       Heating:       6.3 / 6.7       Feet of Water         Entering Conditions       80.00       F       68.00       F         Entering Air Dry Bulb:       67.00       F       -       -         Entering Water/Fluid:       90.00       F       70.00       F         Jnit Performance       Cooling       Heating       -         Cata Capacity:       8.2       MBH       11       MBH         4eat of Absorption:       8.9       MBH       -       -         eaving Air Dry Bulb:       59       F       -       -         eaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Shipping Weight:       103       lbs.       -       -         Jnit Height:       11.50       inches       -       -         Jnit Height:       1.19	Air Flow: 300 C	CFM	External S	tatic Pressure:	0.44	Inches of H20	
Fluid Type:       Water       WPD Cooling / Heating:       6.3 / 6.7       Feet of Water         Jnit Load:       Full Load       Antifreeze Percentage:       0       %         Entering Conditions       Entering Conditions       1       Meating         Entering Air Dry Bulb:       80.00       F       68.00       F         Entering Water/Fluid:       90.00       F       70.00       F         Jnit Performance       Cooling       Heating       11       MBH         Goal Capacity:       6.8       MBH       11       MBH         Heat of Absorption:       10.2       MBH       Heating         eaving Air Dry Bulb:       59.3       F       100.6       F         eaving Air Dry Bulb:       59.9       F	Fluid Flow: 2.7 C	3PM	Altitude:		0	Feet	
Jnit Load       Full Load       Antifreeze Percentage:       0       %         Entering Conditions       Cooling       Heating         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         Dift Performance       Cooling       Heating       -         Total Capacity:       6.8       MBH       11       MBH         Heat of Rejection:       10.2       MBH       -       -         Heat of Absorption:       8.9       MBH       -       -         eaving Air Dry Bulb:       59.3       F       100.6       F         eaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Shipping Weight:       132       lbs.       -       -         Jnit Length:       33.00       inches       -       -         Jnit Height:       11.50       inches       -       -         Shipping Weight:       11.9       lbs       -       -         Jnit Height:	Fluid Type: Water		WPD Cool	ing / Heating:	6.3 / 6.7	Feet of Water	
Learning Cooling       Heating         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         Jnit Performance       Cooling       Heating         Fotal Capacity:       8.2       MBH       11       MBH         4eat of Absorption:	Unit Load: Full Load	i	Antifreeze	Percentage:	0	%	
CoolingHeatingEntering Air Dry Bulb:80.00F68.00FEntering Air Wet Bulb:67.00F-Entering Water/Fluid:90.00F70.00FJnit PerformanceCoolingHeatingfotal Capacity:8.2MBH11MBHSensible Capacity:6.8MBHHeatingfotal Capacity:6.8MBHHeatingfotal Capacity:6.8MBHHeatingfotal Capacity:6.8MBHHeatingeaving Air Dry Bulb:59.3F100.6ficiency:12.5EER5.1eaving Water Temp:97.6F63.6port Power:0.65kW0.63Shipping Weight:103lbs.Shipping Weight:132lbs.Jnit Length:33.00inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJnit Height:11.50inchesJoneral Duct Static:0.44inches H20ZempressorEan ServiceQtyHP (ea.)AtorsIncluster3.422Supply10.10.96	Entering Conditions						1
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           Jnit Performance         Cooling         Heating         Intering Water/Fluid:         90.00         F         70.00         F           Jnit Performance         Cooling         Heating         Intering Water/Fluid:         90.00         F         70.00         F           Jnit Performance         Cooling         Heating         Intering Water/Fluid:         90.00         F         70.00         F           Jnit Performance         Cooling         Heating         Intering Water/Fluid:         MBH         Intering Water/Fluid:         MBH         Intering Water/Fluid:         MBH         Intering Water/Fluid:         State         MBH         Intering Water/Fluid:         State         State         F         State         State         F         State		Coo	ling	Hea	ting		
Entering Air Wet Bulb:         67.00         F         -           Entering Water/Fluid:         90.00         F         70.00         F           Jnit Performance         Cooling         Heating           Fotal Capacity:         8.2         MBH         11         MBH           Sensible Capacity:         6.8         MBH         1         MBH           Heat of Rejection:         10.2         MBH         1         MBH           Heat of Absorption:         8.9         MBH	Entering Air Dry Bulb:	80.	<b>00</b> F	68.	<b>00</b> F		
Entering Water/Fluid:     90.00     F     70.00     F       Jnit Performance     Cooling     Heating       Fotal Capacity:     8.2     MBH     11     MBH       Sensible Capacity:     6.8     MBH     MBH     11     MBH       Heat of Rejection:     10.2     MBH     MBH     Heating       Heat of Absorption:     8.9     MBH     MBH       Leaving Air Dry Bulb:     59.3     F     100.6     F       Leaving Water Temp:     97.6     F     63.6     F       nput Power:     0.65     kW     0.63     kW       Shipping Weight:     103     lbs.     Shipping Weight:     132     lbs.       Jnit Height:     11.50     inches     Jail circuits     San Performance       ZFM:     300     CFM     CFM     San Performance       ZFM:     300     CFM     Sternal Duct Static:     0.44     inches H20       Motors     Motors     Motors     FLA (ea.)     LRA (ea.)     LRA (ea.)       Antors     1     0.1     0.96	Entering Air Wet Bulb:	67.	<b>00</b> F	-			
Jnit Performance       Cooling       Heating         Total Capacity:       8.2       MBH       11       MBH         Sensible Capacity:       6.8       MBH       11       MBH         Heat of Rejection:       10.2       MBH       Heating         Heat of Rejection:       10.2       MBH       Heat of Absorption:       8.9       MBH         Leaving Air Dry Bulb:       59.3       F       100.6       F         Leaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Efficiency:       12.5       EER       5.1       COP         Seneral Information       Dyperating Weight:       132       lbs.         Jnit Length:       33.00       inches       Jnit Height:       11.50         Jnit Height:       11.50       inches       Stefrigerant Charge:       1.19       lbsall circuits         *an Performance	Entering Water/Fluid:	90.	<b>00</b> F	70.	<b>00</b> F		
Total Capacity:8.2MBH11MBHSensible Capacity:6.8MBHHeat of Rejection:10.2MBHHeat of Absorption:8.9MBHLeaving Air Dry Bulb:59.3F100.6FLeaving Air Wet Bulb:59FELeaving Water Temp:97.6F63.6Fnput Power:0.65kW0.63kWEfficiency:12.5EER5.1COPSeneral InformationTotal Capacity103lbs.Dyerating Weight:132lbs.Jnit Length:33.00Jnit Length:33.00inchesJnit Height:11.9Jnit Height:11.50inchesSefrigerant Charge:1.19Josall circuitsFan PerformanceCFM:300CFMExternal Duct Static:0.44inches H20FLA (ea.)RLA (ea.)LRA (ea.)Motors10.10.96S.422	Unit Performance	Coo	ling	Hea	ting		
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         Leaving Water Temp:       97.6       F       63.6       F       nput Power:       0.65       kW       0.63       kW         Seneral Information       12.5       EER       5.1       COP       COP       Seneral Information       Distribution inches       Jnit Length:       132       Ibs.       Jnit Length:       13.00       inches         Jnit Width:       19.00       inches       Jnit Height:       11.50       inches       Jnit Height:       11.9       Ibsall circuits         Fan Performance       2       2       -       -       -       -       -         Otors       0.44       inches H20       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       - </td <td>Total Capacity:</td> <td>8.</td> <td>2 MBH</td> <td>1</td> <td>1 MBH</td> <td></td> <td></td>	Total Capacity:	8.	2 MBH	1	1 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 Dry Bulb:       59       F	Sensible Capacity:	6.	8 MBH				
Heat of Absorption:       8.9       MBH         Leaving Air Dry Bulb:       59.3       F       100.6       F         Leaving Air Wet Bulb:       59       F	Heat of Rejection:	10	.2 MBH				
Leaving Air Dry Bulb:       59.3       F       100.6       F         Leaving Air Wet Bulb:       59       F       53.6       F         Leaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Efficiency:       12.5       EER       5.1       COP         Beneral Information       D       D       B       Sipping Weight:       103       Ibs.         Shipping Weight:       103       Ibs.       Sipping Weight:       132       Ibs.       Sipping Weight:       132       Ibs.         Jnit Length:       33.00       inches       Sipping Weight:       19.00       inches         Jnit Height:       11.50       inches       Signeral Crounds       Signeral Crounds       Signeral Crounds         Fan Performance       Signeral Duct Static:       0.44       inches H20       Signeral Crounds       LRA (ea.)       LRA (ea.)         Motors       Signeral Duct Static:       0.44       inches H20       Signeral Crounds       Signeral Crounds <td>Heat of Absorption:</td> <td></td> <td></td> <td>8.</td> <td>9 MBH</td> <td></td> <td></td>	Heat of Absorption:			8.	9 MBH		
Leaving Air Wet Bulb:       59       F         Leaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Efficiency:       12.5       EER       5.1       COP         Seneral Information       Deprating Weight:       103       lbs.         Operating Weight:       132       lbs.       Jait Length:       33.00       inches         Jnit Length:       33.00       inches       Jait Height:       11.50       inches         Jnit Height:       11.50       inches       Affrigerant Charge:       1.19       lbsall circuits         Fan Performance       DFM:       300       CFM       CFM       Afotors         Adotors       Afotors       Inches H20       ILRA (ea.)       ILRA (ea.)       ILRA (ea.)         Sompressor       Fan Service       Qty       HP (ea.)       FLA (ea.)       ILRA (ea.)       IRA (ea.)         Rotary       1       0.1       0.96       1       3.4       22	Leaving Air Dry Bulb:	59	. <b>3</b> F	10	<b>D.6</b> F		
Leaving Water Temp:       97.6       F       63.6       F         nput Power:       0.65       kW       0.63       kW         Efficiency:       12.5       EER       5.1       COP         General Information       Dperating Weight:       103       lbs.         Dperating Weight:       103       lbs.       Shipping Weight:       132       lbs.         Jnit Length:       33.00       inches       Jait Height:       11.50       inches         Jnit Height:       11.50       inches       Refrigerant Charge:       1.19       lbsall circuits         Fan Performance       Z       Description       Motors       Motors       ELA (ea.)       RLA (ea.)       LRA (ea.)         2ompressor       Fan Service       Qty       HP (ea.)       FLA (ea.)       RLA (ea.)       LRA (ea.)         Sterry       1       0.1       0.96       0.96       0.96	Leaving Air Wet Bulb:	5	9 F				
nput Power:         0.65         kW         0.63         kW           Efficiency:         12.5         EER         5.1         COP           General Information         Dperating Weight:         103         lbs.           Dperating Weight:         103         lbs.         Shipping Weight:         132         lbs.           Jnit Length:         33.00         inches         Jnit Width:         19.00         inches           Jnit Height:         11.50         inches         Refrigerant Charge:         1.19         lbsall circuits           Fan Performance         Description         State:         Off the second state:         Off the second state:           Off the second state:         0.44         inches H20         State:         State:         Inches H20           Motors         Image: State:         Oty         HP (ea.)         FLA (ea.)         LRA (ea.)           20mpressor         Fan Service         Oty         HP (ea.)         State:         State:           2000         1         0.1         0.96         State:         State:         State:	Leaving Water Temp:	97	<b>.6</b> F	63	. <b>6</b> F		
Efficiency:       12.5       EER       5.1       COP         General Information       Dperating Weight:       103       lbs.         Operating Weight:       103       lbs.         Shipping Weight:       132       lbs.         Jnit Length:       33.00       inches         Jnit Width:       19.00       inches         Jnit Height:       11.50       inches         Refrigerant Charge:       1.19       lbsall circuits         Fan Performance       DFM:       300       CFM         External Duct Static:       0.44       inches H20       Inches H20         Motors       Inches H20       Inches H20       Inches H20         Motors       Inches H20       Inches H20       Inches H20         Supply       1       0.1       0.96	Input Power:	0.6	6 <b>5</b> kW	0.0	6 <b>3</b> kW		
General Information         Operating Weight:       103       lbs.         Shipping Weight:       132       lbs.         Jnit Length:       33.00       inches         Jnit Width:       19.00       inches         Jnit Height:       11.50       inches         Refrigerant Charge:       1.19       lbsall circuits         Fan Performance	Efficiency:	12	. <b>5</b> EER	5.	1 COP		
Operating Weight:         103         Ibs.           Shipping Weight:         132         Ibs.           Jnit Length:         33.00         inches           Jnit Width:         19.00         inches           Jnit Height:         11.50         inches           Jnit Height:         11.50         inches           Refrigerant Charge:         1.19         Ibsall circuits           Fan Performance	General Information						
Shipping Weight:       132       lbs.         Jnit Length:       33.00       inches         Jnit Width:       19.00       inches         Jnit Width:       19.00       inches         Jnit Height:       11.50       inches         Refrigerant Charge:       1.19       lbsall circuits         Fan Performance       Fill       300       CFM         Stermal Duct Static:       0.44       inches H20         Motors       Votors       Votors         2ompressor       Fan Service       Qty       HP (ea.)       FLA (ea.)       LRA (ea.)         Rotary       1       0.1       0.96       Votos	Operating Weight:	103	lbs.				
Jnit Length: 33.00 inches Jnit Width: 19.00 inches Jnit Height: 11.50 inches Refrigerant Charge: 1.19 lbsall circuits Fan Performance CFM: 300 CFM External Duct Static: 0.44 inches H20 Motors Lompressor Fan Service Qty HP (ea.) FLA (ea.) RLA (ea.) LRA (ea.) Rotary 1 3.4 22. Supply 1 0.1 0.96	Shipping Weight:	132	lbs.				
Jnit Width: 19.00 inches Jnit Height: 11.50 inches Refrigerant Charge: 1.19 lbsall circuits Fan Performance DFM: 300 CFM External Duct Static: 0.44 inches H20 Motors Compressor Fan Service Qty HP (ea.) FLA (ea.) RLA (ea.) LRA (ea.) Compressor 1 3.4 22 Supply 1 0.1 0.96	Unit Length:	<b>33.00</b> i	inches				
Jnit Height:       11.50 inches         Refrigerant Charge:       1.19 lbsall circuits         Fan Performance         CFM:       300 CFM         External Duct Static:       0.44 inches H20         Motors         2ompressor       Fan Service         Qty       HP (ea.)       FLA (ea.)       LRA (ea.)         Rotary       1       0.1       0.96	Unit Width:	19.00 i	inches				
Refrigerant Charge: 1.19 lbsall circuits Fan Performance CFM: 300 CFM External Duct Static: 0.44 inches H20 Motors Compressor Fan Service Qty HP (ea.) FLA (ea.) RLA (ea.) LRA (ea.) Rotary 1 3.4 22. Supply 1 0.1 0.96	Unit Height:	11.50 i	inches				
Fan Performance           CFM:         300         CFM           External Duct Static:         0.44         inches H20           Motors	Refrigerant Charge:	1.19	lbsall circu	its			
CFM:       300       CFM         External Duct Static:       0.44       inches H20         Motors	Fan Performance						
External Duct Static: 0.44 inches H20 Motors Compressor Fan Service Qty HP (ea.) FLA (ea.) RLA (ea.) LRA (ea. Rotary 1 3.4 22.2 Supply 1 0.1 0.96	CFM:	300	CFM				
Motors         Compressor         Fan Service         Qty         HP (ea.)         FLA (ea.)         RLA (ea.)         LRA (ea.)           Rotary         1         3.4         22.2           Supply         1         0.1         0.96	External Duct Static:	<b>0.44</b> i	inches H20				
Compressor         Fan Service         Qty         HP (ea.)         FLA (ea.)         RLA (ea.)         LRA (ea.)           Rotary         1         3.4         22.2           Supply         1         0.1         0.96	Motors						
Rotary         1         3.4         22.           Supply         1         0.1         0.96	Compressor Far	<u>ı Service</u>	<u>C</u>	<u>Qty HP (ea</u>	<u>.) FLA</u>	(ea.) RLA (ea.)	<u>) LRA (ea</u>
Supply 1 0.1 0.96	Rotary			1		3.4	4 22.2
	Sup	oply		1 0	.1	0.96	

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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

**FHP Submittal** 

Press Hotel										March 10, 2014
				Мо	odel		Projec	t Name:	Press Hotel	
	LD)						Repre	sentative:		
	ЛГ				1012					
Bosch	Group			LV	UIZ		Other	Information:		
Unit Tag		Qty	Configura	ation	Ē	Remarks				
HP-3		1	Horizont	al						
Electrical Da	ata									
Voltage-Ph	-Hz	Ur	nit Amps -	FLA	Min. Cir. Amps	s - MCA	Max. Fuse	e Size - MFS		
208-230/1	/60		5.56		6.7			15		
System Info	rmatior	า								
Air Flow:	400	CFM	Ex	ternal Stat	ic Pressure:	0.20	Inches of H20			
Fluid Flow:	3	GPM	Alt	itude:		0	Feet			
Fluid Type:	Water		WI	PD Cooling	g / Heating: 7	7.8 / 8.3	Feet of Water			
Unit Load:	Full Lo	oad	An	tifreeze Pe	ercentage:	0	%			
Entering Co	ndition	s								
			Cooling		Heating	1	7			
Entering Air	Dry Bulk	D:	80.00	F	68.00	F				
Entering Air	Wet Bul	b:	67.00	F	-					
Entering Wat	ter/Fluid	:	90.00	F	70.00	F				
Unit Perform	nance		Cooling		Heating	1	7			
Total Capaci	ty:		11.2	MBH	14.4	MBH				
Sensible Cap	pacity:		9.1	MBH						
Heat of Reje	ction:		14.1	MBH						
Heat of Abso	orption:				11.5	MBH				
Leaving Air [	Dry Bulb	:	59.1	F	100.0	F				
Leaving Air V	Net Bulk	D:	59	F						
Leaving Wat	er Temp	):	99.3	F	62.6	F				
Input Power:			0.93	kW	0.89	kW				
Efficiency:			12.1	EER	4.8	COP				
General Info	ormatio	n								
Operating W	eight:	1(	05 lbs.							
Shipping We	ight:	1:	32 lbs.							
Unit Length:		19	.00 inch	ies						
Unit Width:		19	.00 inch	ies						
Unit Height:		24	.30 inch	ies						
Refrigerant C	Charge:	1.	13 lbs	-all circuits						
Fan Perform	nance				_					
CFM:		40	0 CFN	Л						

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

External Duct Static:

0.20

inches H20

FHP Submittal

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Press	Hote
11033	11010





LV018

Project Name: **Representative:** 

**Press Hotel** 

March 10, 2014

Other Information:

Unit Tag (	<u>Qty</u>	Configurat	<u>tion</u>		<u>Remarks</u>		
HP-4	1	Vertical					
Electrical Data							
Voltage-Ph-Hz	Uni	t Amps - F	-LA	Min. Cir. Amp	os - MCA	Max. Fuse S	Size - MFS
208-230/1/60		8.3		9.9		15	5
System Information							
Air Flow: 600	CFM	Exte	ernal Stat	tic Pressure:	0.65	Inches of H20	
Fluid Flow: 4.5	GPM	Altit	ude:		0	Feet	
Fluid Type: Water		WP	D Cooling	g / Heating:	7.2/7.6	Feet of Water	
Unit Load: Full Lo	ad	Anti	ifreeze Pe	ercentage:	0	%	
Entering Conditions	;						
		Cooling		Heatin	ng	]	
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		Cooling		Heatin	ng	]	
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	I 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:	17	7 lbs.					
Shipping Weight:	20	8 lbs.					
Unit Length:	43.0	00 inche	es				
Unit Width:	22.0	00 inche	es				
Unit Height:	17.0	JU inche	es				
Refrigerant Charge:	1.8	1 lbsa	all circuits	5			
Fan Performance							
CFM:	60	0 CFM					
External Duct Static:	0.6	5 inche	es H20				
Motors							
<u>Compressor</u> <u>F</u>	an Serv	<u>ice</u>	<u>Qty</u>	<u>/ HP (ea.)</u>	<u>FLA (e</u>	<u>ea.)</u> <u>RLA (ea.)</u>	LRA (ea.)
Reciprocating			1	l		6.5	43
5	Supply		1	0.25		1.8	

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Press	Hote
11033	I I U U U





Model **LV024** 

Project Name: **Representative:** 

**Press Hotel** 

March 10, 2014

Other Information:

<u>Unit Tag</u>	<u>Qty</u> C	onfigura	tion		Re	marks		
HP-5	1 V	ertical						
Leastrical Data								
								0. 1450
Voltage-Ph-Hz	Unit	<u>Amps - I</u>	<u>-LA</u>	Min. Cir. Ar	<u>nps -</u>	MCA	Max. Fuse	<u>Size - MFS</u>
208-230/3/60		7.7		9.	2		1	5
System Information	ו							1
Air Flow: <b>800</b>	CFM	Ext	ernal Sta	tic Pressure:	(	0.53	Inches of H20	
Fluid Flow: 6	GPM	Alti	tude:			0	Feet	
Fluid Type: Water		WP	D Coolin	g / Heating:	12.	6 / 13.4	Feet of Water	
Unit Load: Full Lo	oad	Ant	ifreeze P	ercentage:		0	%	
Entering Condition	s						_	
		Cooling		<u>Hea</u>	ting			
Entering Air Dry Bulk	D:	80.00	F	68.	00	F		
Entering Air Wet Bul	b:	67.00	F	-				
Entering Water/Fluid	:	90.00	F	70.	00	F		
Unit Performance		Cooling		Hea	ting			
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	10	).8	F		
Leaving Air Wet Bulk	D:	58	F					
Leaving Water Temp	):	99.7	F	62	.6	F		
Input Power:		1.77	kW	1.8	39	kW		
Efficiency:		13.3	EER	4.	5	COP		
General Information	n						-	
Operating Weight:	177	lbs.						
Shipping Weight:	205	lbs.						
Unit Length:	21.5	0 inche	es					
Unit Width:	21.5	0 inche	es					
Unit Height:	39.3	0 inche	es					
Refrigerant Charge:	1.81	lbsa	all circuits	s				
Fan Performance								
CFM:	800	CFM						
External Duct Static	0.53	inche	es H20					
Motors								
Compressor	Fan Servi	<u>ce</u>	Qt	<u>y HP (ea</u>	. <u>)</u>	<u>FLA (</u>	ea.) <u>RLA (ea.</u>	<u>) LRA (</u>
Reciprocating				1			5.0	<b>.</b>
	Supply			<u>.</u> 1 חי			18	<i>.</i>
	Cabbia			. 0.2				

Press	Hotel
11033	11010





Project Name: Representative: Press Hotel

March 10, 2014

Other Information:

[							•	
Unit Tag Qt	<u>y Co</u>	Configuration Remarks						
HP-6 1	Но	rizonta	I					
Electrical Data								
Voltage-Ph-Hz	Unit A	mps - F	LA	<u>Min. Cir. A</u>	mps	- MCA	Max. Fuse	Size - MFS
208-230/3/60		8.7		1	0.4		1	5
System Information								
Air Flow: 1,000	CFM	Exte	rnal Sta	tic Pressure:		0.45	Inches of H20	
Fluid Flow: 7.5	GPM	Altit	ude:			0	Feet	
Fluid Type: Water		WPI	D Coolin	ng / Heating:	13.	5/14.4	Feet of Water	
Unit Load: Full Loa	d	Anti	freeze P	ercentage:		0	%	
Entering Conditions								
	<u>C</u>	ooling		Hea	ating		]	
Entering Air Dry Bulb:	1	80.00	F	68	8.00	F		
Entering Air Wet Bulb:	(	67.00	F		-			
Entering Water/Fluid:	ę	90.00	F	70	0.00	F		
Unit Performance	<u>C</u>	ooling		Hea	ating		1	
Total Capacity:		30.2	MBH	3	6.6	MBH		
Sensible Capacity:		23.2	MBH					
Heat of Rejection:		36.9	MBH					
Heat of Absorption:				2	9.8	MBH		
Leaving Air Dry Bulb:		58.8	F	10	0.9	F		
Leaving Air Wet Bulb:		58	F					
Leaving Water Temp:		99.9	F	62	2.3	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	inche	S					
Unit Width:	22.00	inche	S					
Unit Height:	17.00	inche	S					
Refrigerant Charge:	2.31	lbsa	Il circuit	S				
Fan Performance								
CFM:	1,000	CFM						
External Duct Static:	0.45	inche	s H20					
Motors								
<u>Compressor</u> <u>Fa</u>	<u>n Service</u>	2	<u>Qt</u>	<u>y HP (e</u>	<u>a.)</u>	<u>FLA (e</u>	<u>ea.)</u> <u>RLA (ea.</u>	<u>) LRA (ea</u>
Reciprocating				1			6.9	9 6
Su	ipply			1 0.	25		1.8	

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Press	Hote
11033	11010





*LV018* 

Project Name: Representative:

Press Hotel

Other Information:

Unit Tag Qt	<u>y</u> <u>Cor</u>	figurat	ion		Re	emarks		
HP-7 1	Ver	tical						
Electrical Data								
Voltage-Ph-Hz	Unit Ar	mns - F	ΠA	Min Cir A	mns	- MCA	Max Fuse	Size - MES
208-230/1/60	<u>01110711</u>	83		<u></u>	<u>م</u>	MON	1	5
System Information		0.5		J			•	5
Air Flow: 600	CEM	Evte	arnal Sta	tic Pressure:		0.65	Inches of H20	1
Eluid Elow: 45	GPM		ude <sup>.</sup>	ue i ressure.		0.00	Feet	
Fluid Type: Water		WP	n Coolin	a / Heatina:	7	2/76	Feet of Water	
Unit Load: Full Load	ч	Anti	freeze P	ercentage		0	%	
Entering Conditions		7 4 14	100201	croonlage.		U	,,,	
	Co	olina		Hea	atina		]	
Entering Air Drv Bulb:	8	0.00	F	68	.00	F		
Entering Air Wet Bulb:	6	7.00	F		-			
Entering Water/Fluid:	9	0.00	F	70	.00	F		
Unit Performance	<u>C</u> c	oling		Hea	ating		1	
Total Capacity:	1	9.8	MBH	24	l.1	MBH		
Sensible Capacity:	1	4.6	MBH					
Heat of Rejection:	2	24.4	MBH					
Heat of Absorption:				19	).6	MBH		
Leaving Air Dry Bulb:	ŧ	57.7	F	10	4.1	F		
Leaving Air Wet Bulb:		57	F					
Leaving Water Temp:	1	00.9	F	61	.7	F		
Input Power:	1	1.57	kW	1.	54	kW		
Efficiency:	1	2.6	EER	4	.6	COP		
General Information								
Operating Weight:	173	lbs.						
Shipping Weight:	201	lbs.						
Unit Length:	21.50	inche	S					
Unit Width:	21.50	inche	S					
Unit Height:	32.30	inche	S					
Refrigerant Charge:	1.75	lbsa	Il circuits	6				
Fan Performance								
CFM:	600	CFM						
External Duct Static:	0.65	inche	s H20					
Motors								
Compressor Fa	n Service		Qt	<u>y HP (ea</u>	<u>a.)</u>	<u>FLA (</u>	<u>ea.) RLA (ea.</u>	<u>) LRA (ea</u>
Reciprocating				1			6.	5 4
Su	pply			1 0.2	25		1.8	

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**FHP Submittal** 

Press	Hote
11033	11010





Project Name: **Representative:**  **Press Hotel** 

Other Information:

Unit Tag	<u>Qty</u>	Configurat	tion	F	emarks		
HP-8	1	Vertical					
Electrical Data							
Voltage-Ph-Hz	Ur	nit Amps - F	-LA	Min. Cir. Amps	- MCA	Max. Fuse S	Size - MFS
208-230/3/60		8.7		10.4		15	5
System Information	)						
Air Flow: <b>1,000</b>	CFM	Exte	ernal Stati	c Pressure:	0.45	Inches of H20	
Fluid Flow: 7.5	GPM	Altit	ude:		0	Feet	
Fluid Type: Water		WP	D Cooling	/ Heating: 13	8.5 / 14.4	Feet of Water	
Unit Load: Full Lo	bad	Anti	freeze Pe	rcentage:	0	%	
Entering Conditions	s						<u>_</u>
		Cooling		Heating		]	
Entering Air Dry Bulb	):	80.00	F	68.00	F		
Entering Air Wet Bulk	b:	67.00	F	-			
Entering Water/Fluid:	:	90.00	F	70.00	F		
Unit Performance		Cooling		<u>Heating</u>	l	1	
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	า						
Operating Weight:	19	90 lbs.					
Shipping Weight:	2	17 lbs.					
Unit Length:	21	.50 inche	s				
Unit Width:	21	.50 inche	s				
Unit Height:	39	.30 inche	s				
Refrigerant Charge:	2.	31 lbsa	all circuits				
Fan Performance							
CFM:	1,0	000 CFM					
External Duct Static:	0.	45 inche	es H20				
Motors							
Compressor I	Fan Ser	<u>vice</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (e</u>	ea.) <u>RLA (ea.</u>	<u>) LRA (ea.)</u>
Reciprocating			1			6.9	9 63
5	Supply		1	0.25		1.8	

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**FHP Submittal** 

Press	Hote
11033	I I U U U





Model **LV024** 

Project Name: **Representative:** 

**Press Hotel** 

Other Information:

HP-9 1 Vertical
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 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
Cooling Heating
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 Cooling Heating
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: <b>59.7</b> F <b>100.8</b> F
Leaving Air Wet Bulb: 58 F
Leaving Water Temp: 99.7 F 62.6 F
Input Power: <b>1.77</b> kW <b>1.89</b> 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
Kerrigerant Unarge:     1.81     IDSAll CITCUITS
External Duct Static: 0.53 inches H20
Motors
Compressor Fan Service Qty HP (ea.) FLA (ea.) RLA (ea.) LRA (
Reciprocating 1 5.9
Supply 1 0.25 1.8

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Press	Hote
11033	11010





*LV030* 

Project Name: Representative:

Press Hotel

**e:** 

Other Information:

Unit Tag Qty	<u>v</u> <u>Cor</u>	figuratio	on		Rema	arks		
HP-10 1	Ver	tical						
Electrical Data								
Voltage-Ph-Hz	<u>Unit Ar</u>	nps - FL	A	Min. Cir. An	nps - M	CA	Max. Fuse S	Size - MFS
208-230/3/60		8.7		10.	.4		15	i
System Information								
Air Flow: <b>1,000</b>	CFM	Exter	rnal Stat	ic Pressure:	0.4	5	Inches of H20	
Fluid Flow: 7.5	GPM	Altitu	de:		0		Feet	
Fluid Type: Water		WPD	Cooling	g / Heating:	13.5 /	14.4	Feet of Water	
Unit Load: Full Load	ł	Antifr	reeze Pe	ercentage:	0		%	
Entering Conditions								
	<u>Cc</u>	oling		Heat	ing		]	
Entering Air Dry Bulb:	8	0.00	F	68.	<b>)0</b> F			
Entering Air Wet Bulb:	6	7.00	F	-				
Entering Water/Fluid:	9	0.00	F	70.	<b>)0</b> F			
Unit Performance	<u>Cc</u>	oling		Heat	ing			
Total Capacity:	3	80.2	MBH	36.	6 M	BH		
Sensible Capacity:	2	23.2	MBH					
Heat of Rejection:	3	86.9	MBH					
Heat of Absorption:				29.	<b>8</b> M	BH		
Leaving Air Dry Bulb:	5	58.8	F	100	. <b>9</b> F			
Leaving Air Wet Bulb:		58	F					
Leaving Water Temp:	ç	9.9	F	62.	<b>3</b> F			
Input Power:	2	2.19	kW	2.1	6 k\	Ν		
Efficiency:	1	3.8	EER	5	С	OP		
General Information								
Operating Weight:	190	lbs.						
Shipping Weight:	217	lbs.						
Unit Length:	21.50	inches	6					
Unit Width:	21.50	inches	6					
Unit Height:	39.30	inches	6					
Refrigerant Charge:	2.31	lbsall	l circuits					
Fan Performance								
CFM:	1,000	CFM						
External Duct Static:	0.45	inches	s H20					
Motors								
Compressor Far	n Service		Qty	<u>/ HP (ea</u>	<u>.) E</u>	LA (e	<u>ea.) RLA (ea.)</u>	<u>LRA (ea.)</u>
Reciprocating			1				6.9	63
Su	pply		1	0.2	5		1.8	

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**FHP Submittal** 

Press	Hote
11033	11010





*LV030* 

Project Name: Representative:

Press Hotel

March 10, 2014

Other Information:

Unit Tag Qt	<u>y Co</u>	nfigurati	on		<u>Remarks</u>		
HP-11 1	Ve	rtical					
Electrical Data							
Voltage-Ph-Hz	<u>Unit A</u>	mps - F	LA	Min. Cir. Am	ps - MCA	Max. Fuse	Size - MFS
208-230/3/60		8.7		10.4	L	1	5
System Information							_
Air Flow: 1,000	CFM	Exte	rnal Sta	tic Pressure:	0.45	Inches of H20	
Fluid Flow: 7.5	GPM	Altitu	ıde:		0	Feet	
Fluid Type: Water		WPD	O Coolin	g / Heating:	13.5 / 14.4	Feet of Water	
Unit Load: Full Load	b	Antif	reeze P	ercentage:	0	%	
Entering Conditions							
	C	ooling		Heatir	ng		
Entering Air Dry Bulb:	8	80.00	F	68.0	<b>0</b> F		
Entering Air Wet Bulb:	6	67.00	F	-			
Entering Water/Fluid:	9	0.00	F	70.0	<b>0</b> F		
Unit Performance	<u>C</u>	ooling		Heatir	ng		
Total Capacity:		30.2	MBH	36.6	6 MBH		
Sensible Capacity:		23.2	MBH				
Heat of Rejection:		36.9	MBH				
Heat of Absorption:				29.8	B MBH		
Leaving Air Dry Bulb:		58.8	F	100.9	9 F		
Leaving Air Wet Bulb:		58	F				
Leaving Water Temp:		99.9	F	62.3	8 F		
Input Power:		2.19	kW	2.16	6 kW		
Efficiency:		13.8	EER	5	COP		
General Information							
Operating Weight:	190	lbs.					
Shipping Weight:	217	lbs.					
Unit Length:	21.50	inches	6				
Unit Width:	21.50	inches	6				
Unit Height:	39.30	inches	S				
Retrigerant Charge:	2.31	lbsal	I circuits	6			
Fan Performance		051					
CFM:	1,000	CFM					
External Duct Static:	0.45	inches	s H20				
Motors				]			
Compressor Fai	n Service		Qt	<u>y HP (ea.)</u>	<u>FLA (</u> e	<u>ea.)</u> <u>RLA (ea.</u>	<u>) LRA (ea.)</u>
Reciprocating				1		6.9	9 63
Su	pply			1 0.25		1.8	

FHP Submittal

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Press Hotel								
Model						Project Represe	Name: entative:	Press Hotel
Bosch Group		LV	015			Other Ir	oformation:	
Unit Tag Qty	<u>Configurat</u>	tion	<u>Re</u>	emarks				
HP-12 1	Horizonta	l						
Electrical Data								
Voltage-Ph-Hz	<u>Unit Amps - F</u>	LA	Min. Cir. Amps	- MCA	Ma	x. Fuse	Size - MFS	
208-230/1/60	6.56		8			1	5	
System Information							_	
Air Flow: <b>500</b> C	CFM Exte	ernal Stat	ic Pressure:	0.20	Inches	of H20		
Fluid Flow: 3.7 G	SPM Altit	ude:		0	Feet			
Fluid Type: Water	WP	D Cooling	g / Heating: 12.	3 / 13.1	Feet of	Water		
Unit Load: Full Load	Ant	freeze Pe	ercentage:	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:	1	2.4	EER		4.6	COP
General Information						
Operating Weight:	127	lbs.				
Shipping Weight:	158	lbs.				
Unit Length:	43.00	inch	es			
Unit Width:	22.00	inch	es			
Unit Height:	17.00	inch	es			
Refrigerant Charge:	1.19	lbs	all circuits			
Fan Performance						
CFM:	500	CFN	1			
External Duct Static:	0.20	inch	es H20			
Motors					J	
Compressor Fan	n Service		<u>Qty</u>	HP	<u>(ea.)</u>	<u>FLA (e</u>

Rotary	1			5.6	29	
Supply	1	0.1	0.96			

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Press	Hote
11033	11010





*LV018* 

Project Name: Representative:

Press Hotel

March 10, 2014

Other Information:

<u>Unit Tag</u>	<u>Qty</u>	<u>Configura</u>	<u>tion</u>	<u> </u>	<u>Remarks</u>				
HP-13	1	Vertical							
Electrical Data									
Voltage-Ph-Hz	<u>Un</u>	it Amps - F	-LA	Min. Cir. Amp	s - MCA	Max. Fuse S	Size - MFS		
208-230/1/60		8.3		9.9		15	5		
System Information	۱								
Air Flow: <b>600</b>	CFM	Ext	ernal Stati	c Pressure:	0.65	Inches of H20			
Fluid Flow: 4.5	GPM	Altit	tude:		0	Feet			
Fluid Type: Water		WP	D Cooling	/ Heating:	7.2/7.6	Feet of Water			
Unit Load: Full Lo	oad	Ant	ifreeze Pe	ercentage:	0	%			
Entering Conditions									
		Cooling		Heating	1	]			
Entering Air Dry Bulk	<b>D</b> :	80.00	F	68.00	F				
Entering Air Wet Bul	b:	67.00	F	-					
Entering Water/Fluid	:	90.00	F	70.00	F				
Unit Performance		Cooling		Heating	1				
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 Bulk	D:	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	n			]					
Operating Weight:	17	<b>3</b> lbs.							
Shipping Weight:	20	1 lbs.							
Unit Length:	21.	50 inche	es						
Unit Width:	21.	50 inche	es						
Unit Height:	32.	JU INCHE							
Reingerant Charge:	1.	DS2	an circuits						
Fan Performance			1	]					
	60	U CEM							
External Duct Static:	0.6	65 inche	es H20						
Motors				]					
Compressor	Fan Serv	<u>/ice</u>	<u>Qty</u>	<u>HP (ea.)</u>	<u>FLA (</u>	ea.) <u>RLA (ea.</u>	) <u>LRA (ea.)</u>		
Reciprocating			1			6.5	5 43		
	Supply		1	0.25		1.8			

**FHP Submittal** 

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Press	Hote
11033	I I U U U





Project Name: Representative: Press Hotel

Other Information:

Unit Tag Qt	<u>y Co</u>	onfigurat	ion		Remarks		
HP-14 1	Ve	ertical					
Electrical Data							
Voltage-Ph-Hz	Unit A	Amps - F	LA	Min. Cir. Am	nps - MCA	Max. Fuse	Size - MFS
208-230/1/60		9.2		11.	1	1	5
System Information		-					-
Air Flow: 800	CFM	Exte	ernal Stat	ic Pressure:	0.53	Inches of H20	]
Fluid Flow: 6	GPM	Altit	ude:		0	Feet	
Fluid Type: Water		WPI	D Cooling	g / Heating:	12.6 / 13.4	Feet of Water	
Unit Load: Full Load	d	Anti	freeze Pe	ercentage:	0	%	
Entering Conditions							
	<u>(</u>	Cooling		Heat	ing	7	
Entering Air Dry Bulb:		80.00	F	68.0	<b>)0</b> F		
Entering Air Wet Bulb:		67.00	F	-			
Entering Water/Fluid:		90.00	F	70.0	<b>)0</b> F		
Unit Performance	<u>(</u>	Cooling		Heat	ing	1	
Total Capacity:		23.6	MBH	29.	<b>2</b> 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	. <b>0</b> F		
Leaving Air Wet Bulb:		58	F				
Leaving Water Temp:		99.8	F	62.	6 F		
Input Power:		1.80	kW	1.9	<b>2</b> kW		
Efficiency:		13.1	EER	4.5	5 COP		
General Information							
Operating Weight:	177	lbs.					
Shipping Weight:	205	lbs.					
Unit Length:	21.50	inche	S				
Unit Width:	21.50	inche	S				
Unit Height:	39.30	inche	S				
Retrigerant Charge:	1.81	lbsa	II circuits				
Fan Performance		a		]			
CFM:	800	CFM					
External Duct Static:	0.53	inche	s H20				
Motors							
Compressor Fa	n Servic	<u>e</u>	Qty	HP (ea.	<u>)</u> <u>FLA (</u>	ea.) RLA (ea.	<u>)</u> <u>LRA (ea.)</u>
Reciprocating			1			7.4	4 43
Su	pply		1	0.2	5	1.8	

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

Press	Hote
11033	11010





*LV018* 

Project Name: Representative:

Press Hotel

March 10, 2014

Other Information:

Unit Tag Qt	t <u>y Co</u>	nfigurat	<u>ion</u>	Remarks			
HP-15 1	Ve	rtical					
Electrical Data							
Voltage-Ph-Hz	<u>Unit</u> A	mps - F	LA	Min. Cir. Am	ips - MCA	Max. Fuse	Size - MFS
208-230/1/60		8.3		9.9	)	1	5
System Information							
Air Flow: 600	CFM	Exte	ernal Sta	tic Pressure:	0.65	Inches of H20	
Fluid Flow: 4.5	GPM	Altitu	ude:		0	Feet	
Fluid Type: Water		WPI	D Coolin	ig / Heating:	7.2/7.6	Feet of Water	
Unit Load: Full Loa	d	Antii	freeze P	ercentage:	0	%	
Entering Conditions							
	<u>C</u>	ooling		Heat	ing		
Entering Air Dry Bulb:	1	80.00	F	68.0	<b>0</b> F		
Entering Air Wet Bulb:	(	6 <b>7.00</b>	F	-			
Entering Water/Fluid:		90.00	F	70.0	<b>0</b> F		
Unit Performance	<u>C</u>	ooling		Heat	ing		
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	1.5	<b>4</b> kW		
Efficiency:		12.6	EER	4.6	6 COP		
General Information							
Operating Weight:	173	lbs.					
Shipping Weight:	201	lbs.					
Unit Length:	21.50	inche	S				
Unit Width:	21.50	inche	S				
Unit Height:	32.30	inche	S				
Refrigerant Charge:	1.75	lbsa	II circuits	S			
Fan Performance							
CFM:	600	CFM					
External Duct Static:	0.65	inche	s H20				
Motors							
Compressor Fa	n Service	2	<u>Qt</u>	<u>y HP (ea.</u>	<u>) FLA (</u>	ea.) <u>RLA (ea.</u>	<u>) LRA (ea.)</u>
Reciprocating				1		6.5	5 43
Su	ipply			1 0.25	5	1.8	

**FHP Submittal** 

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Press	Hote
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Project Name: **Representative:** LV036

**Press Hotel** 

Other Information:

Unit Tag Qt	<u>y Co</u>	nfigurat	ion		R	emarks		
HP-16 1	Ve	rtical						
Electrical Data								
Voltage-Ph-Hz	<u>Unit</u> A	mps - F	LA	Min. Cir. A	mps	- MCA	Max. Fuse	Size - MFS
208-230/3/60		12.2		1	4.2		20	0
System Information								
Air Flow: 1,200	CFM	Exte	ernal Stati	c Pressure:		0.51	Inches of H20	
Fluid Flow: 9	GPM	Altit	ude:			0	Feet	
Fluid Type: Water		WP	D Cooling	/ Heating:	11	.7 / 12.5	Feet of Water	
Unit Load: Full Load	b	Anti	freeze Pe	rcentage:		0	%	
Entering Conditions								
	<u>C</u>	ooling		He	ating		]	
Entering Air Dry Bulb:	ł	80.00	F	68	3.00	F		
Entering Air Wet Bulb:	(	6 <b>7.00</b>	F		-			
Entering Water/Fluid:	9	90.00	F	70	).00	F		
Unit Performance	C	ooling		He	ating			
Total Capacity:		36.9	MBH	4	45	MBH		
Sensible Capacity:		28.0	MBH					
Heat of Rejection:		45.3	MBH					
Heat of Absorption:				3	6.1	MBH		
Leaving Air Dry Bulb:		58.5	F	10	)1.7	F		
Leaving Air Wet Bulb:		58	F					
Leaving Water Temp:		100.1	F	6	2.2	F		
Input Power:		2.67	kW	2	.76	kW		
Efficiency:		13.8	EER	4	1.8	COP	]	
General Information								
Operating Weight:	229	lbs.						
Shipping Weight:	255	lbs.						
Unit Length:	26.00	inche	S					
Unit Width:	21.50	inche	S					
Unit Height:	43.30	Inche	is Il ainceit					
Kerrigerant Charge:	3.00	IDS2	ui circuits					
Fan Performance	4 000	051						
	1,200	CEM						
External Duct Static:	0.51	inche	s H20					
Motors				]				
Compressor Fa	n Service	<u>}</u>	Qty	<u>HP (e</u>	<u>a.)</u>	<u>FLA (e</u>	ea.) <u>RLA (ea.</u>	) <u>LRA (ea.)</u>
Reciprocating			1				7.8	68
Su	pply		1	(	0.5		4.4	

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**FHP Submittal** 

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Press	Hote
11033	11010





*LV030* 

Project Name: Representative: Press Hotel

Other Information:

Unit Tag C	Qt <u>y</u>	Configurat	<u>tion</u>		Remarks		
HP-17	1 \	/ertical					
Electrical Data							
Voltage-Ph-Hz	Unit	Amps - F	FLA	Min. Cir. Am	nps - MCA	Max. Fuse	Size - MFS
208-230/3/60		8.7		10.	4	1:	5
System Information							
Air Flow: <b>1,000</b>	CFM	Exte	ernal Stat	ic Pressure:	0.45	Inches of H20	
Fluid Flow: 7.5	GPM	Altit	ude:		0	Feet	
Fluid Type: Water		WP	D Cooling	g / Heating:	13.5 / 14.4	Feet of Water	
Unit Load: Full Loa	ad	Anti	freeze Pe	ercentage:	0	%	
Entering Conditions							-
		Cooling		Heat	ing	]	
Entering Air Dry Bulb:		80.00	F	68.0	<b>00</b> F		
Entering Air Wet Bulb	:	67.00	F	-			
Entering Water/Fluid:		90.00	F	70.0	<b>00</b> F		
Unit Performance		Cooling		Heat	ing		
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	2.1	6 kW		
Efficiency:		13.8	EER	5	COP		
General Information							
Operating Weight:	190	b lbs.					
Shipping Weight:	217	lbs.					
Unit Length:	21.5		es				
Unit Width:	21.5	U inche	es				
Unit Height:	39.3		95 - 11 - 11 - 11				
Reingerant Charge:	2.3	I IDSa	an circuits				
Fan Performance	4 6 6	0 051		]			
	1,00	U CFM					
External Duct Static:	0.4	5 inche	es H20				
Motors							
Compressor F	an Servi	ce	Qty	HP (ea.	<u>)</u> <u>FLA (</u>	ea.) <u>RLA (ea.</u>	) LRA (ea.)
Reciprocating			1		_	6.9	9 63
S	upply		1	0.2	5	1.8	

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**FHP Submittal** 

Press	Hotel
11033	INCLU



# Model

LV007

Project Name: **Representative:** 

**Press Hotel** 

March 10, 2014

Other Information:

Unit Tag Q	t <u>y Co</u>	Configuration		Remarks				
HP-18 1	I Ho	Horizontal						
Electrical Data								
Voltage-Ph-Hz	<u>Unit</u>	Amps - I	-LA	Min. Cir. An	ips - M	CA	Max. Fuse Si	ze - MFS
208-230/1/60		3.46		4.1	I		15	
System Information								
Air Flow: 250	CFM	Ext	ernal Sta	atic Pressure:	0.4	0	Inches of H20	
Fluid Flow: 1.5	GPM	Alti	tude:		0		Feet	
Fluid Type: Water		WP	D Coolii	ng / Heating:	1.5 /	1.6	Feet of Water	
Unit Load: Full Loa	ıd	Ant	ifreeze F	Percentage:	0		%	
Entering Conditions								
	<u>(</u>	Cooling		Heat	ing		]	
Entering Air Dry Bulb:		80.00	F	68.0	<b>)0</b> F			
Entering Air Wet Bulb:		67.00	F	-				
Entering Water/Fluid:		90.00	F	70.0	<b>)0</b> F			
Unit Performance	<u>(</u>	Cooling		Heat	ing			
Total Capacity:		6.1	MBH	7.8	3 M	BH		
Sensible Capacity:		5.5	MBH					
Heat of Rejection:		7.6	MBH					
Heat of Absorption:				6.	5 M	BH		
Leaving Air Dry Bulb:		60.1	F	96.	<b>0</b> F			
Leaving Air Wet Bulb:		60	F					
Leaving Water Temp:		100.1	F	61.	7 F			
Input Power:		0.52	kW	0.4	6 kV	N		
Efficiency:		11.8	EER	5	С	OP		
General Information							-	
Operating Weight:	98	lbs.						
Shipping Weight:	128	lbs.						
Unit Length:	33.00	inche	es					
Unit Width:	19.00	inche	es					
Unit Height:	11.50	inche	es					
Refrigerant Charge:	1.06	lbsa	all circuit	ts				
Fan Performance								
CFM:	250	CFM						
External Duct Static:	0.40	inche	es H20					
Motors				]				
Compressor Fa	an Servic	<u>e</u>	Q	t <u>y HP (ea</u> .	<u>) E</u>	LA (e	ea.) <u>RLA (ea.)</u>	<u>LRA (e</u>
Rotary				1			2.5	17
 Si	upply			1 0.	1	0	.96	

Press	Hote
11033	11010





*LV030* 

Project Name: Representative:

Press Hotel

March 10, 2014

Other Information:

Unit Tag Qt	<u>у С</u>	onfigurat	tion		<u>Remarks</u>		
HP-19 1	V	ertical					
Electrical Data							
Voltage-Ph-Hz	<u>Unit</u>	Amps - F	-LA	Min. Cir. Am	nps - MCA	Max. Fuse S	Size - MFS
208-230/3/60		8.7		10.4	4	15	5
System Information							
Air Flow: <b>1,000</b>	CFM	Exte	ernal Sta	atic Pressure:	0.45	Inches of H20	
Fluid Flow: 7.5	GPM	Altit	ude:		0	Feet	
Fluid Type: Water		WP	D Coolir	ng / Heating:	13.5 / 14.4	Feet of Water	
Unit Load: Full Load	d	Anti	freeze F	Percentage:	0	%	
Entering Conditions							
	<u>(</u>	Cooling		Heat	ing		
Entering Air Dry Bulb:		80.00	F	68.0	<b>10</b> F		
Entering Air Wet Bulb:		67.00	F	-			
Entering Water/Fluid:		90.00	F	70.0	00 F		
Unit Performance	(	Cooling		Heat	ing		
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.	<b>3</b> F		
Input Power:		2.19	kW	2.1	6 kW		
Efficiency:		13.8	EER	5	COP		
General Information							
Operating Weight:	190	lbs.					
Shipping Weight:	217	lbs.					
Unit Length:	21.50	Inche	es				
Unit Width:	21.50	inche	s				
Unit Height:	39.30	inche	es				
Kerrigerant Charge:	2.31	IDS2	all circuit	S			
Fan Performance				]			
CFM:	1,000	CFM					
External Duct Static:	0.45	inche	es H20				
Motors							
Compressor Fai	n Servic	e	Qt	ty <u>HP (ea.</u>	<u>)</u> <u>FLA (</u>	<u>ea.)</u> <u>RLA (ea.)</u>	) <u>LRA (ea.)</u>
Reciprocating				1		6.9	63
Su	pply			1 0.2	5	1.8	

**FHP Submittal** 

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Press	Hotel
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*LV018* 

Representative:

Project Name:

Press Hotel

Other Information:

Unit Tag	<u>Qty</u>	Configura	<u>ition</u>		Remarks		
HP-20	1	Horizont	al				
Electrical Data							
	Lin	it Amne		Min Cir Amr		Max Euco S	IZO MES
	<u>011</u>	<u>n Amps -</u>	<u>FLA</u>		<u>15 - IVICA</u>	IVIAX. FUSE 5	12e - IVIF3
208-230/1/60		8.3		9.9		15	
System Information	n 		1.0/				
Air Flow: 600	CFM	Ext	ernal Sta	tic Pressure:	0.65	Inches of H20	
Fluid Flow: 4.5	GPM	Alti	tude:		0	Feet	
Fluid Type: Water		WF	D Coolin	g / Heating:	7.2/7.6	Feet of Water	
Unit Load: Full L	oad	An	tifreeze P	ercentage:	0	%	
Entering Condition	IS					-	
		<u>Cooling</u>		Heatin	g		
Entering Air Dry Bull	b:	80.00	F	68.00	) F		
Entering Air Wet Bul	lb:	67.00	F	-			
Entering Water/Fluid	d:	90.00	F	70.00	) F		
Unit Performance		<u>Cooling</u>		Heatin	g		
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	<b>)</b> :	57.7	F	104.1	F		
Leaving Air Wet Bull	b:	57	F				
Leaving Water Temp	p:	100.9	F	61.7	F		
Input Power:		1.57	kW	1.54	kW		
Efficiency:		12.6	EER	4.6	COP		
General Informatio	n					_	
Operating Weight:	17	7 Ibs.					
Shipping Weight:	20	<b>8</b> Ibs.					
Unit Length:	43.	00 inch	es				
Unit Width:	22.	00 inch	es				
Unit Height:	17.	00 inch	es				
Refrigerant Charge:	1.8	81 lbs	all circuits	6			
Fan Performance							
CFM:	60	0 CFM	1				
External Duct Static	: 0.6	5 inch	es H20				
Motors							
Compressor	Fan Serv	/ice	Qt	<u>v H</u> P (ea.)	FLA (	ea.) RLA (ea.)	LRA (e
De elemene etter e				- <u> </u>	<b>,</b>		
Reciprocating	0			1		6.5	
	Supply			1 0.25		1.8	

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Press	Hotel
11033	11010





Project Name: **Representative:** 

**Press Hotel** 

Other Information:

Unit Tag	Qty	Configu	ration	R	emarks		
HP-21	1	Horizor	ntal				
Electrical Data							
Voltage-Ph-Hz	U	nit Amps	- FI A	Min. Cir. Amps	- MCA	Max, Fuse S	Size - MFS
208-230/1/60	<u></u>	8.3	<u> </u>	9.9	<u> </u>	1!	5
System Informatio	on	0.0		0.0			<b>.</b>
Air Flow: 600	CFM	F	xternal Statio	Pressure:	0.65	Inches of H20	]
Fluid Flow: 4.5	GPM	_ A	ltitude:		0	Feet	
Fluid Type: Wate	ər	Ŵ	/PD Cooling	/Heating: 7	.2/7.6	Feet of Water	
Unit Load: Full	Load	A	ntifreeze Per	centage:	0	%	
Entering Conditio	ons				-		J
		Coolin	q	Heating		1	
Entering Air Dry Bu	ulb:	80.00	F	68.00	F		
Entering Air Wet B	ulb:	67.00	F	-			
Entering Water/Flu	id:	90.00	F	70.00	F		
Unit Performance	9	<u>Coolin</u>	g	Heating		1	
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 Bu	ılb:	57.7	F	104.1	F		
Leaving Air Wet Bu	ulb:	57	F				
Leaving Water Ten	np:	100.9	F	61.7	F		
Input Power:		1.57	kW	1.54	kW		
Efficiency:		12.6	EER	4.6	COP	]	
General Informati	on						
Operating Weight:	1	77 lbs					
Shipping Weight:	2	08 lbs					
Unit Length:	43	.00 inc	nes				
Unit Width:	22	.00 inc	hes				
	17 	.UU INC					
	<del>.</del> 1.	SCI IO					
		00 05	`N Л				
	6		IVI				
External Duct Stati	c: <b>0</b> .	. <b>65</b> inc	hes H20				
Motors							
Compressor	Fan Ser	vice	Qty	<u>HP (ea.)</u>	<u>FLA (</u>	ea.) <u>RLA (ea.</u>	<u>) LRA (ea.)</u>
Reciprocating			1			6.5	5 43
	Supply		1	0.25		1.8	

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Press	Hotel
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Model **LV024** 

**Representative:** 

Project Name:

**Press Hotel** 

Other Information:

<u>Unit Tag</u>	<u>C</u>	Qt <u>y</u> C	Configura	<u>ition</u>		<u>R</u> e	emarks			
HP-22		1 F	lorizonta	al						
Electrical Da	ata									]
Voltage-Ph	<u>ı-Hz</u>	<u>Unit</u>	Amps -	FLA	Min. Cir.	Amps	- MCA	Max. Fuse	Size - MFS	
208-230/3	/60		7.7			9.2		15		
System Info	rmation									
Air Flow:	800	CFM	Ext	ernal Stat	tic Pressure	e:	0.53	Inches of H20	]	
Fluid Flow:	6	GPM	Alti	tude:			0	Feet		
Fluid Type:	Water		WF	D Cooling	g / Heating:	: 12.	6/13.4	Feet of Water		
Unit Load:	Full Lo	ad	Ant	ifreeze P	ercentage:		0	%		
Entering Co	nditions								<u>-</u>	
			Cooling		He	eating		]		
Entering Air	Dry Bulb:		80.00	F	6	68.00	F			
Entering Air	Wet Bulb	:	67.00	F		-				
Entering Wa	ter/Fluid:		90.00	F	7	0.00	F			
Unit Perform	nance		Cooling		He	eating		1		
Total Capaci	ty:		23.6	MBH	:	29.1	MBH			
Sensible Cap	pacity:		17.8	MBH						
Heat of Reje	ction:		28.9	MBH						
Heat of Absc	orption:				:	23.2	MBH			
Leaving Air [	Ory Bulb:		59.7	F	1	00.8	F			
Leaving Air V	Net Bulb:		58	F						
Leaving Wat	er Temp:		99.7	F	(	62.6	F			
Input Power:			1.77	kW		1.89	kW			
Efficiency:			13.3	EER		4.5	COP			
General Info	ormation									
Operating W	eight:	181	lbs.							
Shipping We	ight:	212	lbs.							
Unit Length:		43.0	0 inch	es						
Unit Width:		22.0	0 inch	es						
Unit Height:		17.0	0 inch	es						
Refrigerant C	Charge:	1.81	l lbs	all circuits	6					
Fan Perform	nance									
CFM:		800	CFN	1						
External Duc	t Static:	0.53	inch	es H20						
Motors										
Compressor	E	an Servi	ce	Qty	<u>/ HP (</u>	<u>ea.)</u>	FLA (e	ea.) <u>RLA (ea.</u>	) LRA (ea.)	
Reciprocati	ng			1				5.9	9 63	
	S	upply		1	(	).25		1.8		

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**FHP Submittal** 

Press	Hotel
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Project Name:

Press Hotel

FIESS HOLEI

March 10, 2014

Other Information:

Unit Tag Qt	t <u>y Co</u>	nfigura	tion		Re	emarks		
HP-23 1	Ho	rizonta	l					
Electrical Data								
Voltage-Ph-Hz	Unit A	mps - F	LA	Min. Cir. An	nps -	- MCA	Max. Fuse	Size - MFS
208-230/1/60		20.1		24	1		3	5
System Information		20.1		-				<b>.</b>
Air Flow: 1 600	CEM	Exte	ernal Sta	tic Pressure:		0 60	Inches of H20	ו
Fluid Flow: 12	GPM	Altit	ude:			0	Feet	
Fluid Type: Water	•	WP	D Coolin	a / Heating:	6.	1/6.5	Feet of Water	
Unit Load: Full Loa	d	Anti	freeze P	ercentage:		0	%	
Entering Conditions				g		-		J
	C	oolina		Heat	ina		7	
Entering Air Dry Bulb:		80.00	F	68.0	00	F		
Entering Air Wet Bulb:		67.00	F					
Entering Water/Fluid:	9	90.00	F	70.0	00	F		
Unit Performance	<u>C</u>	ooling		Heat	ting		1	
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	3.7	3	kW		
Efficiency:		12.5	EER	4.0	6	COP		
General Information								
Operating Weight:	268	lbs.						
Shipping Weight:	299	lbs.						
Unit Length:	54.50	inche	es					
Unit Width:	25.00	inche	es					
Unit Height:	21.00	inche	es III					
Refrigerant Charge:	2.75	lbsa	all circuit	S				
Fan Performance	4 000	0514						
	1,600	CFM						
External Duct Static:	0.60	inche	es H20					
Motors								
<u>Compresso</u> r Fa	an Service	2	Qt	v HP (ea	.)	<u>FL</u> A (e	ea.) RLA (ea.	<u>)</u> <u>L</u> RA (
Posiprocating		-		- <u> </u>	-		46 -	7
Reciprocating	upply			1 07	5		15./	1
51	чных			· 0.7	5		7.7	

**FHP Submittal** 

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			C	Oucted Disc	charge - Ve	rtical Mode	els				
				Octa	ve Band So	ound Powe	r Levels dE	8, re 10-12 \	Watts		
Model	LOAD					Center Fre	quency - Ha	Z			
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
	Cooling Full	82	65	57	58	60	52	53	54	82	64
LV007	Heating Full	84	65	58	58	60	52	52	54	84	64*
	FAN Only	72	65	58	58	60	53	53	54	73	63
	Cooling Full	75	66	61	59	60	53	54	55	76	64
LV009	Heating Full	79	66	61	59	59	53	54	55	79	64
	FAN Only	72	66	61	60	60	54	55	56	74	64
	Cooling Full	75	68	62	59	60	53	53	54	76	64
LV012	Heating Full	80	70	66	62	61	54	53	55	81	66
	FAN Only	79	70	66	62	62	54	54	56	80	66
	Cooling Full	79	69	65	63	62	57	56	52	80	67
LV015	Heating Full	80	70	65	63	63	57	57	53	81	68
	FAN Only	75	72	65	63	64	57	57	54	77	68
	Cooling Full	75	67	61	62	58	54	54	49	76	64
LV018	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
	Cooling Full	79	70	65	68	63	57	58	55	80	69
LV030	Heating Full	76	73	66	67	63	57	58	56	79	69
	FAN Only	77	71	66	67	64	57	59	56	79	69
	Cooling Full	78	72	66	67	64	59	60	57	80	70
LV036	Heating Full	78	76	67	67	65	59	60	58	81	70
	FAN Only	79	72	67	67	65	60	60	59	80	70
	Cooling Full	77	75	67	66	65	61	61	59	80	70
LV041	Heating Full	79	80	67	66	66	62	62	60	83	71
	FAN Only	80	73	67	67	67	62	62	61	81	71
	Cooling Full	80	80	67	70	74	70	68	65	84	78
LV042	Heating Full	82	82	67	70	73	70	68	65	86	77
	FAN Only	79	83	68	70	74	71	69	66	85	78
	Cooling Full	83	75	69	72	75	71	69	66	85	79
LV048	Heating Full	82	76	69	71	75	71	69	66	84	78
	FAN Only	82	75	69	72	76	72	70	67	85	79
	Cooling Full	80	75	65	68	71	67	65	61	82	75
LV060	Heating Full	78	75	66	68	71	67	65	61	81	75
	FAN Only	77	77	67	69	73	68	65	62	81	76
	Cooling Full	85	79	74	73	73	70	67	63	87	78
LV070	Heating Full	86	78	74	73	74	70	67	63	88	78
	FAN Only	86	80	75	74	74	70	68	64	88	79

		Octave Band Sound Power Levels dB, re 10-12 Watts											
Model				0010	to Dana ot	Center Free	auency - H	z	Tullo				
model	LOAD	63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)		
	Cooling Full	84	63	57	56	60	54	54	55	83	65*		
LV007	Heating Full	82	62	55	53	58	53	53	55	82	65*		
	FAN Only	76	62	55	53	58	54	53	54	76	64*		
	Cooling Full	82	64	61	56	60	55	55	56	83	65		
LV009	Heating Full	77	63	58	54	57	54	55	56	77	62		
	FAN Only	76	63	58	55	58	55	55	56	77	65*		
	Cooling Full	82	66	62	56	60	55	54	55	83	65		
LV012	Heating Full	78	67	63	57	59	55	54	56	79	64		
	FAN Only	83	67	63	57	60	55	54	56	84	65*		
	Cooling Full	86	69	66	62	65	59	58	54	87	70		
LV015	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		
	Cooling Full	82	71	67	67	65	60	60	57	82	70		
LV030	Heating Full	79	72	68	68	68	60	61	58	81	71		
	FAN Only	74	72	68	68	67	61	61	59	78	71		
	Cooling Full	85	77	69	70	69	65	64	61	86	74		
LV036	Heating Full	84	78	71	71	71	65	64	61	86	74		
	FAN Only	83	78	71	71	71	65	65	62	85	75		
	Cooling Full	88	84	72	73	74	70	68	64	90	78		
LV042	Heating Full	90	84	74	74	73	70	68	64	91	78		
	FAN Only	91	84	74	74	74	70	68	65	92	79		
	Cooling Full	85	81	71	72	73	70	67	63	87	77		
LV048	Heating Full	85	82	72	72	73	69	67	63	87	77		
	FAN Only	85	82	72	73	74	70	67	63	88	78		
	Cooling Full	81	78	69	71	72	69	66	61	84	76		
LV060	Heating Full	81	79	70	71	73	69	66	62	84	76		
	FAN Only	79	80	70	71	73	69	66	62	84	77		
	Cooling Full	80	81	66	69	70	67	65	61	84	75		
LV070	Heating Full	79	76	68	69	70	67	65	61	82	75		
	FAN Only	77	80	68	69	71	68	66	62	83	75		

Ducted Discharge - Horizontal Models

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.

		1		Octa	vo Band So	ound Powe	r Lovole dE	t ro 10-12	Natte		
Medel				UCIA	ve Danu St	Contor Fred		, IE IU-IZ 1	vallo		
wodei	LOAD	<u> </u>	405	050	500			4000	0000	0	
		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
11/007	Cooling Full	73	58	55	49	45	37	31	29	73	53*
LV007	Heating Full	79	59	54	48	45	37	32	34	79	55
	FAN Only	70	57	51	47	43	36	28	26	70	50*
	Cooling Full	74	57	58	49	46	39	32	30	74	54*
LV009	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
	Cooling Full	78	60	56	50	47	42	41	38	79	56*
LV015	Heating Full	79	62	55	50	46	42	37	35	79	56
	FAN Only	73	58	52	49	45	41	35	31	74	53
	Cooling Full	68	65	56	52	52	48	38	31	70	56
LV018	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
	Cooling Full	84	64	57	54	53	52	42	35	84	61
LV030	Heating Full	80	81	57	55	53	49	44	39	84	66
	FAN Only	68	58	56	53	51	47	39	32	69	56
	Cooling Full	74	63	65	57	56	50	43	37	75	61
LV036	Heating Full	74	76	65	58	56	53	46	42	79	64
	FAN Only	69	60	58	56	56	49	41	32	70	59
	Cooling Full	79	65	63	57	54	51	47	42	79	61
LV041	Heating Full	77	71	59	59	54	51	46	43	78	61
	FAN Only	75	63	57	55	52	49	44	38	76	58
	Cooling Full	80	67	63	56	52	48	47	40	80	61
LV042	Heating Full	77	73	60	56	54	49	47	41	78	61
	FAN Only	70	67	57	54	51	47	39	33	72	57
	Cooling Full	80	64	62	59	60	55	46	39	80	64
LV048	Heating Full	76	67	63	60	61	56	47	41	77	64
	FAN Only	78	65	61	58	60	55	47	39	78	64
	Cooling Full	74	72	64	59	58	54	45	36	77	63
LV060	Heating Full	82	73	67	59	57	53	47	40	83	64
	FAN Only	71	70	60	58	57	53	44	36	74	62
	Cooling Full	80	67	62	59	54	49	43	37	80	62
LV070	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 - Vertical Models** 

				Octa	ve Band Se	ound Powe	r Levels dE	3. re 10-12 \	Natts		
Model	LOAD					Center Free	quency - H	Z			
mouor		63	125	250	500	1000	2000	4000	8000	Overall	Overall (dBA)
	Cooling Full	84	55	52	47	46	39	37	35	83	61*
LV007	Heating Full	85	58	49	47	46	40	37	42	91	61*
	FAN Only	65	51	47	45	44	37	29	26	65	51*
	Cooling Full	86	54	55	47	47	41	38	37	84	60*
LV009	Heating Full	84	56	50	47	46	40	36	36	84	60*
	FAN Only	62	48	45	44	44	39	32	29	62	65*
	Cooling Full	84	61	55	48	47	42	40	35	84	59
LV012	Heating Full	85	62	56	49	47	43	40	38	85	60
	FAN Only	67	54	51	47	46	40	34	30	68	51
	Cooling Full	85	58	54	49	48	44	46	44	85	60*
LV015	Heating Full	88	59	52	50	47	45	40	41	87	59
	FAN Only	68	53	51	48	47	42	37	32	70	52
	Cooling Full	70	63	55	52	53	49	40	35	72	57
LV018	Heating Full	77	60	55	53	52	47	39	38	78	58*
	FAN Only	62	58	53	49	51	43	37	28	64	54
	Cooling Full	80	62	59	56	54	48	43	37	80	60
LV024	Heating Full	81	63	59	55	54	48	44	41	81	60
	FAN Only	68	59	58	54	53	45	40	33	69	57
	Cooling Full	80	69	64	56	54	47	47	40	80	61
LV030	Heating Full	82	74	64	57	54	48	47	42	82	63
	FAN Only	72	69	64	55	50	44	37	29	75	59
	Cooling Full	81	71	64	57	55	49	46	40	82	62
LV036	Heating Full	82	74	64	58	55	50	47	44	83	64
	FAN Only	77	71	64	57	53	46	40	33	79	61
	Cooling Full	83	72	64	59	55	50	45	41	83	63
LV042	Heating Full	83	74	65	59	56	52	47	46	83	64
	FAN Only	83	72	64	58	55	49	43	37	83	63
	Cooling Full	81	70	63	58	56	49	43	39	81	62
LV048	Heating Full	81	71	64	60	56	53	47	46	82	64
	FAN Only	78	69	63	57	54	48	42	37	79	61
	Cooling Full	79	67	62	58	57	48	42	37	79	61
LV060	Heating Full	80	68	63	60	56	53	47	47	80	63
	FAN Only	73	66	61	56	54	47	41	36	74	59
	Cooling Full	83	72	67	65	60	53	43	41	83	66
LV070	Heating Full	83	74	66	63	61	53	47	43	83	66
	FAN Only	76	71	66	64	60	51	42	43	78	65

Casing Radiated - Horizontal Models

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-hydroscopic and does not support fungal growth. Insulation meets NFPA 90A and 90B for fire protection and is certified to meet the GREENGUARD<sup>®</sup> 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.

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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**



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

**Typical Horizontal Unit Configurations** 



# **Unit Electrical Data**

### with Standard Blower Motor

	Valtaga		Voltage	Co	ompresso	r	В	lower Mo	otor	Min.	
Model	Code	Voltage/Hz/ Phase	Min/Max	Quantity	RLA	LRA	FLA	НР	Total Unit FLA	Circuit Amps	Breaker
11/007	1	208-230/60/1	187/253	1	2.6	17.7	0.96	0.1	3.56	4.2	15
LV007	2	265/60/1	238/292	1	2.6	13.5	0.96	0.1	3.56	4.2	15
11/000	1	208-230/60/1	187/253	1	3.4	22.2	0.96	0.1	4.36	5.2	15
LV009	2	265/60/1	238/292	1	2.9	18.8	0.85	0.1	3.75	4.5	15
	0	115/60/1	103/126	1	9.6	58.4	2.2	0.1	11.8	14.2	20
LV012	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
	1	208-230/60/1	187/253	1	5.6	29.0	0.96	0.1	6.56	8.0	15
LVUIS	2	265/60/1	238/292	1	4.6	20.0	0.85	0.1	5.45	6.6	15
11/010	1	208-230/60/1	187/253	1	6.5	43.0	1.8	0.25	8.3	9.9	15
LVUI8	2	265/60/1	238/292	1	5.8	46.0	1.6	0.25	7.4	8.9	15
	1	208-230/60/1	187/253	1	7.4	43.0	1.8	0.25	9.2	11.1	15
11/004	2	265/60/1	238/292	1	6.7	46.0	1.6	0.25	8.3	10.0	15
LV024	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
	1	208-230/60/1	187/253	1	9.9	54.0	1.8	0.25	11.7	14.2	20
11/000	2	265/60/1	238/292	1	8.5	46.0	1.6	0.25	10.1	12.2	20
LV030	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
	1	208-230/60/1	187/253	1	13	74.0	4.4	0.5	17.4	20.7	30
11/000	2	265/60/1	238/292	1	11.3	67.0	3.3	0.5	14.6	17.4	25
LV036	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
	1	208-230/60/1	187/253	1	13.6	88.0	4.4	0.5	18	21.4	35
LV041	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
	1	208-230/60/1	187/253	1	13.6	88.0	4.4	0.5	18	21.4	35
LV042	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
	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
LV048	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
	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
LV060	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
	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
LV070	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 tranformer 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)

	Valtaga		Voltage	Co	ompresso	r	B	lower Mo	otor	Min.	НАСР
Model	Code	Voltage/Hz/ Phase	Min/Max	Quantity	RLA	LRA	FLA	НР	Total Unit FLA	Circuit Amps	Breaker
11/015	1	208-230/60/1	187/253	1	5.6	29.0	2.8	0.3	8.4	9.8	15
LV015	2	265/60/1	238/292	1	4.6	20.0	2.6	0.3	7.2	8.4	15
11/010	1	208-230/60/1	187/253	1	6.5	43.0	2.8	0.3	9.3	10.9	15
LVUI8	2	265/60/1	238/292	1	5.8	46.0	2.6	0.3	8.4	9.9	15
	1	208-230/60/1	187/253	1	7.4	43.0	2.8	0.3	10.2	12.1	15
11/004	2	265/60/1	238/292	1	6.7	46.0	2.6	0.3	9.3	11.0	15
LV024	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
	1	208-230/60/1	187/253	1	9.9	54.0	2.8	0.3	12.7	15.2	25
11/000	2	265/60/1	238/292	1	8.5	46.0	2.6	0.3	11.1	13.2	20
LV030	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
	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
LV036	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
	1	208-230/60/1	187/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
LV041	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
	1	208-230/60/1	187/253	1	13.6	88.0	6.8	0.8	20.4	23.8	35
LV042	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
	1	208-230/60/1	187/253	1	15.7	84.0	6.8	0.8	22.5	26.4	40
LV048	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
	1	208-230/60/1	187/253	1	26.3	145.0	9.1	1.0	35.4	42.0	60
LV060	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
	1	208-230/60/1	187/253	1	28.3	158.0	9.1	1.0	37.4	44.5	70
LV070	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**

				Availab	le Externa	Static Pre	ssure (in. v	vc. Wet co	il and filter	included)				
Model	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
	Low		370	340	295	250	-	-	-	-	-	-	-	-
LV007	Medium	300	390	360	330	300	260	-	-	-	-	-	-	-
	High		410	380	350	315	280	210	-	-	-	-	-	-
	Low		370	340	295	250	-	-	-	-	-	-	-	-
LV009	Medium		390	360	330	300	260	-	-	-	-	-	-	-
	High	350	410	380	350	315	280	210	-	-	-	-	-	-
	Low		300	290	290	300	-	-	-	-	-	-	-	-
LV012	Medium		380	380	360	330	290	-	-	-	-	-	-	-
	High	400	420	400	380	360	340	320	-	-	-	-	-	-
	Low		320	300	280	-	-	-	-	-	-	-	-	-
LV015	Medium		380	370	360	340	330	-	-	-	-	-	-	-
	High	500	520	500	480	460	430	400	340	-	-	-	-	-
	Low		630	590	560	-	-	-	-	-	-	-	-	-
LV018	Medium	650	810	790	760	730	680	590	-	-	-	-	-	-
	High		1010	970	920	870	800	680	530	-	-	-	-	-
	Low		650	610	570	540	510	-	-	-	-	-	-	-
LV024	Medium		830	820	800	770	720	620	-	-	-	-	-	-
	High	850	1050	1000	950	910	840	710	570	-	-	-	-	-
	Low		740	730	700	660	610	-	-	-	-	-	-	-
LV030	Medium		830	810	770	730	680	620	-	-	-	-	-	-
	High	950	1000	950	900	830	750	690	630	-	-	-	-	-
	Low		1290	1250	1200	1150	1080	1000	-	-	-	-	-	-
LV036	Medium		1410	1350	1290	1220	1150	1060	900	-	-	-	-	-
	High	1200	1500	1440	1370	1290	1210	1120	1000	900	-	-	-	-
	Low		990	990	970	950	920	860	-	-	-	-	-	-
LV041	Medium		1220	1190	1150	1120	1080	1020	940	-	-	-	-	-
	High	1200	1450	1380	1320	1250	1190	1120	1040	960	-	-	-	-
	Low		1210	1210	1190	1160	1120	1080	-	-	-	-	-	-
LV042	Medium		1460	1450	1430	1390	1330	1250	1160	-	-	-	-	-
	High	1400	1750	1710	1670	1620	1560	1460	1330	1210	1080	-	-	-
	Low		1450	1440	1420	1400	1360	1320	-	-	-	-	-	-
LV048	Medium		1700	1670	1630	1580	1530	1470	1400	-	-	-	-	-
	High	1600	1930	1870	1810	1740	1670	1600	1520	1430	1340	-	-	-
	Low		1560	1550	1540	1530	1505	1475	1440	1400	-	-	-	-
LV060	Medium		1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-	-
	High	2000	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590	-
	Low		1570	1560	1550	1540	1530	1505	1475	1440	1400	-	-	-
LV070	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	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Motor &	Fan Motor (HP)	1/10	1/10	1/10	1/10	1/4	1/4	1/4
Blower	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	Fan Motor Type/Speeds	N/A	N/A	N/A	X13/EON	X13 / EON	X13 / EON	X13 / EON
Motor &	Fan Motor (HP)	N/A	N/A	N/A	1/3	1/3	1/3*/1/2	1/3*/1/2
Blower	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	FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Connection	Coaxial Coil Volume (gal)	0.04	0.06	0.08	0.09	0.14	0.14	0.24
Size	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	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
Vortical	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
Cabinet	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
	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
Horizontal	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
Cabinet	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	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Motor &	Fan Motor (HP)	1/2	1/2	1/2	3/4	3/4	3/4+
Blower	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
ECM Fan	Fan Motor Type/Speeds	X13 / EON	X13 / EON	X13 / EON	X13/EON	X13/EON	X13 / EON
Motor &	Fan Motor (HP)	1/2	1/2	3/4	3/4	1	1
Blower	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
Water	FPT	3/4	3/4	3/4	1	1	1
Connection	Coaxial Coil Volume (gal)	0.27	0.27	0.27	0.49	0.62	0.62
Size	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4
	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
Vertical	Std. Filter - 1" Throwaway (L x H)	24x24	20x20	24x24	24x30	24x30	16x30@2
Cabinet	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
	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
Horizontal	Std. Filter - 1" Throwaway (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24@2
Cabinet	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.

# **Horizontal Cabinet Corner Weights**

C	onfiguration Left Hand Evaporator Right Hand Evaporator								Right Hand Evaporator				
Мо	del	Total	Left Front*	Right Front*	Left Back	Right Back	Left Front*	Left Right Front* Front* Left Back					
	Lbs	98	28	21	25	24	21	28	24	25			
	kg	45	13	10	11	11	10	13	11	11			
	Lbs	103	29	23	26	25	23	29	25	26			
	kg	47	13	10	12	11	10	13	11	12			
	Lbs	105	29	24	26	26	24	29	26	26			
	kg	48	13	11	12	12	11	13	12	12			
	Lbs	127	36	28	34	29	28	36	29	34			
	kg	58	16	13	15	13	13	16	13	15			
	Lbs	177	57	36	48	37	36	57	37	48			
	kg	80	26	16	22	17	16	26	17	22			
	Lbs	181	58	37	48	38	37	58	38	48			
	kg	82	26	17	22	17	17	26	17	22			
	Lbs	194	61	41	52	41	41	61	41	52			
LVH USU	kg	88	28	18	23	19	18	28	19	23			
	Lbs	237	71	49	66	52	49	71	52	66			
	kg	108	32	22	30	24	22	32	24	30			
11/11 0.42	Lbs	231	70	47	64	50	47	70	50	64			
LVH 042	kg	105	32	21	29	23	21	32	23	29			
	Lbs	268	87	60	62	60	60	87	60	62			
	kg	122	39	27	28	27	27	39	27	28			
	Lbs	288	88	65	69	66	65	88	66	69			
	kg	131	40	29	31	30	29	40	30	31			
11/11 072	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**

	Α	В	С	D	E	F	G	н	J	к	м	N	Р	Q	ς Ω	<b></b>
Model	Width	Depth	Height	Discharge Depth	Discharge Width	Cabinet Edge to Discharge	Left Side to Discharge	Water Inlet	Water Outlet	Conden- sate Drain	R/A Duct Width	R/A Duct Flange Height	Filter Rack Height		ondenser Water mnections	ecommen- ded placement Nominal ilter 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)

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

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.





Left Hand Return (FLT)



Return Air (Filter) View



Service Clearances

# **Horizontal Unit Dimensions**

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

	A	В	С	D	E	F	G	н	J	K	м	N	Р	Q	R	т	8 0	F_RR
Model	Width	Depth	Height	Cabinet End to Filter Rack	R/A Duct Width	Cab Front to Filter Rack	Water Inlet	Water Outlet	Side to Discharge (End)	Discharge Width	Top to Discharge (FLE & FRS)	Discharge Height	End to Discharge (Straight)	Top to Discharge (FRE & FLS)	Filter Rack Height	R/A Duct Flange Height	ondenser Water nnections	ecommen- ded placement Nominal ilter Size
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"F PT	20 × 24 × 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.



### 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)





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  $50^{\circ}F$  ( $10^{\circ}C$ ) and  $100^{\circ}F$  ( $38^{\circ}C$ ) in cooling and between  $50^{\circ}F$  ( $10^{\circ}C$ ) and  $80^{\circ}F$  ( $27^{\circ}C$ ) in heating. With the optional factory installed extended range package, units shall operate with entering fluid temperatures between  $50^{\circ}F$  ( $10^{\circ}C$ ) and  $110^{\circ}F$  ( $43.3^{\circ}C$ ) in cooling and between  $25^{\circ}F$  ( $-3.9^{\circ}C$ ) and  $80^{\circ}F$  ( $27^{\circ}C$ ) 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<sup>™</sup> 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 fourway 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.

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- 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).

- 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).
- 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.

8. Air coil freeze protection shutdown.

Subject to change without prior notice.